

**DIRECTOR 6.20**

**Configuration Software  
for ARTIST and PERFORMER  
Digital Matrix Intercom Systems**

**User Manual**

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
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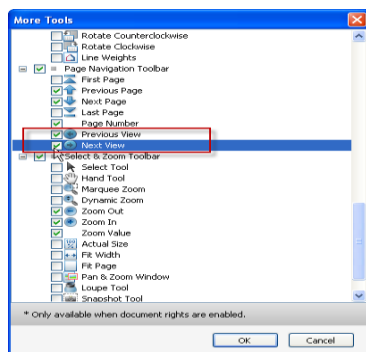
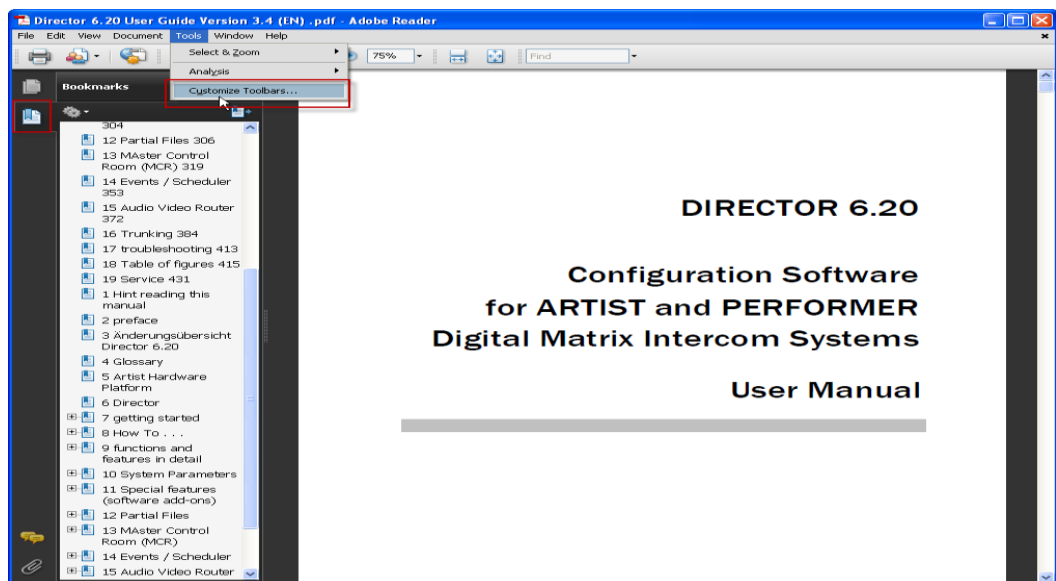
## 1 HINTS READING THIS MANUAL



To read this manual comfortable on a PC, **Adobe Acrobat Reader® Version 9** is required. You can download it from [here](#).

To always show the directory of this document on the left side of the reader, click on .

To use the links inside the document comfortable with a **“Previous view”**, and **“Next view”**, - button, you first have to activate this functionality in the Acrobat Reader®.

Open **„Tools“** in the Acrobat Reader® and then **„Customize Toolbars“**.



Activate the tools „ Previous View“ and „ Next View“

Now you can use these buttons to jump to the last position in the document, before you jumped to a link.



Figure 1: Adobe Acrobat Reader® - Settings



## 2 PREFACE

The purpose of this document is to introduce and explain how to use the Director Software for the Artist system. The document is divided into four main parts including a general description of the Artist system, its capabilities and typical applications, followed by an introduction to the Director Software, its make up, purpose and functions. The first part gets you started and provides all of the necessary information to enable the software to be set up and used. The following sections provide typical examples of how to program and control the Artist system with the appropriate level of detail to quickly and effectively achieve what is required. The last part is a troubleshooting guide to assist with any problems that you might encounter getting started, programming and running the software.

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Source:	Description:
Hardware Manual	Artist product description, installation and user guide
Control Panel Manual	Artist control panel product description, installation and user guide
Connect Codec Manuals	Connect IP, Connect Solo and Connect Duo product description, installation and user guide

### 3 NEW FUNCTIONS IN DIRECTOR 6.20

- [Support of the new 1100 panel series and the ACROBAT WB-2 beltpack](#)
- [Support of the new virtual panel VCP-1012](#)
- [IFB-Table: Possibility to use groups in the IFB-table](#)
- [VoIP card: Support of SIP telephony](#)
- [Trunking: „Listen to“ Trunkport is now possible](#)
- [Trunking: Offline-configuration of trunkcalls is now possible](#)

## 4 GLOSSARY

<b>Bay</b>	Slot for CPU-, Client- and GPI cards in the Artist mainframe
<b>Crosspoint</b>	The virtual intersection in the matrix where sources are mixed and routed to a destination
<b>Destination</b>	Matrix output, for example a control panel or 4-wire output
<b>DNS</b>	DNS (Domain Name System) allows to access a network member by a unique name instead entering the IP address. Therefore a DNS-server in the network is needed. The DNS-Name and the IP address of the device are stored in the DNS-Server.
<b>DSP</b>	Digital Signal Processor, a very fast processor designed for digital audio processing
<b>GPI</b>	General Purpose Interface (Input/Output), an interface for electrical signals (contact closures, relays) that can be used to trigger an event in the system or send a signal to an external device
<b>Ethernet</b>	10BaseT Ethernet Network port, 10Mbit, half-duplex
<b>IFB</b>	Interruptible Foldback. A particular audio signal (ex. program audio) sent to a port is dimmed or muted if the port receives a call from another source
<b>ISDN</b>	Integrated Services Digital Network, a standard digital telephone service
<b>ISO</b>	Isolated call, a private, point-to-point communication between a source and destination where all other calls to that destination are muted or dimmed
<b>Matrix</b>	The digital signal processing platform comprising of one or more frames. See Node and Net
<b>Net</b>	The complete local matrix that is made up of either a single node or multiple nodes connected by fiber
<b>Node</b>	A single mainframe that provides audio connections, general-purpose input/output interfaces and fiber links.
<b>Panel</b>	The device that allows end users to route audio and send other commands to the intercom system. Panels are connected to digital client cards.
<b>PortPool</b>	A group of destinations that have the same physical connection on the system. Used for remote destinations such as ISDN panels and 4-wires.
<b>PC</b>	Personal Computer
<b>PSTN</b>	Public Service Telephone Network, the standard analogue telephone service
<b>Port</b>	Analogue or digital interface on the matrix for the connection of panels or 4-wires

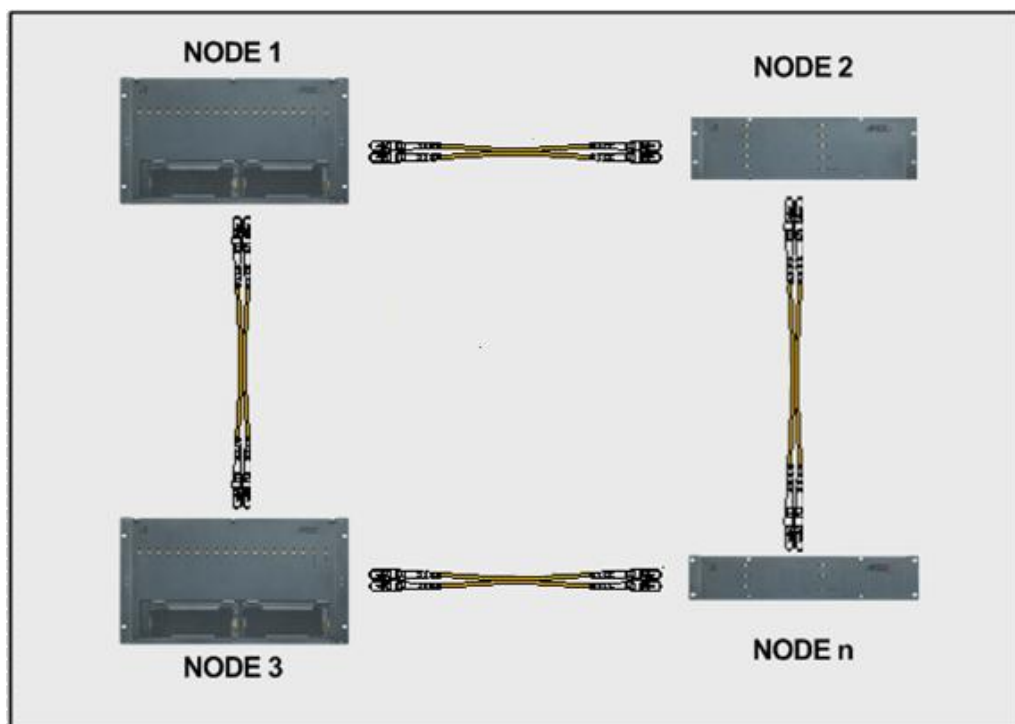
<b>Source</b>	<b>Audio source, for example a panel or a 4-wire input</b>
<b>TCP/IP</b>	<b>Transmission Control Protocol/Internet Protocol, standard network protocol that is the basis for the internet</b>
<b>UHF</b>	<b>Ultra High Frequency – section of the radio spectrum that is used for, among other things, many two-way radios (403 – 470MHz)</b>
<b>VHF</b>	<b>Very High Frequency - section of the radio spectrum that is used for, among other things, many two-way radios (30 – 300MHz)</b>
<b>Vox</b>	<b>Voice Operated Switch. Triggered when an incoming audio signal exceeds a set threshold, causing an event in the matrix without a key press</b>
<b>Web</b>	<b>Artist System Network</b>

## 5 ARTIST HARDWARE PLATFORM

Artist is a powerful digital matrix platform for the transmission and distribution of analogue and digital audio and data signals. As a multimedia platform, Artist systems provide a new concept of intercom and talkback technology, completely changing the general perspective of system design for applications in broadcast, theatres, event centres and security systems. The decentralized system architecture supported by high bandwidth optical fiber interconnectivity, high-speed digital signal processing and industry standard interfaces enable the Artist to offer state of the art communication solutions.

### Decentralized matrix structure

Artist systems provide a distributed real-time, broadcast quality audio matrix comprising of either a single mainframe or multiple frames, serving both small and larger applications. Each frame can act entirely independently or as a node within a network forming a large, distributed matrix that is interconnected by a dual optical fiber ring.



*Figure: Artist's redundant dual ring topology*

### Interfacing and connectivity

Artist systems offer a wide range of different connections and interfaces to quickly and easily adapt to local requirements.

For example:

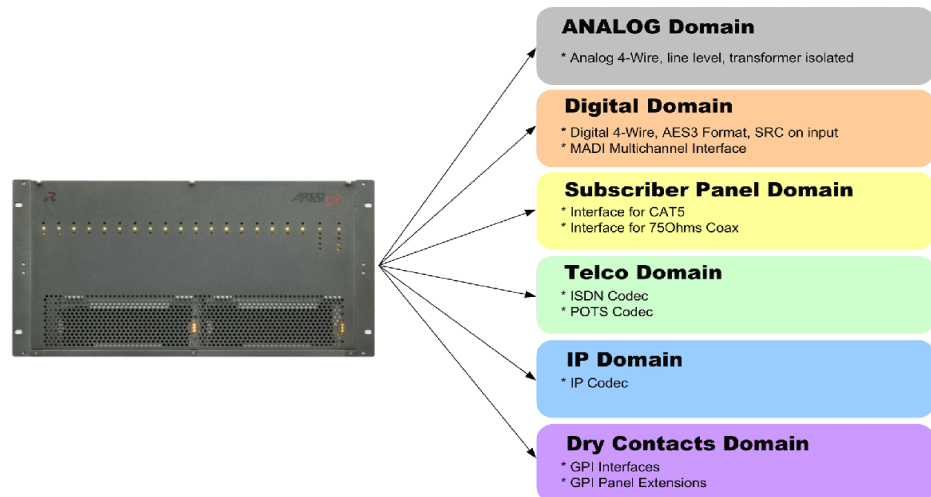


Figure 2: Artist - Interfacing and connectivity

The analogue four-wire and digital audio interfaces enable audio signals to be distributed, mixed and routed through the matrix as required. The broadcast quality audio distribution capability meets the demands of most professional environments. The integration of radio base stations provides access to wireless communications. 2/4-Wire interfacing provides access to traditional analogue two-wire party line intercom systems.

Connection and use of the public telecommunication services, both analogue and digital, are achieved using codec interfaces, allowing intelligent trunking as well as the making of and receiving calls from any PSTN, ISDN or mobile phone.

## Artist system overview

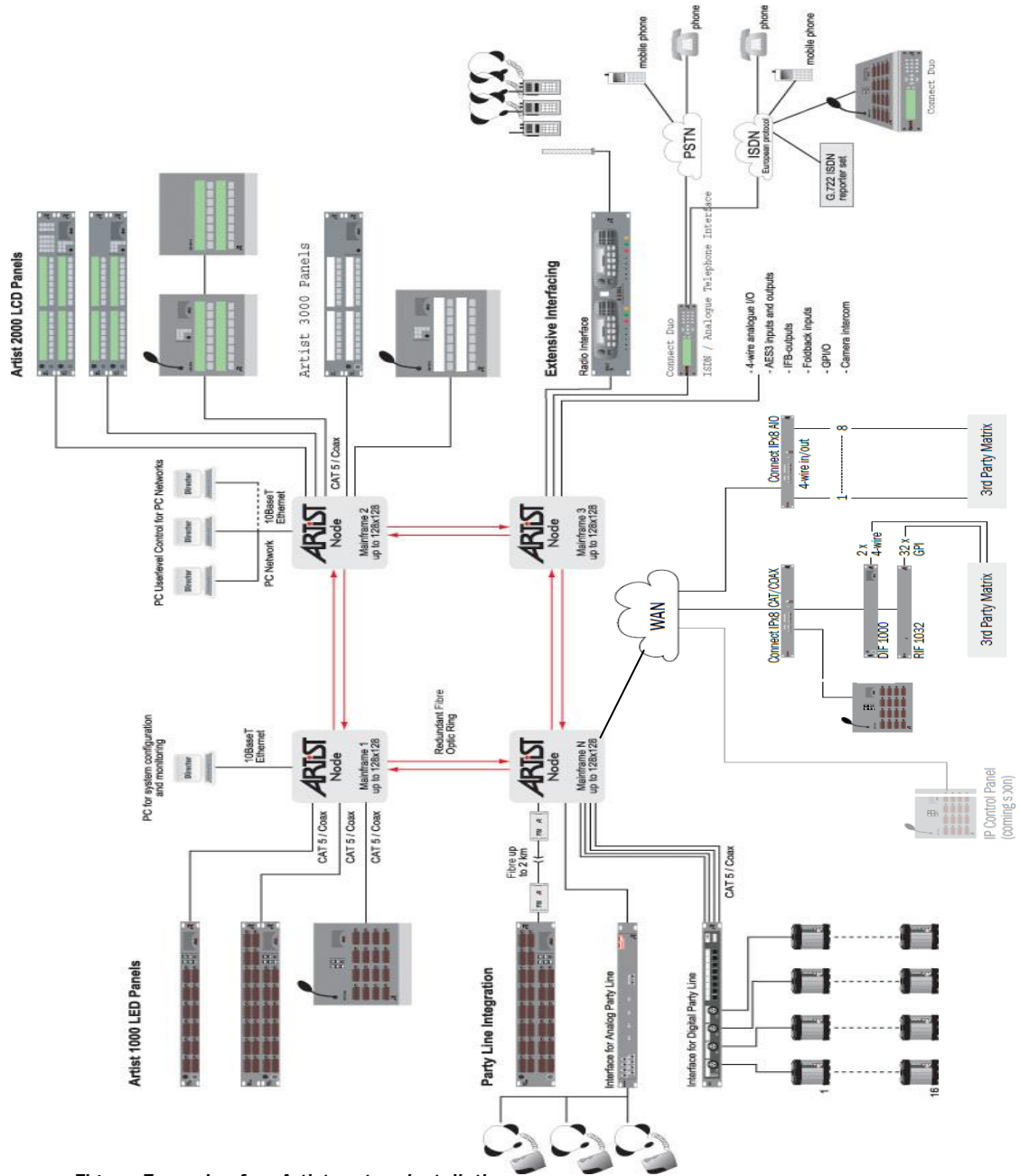


Figure: Example of an Artist system installation

## System Features

Point-to-point calls, group calls, conferences, party lines and call priorities are supported as standard. Freely programmable panel keys with different names, signalizations, and key modes are offered to support today's various intercom, interphone, talkback and address standards.

System set-up, monitoring and remote control are achieved using the Director Windows® based software. Single or multiple PCs have access to the Artist Mainframe using an existing 10BaseT Ethernet Network.



## 6 DIRECTOR

Access, set-up and control of any aspect of an Artist system is handled using the Windows® based Director configuration software. The software has been designed to offer quick access to important features and give a general overview of what's going on in the system through its intuitive graphic user interface. Director provides the basic functions, look and feel associated with most Windows® software products, so that the navigation, location and operation of the standard features are familiar.

### Networking

A single or multiple PCs (up to 4 per node) can be used to control and monitor an entire intercom system. PCs connect to the Artist system via a standard Ethernet port, which enables all PCs to access and show the online configuration simultaneously, as well as make configuration changes, if allowed. Moreover, if a fiber ring is used it is possible to activate a transparent 10BaseT hub function in order to send additional Ethernet packets over the fiber to network the connected PCs. This function can only be used if the PCs are not already members of an existing in-house network.

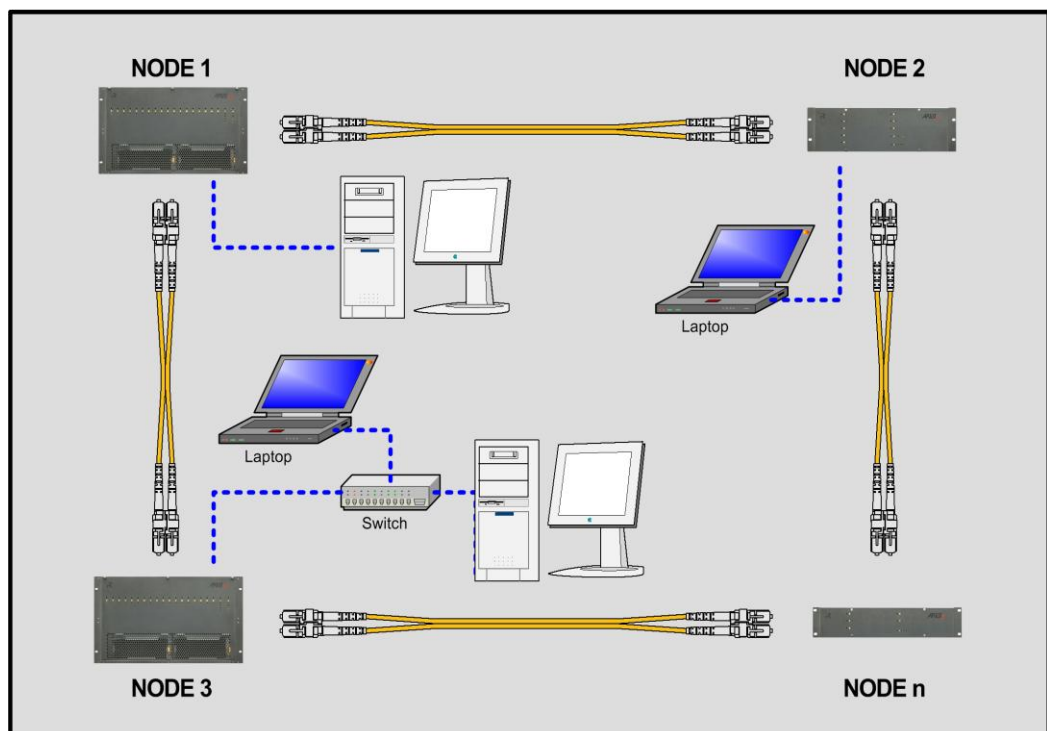


Figure 3: Artist Dual Ring Network with multiple PCs connected

**User Management**

Extensive rights management allows the creation of user groups with various access rights to the system. Different levels of user rights can be established to prevent unauthorized system changes.

**Send Configuration to Artist / Load from Artist**

All information pertaining to the set-up and operation of the system is contained in the form of configuration data files that are shared and held by all nodes and PCs on the network. The configuration files can be completely uploaded or downloaded between the PCs and the matrices for storage, editing or to load new setups. Partial changes to configurations can be uploaded or downloaded automatically to handle regularly recurring changes such as the switching of productions between various studios.

**Remote Control**

The software not only allows the control panels and keys to be programmed with nearly all imaginable functions, it also allows keys to be controlled remotely.

All functions which can be configured in the software, such as GPIs, logic functions, conference calls, etc, can also be controlled remotely via Director. Even all of the volume controls on panels can be changed from a PC using the Remote Control function. This provides a quick and easy way to test configurations or to find and correct user errors without having to leave your desk.

## 7 GETTING STARTED

The DIRECTOR configuration software can be set up very quickly and easily. The next chapter describes how to connect your configuration PC to the system.

### 7.1 What's needed?

The following items are required to establish a connection with an Artist network:

- PC workstation (Windows XP®, Windows Vista® or Windows 7®)
- LAN connection
- Director software
- Artist system
- Director Software Manual

Details regarding each of these items, including how to set them up, will be described below to ensure a successful connection to the system.

### 7.2 PC Requirements

The minimum PC requirements to optimally run Director are the following:

- Minimum 500MHz Pentium Processor
- 500MB of free space on the hard drive
- 512 MB RAM
- A monitor with a resolution of at least 1,024 x 768 capable of displaying 256 colours (Recommended: 1,280 x 1,024 or 1,400 x 1,050 with 16 bit colour)
- Mouse or other pointing device
- XP®, Vista® or Windows 7® operating system
- 10BaseT Ethernet network adapter (LAN connection)
- The 10BaseT Ethernet network adapter card must support TCP/IP protocol and a bandwidth of 10 Mbit half-duplex or auto detection.



## 7.2.1 Network configuration

There are different ways in which PCs can be connected together and connected to other equipment. An Ethernet network, which is the most widely used network method, is required for connecting Artist systems to PCs, hence the need for a Network Adapter card.

### Network cabling and adaptors

The Artist system requires a standard 10BaseT network cable with CAT5 connectors. Depending on whether the PC is connected directly to the Artist or connected over a switch or hub determines whether a 1:1 or crossover twisted pair cable is required (more information and pin-outs are available in the installation guide).

- A network hub/switch allows multiple PCs to access the same network, which may be required for either single or multi-node systems
- If a single PC is to be connected to a single Artist node a network hub is not required. In this case, a PC can be connected directly to the Artist using a crossover cable. However, if the system is equipped with redundant CPUs we recommend using a hub/switch in order to ensure a working connection to the system in the case of a CPU switch-over.

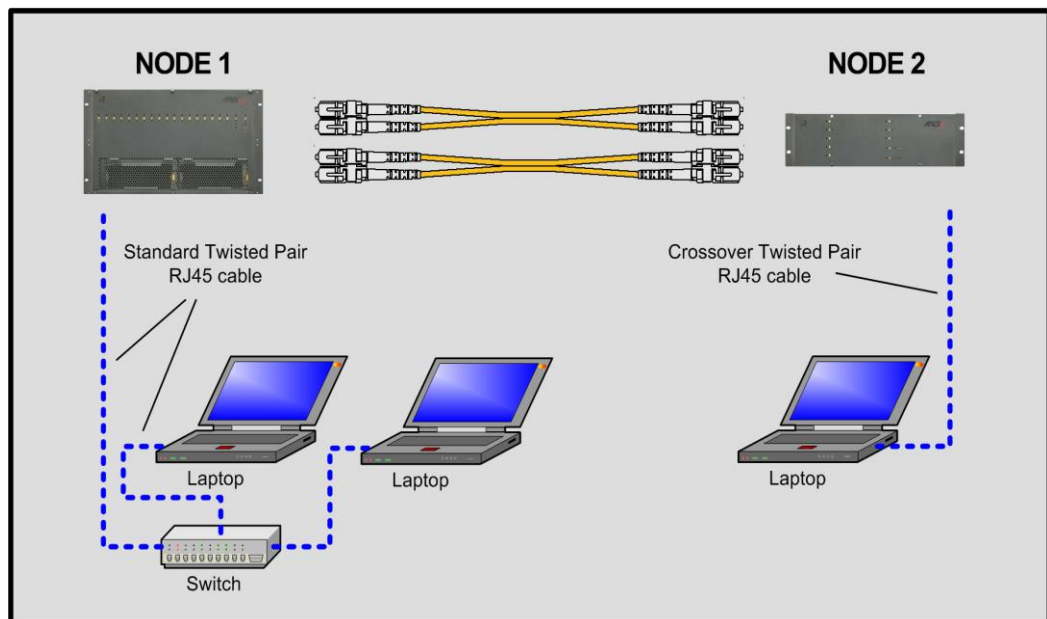


Figure 4: Network - Networking 2 nodes

**Note: If the PC is already part of a network you should consult your Network Administrator before continuing with this installation. The PC requires a fixed IP address.**

## 7.2.2 Network IP addresses

Each Artist mainframe is delivered with a factory set IP Address of **192.168.42.100**, where **192.168.42** is referred to as the “Net ID” and **100** is the “Host ID.” The complete IP address can of course be changed at any time to connect the Artist with a pre-existing network.

**The following is required for a direct connection between an Artist and a PC using a crossover cable or a switch/hub:**

The Net-ID of the PC's IP address should be set the same net ID as that of the Artist mainframe (default: 192.168.42), but with a different host ID (100 and 101 are reserved for use by Artist). For example, the PC could use the IP address 192.168.42.10.

**Attention: If the Artist and the PC are connected via a DHCP server, such as a router, the IP addresses of the system and the Artist can be different. In this case, the corresponding routing must be handled by the router. If this applies, contact your network administrator.**

Further IP settings for Artist can be found in the chapter [8.8.4 Set up / Change the IP address in Artist nodes](#)

One should always chose an even numbered IP address for Artist since the next odd numbered IP address is automatically used by the second CPU in the mainframe. For example:

1. CPU: 192.168.42.100
2. CPU 192.168.42.101 (automatically)

It is recommended to test pre-existing networks with standard port scanners or ping tools in order to find possible repeated IP address and other problems. This should be done before connecting the Artist to the network to avoid possible IP address conflicts and collisions.

## 8 HOW TO . . .

This part of the document provides step-by-step details on how to configure and program all of the functions and settings in the Director Software package. Each section describes a function and the requirements needed to configure it.

### 8.1 DIRECTOR Software - Layout

#### 8.1.1 Basic layout

Director is divided into two main sections: the Navigation Bar and the Workspace. In addition, there is also a toolbar containing the standard Windows functions and special software tools, as well as a status bar showing the details of the system's status.

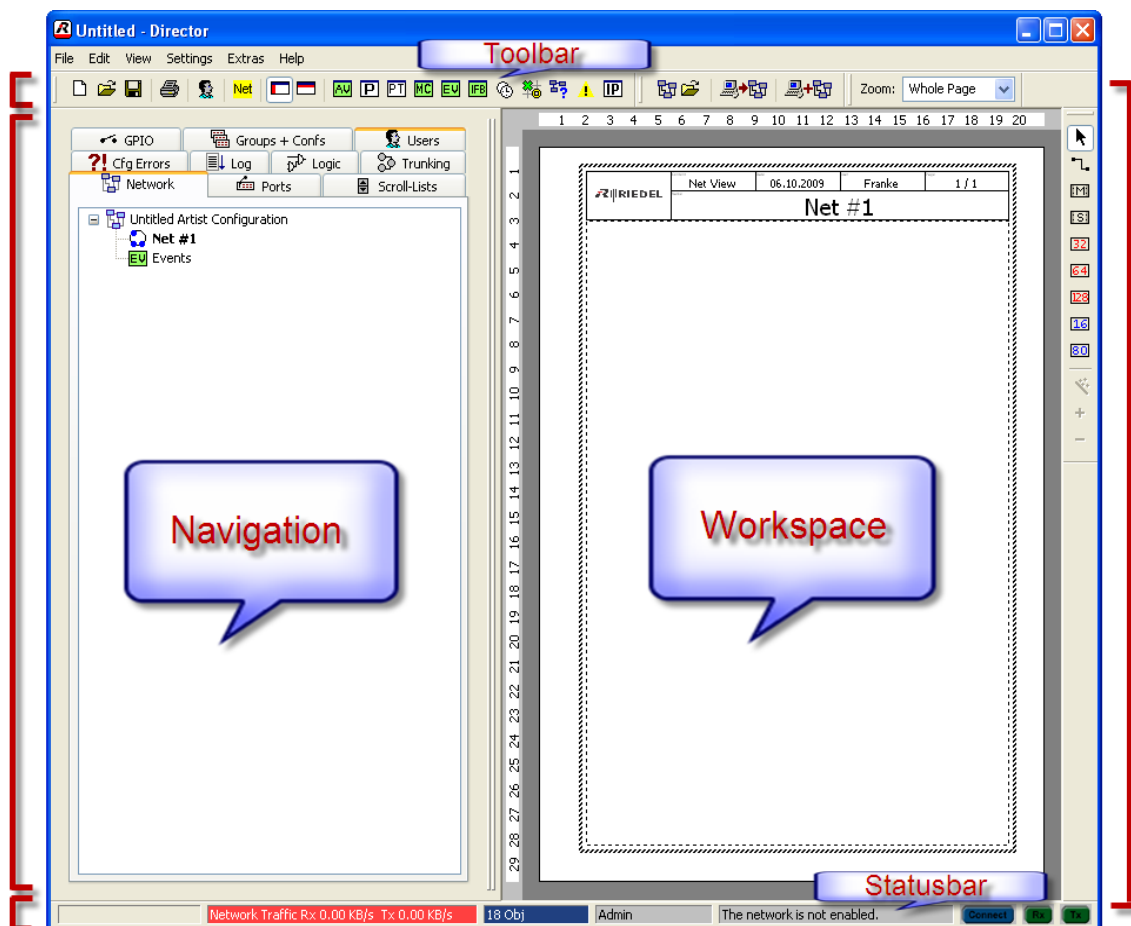



Figure 5: Director - layout

## 8.1.2 Navigation Bar and the Workspace

The Navigation Bar is made up of a series of tabs, each one corresponding to a category of functions that can be programmed in the Workspace. Each tab is labelled with a name and a symbol. Some of the tabs may require a different window arrangement for optimal viewing.

The positioning of the Navigation Bar and the Workspace can be changed with the  button or by pressing <F10> in order to more easily view and edit all required functions. In that case, the Navigation Bar and Workspace are displayed one below the other as in the figure below.

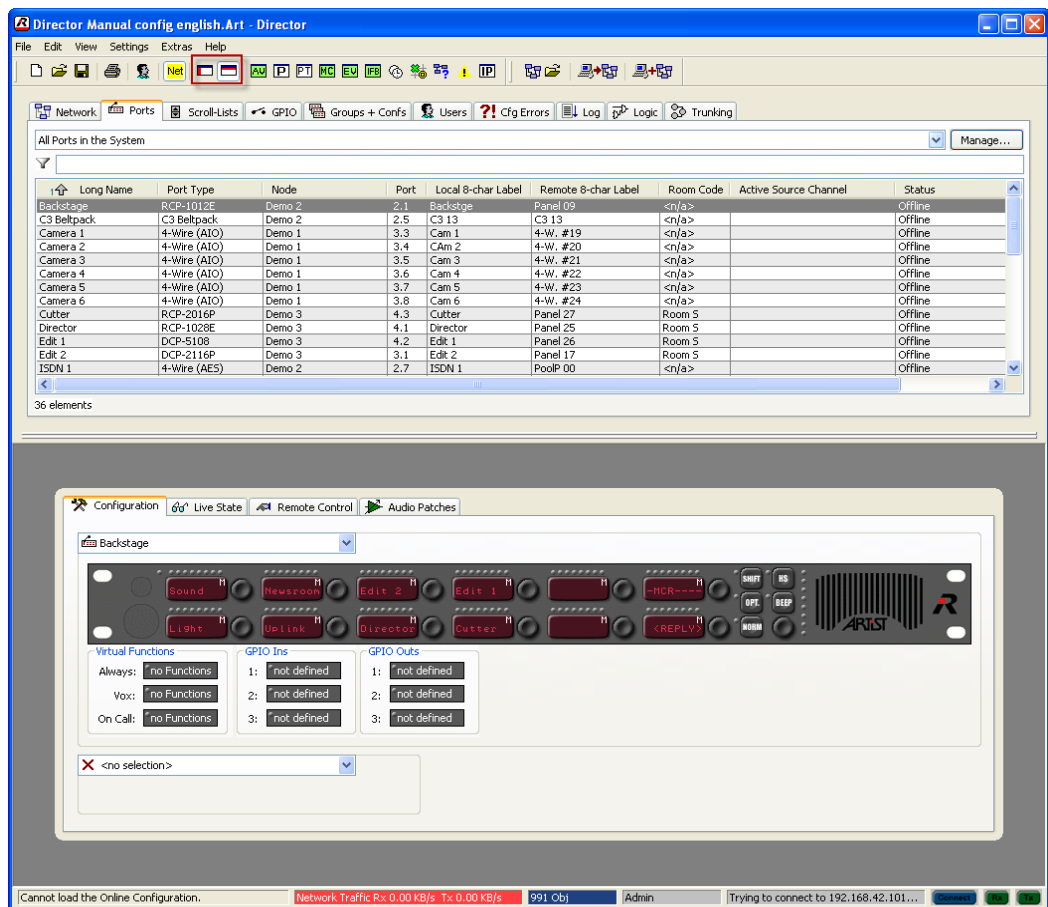



Figure 6: Director - Navigation Bar docked on top

A side-by-side view can be restored by pressing the  button or the <F9> key.

The window size of both areas can also be manually adjusted to show all available information.

## 8.1.3 Changing the view

The appearance of Director can be changed in the “[View](#)” menu. The menu allows the various toolbars to be shown or hidden.

<b>Standard Toolbar</b>	Windows function buttons and toolbars
<b>Status Bar</b>	Director Status Bar
<b>Artist - Online View</b>	Online Monitoring and Status Tool
<b>Config Transfer Toolbar</b>	Director Download/Upload Bar
<b>Navigation Bar</b>	Director Navigation Bar

Figure 7: Table - Director „View” functions

Click on the menu “View” to display or hide the corresponding toolbars. A checkmark ☒ will be shown when the toolbar is active.

It is also possible to move the Workspace and Navigation Bar to other positions. To do so, place the mouse pointer at the end of the bar or window, and reposition the window while holding down the left mouse key. In addition, the Navigation Bar and Workspace can be detached and unlocked with a double click on the outside of the bar or window. It is also possible to move the Workspace or Navigation Bar outside of Director, for example to a second monitor.

A double click on the detached window will return it to its standard position.

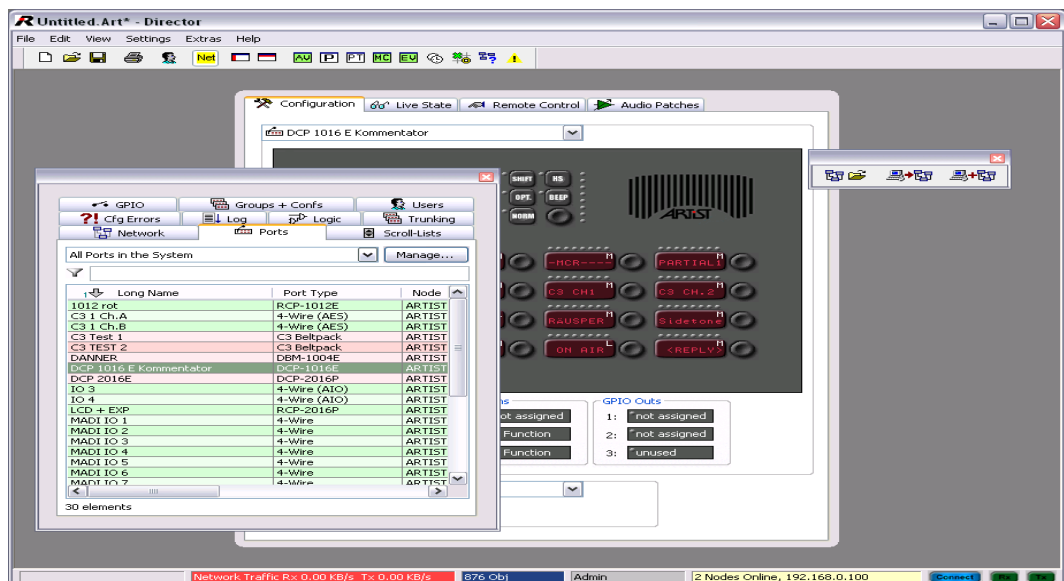



Figure 8: Director - Repositioned Navigation Bar and Update Button



## 8.2 Creating a New Configuration

A new configuration is required when the system is being used for the first time. If a new configuration is being created, an empty workspace opens based on the default settings for all functions and parameters.

### 8.2.1 Create a new configuration

In order to start a new configuration, select “New” from the “**File**”- menu or press the  button in the toolbar.

### 8.2.2 The Web and the Network

The Web and the Network are two hierarchical layers describing the architecture of the complete system. The top layer called Web is used to trunk different systems to each other. The WEB consists of a NET, which is the second layer of the system. A WEB may contain a maximum of one NET.

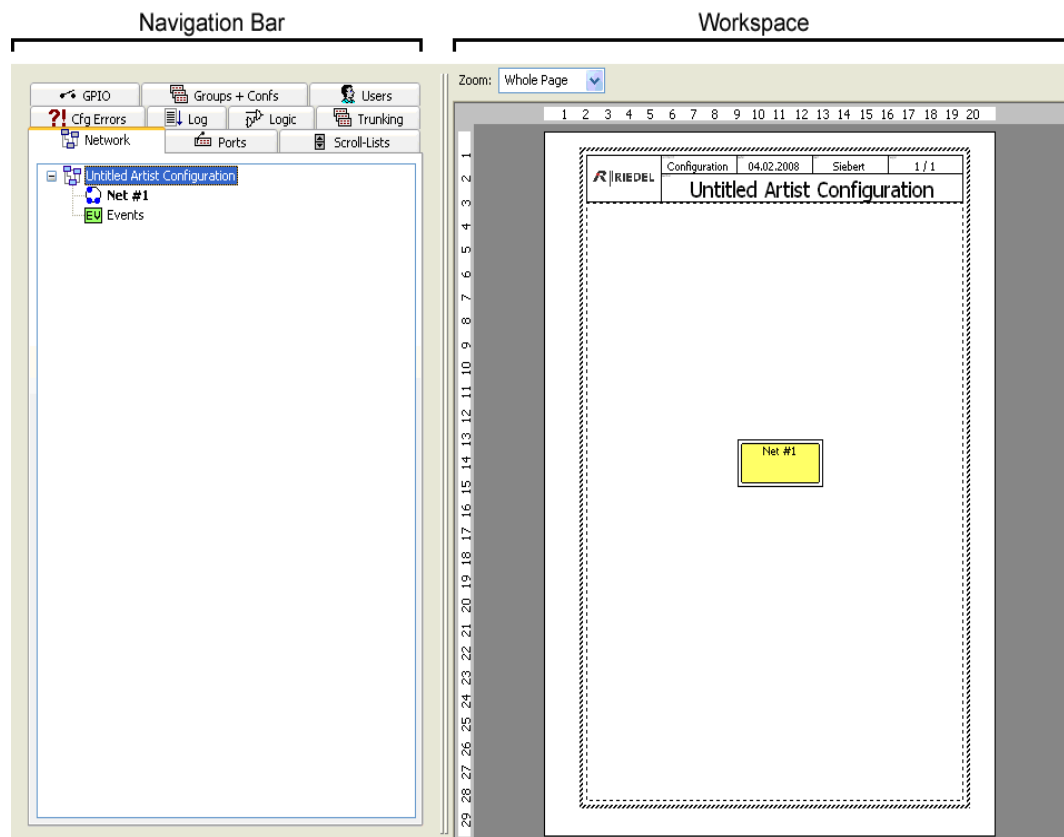


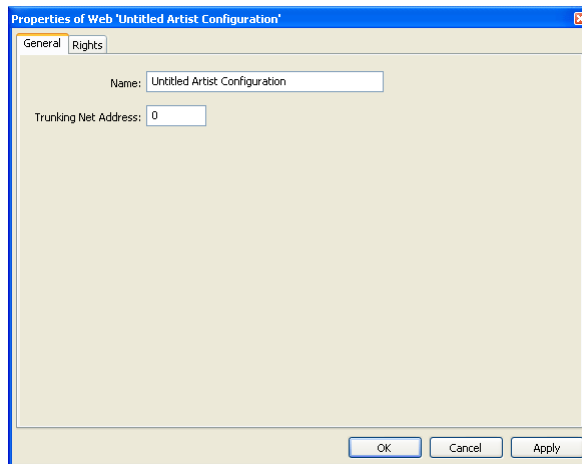
Figure 9: Director - New workspace

### 8.2.3 Labels for the Web and the Network

To provide the Web and Net with suitable names, right mouse click either on the Workspace or on the Web or Net label in the Navigation Bar. This will display the corresponding properties window.

Alternatively, you may click on the Web or Net and press the <F2> key to change the name directly.

The default Web name is “Untitled ARTIST Configuration” and the default Net name is “Net #1”.



Change the name of the Web or Net in the *General* tab. The name can be up to 32 characters long and is only used in Director. The name entered will be displayed in the Navigation Bar and Workspace.

Figure 10: Web properties window

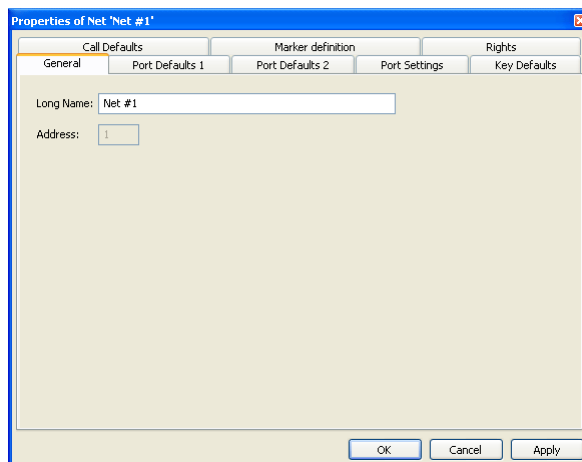


Figure 11: Net properties window


The default settings in the Net properties window can be changed to apply the defaults globally. Details are found in [9.8 Net Properties](#).

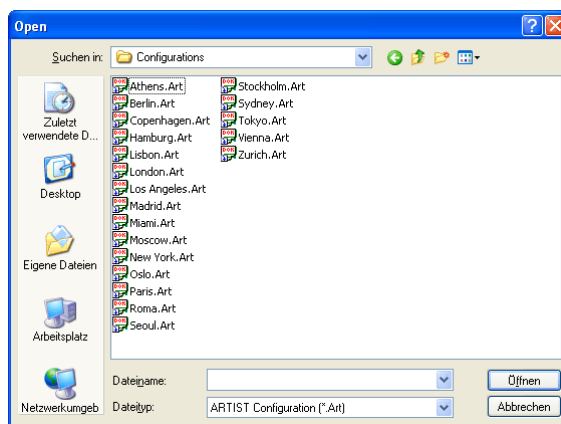
## 8.3 Open a Configuration

Accessing a pre-existing configuration file requires the file to be located and opened.

### 8.3.1 Open a file

When a previously saved configuration is opened, all of its settings and configured functions are available in Director. The opened configuration can now be edited and saved to the Artist system.

A configuration is opened by selecting *Open* from “**File**”- menu or by using the  button in the Toolbar.




- The file selection window will open in order to load a pre-existing configuration file ending in “\*.Art.”
- First, choose the drive and next choose the corresponding folder in which the \*.Art files are stored.
- Choose the desired file with a double-click or press the “Open” button.

Figure 12: Director - Selecting a configuration file

To load the current configuration from an Artist system to a PC, please see chapter [8.10 Upload a Configuration from Artist](#).

### 8.3.2 Login as a predefined user

The Navigation Bar and the Workspace display the details of the opened configuration. The User Login window will be displayed and the user must login before proceeding. Even if no password is required, one must still login by pressing the  button. For details, see: [8.4 Login](#)

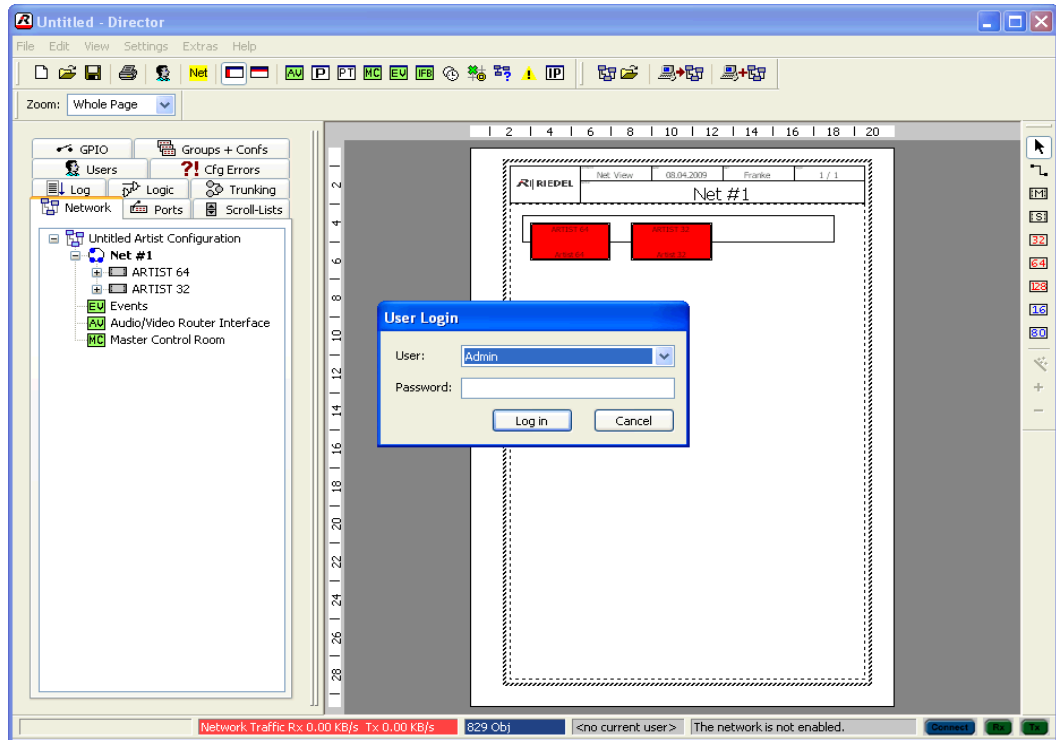


Figure 13: Director - User Login after opening a pre-existing configuration

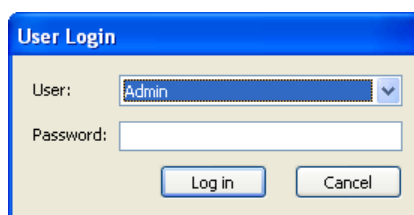
If the configuration is opened and there are no errors reported, the configuration can be sent to the Artist system. Details are found in chapter: [8.9 Send a Configuration to Artist](#)

## 8.4 Login

The User Login is a system security mechanism which ensures that only those users who have the required rights can make changes to the system. The software always opens with the default user “Admin” selected, which has so-called “super user” rights. That means that this user is allowed to create new users and define their user rights.

**Note: The default user is “Admin.” No password is initially set for this user. We therefore strongly recommend that the system administrator sets up a password at the first opportunity.**


Every time that a new configuration is opened, either from a file or directly from Artist, the login window is displayed.



In order to gain access to the configuration and all of its functions, users must login with their predefined name and password.

Figure 14: Director - User login window

The user login window can also be opened to switch to another pre-defined user. To open the user login window either:

- Select the User Login option in the File menu
- Press the User Login Button  in the toolbar
- Read out the configuration from the system

The current user that is logged onto the system is shown in the Status Bar at the bottom of the Director window.



Figure 15: Director - Statusbar

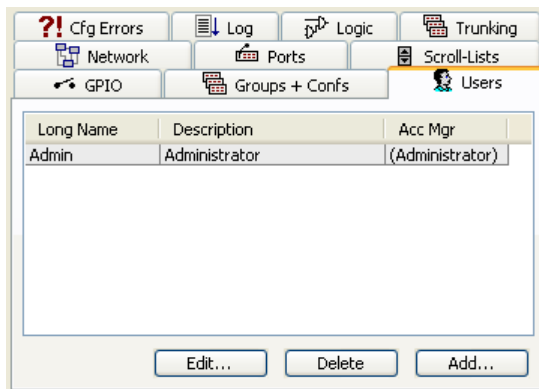
**Note: If the user name is not available or access to the configuration data cannot be obtained, then the user ‘Admin’ must log in and either create a new user or change the access rights of the existing user.**

## 8.5 Add or Change Users

The table in the “Users” tab lists all of the users and their assigned access rights.

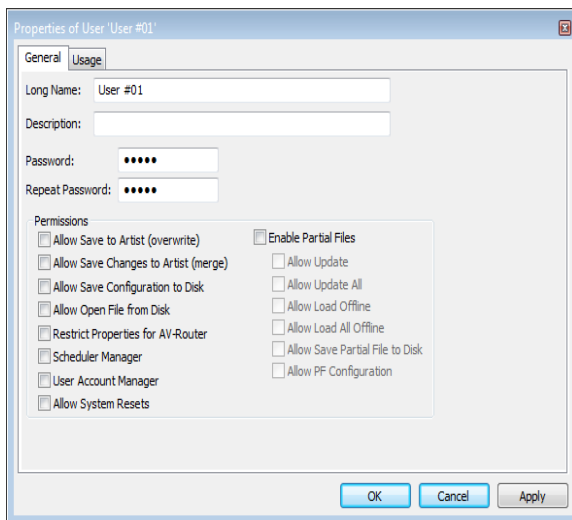
**Note:** The default user is “Admin”, who possesses the so-called super user rights. This means that this user is allowed to change all functions and setting in the configuration as well as create new users.

In the tab “Users” new users can be created or existing uses can be edited.



- The button “Add” creates a new user.
- The button “Edit” edits current users.
- A user can be named in their properties window
- A **distinct password** can be given to each user. This password must be entered the same twice or it will not be accepted.

Figure 16: Director - Navigation Bar Users tab



- In the field “Permissions” users can be given the following basic user rights: (Active rights are signaled by a ✓ checkmark.)

- Allow Save to Artist (overwrite)
- Allow Save Changes to Artist (merge)
- Allow Save Configuration to Disk
- Allow Open File from Disk
- Restrict Properties for AV-Router (if installed)
- Schedule Manager (if installed)
- User Account Manager
- Allow System-Resets
- Enable Partial Files (if installed)

Figure 17: Director - User Properties window

## 8.6 Configure a “NET”

After a new configuration has been created (see [8.2 Creating a New Configuration](#)), the next step is to define the individual components of the Net.

**Note:** The Net is an element of the Web and is comprised of one or more nodes that together form a matrix. The Net must contain at least one Node that provides the audio and control interfaces. In a multiple node system the individual nodes are connected over fiber and form a ring.

### 8.6.1 Adding / deleting and connecting nodes in a network

Double clicking on the **Net#1** label in the Navigation Bar opens the Net Workspace where new nodes can be added. If **Net#1** cannot be seen in the Navigation Bar, click on the plus sign (+) to expand the Web tree.

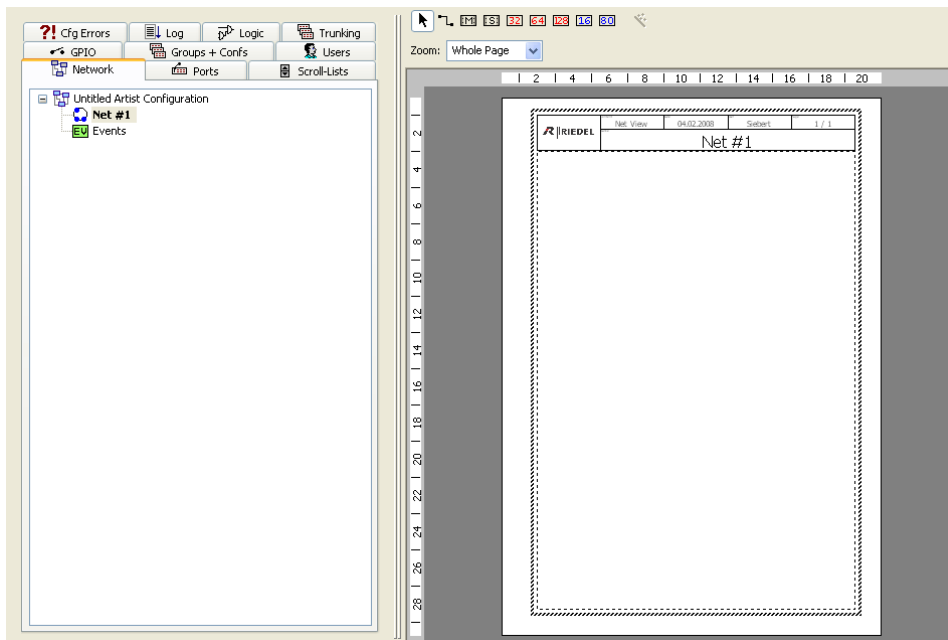



Figure 18: Director - Net Workspace without any nodes

## 8.6.2 Adding a new node

To add a new node click on the button  in the **workspace** that corresponds to the type of node being used. Holding the mouse over the different node types will show what mainframe each node type corresponds to. Using the left mouse key, click on the chosen node type and then point the mouse anywhere on the Workspace. The mouse pointer will change to small cross lines. Click again anywhere that is empty in order to “place” the node in that location. On the Workspace there is now a rectangle that represents the node. At the same time, a tree menu structure will appear under **NET#1** in the Navigation Bar. Clicking on the “+” displays the new node that has been added under **NET#1**. Repeat the steps above until all of the nodes in your system have been added.

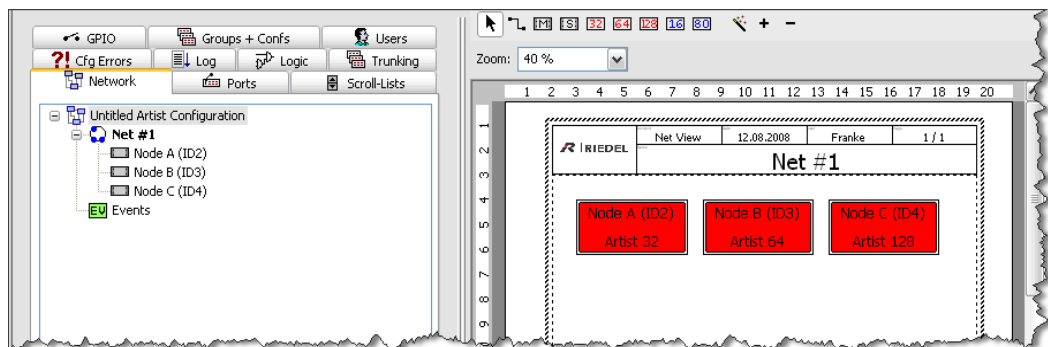



Figure 19: Director - Net containing nodes without links

The nodes in the Workspace can be moved around by clicking the  button and then selecting the node that you wish to move. The “+” and “-” buttons increase or decrease the display size of the nodes.

- Active nodes which are detected by Director during online operation are green.
- Nodes that are red are not detected to be online, or Director is in offline mode and is not connected to any system.



### 8.6.3 Connecting multiple nodes

Multiple nodes must be connected with one another. Each node must have both an input (upstream) and output (downstream) connection.

#### 8.6.3.1 Manual connection

The connections are added to the worksheet by selecting the fiber Link  button.

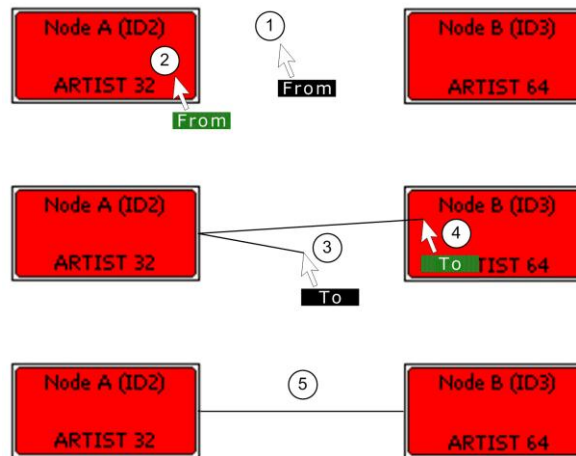



Figure 20: Director - Connecting nodes

- The pointer will initially display a white-on-black 'From' label when positioned over the worksheet (1).
- Move the pointer to the right side of a node (2). The "From" label changes to a green background. If you now click with the mouse a connection line representing a fiber link will attach to the node.
- The label near the mouse pointer changes to a black background (3). Pull the line to the left side of the next node. The "To" label will become green as soon as it is placed above the correct area of the next node (4). Click once to establish the connection between the two nodes.
- The connecting lines (5) can be moved around as necessary by clicking on them.

#### 8.6.3.2 Automatic connection using the magic wand tool

Alternatively, with the magic wand button  you can automatically connect all of the nodes with one another independent of their assigned IDs. If this button is pressed, all of the nodes on the workspace will be connected with each other beginning with the node with the smallest ID and connecting them in order by ID number.

Upstream	Downstream		Upstream	Downstream		Upstream	Downstream	Fiber back to smallest ID
Node with smallest ID		Fiber	Node xx		Fiber	Node with highest ID		

**Note:** This automatically generated connection order might not reflect your actual physical fiber cabling

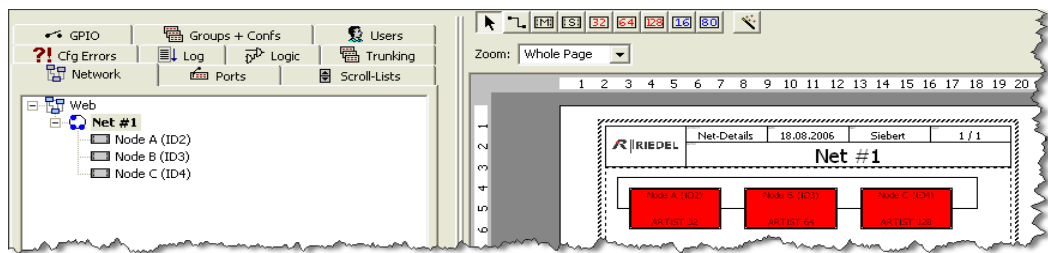


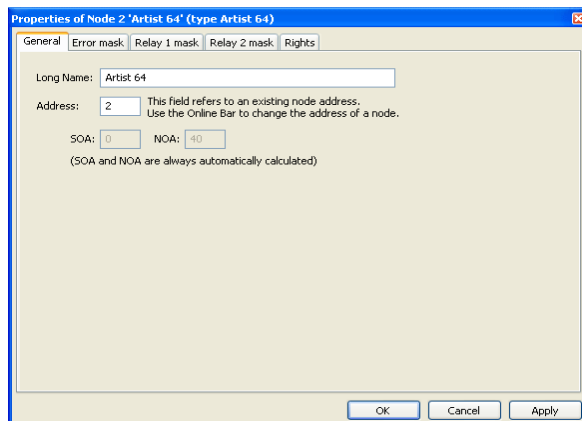
Figure 21: Director - Net with 3 networked nodes

Once the Net has been configured the next stage is to configure each of the Nodes that comprise the Net. See [8.7 Hardware Configuration of a Node](#).

## 8.6.4 Labels for Net and Nodes

It is possible to give the net and nodes meaningful names. Right mouse click in the Navigation Bar on the net or node and choose “[Properties](#)”. The window that opens has a space to change the names.

Alternatively, by selecting a net or node and pressing the <F2> key one can change the long names directly.

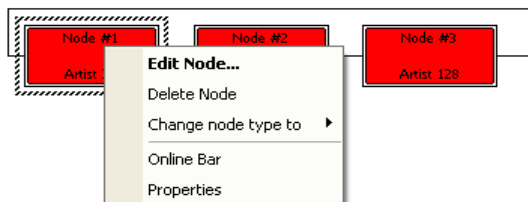


Enter a name for the Net or Node on the General Tab. You can use up to 32 characters. This Long Name will only be displayed in Director. The name appears in the Navigation Bar and Workspace.

Figure 22: Director - Node Properties window

## 8.6.5 Deleting nodes

Before deleting a node it is recommended that you save the current configuration to the hard disk. For details see: [8.11 Saving a Configuration](#)



The Node is selected using the pointer button. A right mouse click then displays the Delete Node and Properties options. Clicking “Delete Node” deletes the node.

Figure 23: Director - Edit Node pop-up

**Attention:** If a node is deleted, all fiber connections to the node and everything configured in the node is completely erased.

## 8.6.6 Setting up multi-node systems

Before connecting multiple nodes in a fiber ring, the configuration and the settings of each node must be checked and adjusted, if necessary. Wait until all of the nodes have been configured correctly before physically connecting them with fiber. Connect the PC (Director) to each node individually, for example by entering their individual IP addresses in Director, assuming the nodes are connected on a PC network. If there is no IP network, connect the PC to each node directly with a crossover Ethernet cable in order to change their settings one after another.

### 8.6.6.1 Setting the Net and Node addresses

Each node in a fiber ring must be assigned a unique node address.

Node ID Address Range	2, ....., 99
-----------------------	--------------

**Note:** Node IDs “0” and “1” are reserved and cannot be used for normal operation.

#### Artist S

Artist S Mainframes have front panel accessible switches and LED displays to adjust and view the current Node and Net IDs. Remove the left most of the four foam covers on the front panel. Hidden underneath are three HEX and two push-button switches to make the necessary Net and Node ID adjustments. Set the desired node address with SW1 (right) and SW2 (middle). For example, if you set SW2=3 and SW1=1 you get node address 31, which will be shown in the display. The SW3 switch must always stay on address 1. The newly set address blinks in the display. This means that the new address has not yet been accepted by the system. Give the key on the right a short press to confirm the selection.

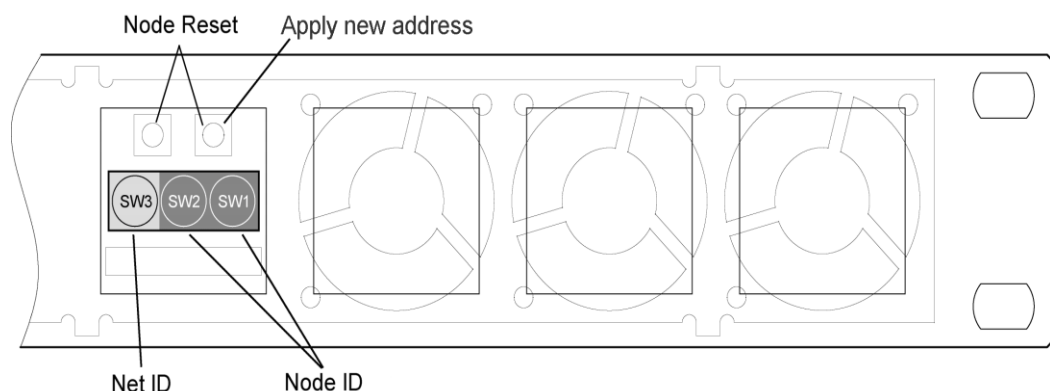


Figure 24: Artist S - Net and Node ID

After an address change, a node must be reset. A node reset can be accomplished by pressing both keys at the same time. Hold both keys pressed for approximately 10 seconds until the countdown in the display reaches 0.

**Attention:** In order to receive a new node address the node must also be restarted by a power reset. Otherwise the node will not be visible in Director.

### Artist 32, 64, 128, M

Select the Network On  button from the Director Menu Bar to enable access to the fiber network (See: [8.8.2 Enabling and disabling network access](#))

Node addresses can be changed in the [Online View](#). Click on the  button or open the “Online View” window via “View->Artist Online View.”

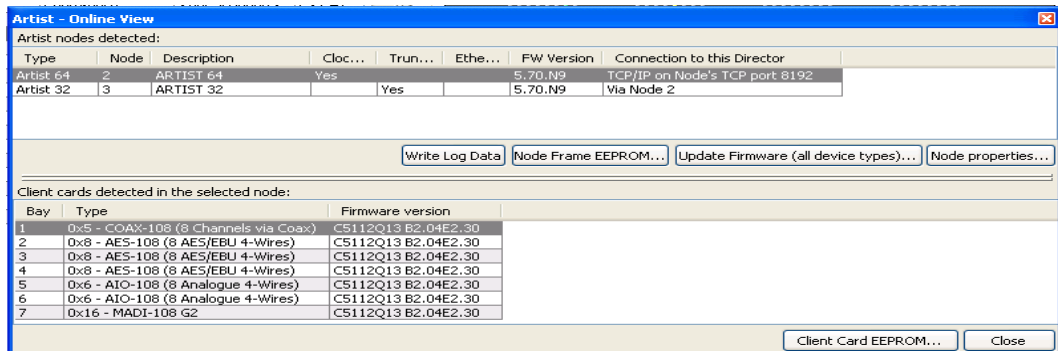


Figure 25: Director - Online View

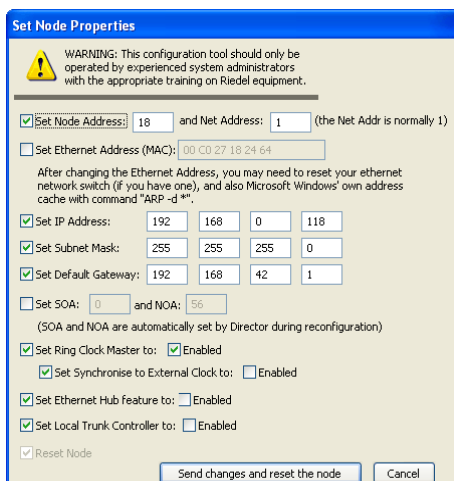



Figure 26: Director - Online View - Set Node Properties window

- Open the Online View window
- Select with a mouse click the node that you wish to change under “ARTIST Nodes detected”. Then press the  button.
- Click on the checkbox “Set Node Address”.
- Change the node address. The Net ID should remain unchanged and set on 1.
- Pressing the button “Send changes and reset the node” will implement the changes. The node automatically undergoes a reset.

### 8.6.6.2 Defining a node as Ring Clock Master

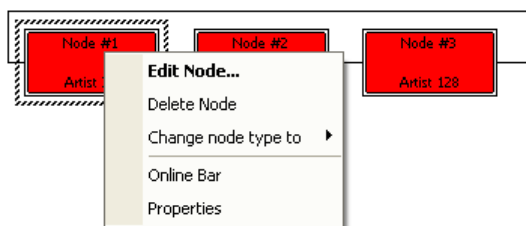
It is necessary to set **A SINGLE** node of an Artist system to be the so-called “Ring Clock Master.” The *Ring Clock Master* provides the system clock that synchronizes all nodes connected over a fiber network. To set a node as *Ring Clock Master*, click the checkbox “Set Ring Clock Master to” in the “Online View” -> “Node Properties” and click the checkbox “Enabled.”

If a sync-module is installed in your node, you can choose “Set Synchronize to External Clock” to synchronize the node, as well as the complete fiber ring, to the system clock of an external device, such as a digital mixing console.

If you only have a single node, it should still be defined as the Ring Clock Master. After this change is made the node will reset itself.

### Checking the node IDs in the configuration

Add new nodes and fiber connections to your network (See: [8.6.1 Adding / deleting and connecting nodes in a network](#)). The configuration should mirror your actual hardware installation. Set the Node ID properties in the Director configuration according to the hardware Node ID pre-set during Step 1.




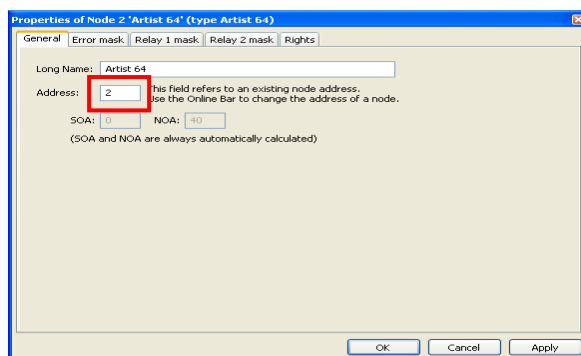
Choose a node using the pointer button . Use a right mouse click to display the Edit Node pop-up window. Choose “Properties” to display the window with the node properties.

Figure 27: Director - Edit Node Pop-Up



Adjust the node addresses to reflect your hardware configuration.

Figure 28: Director - Node Properties window

Should it become necessary to change the node type without deleting its configuration (for example when a node is replaced by a larger frame due to expansion), this is also possible using this pop-up window.

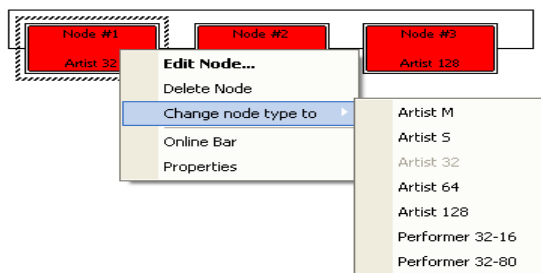



Figure 29: Director - Change node type to ...

## Connecting the fiber cabling


- Connect all fiber cables between the frames, according to your configuration

**Note:** Do not accidentally switch the Rx & Tx on the fiber. Details are found in the Installation Guide.

## Step 4: Check the fiber network

Press the Network  button from the Director Menu Bar to enable access to the fiber network.

### Online View

If you have successfully connected to the system and the fiber cabling is correct, all current nodes which are accessible should appear as entries in the “Online View” window, which is opened using the  button.

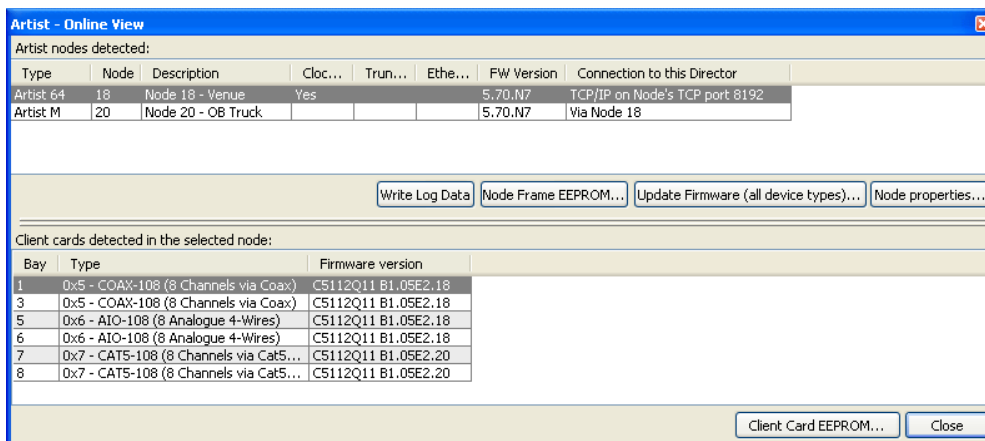



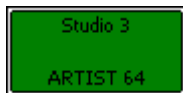
Figure 30: Director - Online View window

## Net Workspace

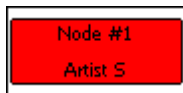
When you connect to the system by clicking the  button, and all addresses are set correctly, all of the available connected nodes should be green.



If an Artist frame only has a single CPU installed but two CPUs in the configuration, or if the second CPU is not functioning properly, half of the node will appear green and half red. The left side shows the CPU in Slot A while the right side shows the status of the CPU in Slot B.



When redundant CPUs are installed and working correctly the node will appear completely green. This also happens if there is only one CPU defined in the Director configuration.



Artist S offline Node; the Artist S does not support a redundant CPU so it will always be either fully green or fully red.

The following example with an Artist 32, an Artist 64 and an Artist 128 shows that the Artist 32 only has its redundant CPU active, the Artist 64 is functioning normally, and the Artist 128 is either not turned on or has a node address that does not match the configuration.

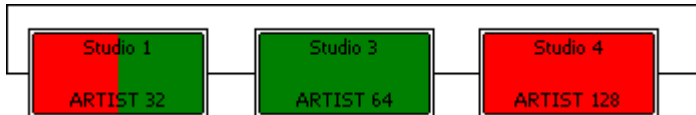


Figure 31: Director - 3 Node System: 1x CPU online, 2x CPUs online, Offline

## 8.6.7 Merging separate configurations into a single configuration (Merge)

A truly unique feature of Director and Artist systems is the possibility to import configurations. This means that two or more configurations from different systems can be combined into a single large configuration, for example to directly connect Artist systems from two outside broadcast vehicles for a large production. In this case, both trucks would be networked over fiber and would have the ability to combine their systems into a single large matrix without having to pull large numbers of audio cables between them.

If several Artist systems are to be combined, the same steps are involved as in the creation of a new configuration with several nodes. This means that the node addresses of all of the nodes must be unique. In addition, only one frame is allowed to serve as Ring Clock Master. The node addresses and Ring Clock Master settings must be adjusted before physically connecting the nodes via fiber. (See Step 1: [8.6.6.1 Setting the net and node addresses](#) in the previous chapter).

Should two identical configurations need to be combined (for example, two identical broadcasting trucks), it is imperative that one of the configurations receives a new "Configuration ID." Be aware that existing Partial Files will no longer work with the configuration after this change. To change the Configuration ID, click on "Extras" -> "Assign new Configuration ID." The configuration then receives a new unique internal ID. Save the configuration under a new name. Afterwards, the two configuration files can be combined without any problems.

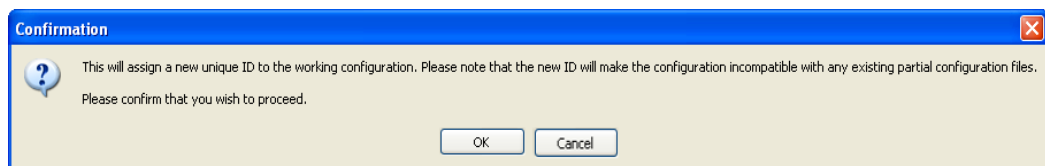
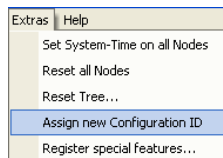


Figure 32: Director - Assign new Configuration ID



**Step 2: Prepare the new nodes for merging**

Be sure to save the original configuration files of the individual systems. As soon as all of the nodes have been assigned a unique ID, a new merged configuration can be created. Open the original configuration from the hard drive. The configuration of the second system, which should also be available on the hard drive or a USB stick, can then be imported using *File -> Import*.

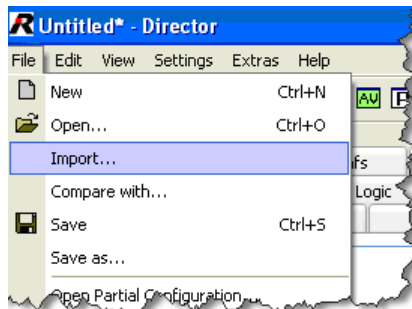


Figure 33: Director - File / Import

Likewise, it is possible to import the configuration of the other system directly from Artist. To do so, connect Director with the IP address that corresponds to the second system (if you have a direct connection between the PC and Artist you must move the cable to the second system). Once there is a working connection, you can use the function "*File -> Import from Artist*" to directly import the second configuration into the original configuration.

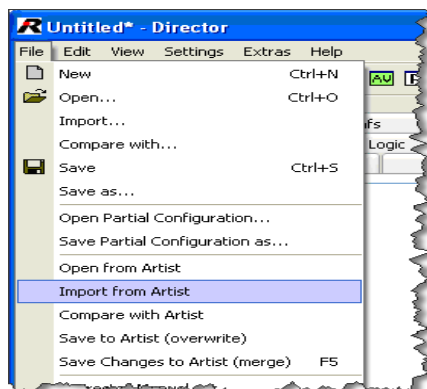


Figure 34: Director - File / Import from Artist

Regardless of the method you choose, after a successful import a window will appear in which you can give a prefix to the names in the imported configuration. This name prefix will be added to the beginning of the name of every imported object in the system. This will differentiate the imported objects from those contained in the original file and prevent port names from being repeated. This prefix should be as short as possible.

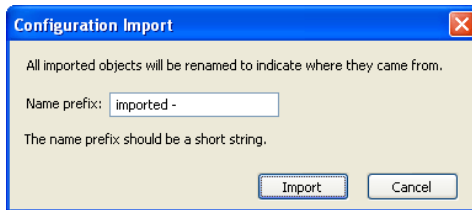




Figure 35: Director - Configuration Import window

You can now change the node and port names in the new merged configuration as you like, and also add new functions, conferences, calls, etc. between the two systems.

### Step 3: Connect the fiber cabling

Connect all your fiber-cables according to your configuration.

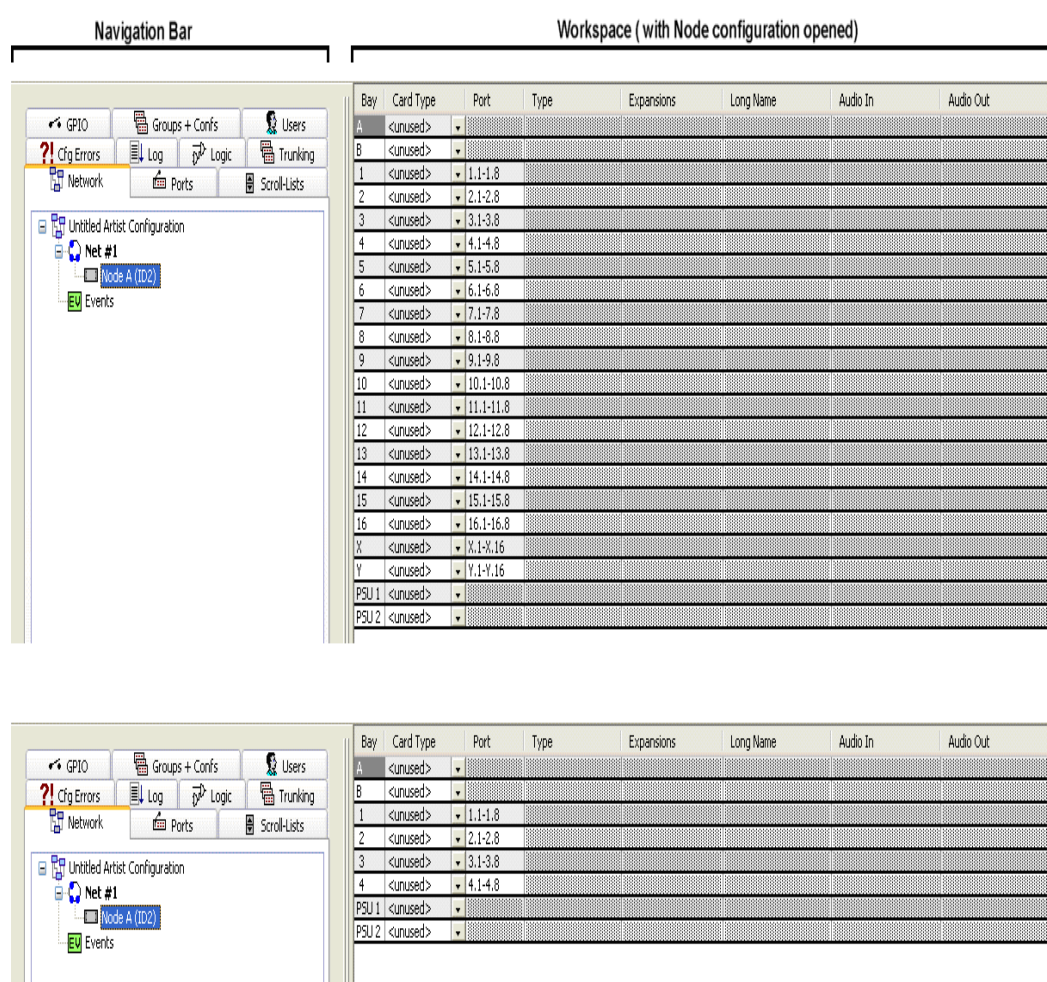
If the cabling and the node addresses are correct, you should be able to see the new nodes in the Online View . Send the complete configuration with the  button to the newly connected system. Finally, reset all nodes via “Extras ->Reset all Nodes.”

A merged system created in this way can be used and programmed as you like without any restrictions or bottlenecks between the two individual systems.

## 8.7 Hardware Configuration of a Node


A node is comprised of a set of audio and control interfaces, as well as fiber connectors to link to other frames. Each node consists of a mainframe where cards with various interface capabilities are placed. These client cards provide ports for panels, 4-wires etc. The CPU manages the system and provides the connection to both the computer network and the fiber ring. GPI cards offer the ability to send and receive contact closures. For more details on the individual cards please refer to the Artist Hardware Manual.

Each node is populated with cards according to your requirements. The cards in the mainframe determine the number and type of available ports in the node. It must be decided in advance how many panels and 4-wire ports are needed in the system. In order to program a hardware layout in Director, double click on a node in the Network tab of the Navigation Bar. Click on the plus signs (+) to expand the Web tree if no Nodes are shown. After double clicking on a node the corresponding hardware configuration table is shown in the Workspace.



Bay	Card Type	Port	Type	Expansions	Long Name	Audio In	Audio Out
A	<unused>						
B	<unused>						
1	<unused>	1.1-1.8					
2	<unused>	2.1-2.8					
3	<unused>	3.1-3.8					
4	<unused>	4.1-4.8					
5	<unused>	5.1-5.8					
6	<unused>	6.1-6.8					
7	<unused>	7.1-7.8					
8	<unused>	8.1-8.8					
9	<unused>	9.1-9.8					
10	<unused>	10.1-10.8					
11	<unused>	11.1-11.8					
12	<unused>	12.1-12.8					
13	<unused>	13.1-13.8					
14	<unused>	14.1-14.8					
15	<unused>	15.1-15.8					
16	<unused>	16.1-16.8					
X	<unused>	X.1-X.16					
Y	<unused>	Y.1-Y.16					
PSU 1	<unused>						
PSU 2	<unused>						

Figure 36: Unassigned Node Configuration Tables for Artist 128 and Performer 32-16 mainframes

To add a new card to the configuration, either right mouse click on a bay or click with the left mouse key on the  symbol.

## 8.7.1 Adding a new matrix card

### 8.7.1.1 Slot arrangement Artist 128, Artist 64, Artist 32, Artist M, Artist S

The configuration table corresponds to the bay locations in the various mainframe types:

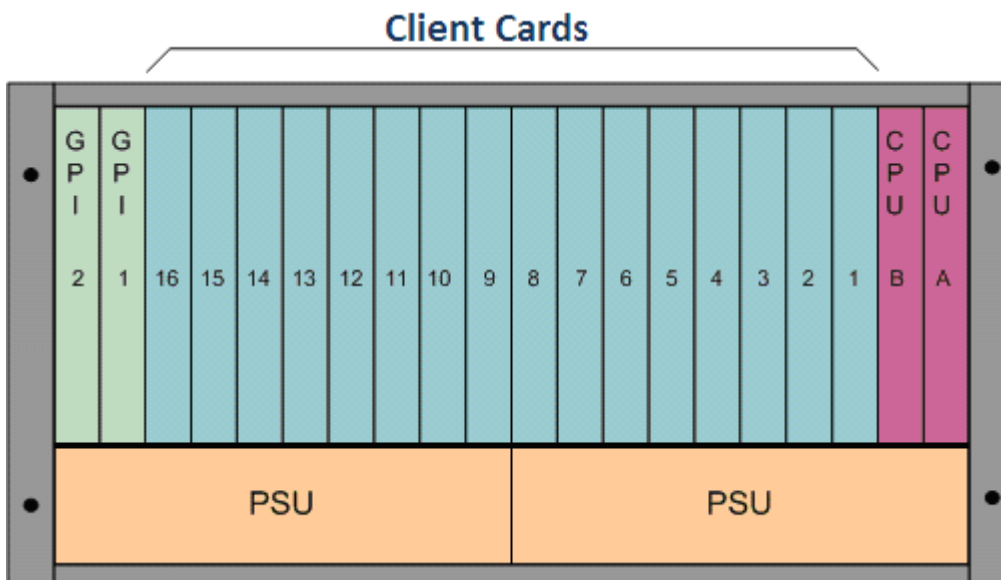


Figure 37: Artist M / 128 bay numbering, front view

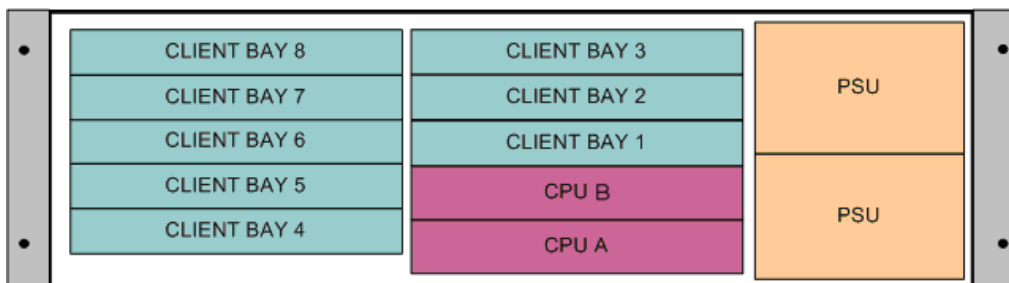


Figure 38: Artist 64 bay numbering, front view

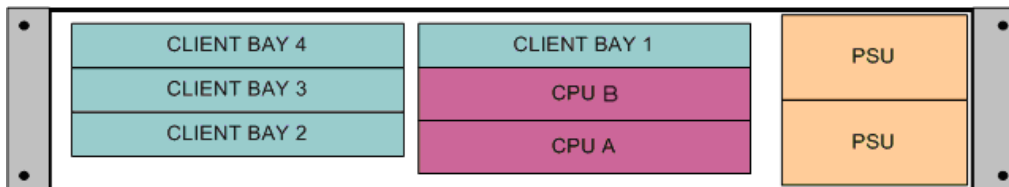


Figure 39: Artist 32 bay numbering, front view



Figure 40: Artist S bay numbering, front view

### 8.7.1.2 Artist 32, 64, 128 G2 - available Client cards

<div><input checked="" type="checkbox"/> &lt;unused&gt;</div> <div>CPU-128S G2 (G2 Node Controller without Fiber Connectors)</div> <div>CPU-128F G2 (G2 Node Controller with Fiber Connectors)</div> <div>CPU-128S (Node Controller without Fiber Connectors)</div>	<b>Bay A</b> <b>(Artist 32, 64, 128)</b>		
<div><input checked="" type="checkbox"/> &lt;unused&gt;</div> <div>CPU-128S G2 (G2 Node Controller without Fiber Connectors)</div> <div>CPU-128F G2 (G2 Node Controller with Fiber Connectors)</div> <div>CPU-128S (Node Controller without Fiber Connectors)</div> <div>GPI-116 G2 (16 Relay-Outputs and 16 Opto-Inputs)</div>	<b>Bay B</b> <b>(Artist 32, 64, 128)</b>		
<div><input checked="" type="checkbox"/> &lt;unused&gt;</div> <div>COAX-108 G2 (8 Channels via Coax)</div> <div>CAT5-108 G2 (8 Channels via Cat5) or AES-108 G2 (8 AES/EBU 4-Wires)</div> <div>AIO-108 G2 (8 Analogue 4-Wires)</div> <div>MADI-108 G2 (8 Channels via MADI)</div> <div>VoIP-108-G2 (8 Channels via Voice over IP)</div> <div>GPI-116 G2 (16 Relay-Outputs and 16 Opto-Inputs)</div>	<b>Bays 1 to 4/8/16</b> <b>(Artist 32, 64, 128)</b>		
<div><input checked="" type="checkbox"/> &lt;unused&gt;</div> <div>GPI-116 G2 (16 Relay-Outputs and 16 Opto-Inputs)</div>	<b>Bays X and Y</b> <b>(only Artist 128)</b>		
<div><input checked="" type="checkbox"/> &lt;unused&gt;</div> <div>PSU-32 G2</div>	<div><input checked="" type="checkbox"/> &lt;unused&gt;</div> <div>PSU-64 G2</div>	<div><input checked="" type="checkbox"/> &lt;unused&gt;</div> <div>PSU-128 G2</div>	<b>PSU 1 and PSU 2</b> <b>(Artist 32, 64, 128)</b>

Figure 41: Node configuration - available card types Artist 32, 64, 128

## 8.7.1.3 Artist M - available Client cards

<input checked="" type="checkbox"/> <unused> CPU-128F (Node Controller with Fiber Connectors) CPU-128HP (Node Controller with High Power Fiber Connectors) CPU-128S (Node Controller without Fiber Connectors) CPU-128SD1 (Node Controller with Fiber Connectors)	<b>Bay A and B (only Artist M)</b>
<input checked="" type="checkbox"/> <unused> COAX-108 (8 Panels via Coax) CAT5-108 (8 Panels via Cat5) or AES-108 (8 AES/EBU 4-Wires) AIO-108 (8 Analogue 4-Wires) GPI-116 (16 Relay-Outputs and 16 Opto-Inputs)	<b>Bays 1 to 16 (only Artist M)</b>
<input checked="" type="checkbox"/> <unused> GPI-116 (16 Relay-Outputs and 16 Opto-Inputs)	<b>Bays X and Y (only Artist M)</b>
<input checked="" type="checkbox"/> <unused> PSU-128	<b>PSU 1 and PSU 2 (only Artist M)</b>

Figure 42: Node configuration - available card types Artist M

**Attention:** In Artist M configurations, the PSUs should be set to “unused,” because Artist M does not support any PSU monitoring. If this is not done, you will receive constant error messages.

## 8.7.1.4 Artist S - available Client cards

<input checked="" type="checkbox"/> <unused> NIC-200 (Node Controller with exchangeable Fiber Connectors)	<b>Bay A (only Artist S)</b>
<input checked="" type="checkbox"/> <unused> COX-208 (8 Panels via Coax) CAT5-208 (8 Panels via Cat5) or AES-208 (8 AES/EBU 4-Wires) AIO-208 (8 Analogue 4-Wires) ADT-208 (ADAT interface, 8 digital audio I/O)	<b>Bays 1 to 4 (only Artist S)</b>
<input checked="" type="checkbox"/> <unused> GPI-216 (16 Relay-Outputs and 16 Opto-Inputs)	<b>Bay X (only Artist S)</b>

Figure 43: Node configuration - available card types Artist S

### 8.7.1.5 Performer 32-16, 32-80 - available Client cards

<input checked="" type="checkbox"/> <unused> CPU-032 (Performer Node Controller without Fiber Connectors)
<input checked="" type="checkbox"/> <unused> ELA-OP-016 (16 Relay-Outputs and 16 Opto-Inputs)
<input checked="" type="checkbox"/> <unused> COAX-008 (8 Channels via Coax) CAT5-008 (8 Channels via Cat5) or AES-008 (8 AES/EBU 4-Wires) AIO-008 (8 Analogue 4-Wires) VoIP-008 (8 Channels via Voice over IP) ELA-OP-016 (16 Relay-Outputs and 16 Opto-Inputs)
<input checked="" type="checkbox"/> <unused> ELA-OP-016 (16 Relay-Outputs and 16 Opto-Inputs)
<input checked="" type="checkbox"/> <unused> PSU-32+16
<input checked="" type="checkbox"/> <unused> PSU-32+80

**Bay A**  
**( Performer 32-16/80)**

**Bay B**  
**(Performer 32-16/80)**

**Bays 1 to 4**  
**(Performer 32-16/80)**

**Bays 5 to 8**  
**(only Performer 32-80)**

**PSU 1 and PSU 2**  
**(Performer 32-16/80)**

Figure 44: Node configuration - available card types Performer 32-16, 32-80

As soon as a new client card is added, its 8 available ports are automatically displayed.

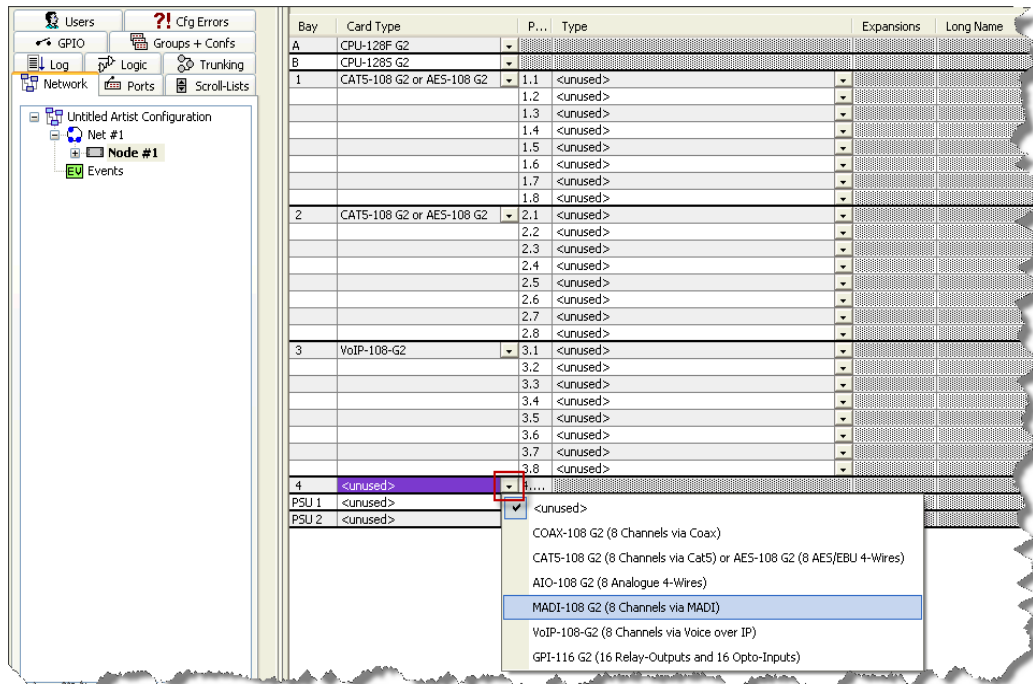



Figure 45: Node configuration - Client Cards selection

## 8.7.2 Adding a new port

In the Node Configuration Table, right click on any port marked “<unused>” or open a list of available port types by clicking on the  symbol. Different port types can be selected depending on the kind of client cards that are installed and configured. Port types are organized by series.









Bay	Card Type	Port	Type	Expansions
A	CPU-128F G2			
B	CPU-128F G2			
1	CAT5-108 ...	1.1	<unused>	
		1.2	<unused>	
		1.3	<unused>	
		1.4	<unused>	
		1.5	<unused>	
		1.6	<unused>	
		1.7	<unused>	
		1.8	<unused>	

Figure 46: Node configuration - Choosing a new port type

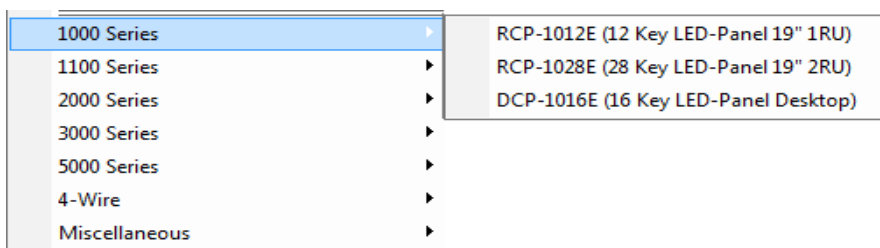


Figure 47: Node configuration - Port type 1000 series

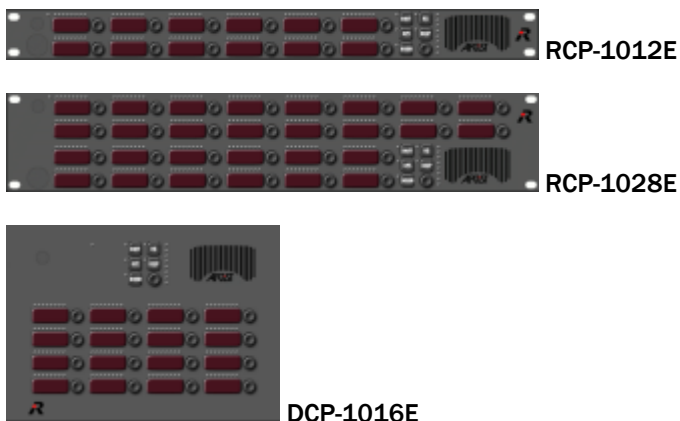


Figure 48: Port types 1000 series

**Note:** If under “Settings” -> “Options” -> “**Miscellaneous**” the function “Show legacy Panels” is activated, the older “B-series” panels of the 1000 panel series will also be displayed.



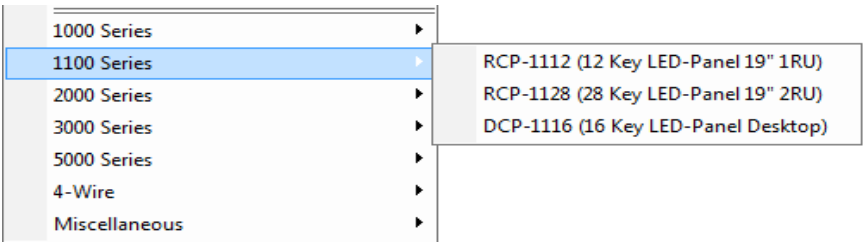


Figure 49: Node configuration - Port type 1100 series

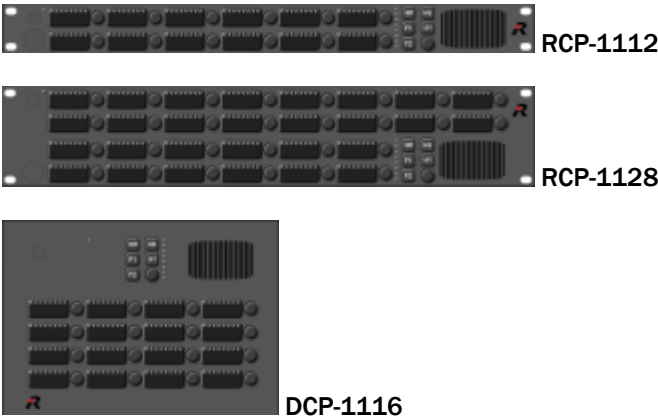


Figure 50: Port types 1100 series

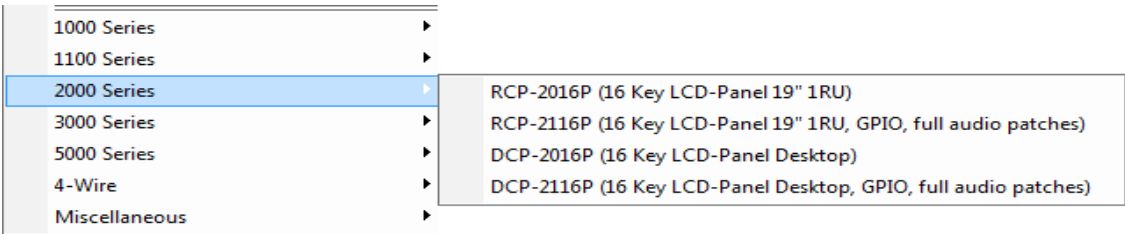


Figure 51: Node configuration - Port type 2000 series

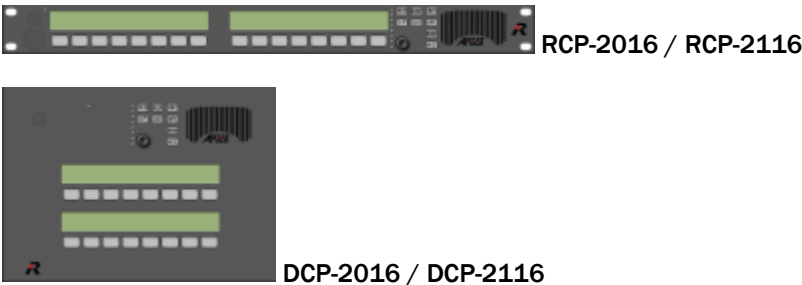


Figure 52: Port types 2000 series

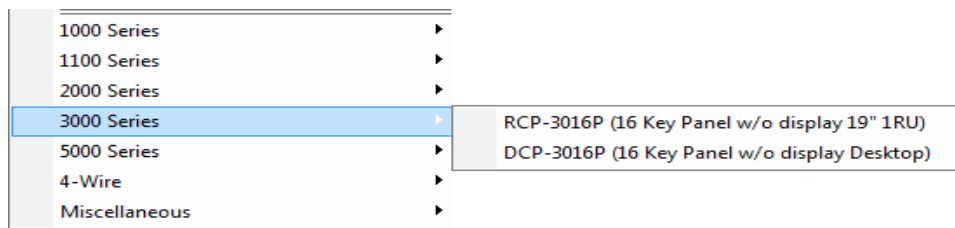


Figure 53: Node configuration - Port type 3000 series

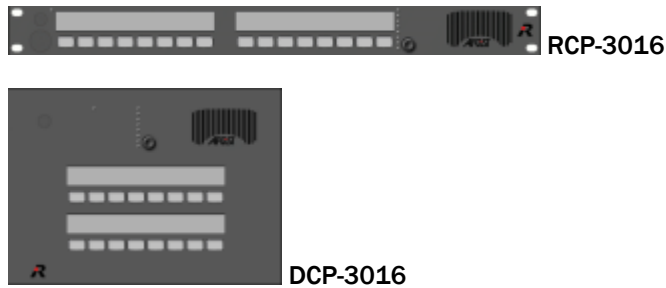


Figure 54: Port types 3000 series

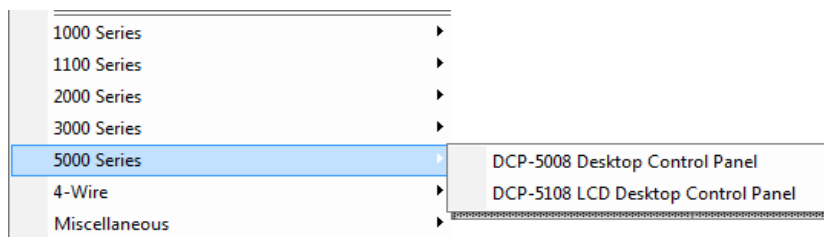


Figure 55: Node configuration - Port type 5000 series



Figure 56: Port types 5000 series

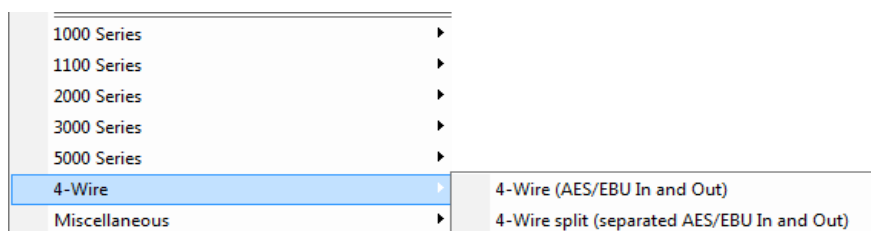


Figure 57: Node configuration - Port type 4-Wire



Figure 58: Port types 4-Wire

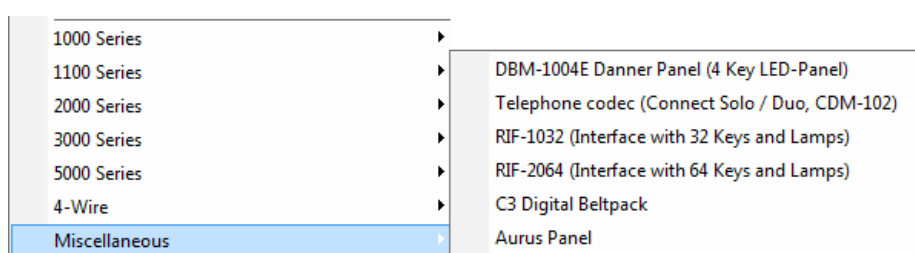
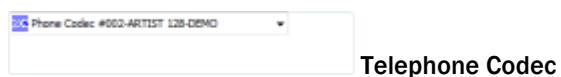


Figure 59: Node configuration - Port type Miscellaneous



DBM-1004



Telephone Codec



RIF-1032



RIF-2064



C3 - Beltpack



Figure 60: Port types Miscellaneous

By using a **VoIP** - Client card with minimum version 6.20, it is now possible to use also the software panels **VCP-1004**, **VCP-1012** or a **SIP**-telephony connection. Details see [9.11.4 Softpanel VCP-1004/ VCP-1012](#) und [9.11.5 SIP-Telephony \(new in version 6.20\)](#)

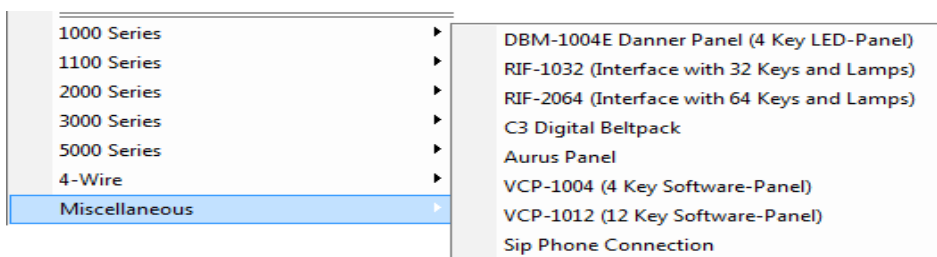


Figure 61: Node configuration - Port type Miscellaneous - VoIP card

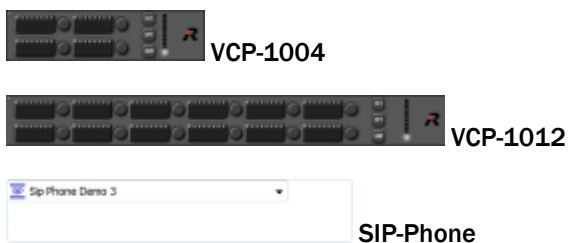


Figure 62: Port types Miscellaneous - VoIP card

By using a **MADI** Client card with minimum version 6.20, it is now possible to select an **ACROBAT - WB2** Beltpack as port type. **The minimum requirements to connect a ACROBAT system is an ACROBAT Cell Controller CC60 or CC120, equipped with a MADI Interface.** The keys of the WB-2 can be programmed with any function like any other panel.

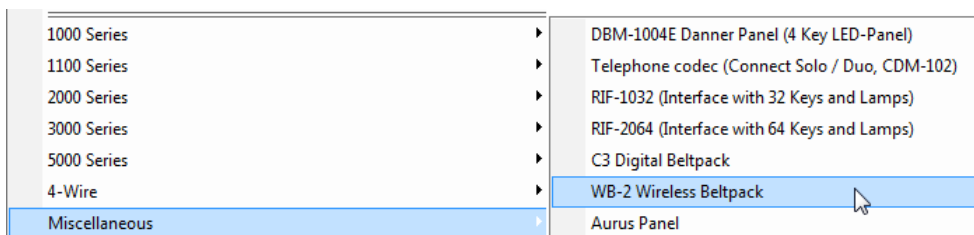


Figure 63: Node configuration - Port type Miscellaneous - MADI card



Figure 64: Port types Miscellaneous - MADI card

8.7.2.1 Add Expansion Panels

If a panel should also have one or more expansion panels, add them in the panel's "Expansions" list. Choose the expansion panel type and address. Addresses that have already been used will not be displayed. To add additional expansion panels, repeat these steps.

Bay	Card Type	Port	Type	Expansions	Longname	Audio In	Audio Out
A	CPU-128S G2						
B	CPU-128S G2						
1	COAX-108 G2	1.1	RCP-1012E	<unused>	Panel #001...		
		1.2	RCP-3016P4	<unused>	Panel #002...		
		1.3	DCP-2016P4	<unused>	Panel #003...		
		1.4	RCP-1028E	<unused>	Panel #004...		
		1.5	DCP-1016E	<unused>			
		1.6	(the panel abov...				
		1.7	RCP-1012E	<unused>	Panel #007...		
		1.8	DBM-1004E	<unused>	Panel #008...		
2	CATS-108 ...	2.1	C3 Beltpack		C3 Beltpack...		
		2.2	RIF-2064		RIF2064 #...		
		2.3	4-Wire (AES)		4Wire #01...		
		2.4	(the panel abov...				
		2.5	4-Wire split (AES)			Input #019...	Output #019...
		2.6	(the panel abov...				
		2.7	CDM-102		ISDN Code...		
		2.8	(the panel abov...				
3	AIO-108 G2	3.1	4-Wire (AIO)		4Wire #01...		
		3.2	4-Wire (AIO)		4Wire #01...		
		3.3	4-Wire split (AIO)			Input #019...	Output #019...
		3.4	4-Wire split (AIO)			Input #020...	Output #020...
		3.5	4-Wire (AIO)		4Wire #02...		
		3.6	4-Wire (AIO)		4Wire #02...		
		3.7	4-Wire (AIO)		4Wire #02...		
		3.8	4-Wire (AIO)		4Wire #02...		
4	<unused>	4.1-4.8					
PS0	PSU-32 G2						

Figure 65: Node configuration - Configuration table Expansions

Available Expansions, dependent on the selected base-unit:

1000 Series:



ECP-1016



ECP1012-PT

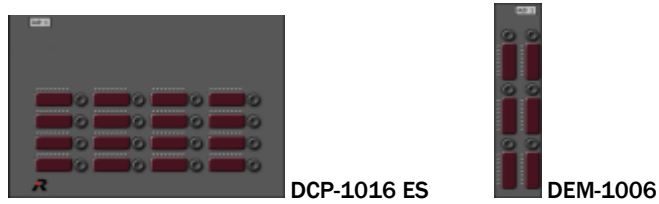


Figure 66: Expansion variation 1000 series

## 1100 Series:



Figure 67: Expansion variation 1100 series

## 2000 Series:

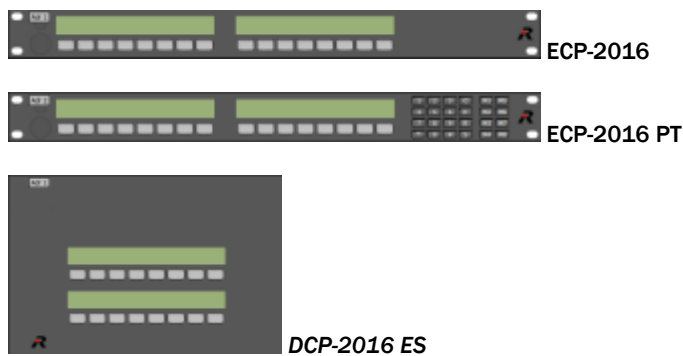


Figure 68: Expansion variation 2000 series

## 3000 Series:

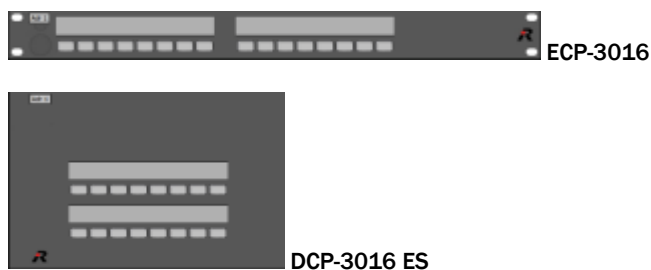


Figure 69: Expansion variation 3000 series

### 8.7.2.2 Configuring a 2 channel panel

The digital ports of the Artist system always use an AES audio format. However, only a single channel mono AES signal is normally sent to each port. Nevertheless, it is possible to send 2 full-duplex audio channels to a panel. This can be valuable for certain applications that make use of the audio patches and the analogue I/Os on the panel. Thus, it is possible to send an additional audio channel, such as program audio, directly to the panel without interfering with the intercom communication.

In this case, the mono signal from the next port is internally routed to the second channel of the previous port.

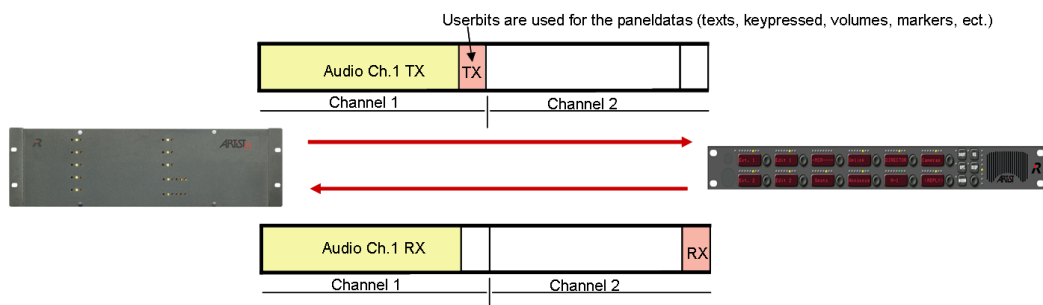


Figure 70: Communication with 1 AES channel between Artist and a panel

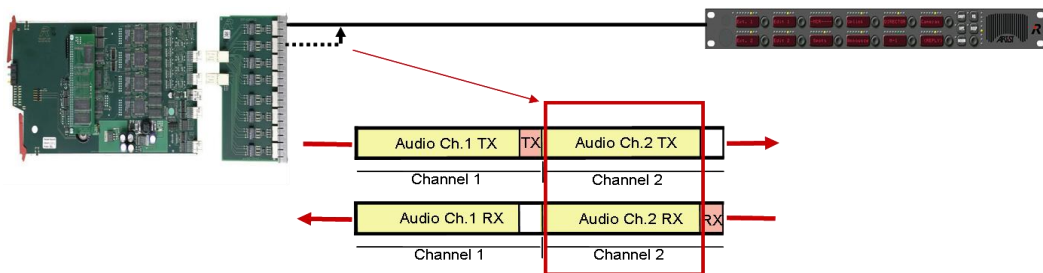


Figure 71: Communication with 2 AES channels between Artist and panel

**Odd numbered ports must always be used when connecting 2 channel ports (CAT5/AES/COAX). The next even numbered port must always remain unused.**

Place a panel on an odd numbered port of a client card. Check that the next port is not already being used. Open the **"Properties"** of the panel with a double click on the panel. On the **"General"** tab, activate the option **"Use 2<sup>nd</sup> audio channel."**

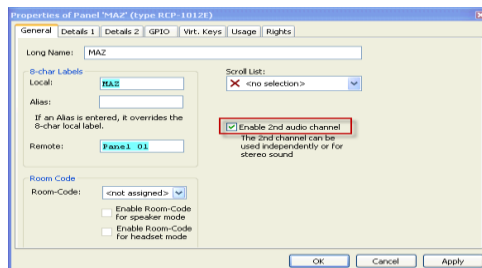


Figure 72: Activating the second audio channel

The next port will be automatically blocked in the node Configuration Table.

1	COAX-108 G2	1.1	RCP-1012E	<unused>	MAZ
		1.2	(the port above uses this channel too)		
		1.3	<unused>		
		1.4	<unused>		

Figure 73: Node configuration - second audio channel

The second channel can now be used in the configuration.

**Attention:** When a port is defined for use as a “CONNECT SOLO/DUO” or a “C3 Beltpack,” the port will automatically be set in 2 channel mode if the hardware configuration allows it - that is, when the port is an odd numbered port and the next port is not being used.

### 8.7.2.3 Configuring a 2 channel 4-wire port (AES only)

To create a 2 channel 4-wire port (AES only!), you should proceed exactly as with a 2 channel control panel. In this case, the 1<sup>st</sup> and 2<sup>nd</sup> audio channels of the port will have the same name and can only be routed together.

However, since a digital 4-wire port is normally connected to a mixing console or a similar device, it makes sense for each channel to use a separate name. Then the two channels can be configured and routed independently from one another.

In the node configuration add a digital 4-Wire or 4-Wire Split just like you would for an analogue 4-wire. The system automatically recognizes that the following port should be used as the second audio channel for the preceding port.


2	CAT5-108 G2 or AES-108 G2	2.1	RCP-2016P	<unused>	Grafik
		2.2	<unused>		
		2.3	C3 Beltpack		Partyline 1
		2.4	(the port above uses this channel too)		
		2.5	4-Wire (AES)		CCU 1
		2.6	4-Wire (AES) (uses 2nd channel on previous port)		CCU 2
			<unused>		

Figure 74: Node configuration - Configuring a 2-channel AES 4-wire

**Attention:** The 2 channel AES port must be connected to an odd numbered port. The following port must remain unused.



### 8.7.3 Adding a GPI Card

When a GPI card is selected, the available 16 GPI and 16 GPOs are automatically displayed. To define the contact mode, either right mouse click on the “<unused>” field or click on the  symbol. Inputs and outputs offer their corresponding functions.

Bay	Card Type	Port	Type	Expansions	Longname	Audio In	Audio Out
A	CPU-128F G2						
B	CPU-128F G2						
1	GPI-116 G2	In 1.1	<unused>				
		In 1.2	<unused>				
		In 1.3	<unused>				
		In 1.4	<unused>				
		In 1.5	<unused>				
		In 1.6	<unused>				
		In 1.7	<unused>				
		In 1.8	<unused>				
		In 1.9	<unused>				
		In 1.10	<unused>				
		In 1.11	<unused>				
		In 1.12	<unused>				
		In 1.13	<unused>				
		In 1.14	<unused>				
		In 1.15	<unused>				
		In 1.16	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
		Out ...	<unused>				
2	<unused>	2.1-2.8					
3	<unused>	3.1-3.8					
4	<unused>	4.1-4.8					
5	<unused>	5.1-5.8					
6	<unused>	6.1-6.8					
7	<unused>	7.1-7.8					
8	<unused>	8.1-8.8					
PS0	PSU-64 G2						

The 16 GPI inputs can be treated as normal levels or can be inverted, for example, in the case of incorrect wiring or inverted voltages.

The 16 GPI outputs can be defined as either “normally closed” or “normally open,” depending on the requirements of the external circuit.

Figure 75: Node configuration - Configuration of a GPI card

## 8.8 Network Connection

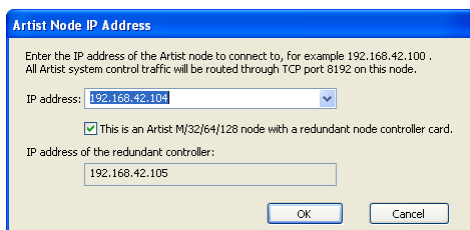
Artist systems can be configured and monitored with the Director software. A configuration can be worked with either online or offline. It is possible to create an entire configuration without being physically connected to a system. However, to later use such a setup requires a network connection between the configuration PC and at least one node of an Artist system. As soon as Director is connected with an Artist system it is possible to send a configuration to the system, read out a configuration from Artist to the PC, as well as monitor the system in real time.

A functioning Ethernet connection is required for online operation. For details on cabling and basic set up, see: [7.2.1 Network configuration](#).

### 8.8.1 Setting the IP address of the local node in Director

In order to connect to an Artist network, the IP address of the node to which Director is connected must be known. If the IP address has not been manually changed, it is the factory default address of 192.168.42.100. Check to make sure that you are connected to the active CPU of the node via a CAT5 cable (depending on whether the connection is direct or over a hub, a 1:1 or at crossover cable must be used, respectively). Director can only be connected to one node at a time. However, through this node Director has access to all other nodes that are connected via fiber and can also access the complete system configuration.

**Note:** Up to 4 Director PCs can be connected to a node at the same time.



Next, you must enter the IP address of the node that you wish to connect to.

In the “Settings” menu, choose “IP Address of local Node.” Enter the IP address of the node in the first field.

Figure 76: Network - IP Address of local Node


If you are running your system with a redundant CPU, it is best to connect to both CPUs over a switch or hub. Click the checkbox “This is an Artist M/32/64/128 node with a redundant node controller card.” If the IP address of the first CPU is unavailable because the card has failed or has been removed, Director will automatically look for the redundant CPU at the next highest IP address.

**Note:** The IP address of the redundant CPU card cannot be changed. The system automatically uses the IP address of the first CPU card  $\pm 1$  for the IP address of the redundant CPU.

## 8.8.2 Enabling and disabling network access



Figure 77: Director - Toolbar

The Director Toolbar has a dedicated *Network On/Off* button  to connect and disconnect Director from the Artist system. Clicking the button will attempt to connect Director to the system. A successful connection will be shown in the Status Bar. See the next chapter for details.

To disconnect Director from the Artist node, click the *Network On/Off* button again. The Status Bar still show that there is no longer a connection.

The Status Bar on the bottom of the Director window shows the connection status.

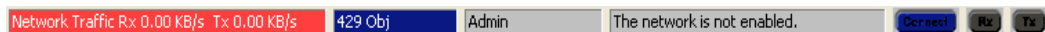


Figure 78: Director - Status bar, network not connected



## 8.8.3 Verifying a successful network connection

When a successful connection has been established it is reflected in the Status Bar as in the figure below. The blue *Connect* indicator shows that a connection has been established. The green *Rx* and *Tx* indicators show that Ethernet packets are being sent and received. The current bandwidth used is displayed in the red *Network Traffic* field. The yellow area gives information on the number of nodes Director has found, including any nodes that are connected over fiber. The yellow background also indicates that the connected system already has a valid configuration.



Figure 79: Director - Status bar, Artist connected

## 8.8.4 Set up / Change the IP address in Artist nodes

The IP address of a node can be changed via Director. To do so, Director must be online with the system. The changes can be carried out in the "*Online View*," which can be opened by clicking on the  button. Next select the node you wish to change and click on the  button.

**Attention:** Only change the IP address of a node if necessary. Errors made while entering an IP address will result in the node not being found by Director. If this occurs, use a port scanner or reset the CPU to the default factory settings in order to gain access to the system.

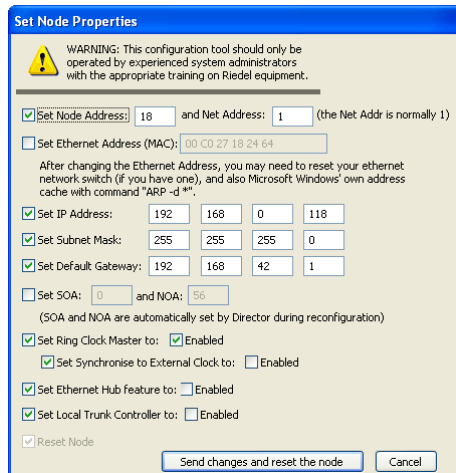



Figure 80: Online View - Set Node Properties

Open the Online View window .

In the *Online View* select the node you wish to change, and open the *Node Properties* window with the **Node properties...** button.

Click the corresponding check box  to set a new address.

Change the IP address and the Subnet Mask and Gateway, if necessary. For details, see your network administrator.

To confirm the changes, click the **Send changes and reset the node** button. The node will automatically reset.

**If you change the IP address of the node that you are connected to, you must also change the IP address in Director in order for that Director to re-establish a connection to the node. See: [8.8.1 Setting the IP address of the local node in Director](#)**

## 8.9 Send a Configuration to Artist

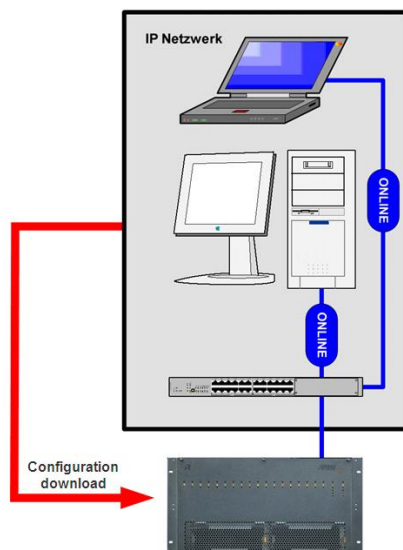


Figure 81: Configuration change - Download a configuration

Director can be used to program systems and generate configuration data files independently of being connected to a system. The majority of the configuration can be prepared offline and checked for configuration errors prior to sending it to a system.



A completed configuration without errors can only be sent to an Artist system when Director is successfully connected to the system.

The following methods will send an entire configuration to the Artist system and will replace the existing configuration!

- Click on the  button in the Director Toolbar to send the entire configuration from the PC to the Artist system.

or

- In the menu **"File,"** select **"Save to Artist (Override)"** to send the configuration to the system.

**NOTE:** If several PCs are connected with the same Artist system at the same time, or when using special features such as MCR, AV-Router or Events, it is strongly advised not to use the **"Override"** button , because this will overwrite any changes that were made by other PCs or special features. Instead, only use the **"Transfer Changes"** button . The **"Override"** button should only be used to send an entire new configuration to the system.

If you cannot press the  button because it is greyed out, or if after pressing it you receive an error message, the following issues may be causing the problem:

- there are errors in the configuration
- the connection to the system has not been successfully established
- the user has insufficient rights to send a complete configuration to the system
- another PC is downloading a configuration at the same time. The system is therefore unavailable for further downloads for a short period.

A progress window will display during the download to the system. This window will automatically close after a successful download. The configuration that was sent will be active immediately.

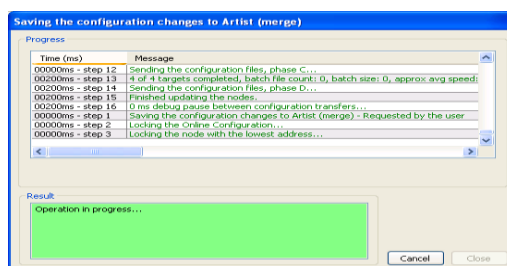



Figure 82: Configuration change - Update successfully


**Note:** The display of this window can be deactivated under **"Settings" -> "Options" -> "Miscellaneous" -> "Do not show configuration transfer dialog for short, successful updates"**. If the window has been deactivated, it will only appear in the case of an update error.

**The following methods will make changes to a configuration in the Artist system. The current configuration in the system will be modified!**

- Click on the  button in the Director Tool Bar to send configuration changes to the system. Only changes to the current configuration will be sent.

or

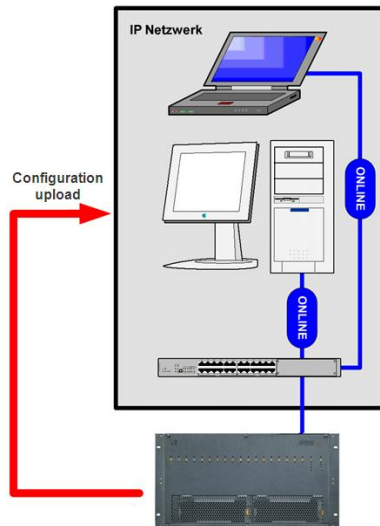
- In the **“File”** menu, select the option **“Save to Artist (Merge)”** to send the configuration changes.

**If the  button cannot be pressed because it is greyed out, or if after pressing it you receive an error message, the following issues may be causing the problem:**

- there are errors in the configuration
- the connection to the system has not been successfully established
- the user has insufficient rights to send a configuration change to the system

A progress window displays during the download to the system. This window will automatically close after a successful download. The configuration changes that were sent will be active immediately.


## 8.10 Upload a Configuration from Artist



The complete configuration of an Artist ring can be read with the Director software by any PC connected via Ethernet to a node. This configuration can then be edited and saved locally on the PC.

Figure 83: Configuration change - Upload a configuration to a PC

There are two different ways to upload the current Artist configuration to a PC. If you open a configuration from the system, any other configuration open in Director will be closed. You will be asked whether or not you want to save the open configuration.

- Click on the  button to load the Artist configuration to the PC
- From the File menu, select “Open from Artist...” to load the Artist configuration to the PC

If after attempting to load a configuration from the Artist to the PC you receive an error message, it may be for one of the following reasons:


- The Ethernet connection is not yet established
- The software version of the Artist system is not compatible with your Director version

After the configuration has been successfully loaded onto your PC you must login with your user name and password (if any). See chapter [8.4 Login](#)

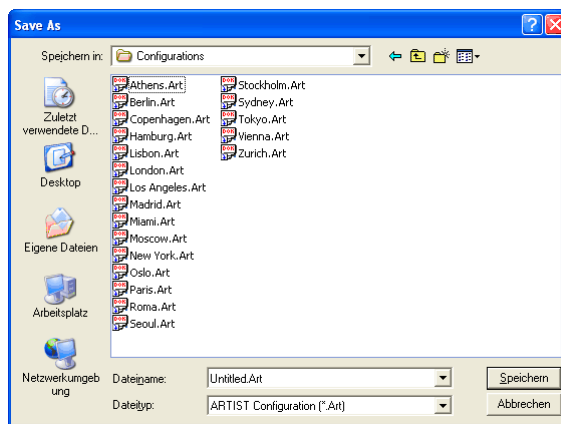
The uploaded configuration can now be opened, edited and saved onto the PC. See: [8.11 Saving a Configuration](#)

## 8.11 Saving a Configuration

A configuration file can be saved to a disk or network drive after it has been created or after it has been uploaded from the system. A file can be saved at any time during the configuration process, irrespective of any unresolved configuration errors or it being incomplete.

For the purpose of saving the configuration data the Director toolbar has a dedicated  button and the menu bar **"File"** has a "Save" option. Clicking the button or selecting the "Save" option will save the configuration data to the previously used \*.Art filename.

If the configuration is untitled, the "Save As ..." window will open. Alternatively, "Save As ..." can be selected directly from the toolbar file option in order to save the configuration under a new \*.Art filename.



Assign a meaningful file name and click on "Save" to save the file in the desired directory.

Figure 84: Configuration change - "Save As" window

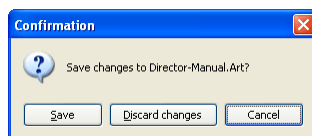


Figure 85: Configuration change - Save Changes prompt

If you make changes in a previously saved configuration, an "\*" appears on the window label after the name of the configuration. This means that changes have been made that have not yet been saved.



Figure 86: Director - modified and unsaved configuration



## 8.12 Configuration of Ports and Panels

The term “Port” refers to any device that can be connected to a matrix port. This can include control panels, 4-wires, 2-wire I/Os, digital beltpacks or telephone codec’s. Simplex and duplex audio connections, groups, conferences, etc. can be freely configured between ports in order to achieve the desired functionality.

Control panels can also be used for other functions such as:

- Activating central and local GPOs
- Connecting and using auxiliary audio sources and outputs
- Source assignment and routing operations
- Destination status and audio monitoring
- IFB sources and destination switching
- Panel re-programming
- Additional functions

### 8.12.1 Port name

As soon as a port is created Director automatically assigns it a unique system name. Both a distinct *Long Name* (a unique description used in Director) and a distinct *Local Name* (Display text) are created (For example, *Long Name*: “4Wire #019-Rack 2-Net #1“, *Local*: “4-W. #19“).

In order to change the name, open the properties of the port. Right click on the port in the network list or port list and choose “*Properties*.” You may also double click in the workspace on the port to reach the properties.

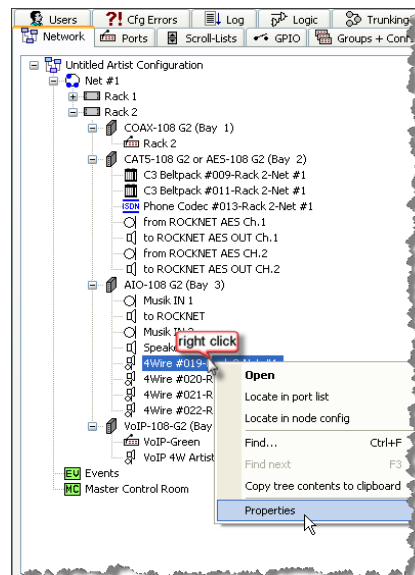


Figure 87: Opening the properties of a port, variant 1

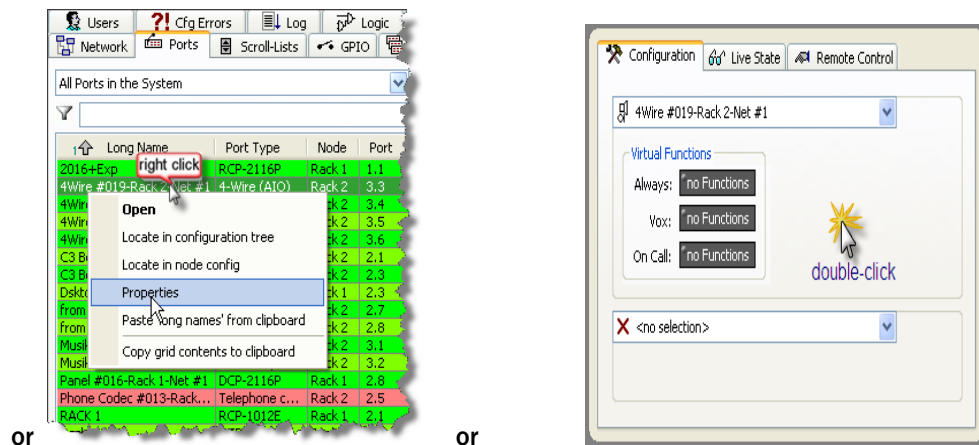


Figure 88: Opening the properties of a port, variant 2+3

Both, the long name and display name can be changed in the “*Properties*” window.

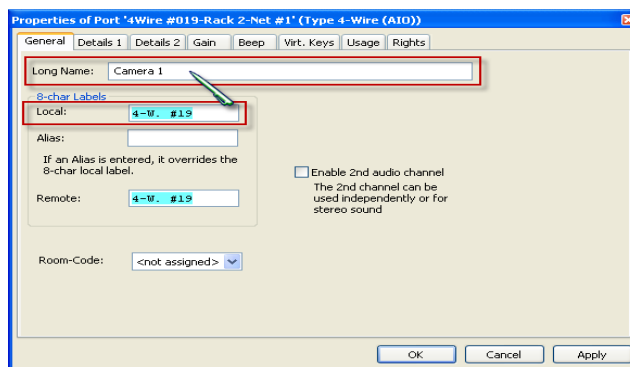


Figure 89: Properties window of a port

The “*Alias*” is a temporary name. With this feature the “*Local*” name can be temporarily overridden, for example, to display a colleague’s first name without having to change the actual local name. As soon as your changes have been confirmed with **OK** or **Apply** the new name of the port will be changed in the entire configuration.

### 8.12.1.1 Transferring port names from an Excel® List

As of software Version 5.91, it is possible to import a predefined list of all long names and local names from an Excel® spreadsheet. To do so, it is necessary that the order of the names in the Excel® spreadsheet matches the order of the ports in the configuration.

First, create a new table in Excel®. We recommend one column for long names and a second column for local names. Next, copy the marked names into the Windows clipboard ( **Strg** + **C** )

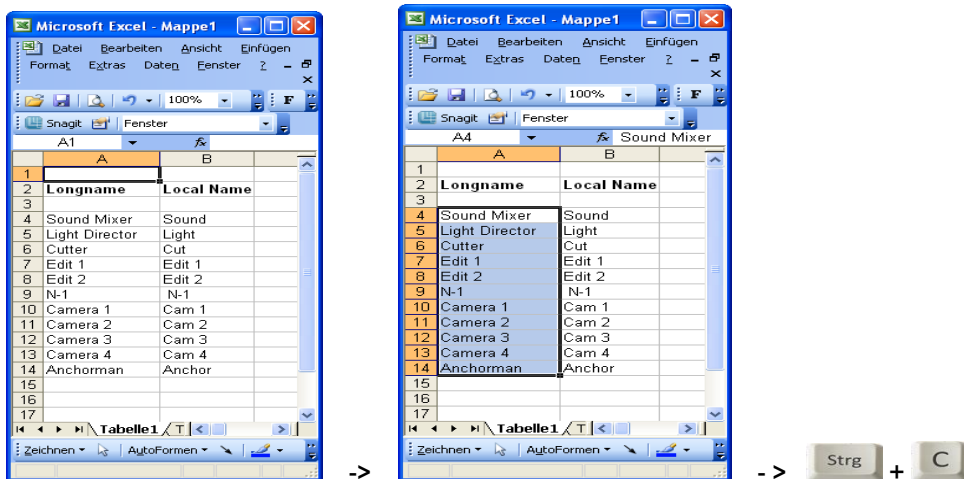


Figure 90: Excel® list with port names in the correct order

Open the port list in Director. Select the port from which you would like to begin importing names. Right mouse click on the first port that should be renamed and choose “Paste ‘Long names’ from Clipboard.” All of the long names following this port will be renamed according to the names from the Excel® spreadsheet.

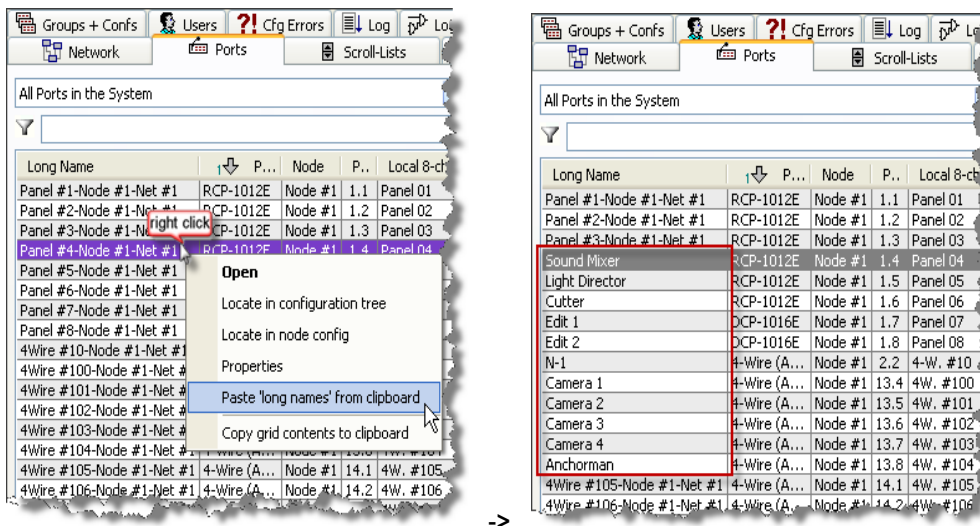


Figure 91: Importing names from an Excel® spreadsheet into Director

The same process can be used for the “Local” names. Select and copy the entries from Excel® and paste them into the desired location in the “Local 8-Character” column by using a right mouse click and the “Paste ‘Local Labels’ from Clipboard” command.

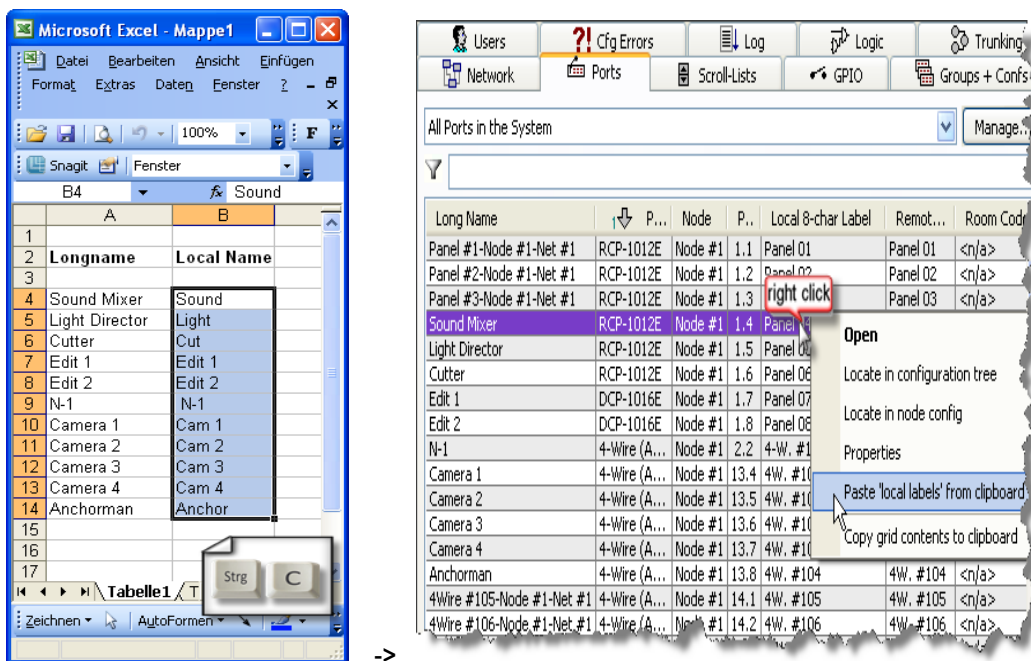


Figure 92: Pasting local display names from an Excel® spreadsheet

## 8.12.2 Key functions

Every key on a panel can be allocated one or more functions. Currently, up to **32 functions** can be configured per key, which will all be activated at the same time when the key is pressed. The following list contains descriptions of the individual functions.

<b><u>Call to Port</u></b>	Point-to-point call between two ports
<b><u>Call to Conference</u></b>	Multipoint-to-multipoint call. Speak to a conference, listen to a conference
<b><u>Call to Group</u></b>	Point-to-multipoint call. Talk from a port to several others at the same time. Functions only from the source to destination
<b><u>Call to IFB</u></b>	Enables a call to a pre-defined port from the IFB table with IFB functionality
<b><u>Listen to Port</u></b>	Listen to an audio source (control panel, 4-wire, etc.)
<b><u>Route Audio</u></b>	Routes audio directly from a source in the system to a destination. In addition, the crosspoint level can be adjusted (from a panel)
<b><u>Switch GPI Out</u></b>	Activates a local or central GPI out
<b><u>Select Audiopatch</u></b>	Loads pre-defined audio settings to a particular control panel in the system
<b><u>Control Audiopatch</u></b>	Controlling any element of any Audiopatch

<b><u>Remote Key</u></b>	Remote control of control panel keys, option to lock keys, and the activation of the signalization markers of a particular key
<b><u>Reply</u></b>	Automatic reply key for point-to-point calls
<b><u>Edit Conference</u></b>	Change conference members of a selected conference on a panel
<b><u>Edit IFB</u></b>	Change IFB assignment on a panel
<b><u>Dim Panel Speaker</u></b>	Dims the loudspeaker of a selected panel by a specified amount
<b><u>Dim XP Level</u></b>	Dims the level of a selected crosspoint by a specified amount
<b><u>Beep Panel</u></b>	Triggers an audible call signal at the selected panel
<b><u>Telephone Dial Keypad / Display</u></b>	Keypad functions for dial-up and display phone numbers
<b><u>Telephone Dial / Hang up</u></b>	Initiates the dial-up, hook control of a selected codec port
<b><u>Logic</u></b>	Triggers a pre-defined logic source
<b><u>Kill Partyline Mic</u></b>	Deactivates all partyline microphones in a selected partyline. (The partyline must be programmed as a member of a conference.)
<b><u>Auto Listen Off</u></b>	Deactivates a selected auto listen call
<b><u>Set Input/Output Gain</u></b>	Allows Input/Output Gain control of 4-wires, split 4-wires and digital partyline ports from a panel (only available on the 1000 series panels)
<b><u>Sidetone</u></b>	Activates the Sidetone function on a panel and offers sidetone level control
<b><u>Send String</u></b>	Sends a 256 character string to the RRCS interface for communication with higher ordered systems (special feature)

Figure 93: Table - Key functions

### 8.12.3 Virtual port functions

All ports have three so-called Virtual Functions. The Virtual Functions activate certain commands without the need to press a key. 4-wire and 2-wire ports only have Virtual Functions. Most of the functions in the list above can also be programmed on a Virtual Function. However, functions which require a key for operation, such as those that need a volume control, are not available. Up to **32 functions** can be programmed on a Virtual Function.

<b>Always</b>	As the name implies, the assigned functions are always active as soon as the port is connected to the matrix
<b>Vox</b>	The assigned functions are activated when the input audio signal of the port is above a specified level
<b>On Call</b>	The assigned actions are activated when the port receives a call

Figure 94: Table - Virtual port functions

## 8.12.4 Panel GPI functions

All 1000 and 2100 series control panels are fitted with three GPI inputs and three GPI outputs. The same commands that can be programmed on Virtual Functions can also be programmed on each GPI. The GPIs of the individual panels are available for use throughout the entire system and work the same as GPIs on a GPIO card in the mainframe.

## 8.12.5 Panel Audio I/O

All 1000 and 2100 series panels are also equipped with auxiliary audio inputs and outputs for applications such as external microphones, loudspeakers, a second headset connection etc. In addition, two AUX I/Os can be freely programmed in the “Audio Patches.” See: [8.13 Panel Audio Patch](#)

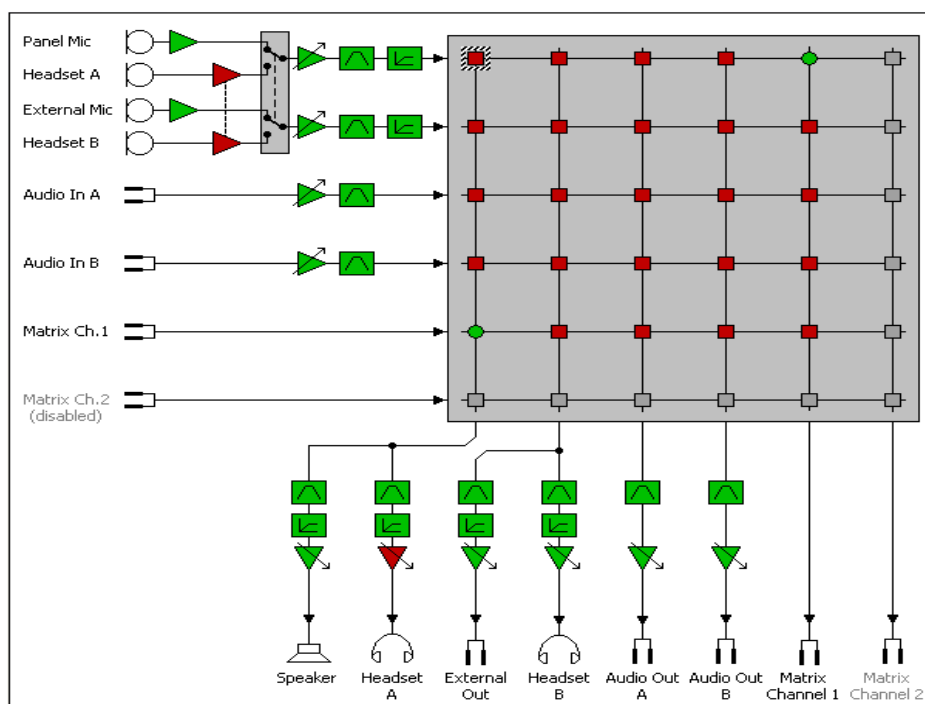


Figure 95: Panel audio patch

## 8.13 Navigation

### 8.13.1 Navigation via the Network Tab

To open a port, double click on the port name shown in Network Tab of the **Navigation** Bar. Click on the “+” sign next to a node to expand the navigation tree if no ports are shown. After the double click, the selected port is displayed in the Workspace. If the port is a control panel, it will look like it does in real life. A total of two ports can be displayed in the Workspace at the same time.

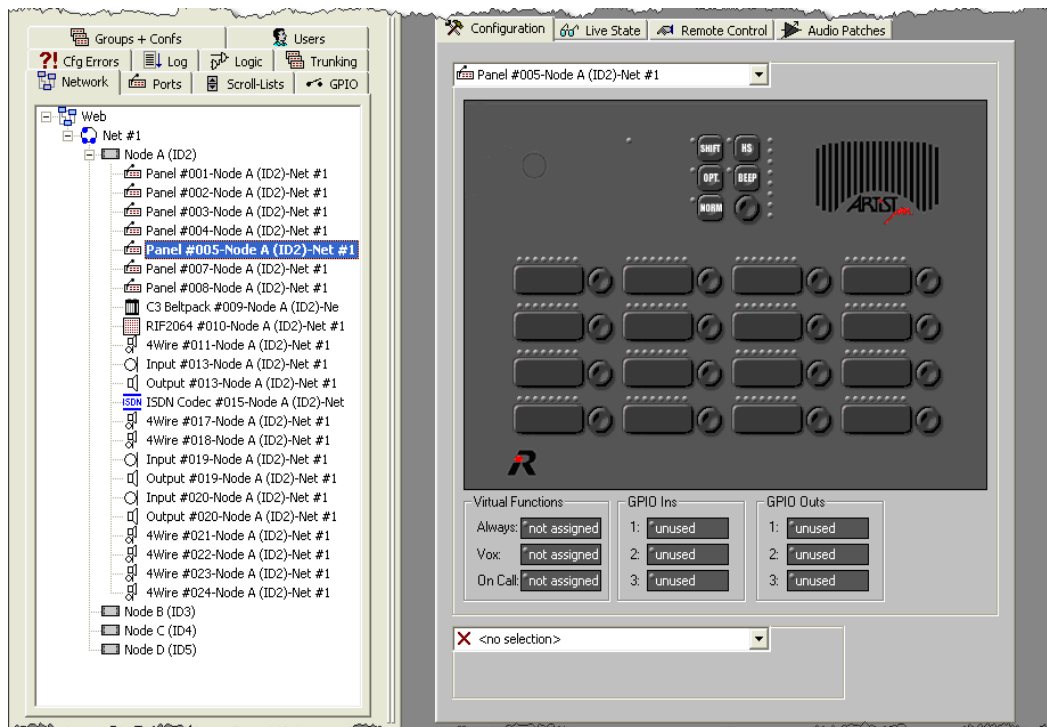


Figure 96: Navigation - Network with an open panel in the workspace

A port can also be opened in the Workspace by right mouse clicking on the port name in the node configuration table and selecting the edit port option.

## 8.13.2 Navigation via the Ports Tab

A double click on a port in the “Ports” tab of the **Navigation** bar will also open the port in the Workspace. The ports tab displays a list of all the ports in the entire system, sorted by name. If Director is connected to an Artist system the status of the individual ports will also be indicated by colour. A green background means that the port has a device connected to it that has booted correctly and is available for use. A red background means either that nothing is connected to the port or that the device has not booted.

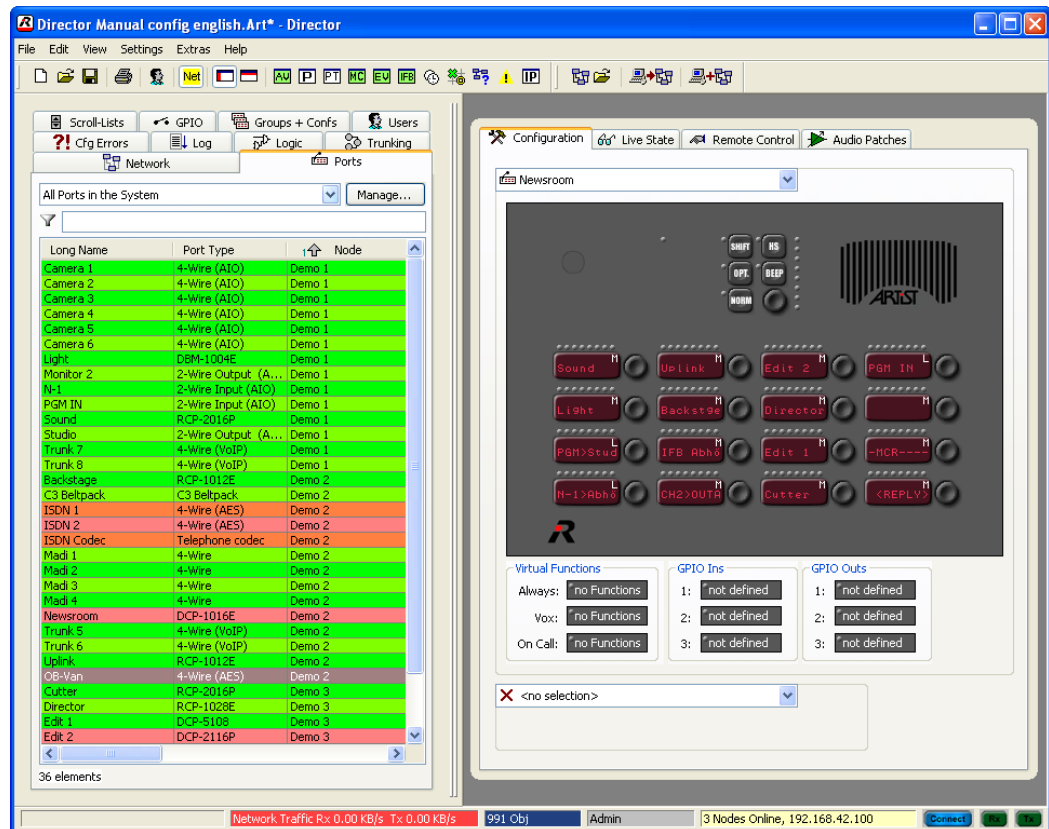
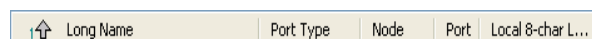


Figure 97: Navigation - Port tab with workspace

The port list can be sorted by other criteria, such as port type, number, etc, by clicking the label of one of the columns. An arrow with a “1” next to it shows which criteria the list is sorted by and in what direction.



The list can be sorted by more than one criterion by clicking on a column while holding down the <Ctrl> key. All of the criteria can be chosen and the order of sorting is shown by the numbers that appear on the column.





In addition, you can search for specific port names using a \* filter. A yellow background indicates that a filter is active. Names that match the *Long Name* or *Local 8 Character* name of the filter will be displayed.

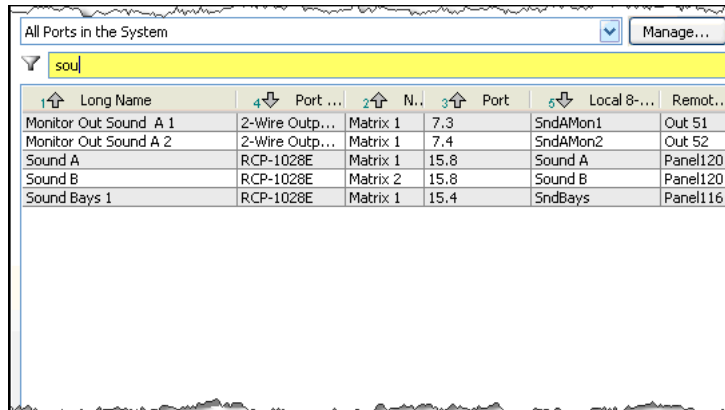


Figure 98: Navigation - Active filter

### 8.13.3 Port Short Lists

In order to have a better overview of large systems, there is the possibility to create port short lists. Groups of ports can be made and opened in the port list with a mouse click. In addition, user rights can be assigned to the individual lists to limit the access of specific users to certain ports.

To manage port lists, click the **Manage...** button in the port list view.

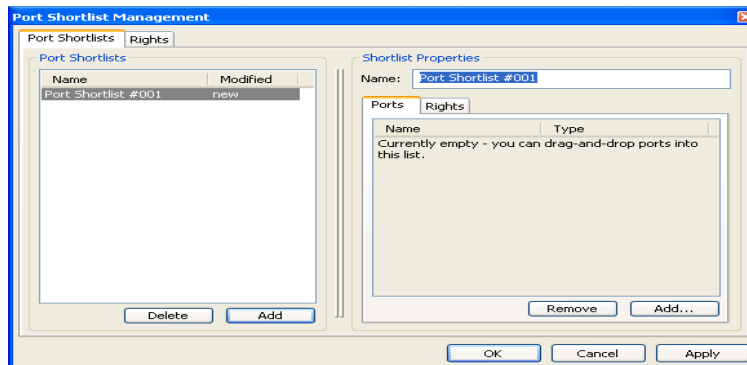


Figure 99: Navigation - Port Shortlist Management

Ports can be added or renamed by clicking on the **Add** button on the left side of the port short list window.

To add individual members to a list, first select a list from the left side of the window. Then click the **Add** button on the right side of the window to select ports to add to the list. You can also add port members using Drag and Drop from the network or port view by dragging them directly into the port short list window.

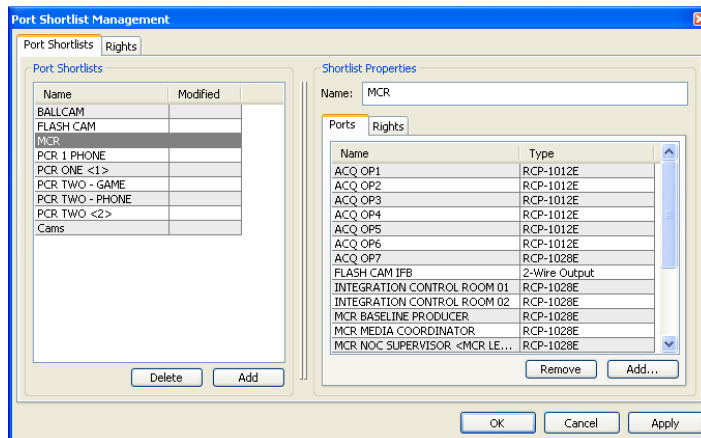


Figure 100: Navigation - Assigning members to a short list

The predefined short lists can be later selected in the “Ports” tab of the [Navigation Bar](#).

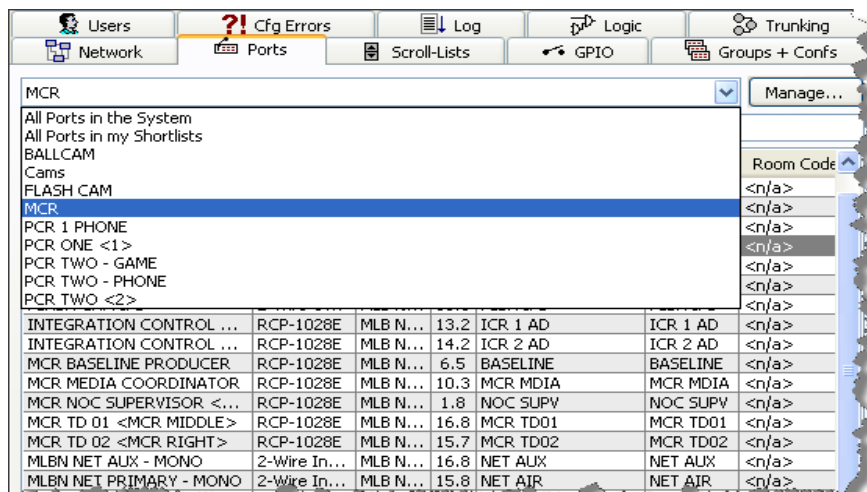


Figure 101: Navigation - Selecting a short list in the port view

### 8.13.4 Control panel Workspace



The **workspace** for programming ports and control panels, normally located on the right side of Director, offers several tabs for configuration and monitoring.



<b>Configuration</b>	Configuration mode for assigning and editing functions
<b>Live State</b>	Monitoring the port in real-time (only available in Online Mode)
<b>Remote Control</b>	Monitoring and remote control of a port via Director (only available in Online Mode)
<b>Audio Patches</b>	Programming of the audio settings of the port. Only available for control panels.

Figure 102: Table - Panels workspace functions

### 8.13.5 Key assignment

There are different ways to program commands on control panels and Virtual Functions. A precondition for adding functions is that the “*Configuration*” tab has been selected, as described above. The Navigation Bar and Workspace can be adjusted so that one or more panels plus expansion panels are visible. The  and  buttons can be used to adjust this view. See: [8.1 DIRECTOR Software - Layout](#)

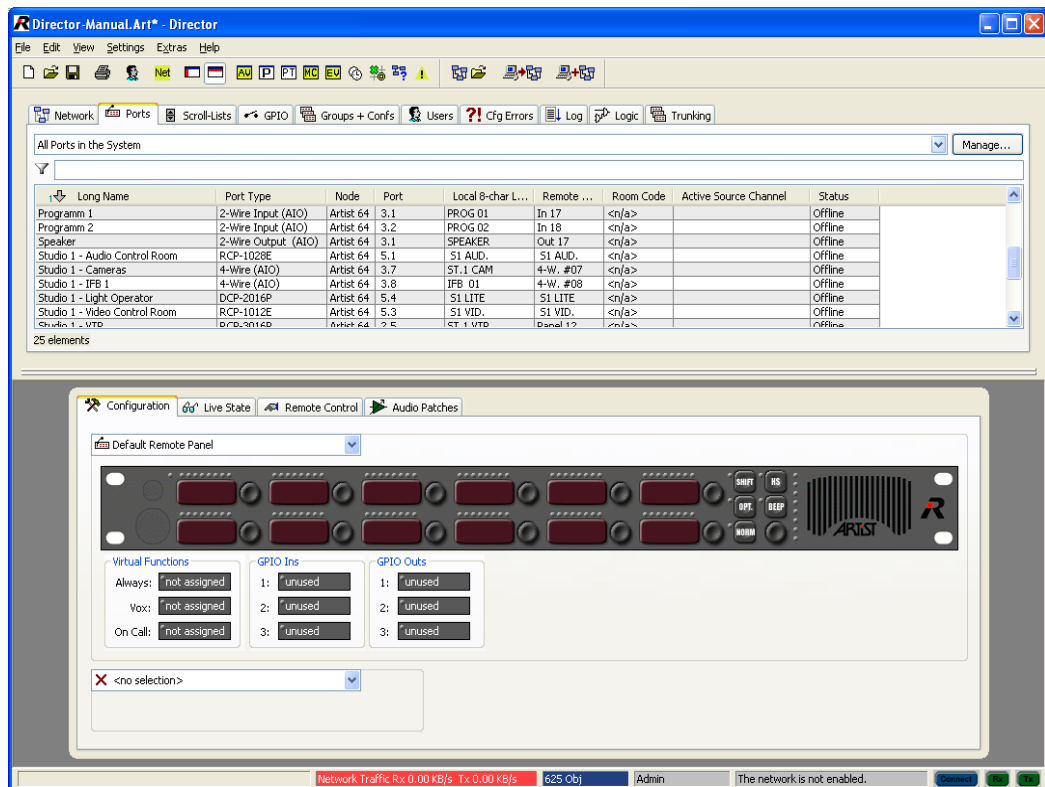



Figure 103: Navigation - Navigation Bar docked to the top of the window

All panels (except for the 3000 series and RIF panels) have 2 pages of keys: a main page and a shift page. Both of the pages offer the same number of keys, according to panel type. The shift page can be reached by clicking with the mouse on the “Shift” button located on the panel diagram or by pressing  on your keyboard.

## 8.13.6 Right mouse click menus

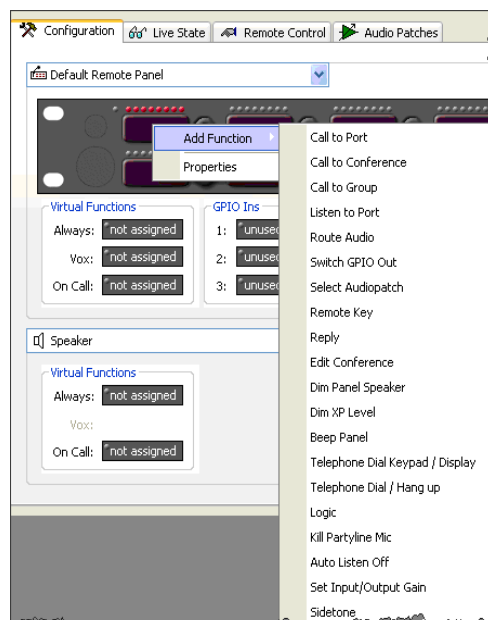
A menu for editing key functions and properties appears when you right mouse click on a control panel key. The following menu items are available:

<b>Add Function</b>	Adds a new command to a key (maximum of 32 functions per key)
<b>Edit Function</b>	Allows the editing of previously added commands on a key
<b>Delete Function</b>	Deletes one or all of the commands on a key
<b>Properties</b>	Opens the key's properties to change options such as key mode. See: <a href="#">9.14 Key Properties</a>

Figure 104: Table - Right click functions

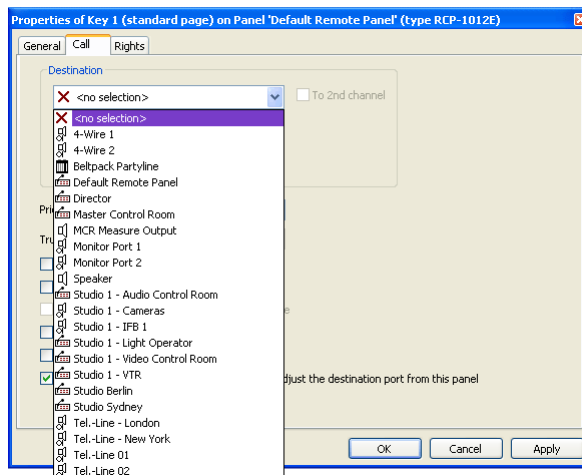
**Note:** The Edit and Delete functions are only shown if there is at least one command programmed on the key.

## 8.13.7 Assigning a function to a key



- Right mouse click on the key and choose the function to program under “Add Function.”
- As soon as a function has been assigned to a key it also appears as a new tab in the key's Properties. In the following example, a “Call to Port” command has been selected.

Figure 105: Add function - 1000 series control panel key functions



Under “Destination” choose the port in the system that should be called.

Figure 106: Add function - Control panel key, Call to Port destination

Reciprocal or return routes between sources and destinations are not made automatically and must be manually assigned. An exception is the *Auto Reverse Talk Option*, available for 4-wires. See: [9.1.4 Settings](#) > Options, Miscellaneous, > Enable Auto Reverse Talk option.

### 8.13.8 Drag & Drop programming

Another, more efficient method of programming keys and virtual functions is offered by Window's® Drag & Drop function. First, double click on a port to open it in Director's Workspace. Ports, conferences, GPIs and logic sources can be dragged directly to keys using Drag & Drop from the Navigation Bar. Open the corresponding tab in the Navigation Bar. Click on a port or function and hold down the mouse key. Now pull the pointer to the key that should be programmed and release button on the mouse.

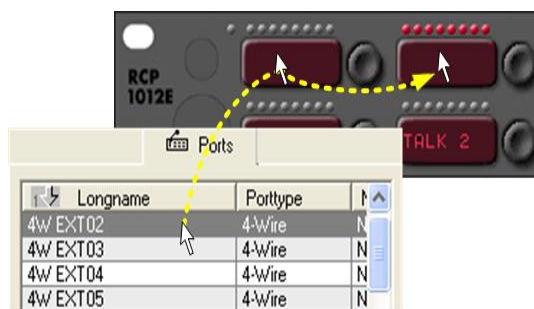


Figure 107: Add function - Panel Drag and Drop Programming

- Drag & Drop a control panel, 4-wire or 2-wire Out automatically programs a “Call to Port” function to that port
- Drag & Drop a 2-wire In automatically programs a “Listen to Port” function to that port
- Drag & Drop a group adds a “Call to Group” command
- Drag & Drop a conference adds a “Call to Conference” function
- Drag & Drop a GPI Out adds a “Switch GPI Out” command
- Drag & Drop logic source adds a “Logic” command

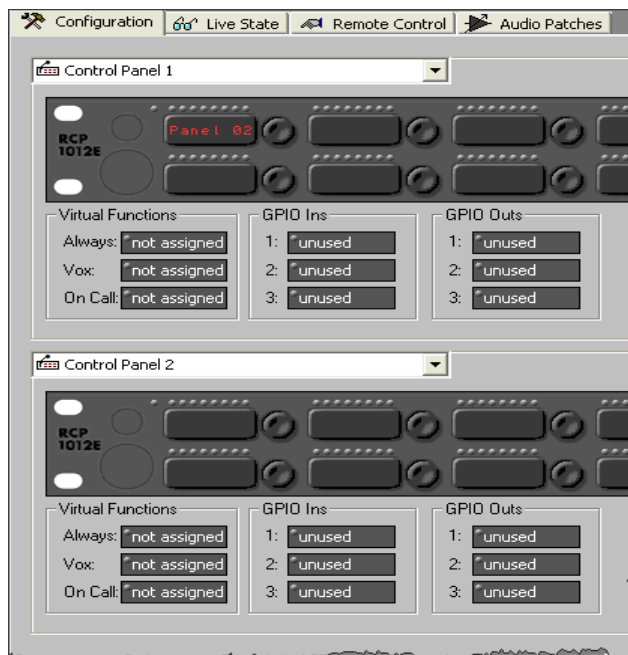


Figure 108: Add function - View of destination panel

## 8.13.9 Copying and moving keys

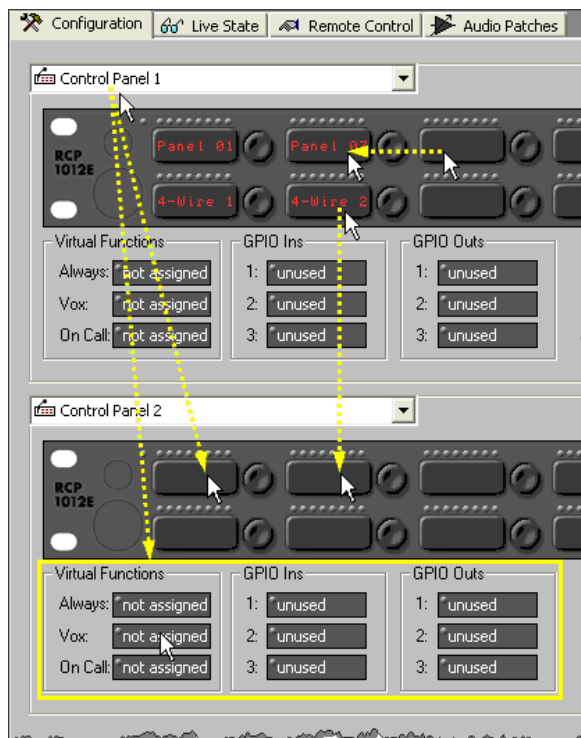
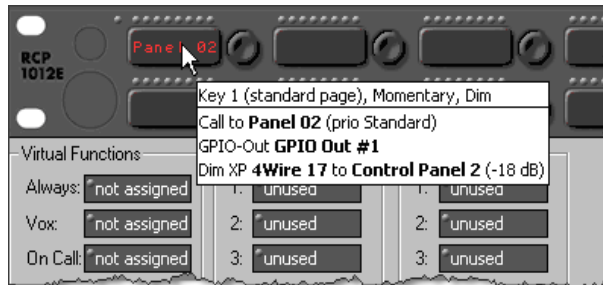


Figure 109: Add function - Key assignments on the destination panel

- All commands and properties of a key can be easily copied to a key of another port via Drag & Drop
- All of the keys on the shift page of a panel can be copied by >Drag, ->press <F3>, -> Drop
- To move a key, simply Drag & Drop it elsewhere on the same page
- Other ports can be shown in either the source or destination position by manually selecting the port from the drop-down lists. You can also open ports by Drag & Drop from the Navigation Bar to a drop-down list.
- The drop-down list can also be used as the source for other Drag & Drop actions

### 8.13.10 Multiple assignments on a single key

All keys, Virtual Functions and GPIs can be assigned multiple functions that are activated together. Additional functions can be added via Drag & Drop or the “Add Function” menu. A maximum of **32 functions** can be programmed to a key/Virtual Function/GPI. All of the functions programmed on a key can be viewed, edited or deleted with a right mouse click.



To get an overview of all of the functions and properties of a key or Virtual Function, simply position the mouse pointer over the key. A tooltip window will automatically be displayed with a list of all functions and properties on the key.

Figure 110: Add function - Tooltip window showing all programmed functions

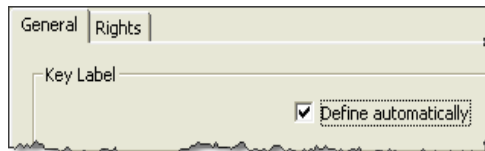


Figure 111: Naming - “Define automatically” setting

### 8.13.11 Assigning Virtual Functions

There are different ways to assign functions to Virtual Keys. A prerequisite is that the port has been opened in the Workspace.

All port types have the same Virtual Functions. 2-wire and 4-wire ports have only Virtual Functions in lieu of keys.

<b>Always</b>	As the name implies, the assigned functions are always active as soon as the port has been recognized by the system
<b>Vox</b>	The functions configured are activated as soon as the incoming audio exceeds a pre-defined level
<b>On Call</b>	The functions configured are activated as soon as the port is called by another port in the system

Figure 112: Table - Virtual functions - function description

Assigning Virtual Functions with a right mouse click menu:

A right mouse click on a Virtual Function opens a menu with the following entries:

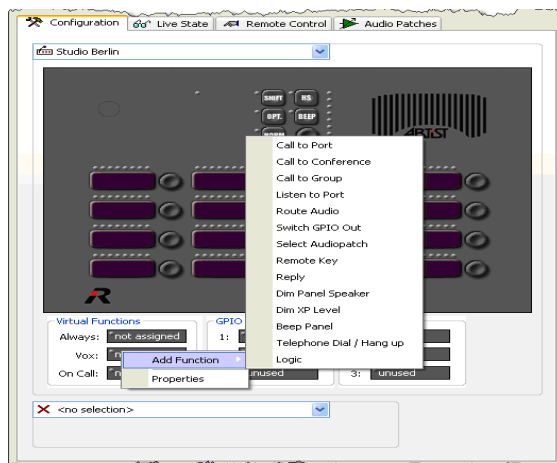
<b>Add Function</b>	Adds a new command to the Virtual Function (max. 32)
<b>Edit Function</b>	Allows existing commands to be edited
<b>Delete Function</b>	Deletes one or all of the commands on the Virtual Function

<b>Properties</b>	Opens the properties of the commands on the Virtual Function. See: <a href="#">9.15 Virtual Function Properties</a>
-------------------	---

Figure 113: Table - Virtual functions - right click menu overview

**Note:** The Edit and Delete functions will only be shown if at least one command has already been programmed on the Virtual Function.

## 8.13.12 Assigning a Virtual Function



Right mouse click on the Virtual Function and choose the function to program under “Add Function.”

As soon as a function has been assigned to a key it also appears as a new tab in the key’s Properties.

Figure 114: Add function - Adding a command to a virtual function

### Drag & Drop Programming

Another way to program Virtual Functions is with Drag & Drop. Call to Ports, Groups, Conferences and GPIs can be dragged to a Virtual Function. Open the corresponding tab in the Navigation Bar, select a function, hold down the left mouse key and drag the function onto the Virtual Function you wish to program in the Workspace.

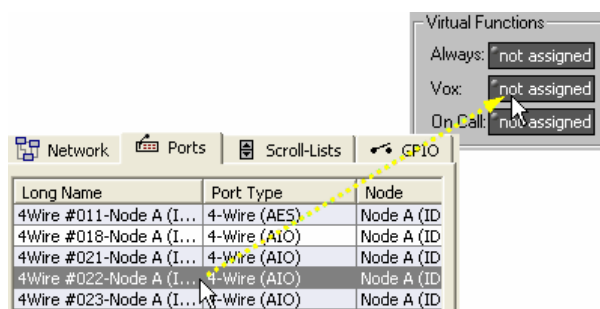


Figure 115: Add function - Virtual Function Drag and Drop Programming

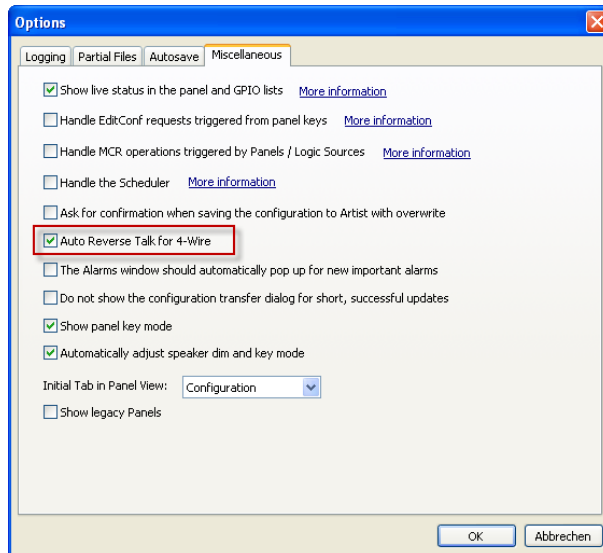
If a destination panel is dragged to a source panel via Drag & Drop, the destination panel automatically opens below in the Workspace. This allows the quick configuration of a returning call command, if necessary.

- Drag & Drop a control panel, 4-wire or 2-wire Out automatically programs a “Call to Port” function
- Drag & Drop a 2-wire it automatically programs a “Listen to Port” function to that port
- Drag & Drop a group adds a “Call to Group” command
- Drag & Drop a conference adds a “Call to Conference” function
- Drag & Drop a GPI Out adds a “Switch GPI Out” command
- Drag & Drop logic source adds a “Logic” command



### 8.13.13 Enable Auto Reverse Talk option

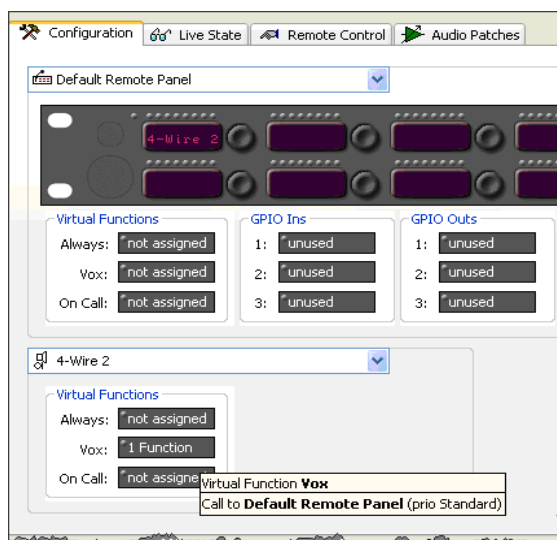
A very useful tool allows a reverse call from a 4-wire to be automatically programmed as soon as the 4-wire port is added as a **“Call to Port”** destination elsewhere. When this function is active, a call is automatically programmed to the *source panel* on the VOX function of the 4-wire. The call is then automatically deleted as soon as the call to the 4-wire from the source port is deleted.



#### Auto Reverse Talk for 4-Wires

- Select “Settings” -> “Options” from the menu in Director. The Option window will open.
- Select the tab “Miscellaneous”
- Checking the box next to “Auto Reverse Talk for 4-Wires” will activate the function
- The activation of this tool only works with the copy of Director on the local PC. It is not a part of the configuration.

Figure 116: Settings - Options - Miscellaneous - Auto Reverse Talk for 4-Wires



- If “Auto Reverse Talk” is active, Director automatically adds on the VOX function of the 4-wire called the corresponding reverse call to the source panel.
- If the “Call to” the 4-wire is deleted from the source panel, the reverse call will automatically be deleted from the 4-wire’s VOX function.
- This function is only available for 4-wires. Reverse routes between panels must be programmed manually.

Figure 117: Example Auto Reverse Talk for a 4-Wire

### 8.13.14 Panel GPIO

The GPIO Input and Outputs of a panel can be accessed by opening the panel properties. (In the Workspace, right click on the gray area around the panel and choose the GPIO tab). The GPIOs can also be opened by right clicking on one of the GPIOs and choosing “Define GPIO.” This window allows GPIOs to be made available for use in programming, defined and named.

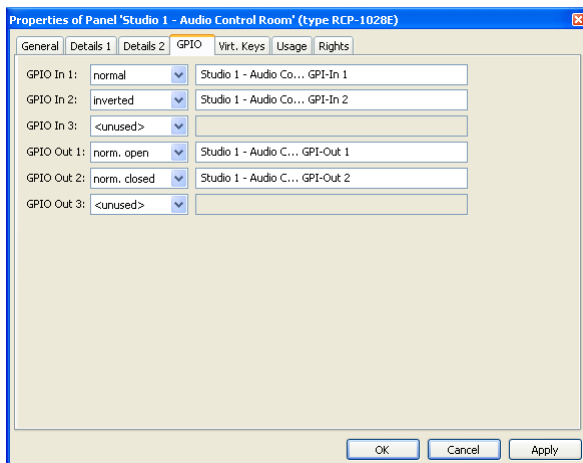


Figure 118: Panel GPIO - Panel Properties GPIO tab

Once the GPIOs are defined, functions can be added to the individual inputs and outputs. The process of configuring the GPIOs is identical to configuring keys or Virtual Functions. Up to **32 functions** can be added per GPIO either with a right mouse click and selecting “Add Function,” or by using Drag & Drop.

As soon as the functions of the panel GPIOs are defined they will automatically appear in the list of GPIOs found in the Navigation Bar (GPIO tab). The panel GPIOs can be used throughout the system. For example, a local GPIO input from a panel can activate a function anywhere in the system, and anyone in the system can activate the local GPIO outputs.

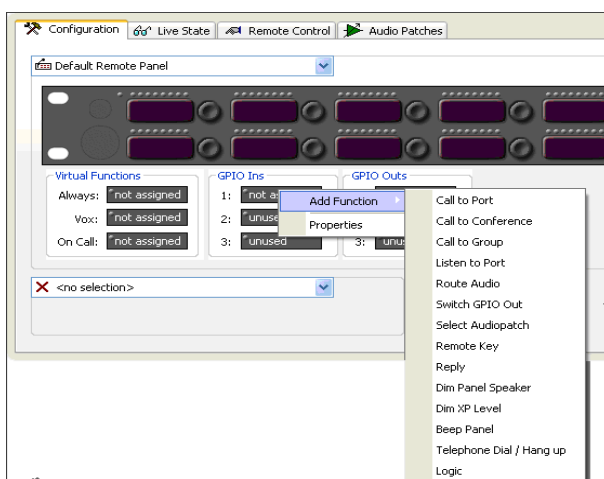


Figure 119: Panel GPIO - Add functions

The opto-isolated inputs can be inverted, if required.

The GPIO outputs can be set either as:

- **normally closed**
- or

- **normally open**

depending on your interfacing requirements. For more information, including pin-outs, please refer to the Artist Installation Guide.

## 8.14 Panel Audio Patch

An Audio Patch is a local 6x6 DSP matrix located inside a panel. This matrix allows all of the panel's inputs and outputs to be freely programmed and adjusted. For example, Audio Patch presets can be used to activate different routing configurations or amp settings with a key press.

### Inputs

<b>Panel Mic</b>	Front panel microphone
<b>Headset A</b>	Front and rear panel Headset A microphone input (XLR, D-SUB)
<b>External Mic*</b>	External microphone (via D-Sub connector on rear)
<b>Headset B*</b>	Microphone input for Headset B (via D-Sub connector on rear)
<b>Audio In A*</b>	Analogue audio input 1 (D-Sub connector on rear)
<b>Audio In B*</b>	Analogue audio input 2 (D-Sub connector on rear)
<b>Matrix CH.1</b>	First digital audio channel from the matrix
<b>Matrix CH.2</b>	Second digital audio channel from the matrix

Figure 120: Table - Panel Audiopatch - Inputs

### Outputs


<b>Speaker</b>	Integrated loudspeaker
<b>Headset A</b>	Front and rear output for Headset A (XLR, D-SUB)
<b>External Out*</b>	Active, external loudspeaker connection (D-Sub, rear)
<b>Headset B*</b>	Output for Headset B (D-Sub, rear)
<b>Audio Out A*</b>	Analogue audio output 1 (D-sub, rear)
<b>Audio Out B*</b>	Analogue audio output 2 (D-sub, rear)
<b>Matrix CH.1</b>	First digital audio channel to the matrix
<b>Matrix CH.2</b>	Second digital audio channel to the matrix

Figure 121: Table - Panel Audiopatch - Outputs

**\* only available on 1000 and 2100 series panels**

An Audio Patch stores all of the limiter, compressor and bandpass filter settings for the individual analogue audio I/Os.

Any number of Audio Patches can be created for a control panel, but only one Audio Patch can be active at any given time. These predefined audio settings can be activated by anyone in the system through a key press, VOX function or logic source.

The Audio Patches can be accessed via the panel workspace. Choose the  Audio Patches tab.

The Audio Patches tab displays the internal audio matrix of the panel for programming. There are always at least two Sub-Patches, the *Speaker* and *Headset Patch*. The “HS” key on the front of the panel switches between the two Sub-Patches. If the panel is being used in 2-channel mode, the source and destination of the second matrix channel will be available.

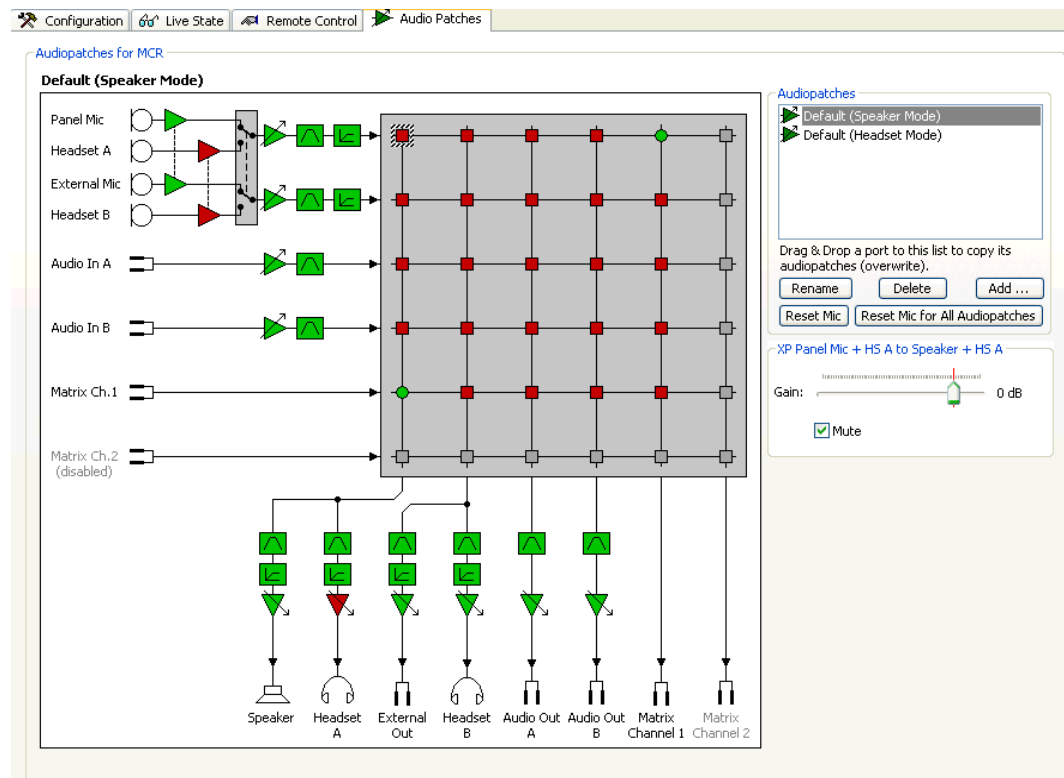


Figure 122: Panel Audiopatch - default Audio Patches

The sources (inputs) are displayed on the left side (Y axis) and the destinations (outputs) are shown on the bottom (X axis). All Audio Patch elements that can be changed are displayed in colour. The colours have the following meanings:

- = off
- = active

The “Default Speaker Mode” Audio Patch, for example, shows that the microphone pre-amp is active while the headset microphone is turned off. The crosspoint from the panel microphone to the 1<sup>st</sup> Artist AES channel is open so that the audio is routed to the matrix. A crosspoint is also active from the 1<sup>st</sup> AES channel of the matrix to the loudspeaker while the headset output is muted. This set-up enables standard intercom functionality.

### 8.14.1 Example: Audio Patch ‘Cough’ or ‘Mic-Mute’

Audio Patches are used to define a panel’s basic audio settings as well as other temporary audio presets for special applications. These special presets can be activated using the [“9.16.9 Select Audiopatch”](#) command.

A so-called “cough key,” which temporarily turns off the microphone, can be programmed using a new Audio Patch. The crosspoint from the microphone to the matrix is turned off while the input from the matrix to the loudspeaker remains open. It is recommended to modify the new Audio Patch to shut off the microphone in both speaker and headset mode since one never knows which microphone the panel user will choose.

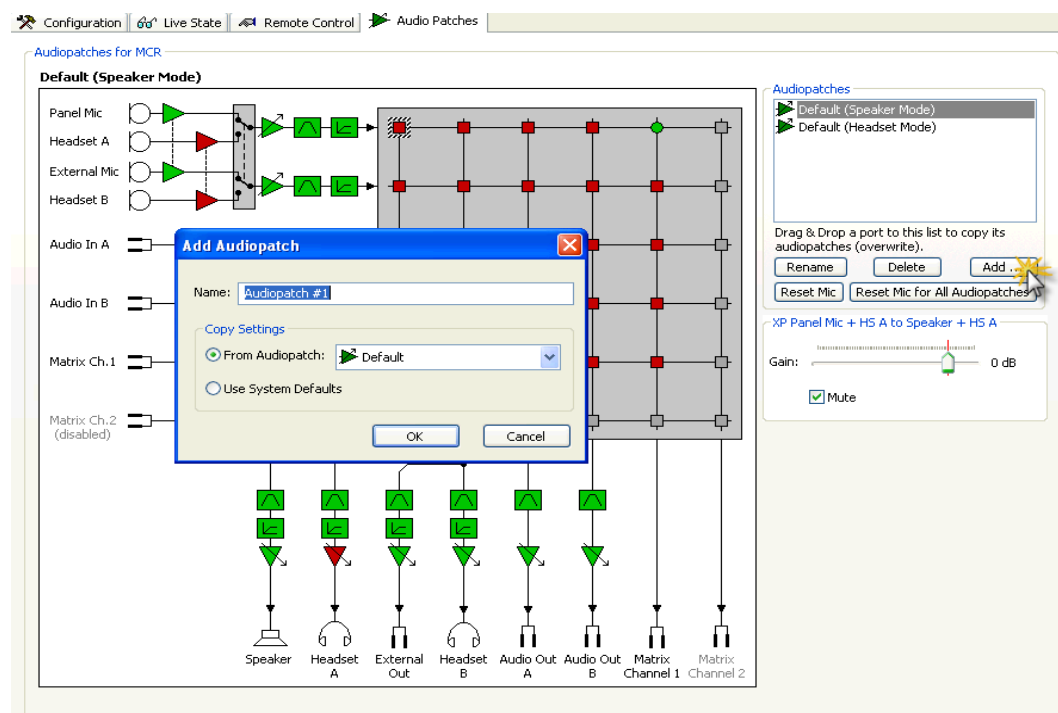


Figure 123: Panel Audiopatch - Add Audio Patch

- Press the **Add** button to display the “Add Audiopatch” window
- Select an Audio Patch in “Copy Settings” to choose an existing Audio Patch from which to copy the initial settings for the new Audio Patch
- Enter a name for the new patch. In this example, the name is *Mic Mute*.

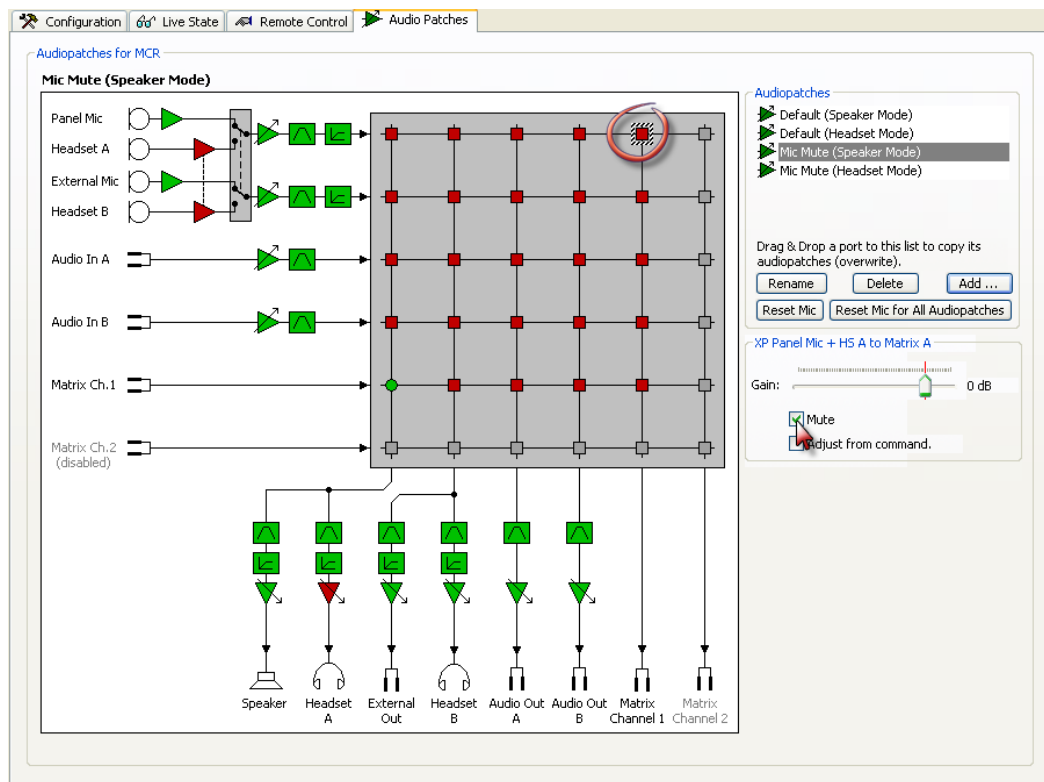


Figure 124: Panel Audiopatch - Audio Patch "Mic mute"

- In the "Audiopatches" list select the new "Mic Mute" patch.
- Select the crosspoint from the microphone to Matrix Ch. 1 with a mouse click
- Change the crosspoint from active (green) to mute (red) by unchecking the box ☐ Mute

### 8.14.2 Audio Patch “Headset” for 3000 series control panels

Since a 3000 series panel does not have a dedicated headset button, switching to headset mode must be manually configured to a key.

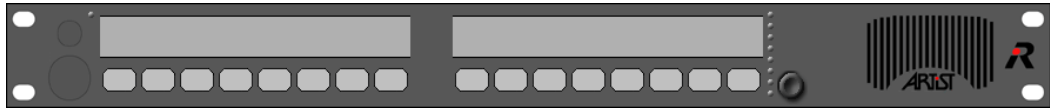


Figure 125: RCP3016 panel

Again, the default Audio Patch can be used as the basis for the headset mode. Since this type of panel has no “HS” key the headset mode of the standard Audio Patch has no effect. This means that the speaker mode of the new Audio Patch must be rerouted for headset use.

**Attention: The “Default (Headset Mode)” Audio Patch does not function in the 3000 series panels.**

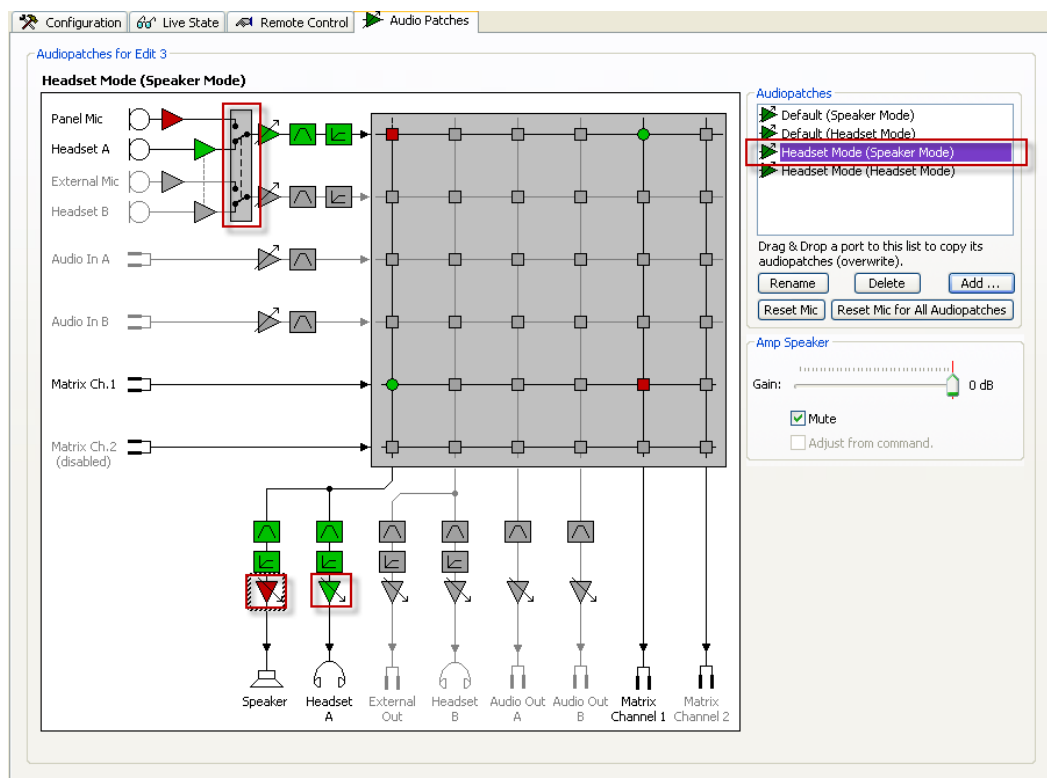


Figure 126: Panel Audiopatch - RCP3016 panel - Audio-Patch “Headset Mode”

This new Audio Patch can then be activated via a panel key (Latching, No Dim) with the [“9.16.9 Select Audiopatch”](#) command.



Figure 127: RCP3016 panel - Headset switching via “Select Audiopatch” function

### 8.14.3 Audio Patch parameters

The following audio parameters can be set in an Audio Patch:

- Mic pre-amp
- Speaker / headset switch
- Amp
- Bandpass filter
- Limiter / compressor
- Crosspoint activation/deactivation, crosspoint level control

Click on the corresponding symbol in the matrix to change one of these parameters. The selected element will be highlighted and its parameters will be displayed under the list of Audio Patches. To change a setting, move the level indicator or click on the parameter value desired.

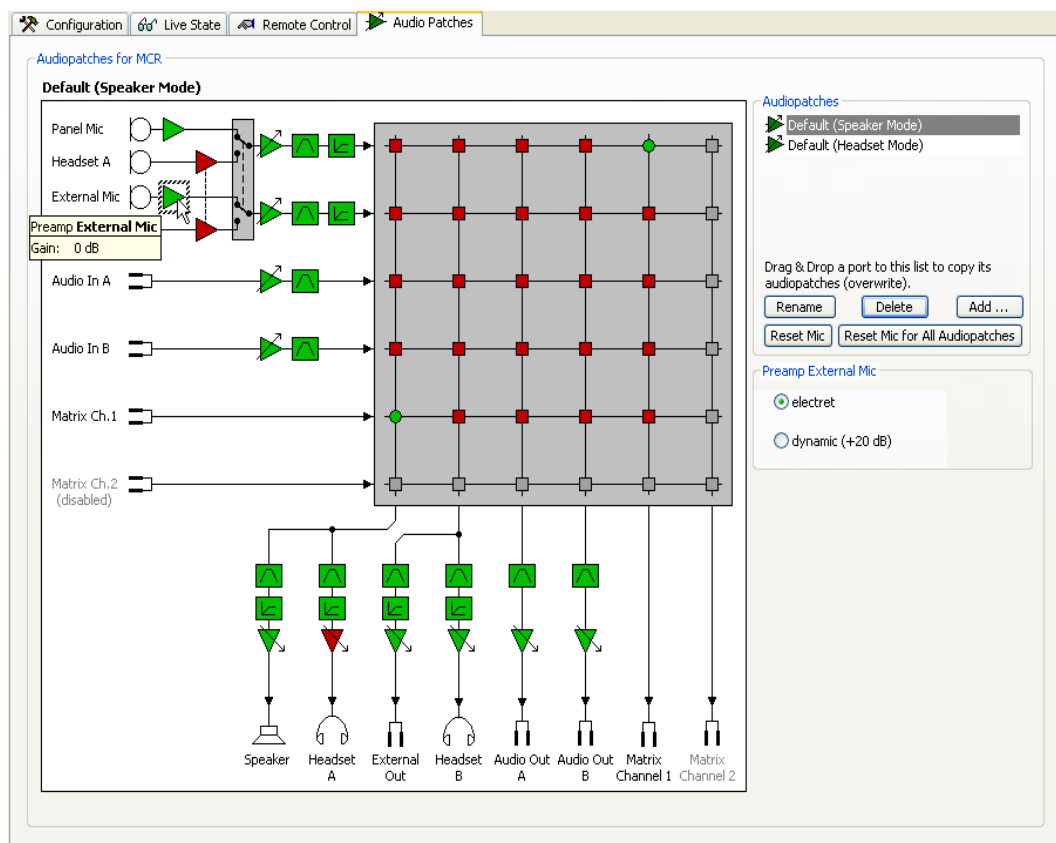


Figure 128: Panel Audiopatch - Audiopatch options



### 8.14.3.1 Audio Patch Mic Pre-amp

If the mic pre-amp of the “external mic” or a headset input is selected, the gain level can be changed. You can set the pre-amp to 0 dB for electret microphones (default) or +20 dB for dynamic mikes. The panel mic is always set to electret.

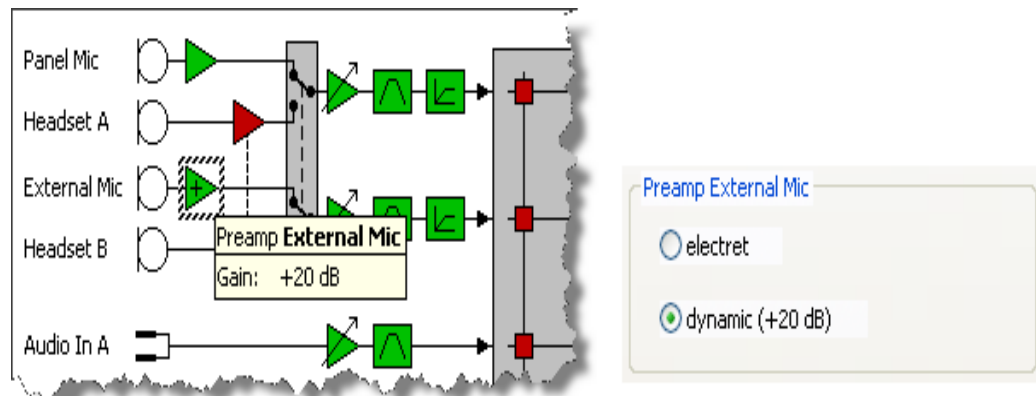


Figure 129: Panel Audiopatch - pre-amp options

### 8.14.3.2 Audio Patch Panel Mic / Headset Switch

The setting of the panel mic / headset switch can be manually changed. This is useful if, for example, a panel should only be used in headset mode. Pressing the HS key will then result in no change in panel settings. To change the switch, first select it in the Audio Patch and then change the settings in the box on the right side of the screen.

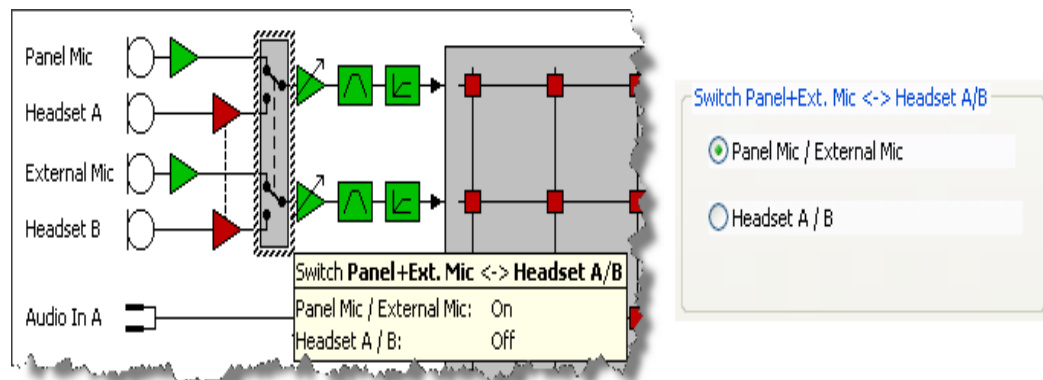


Figure 130: Panel Audiopatch - Mic / Headset switch

### 8.14.3.3 Audio Patch Amplifier

There is an amplifier element for analogue I/Os that can be adjusted from 0 dB to +18.5 dB in 0.5 dB steps.

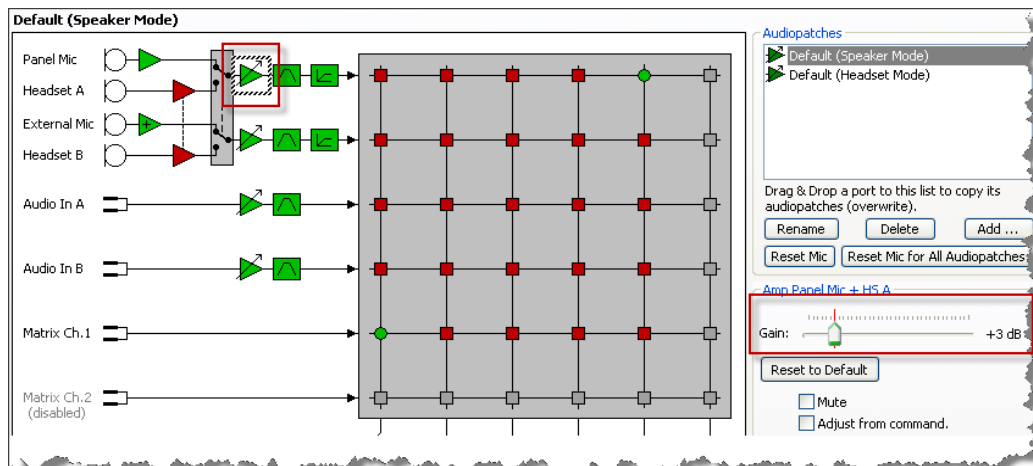



Figure 131: Panel Audiopatch - amplifier

If the function “☒ Adjust from command” is activated, the amplifier can later be adjusted from a control panel key (available only on the 1000 and 2100 series panels). The amplifier symbol will be then turn blue , signalling that the amplifier is now available system-wide for control with the “Control Audiopatch” function. See: [9.16.10 Control Audio Patch](#).

### 8.14.3.4 Audio Patch Bandpass

The high and low bandpass filters in every I/O can be used to cut certain frequencies in noisy environments.

<b>High-Pass Filter</b>	off, 40Hz to 240Hz on a logarithmic scale (default is off)
<b>Low-Pass Filter</b>	off, 1kHz to 16kHz on a logarithmic scale (default is off)

Figure 132: Table - Audiopatch - Bandpass filter

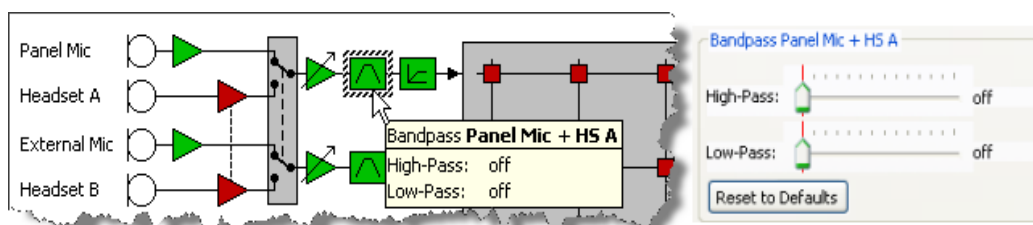


Figure 133: Panel Audiopatch - bandpass options

### 8.14.3.5 Audio Patch Compressor/Limiter

A fully featured compressor/limiter is available for the panel Mic In and Speaker. They can be used to improve speech quality, for example if the distance between the user and microphone is very far.

#### Compressor parameters

Threshold	-48dB to 12dB in 3dB steps
Ratio	1:1 to 8:1 in an arithmetic progression
Attack	100ms to 100s in an arithmetic progression
Release	10ms to 1s in a logarithmic progression

Figure 134: Table - Panel Audiopatch - Compressor parameters

#### Limiter parameters

Out-Level	-33dB to 12dB in 3dB steps
Threshold	12dB to 0dB in 3 dB steps
Attack	100ms to 100s in an arithmetic progression
Release	10ms to 1s in a logarithmic progression

Figure 135: Table - Panel Audiopatch - Limiter parameters

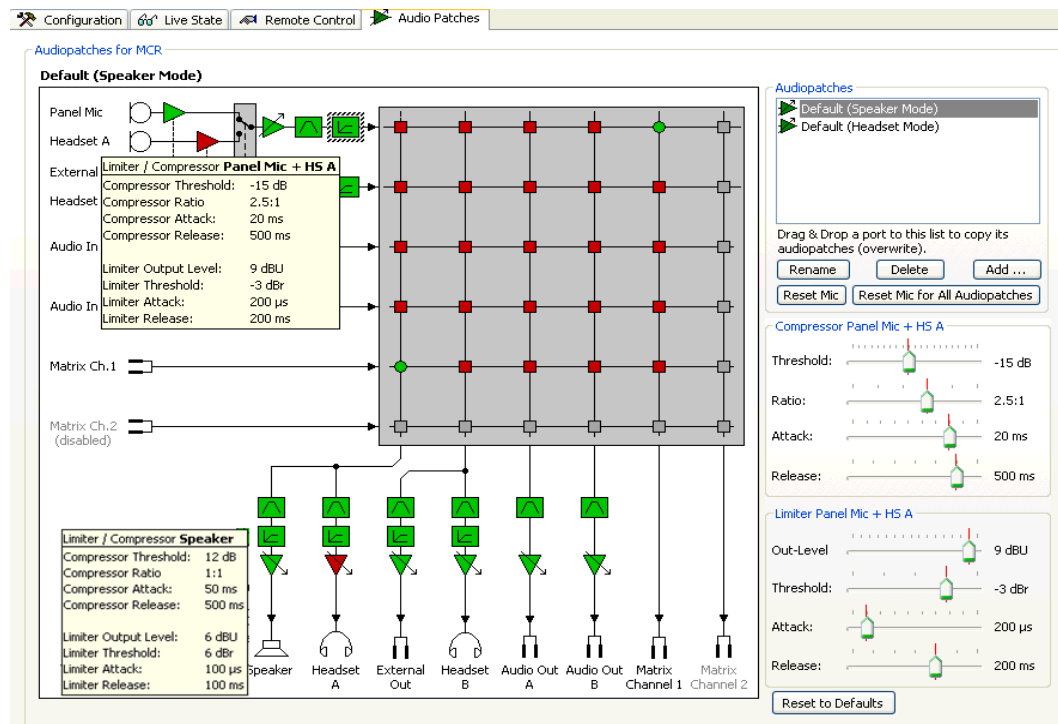


Figure 136: Panel Audiopatch - compressor/limiter input/output

### 8.14.3.6 Audio Patch Crosspoints

For every audio in and out there is a corresponding crosspoint that enables any source to be routed to any destination. The individual crosspoints can be activated or muted by selecting the crosspoint and changing the ☒ Mute checkbox. In addition, the crosspoint gain can be adjusted from -60 dB to +12 dB in 1 dB steps (default is 0 dB).

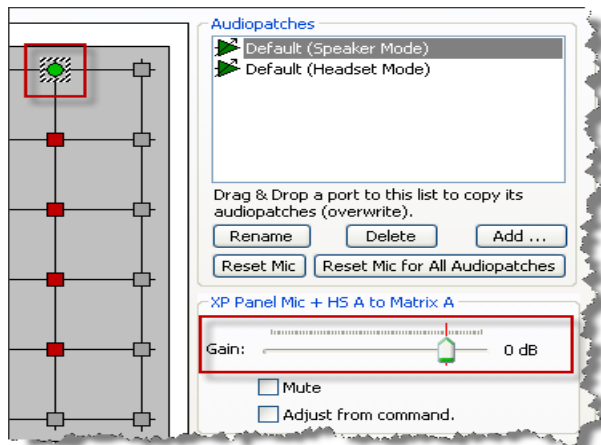






Figure 137: Panel Audiopatch - crosspoint options

If the function “☒ Adjust from command” is activated, the gain can later be adjusted from a control panel key (available only on the 1000 and 2100 series panels). The crosspoint symbol will be then turn blue , signalling that the gain is now available system wide for control with the “Control Audiopatch” function. See: [7.16.10 Control Audio Patch](#).

-  = off
-  = active
-  = adjustable by command

**Attention:** Crosspoints that are set to “Adjust from command” are permanently opened (active) in the entire panels Audio Patches, regardless of which Audio Patch is currently selected. This means that the ability to switch a crosspoint via “Select Audiopatch” with the additional capability to adjust it via “Control Audiopatch” is not possible at this time.

## 8.15 Copy Panels and Apply Default Parameters

The “**Edit**” menu offers two very useful functions: The ability to copy an already configured panel, and the ability to change default settings system wide.

### 8.15.1 Copy panel

The “**Copy Panel**” command allows quick and easy copying of all panel key functions and audio settings to other panels of the same panel type. The command can be accessed by selecting “**Copy Panel**” from the edit drop down menu.

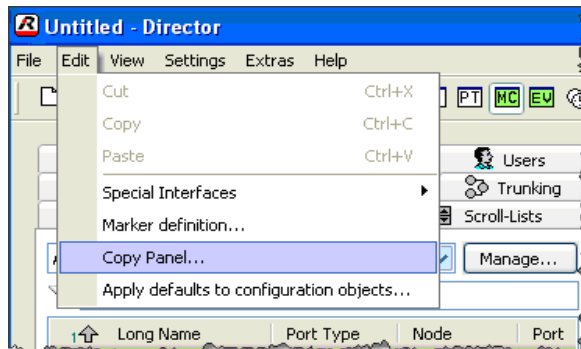


Figure 138: Copy Panel - Edit> Copy Panel

The “**Copy Panel**” function can also be found in the properties menu of a panel.

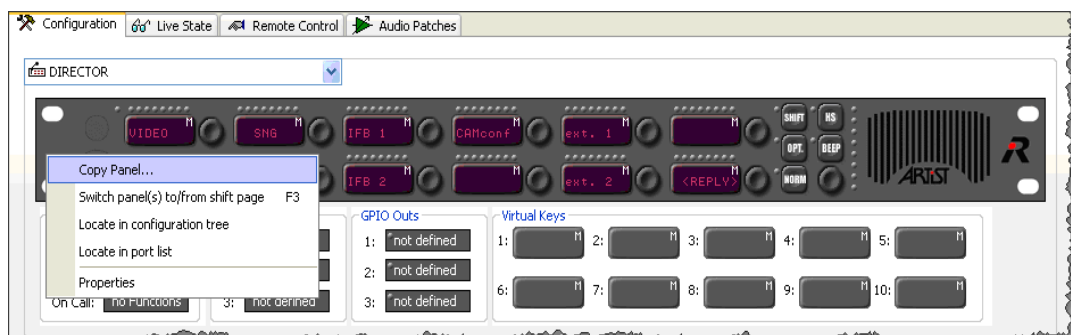


Figure 139: Copy Panel - Panel > Copy Panel

If you open the copy panel function via the panel properties, the selected panel will automatically be added as the source panel which can be copied to one or more additional panels. If you open the function using the “**Edit**” menu, you must manually select the source panel from the source panel list.

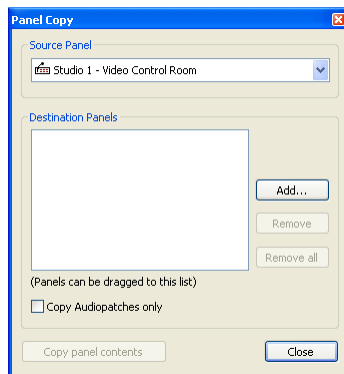


Figure 140: Copy Panel window

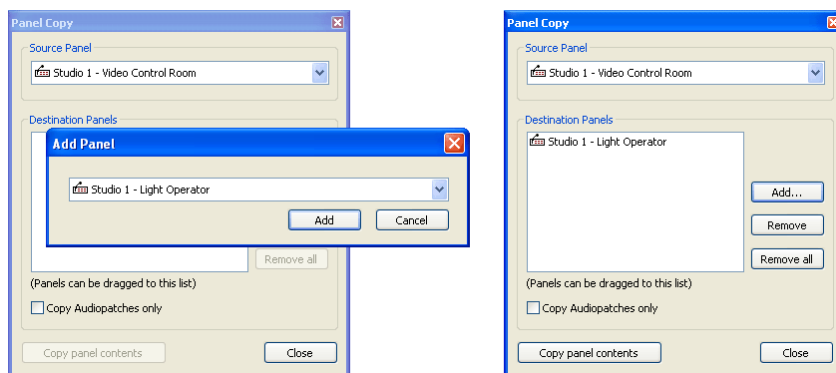



Figure 141: Copy Panel window - Add Panel

You can choose to copy the entire panel, including all key functions, properties, commands and Audio Patches. Or, by clicking the “Copy Audiopatches only,” you can copy just the audio settings and Audio Patches of a panel without changing the key functions of the destination panel.

Clicking the  button opens a window asking you to confirm before the destination panels will be changed.

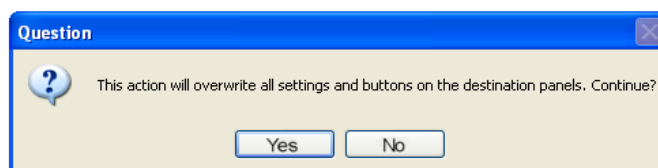
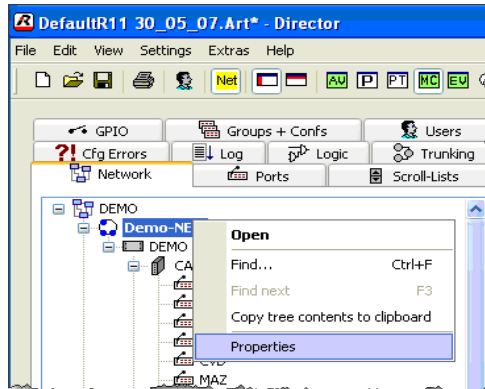


Figure 142: Copy Panel - confirmation

**Note:** Copying an entire panel will overwrite all existing key commands/properties at the destination panel. If you have special functions on the source panel, such as Remote Key commands, they will also be copied one-to-one to the destination panel. After the copying procedure some key commands on the destination panel may have to be manually adjusted in order to function correctly.

## 8.15.2 Apply defaults to all existing objects

The “Apply defaults to all existing objects” command can be used to apply specific settings from the default settings in the Net properties to all existing ports. First, you must adjust the parameters you wish to change in the Net properties.



Open the Network Tab in the Navigation Bar, right mouse click on the “Net” and select “Properties.”

Change the parameters that you wish to later copy to all ports or panels in the system.

Figure 143: Apply defaults - Net Properties

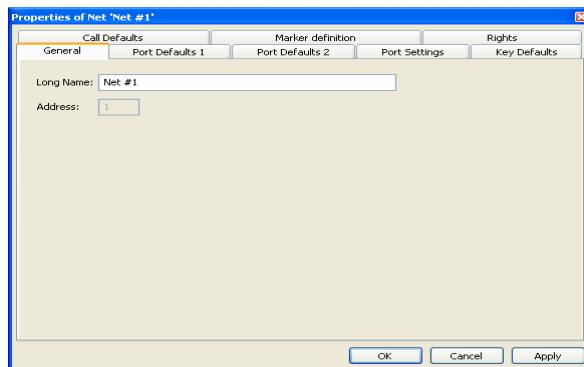


Figure 144: Apply defaults - Net Properties - General tab

**Note:** If items are changed in the Net Properties, the changes will only affect newly created ports. Already existing ports will not be changed. Only by using the command “Apply defaults to configuration objects...” can these changes be transferred to all of the existing ports in the system.

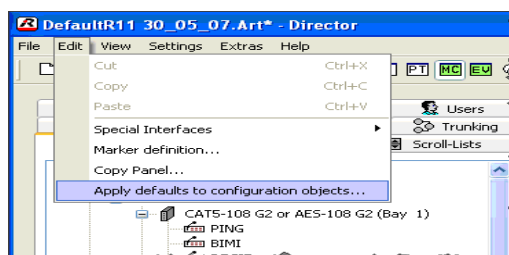


Figure 145: Apply defaults - Edit - Apply defaults to configuration objects ...

The “Apply defaults to all existing objects” allows the parameters to be selected that should be transferred to all existing ports.

The “Apply defaults...” window is divided into four areas: *Panel Defaults*, *Call Defaults*, *Key Defaults* and *Audio Patch Defaults*.

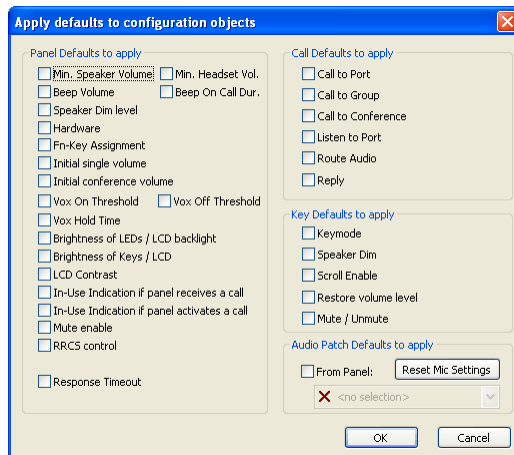


Figure 146: Apply defaults - Apply defaults to configuration objects window

The parameters that should be changed on all panels are selected with a checkmark ✓. Clicking the OK button will overwrite these parameters in all ports of the system with the values in the Net properties.

If you choose a panel in the “Audio Patch Defaults to apply” field the audio settings of this panel will overwrite the settings of all other panels in the Net.

**Attention: Individual port settings will be overwritten by this command.**



## 8.16 Configuration of typical intercom functions

### 8.16.1 Interrupted Foldback (IFB)

IFB is a typical intercom function that is used frequently. A source is permanently routed to a particular destination. If someone makes a call to this destination the permanently routed source is either muted or dimmed. The dim level is adjustable. The typical dimming range is from -15 dB to -30 dB. After the call to the destination is over the permanently routed source returns to its normal volume level. This application is used, for example, if a director wants to speak with the talent over an earpiece that normally receives program audio or an N-1.

An additional option or requirement is the ability to listen to the talent's return feed, normally their microphone output, on a control panel. The volume control next to the call key then allows the incoming volume level of the talent to be adjusted. If the volume control is pressed the incoming audio is either muted or re-activated.

**If you intend to adjust the volume level of the talent's return feed it is advisable to use a 4-wire port for the talent. The 4-wire's output will feed the talent's earpiece. The output will also be used for the permanent program audio or similarly as an IFB output. The 4-wire input will be used for the talent's microphone, which can also be connected to the 4-wire port of the Artist over an audio mixer. This setup allows IFB functions to be programmed quickly and easily.**

There are three different ways to program an IFB (*Interrupted Foldback*). The end results are the same, but the programming approaches are different.

We recommend Method 3 ([Using the IFB table](#)), since it offers the most flexibility.

## 8.16.1.1 Method 1: DIM Crosspoint On Call

One way to program an IFB is to use the “Dim XP Level” function in conjunction with a 4-wire port’s “On Call” Virtual Function. The right side of the diagram below summarizes the necessary steps.

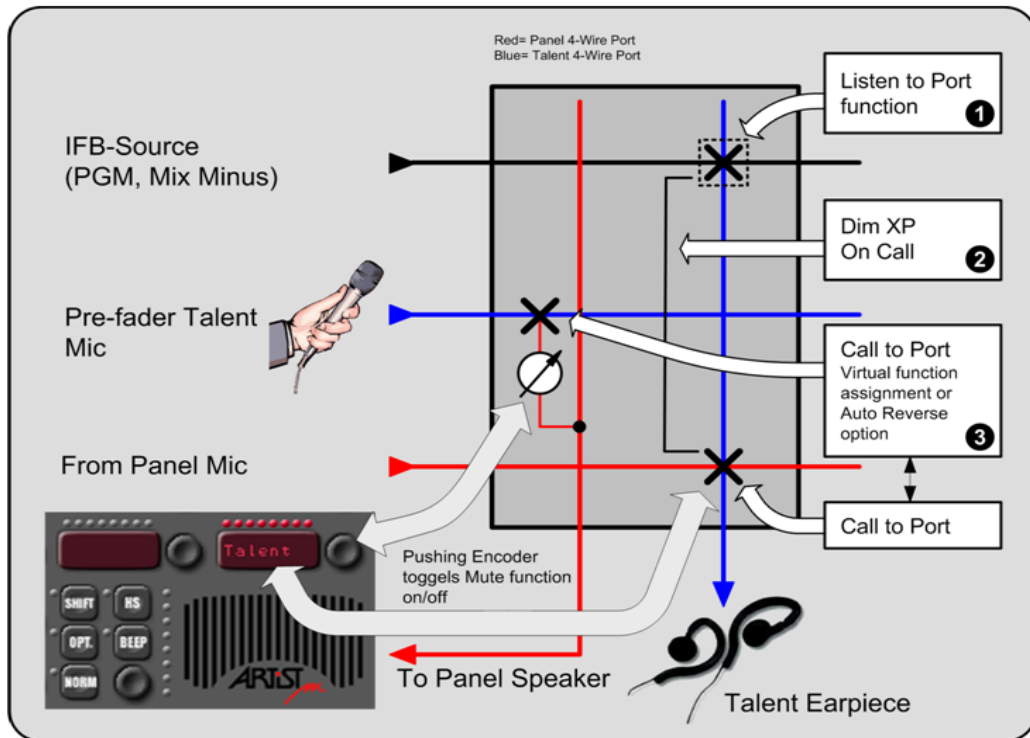


Figure 147: IFB - configure IFB with DIM XP on call

### Step 1

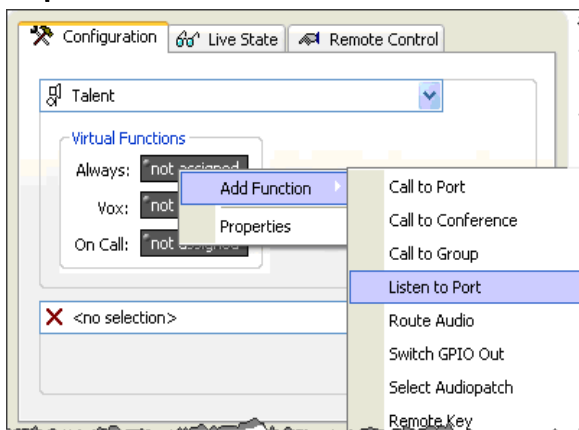


Figure 148: IFB - Adding the listen source

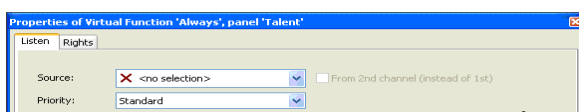
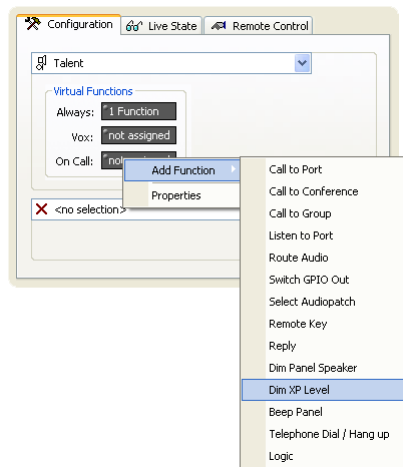


Figure 149: IFB - Select the listen source port

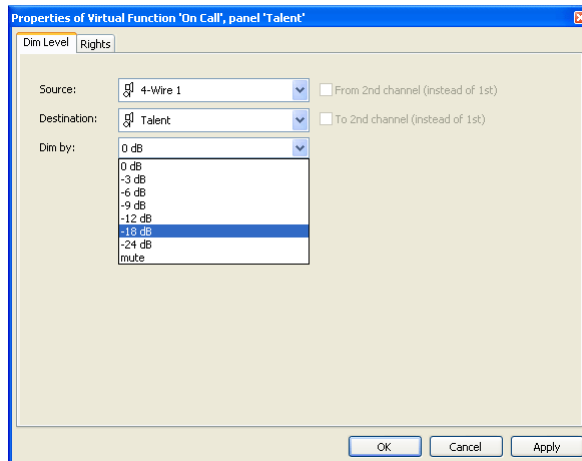
- First, select the 4-Wire or split 4-Wire destination (output) port by double clicking on the entry in the “Ports” tab in the Navigation Bar.
- Right mouse-click on the Virtual function “Always” and select “Listen to Port” from the “Add Function” drop-down menu.
- In the properties window of the listen function, choose the IFB source port that the 4-wire should always hear.
- Confirm with “OK”

## Step 2



- Right mouse click on the 4-wire's Virtual Function "On Call" and select "Dim XP Level" from the "Add Function" menu

Figure 150: IFB - Adding Dim XP Level



- In the properties window of Dim XP under **Source** select the 4-wire of the IFB signal (PGM, N-1,...). For the **Destination** select the talent's port.
- Set the desired dim level, by which the IFB signal should be dimmed when the talent receives a call.

Figure 151: IFB - Setting the XP Dim Level

## Step 3

The IFB function is now setup correctly. Simply drag and drop the talent's port to a panel key or 4-wire Vox function for everyone who should be able to speak to the talent. Calling the talent will activate the "**Dim XP Level**". The talent's return feed must be configured separately (like every 4-wire). If you activated the "**Auto Reverse Talk for 4-Wire**" option in Director, the return will be automatically programmed. This setup enables the return communication of the talent to be heard on the panel with the ability to adjust the volume.

## 8.16.1.2 Method 2: DIM Crosspoint triggered by priorities

Another way to program an IFB is to use the various call and listen priorities. A higher priority will dim a lower priority. The “Dim Level” is set in the [Net properties](#) window. This means that all IFBs programmed this way will have the same dim level. The diagram below summarizes this method of creating IFBs.

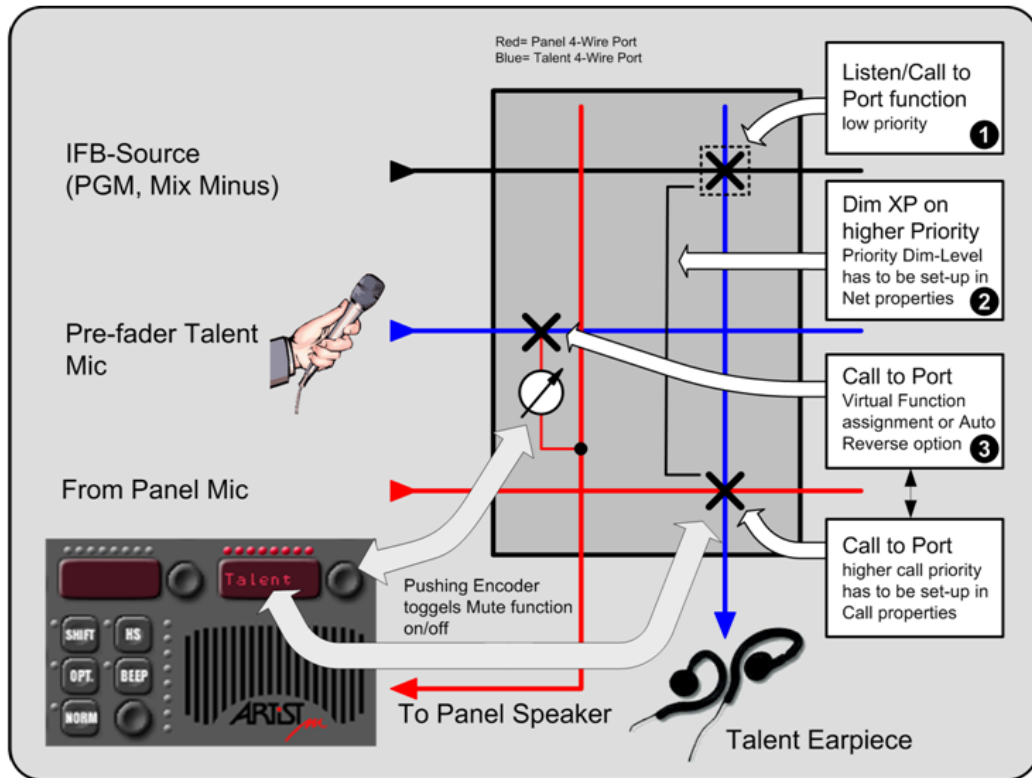


Figure 152: IFB - configure IFBs with priorities

### Step 1

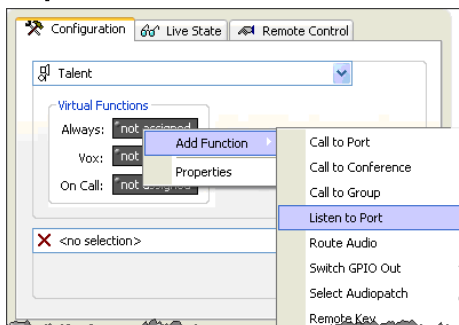


Figure 153: IFB - Adding the listen source

- First, select the 4-Wire or split 4-Wire destination (output) port, by double clicking on an entry in the “Ports” tab on the Navigation Bar.
- Right mouse-click on the Virtual Function “Always” and select “Listen to Port” from the “Add Function” drop-down menu.
- In the properties window of the listen function choose the IFB source port that the 4-wire should always hear.

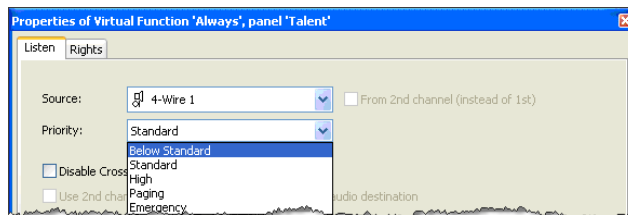


Figure 154: IFB - Select the priority of the listen command

Set the priority level for this function. Normally, “*Below Standard*” is chosen since the rest of the commands in the system usually have the priority “*Standard*.”

## Step 2

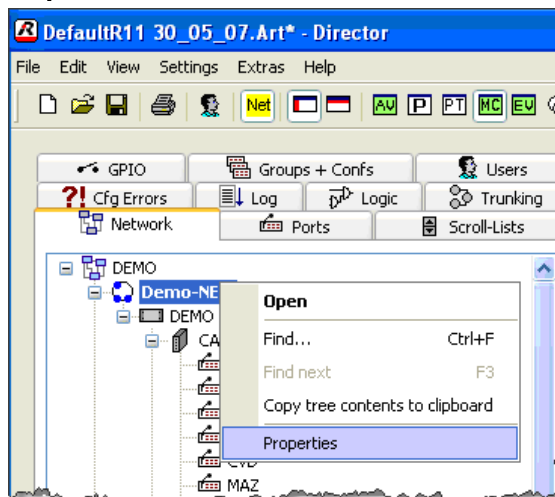


Figure 155: IFB - Opening the Net Properties

- Right mouse click on the “Net” and choose “Net Properties.”
- Select the “Port Settings” tab in the “Net Properties” window.
- If necessary, change the dim level for the individual priority levels.
- For example, if you set “Standard” to -12 dB, any crosspoint to a destination with “Below Standard” will be dimmed by -12 dB as soon it is called by a call that has the Standard priority.
- The priorities “High”, “Paging” and “Emergency” work the same way. Lower priorities will be dimmed by the value set in this window.

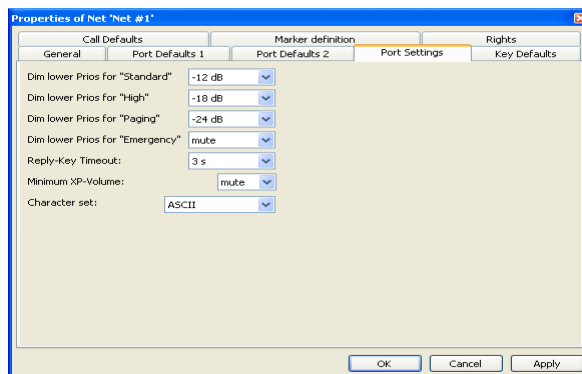



Figure 156: IFB - Net Properties - Port Settings

## Step 3

The IFB is now setup correctly. Simply drag and drop the talent’s port to a panel key or 4-wire Vox function for everyone who should be able to speak to the talent. Make sure that the listen command on the IFB port is set to “*Below Standard*” priority. The “*DIM*” command will be activated by a “*Call to Port*” with a higher priority (standard). The talent’s return feed must be configured separately (like every 4-wire). If you activated the “[Auto Reverse Talk for 4-Wire](#)” option in Director, the return will be automatically programmed. This setup enables the return communication of the talent to be heard on the panel with the ability to adjust the volume.

### 8.16.1.3 Method 3: Using the IFB tables

As of Director version 5.90, a new method has been included for quickly and easily creating, editing and seeing an overview of IFBs. In the so-called IFB table, new IFBs can be quickly created and existing IFBs can be edited directly.

Click on the  button in the toolbar to open the IFB table.

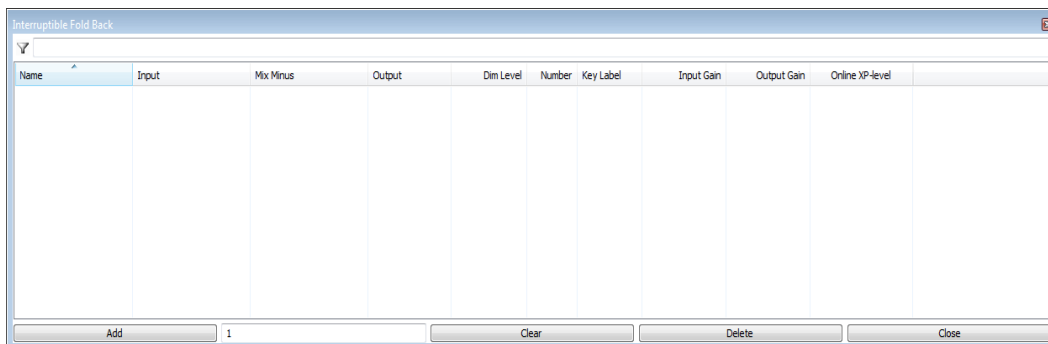


Figure 157: IFB table - Empty IFB table

Click the  button to create a new IFB. The number you enter in the field next to the add button  determines where the numbering of the IFBs starts. Create the desired number of IFBs by pressing the  button repeatedly.

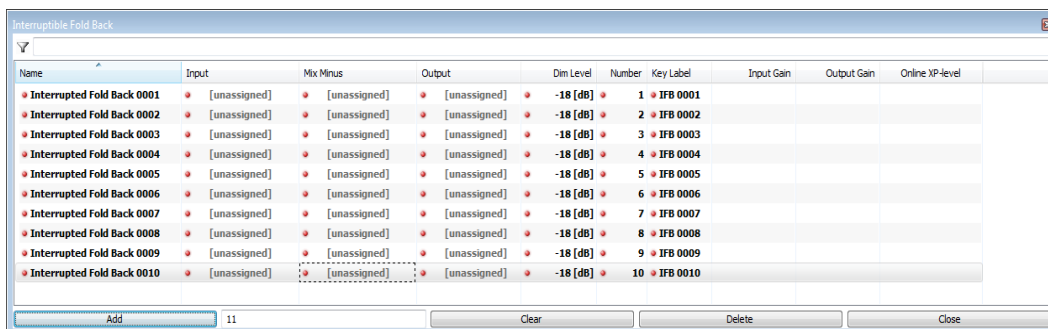


Figure 158: IFB table - new IFB entries

The columns "Input," "Mix Minus," and "Output" can be renamed. Right mouse click on the column and choose "Rename."

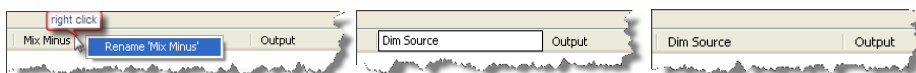



Figure 159: IFB table - Renaming the IFB columns

To rename individual IFBs, select the entry you wish to rename and double click on the name in order to change it. You may also rename the selected IFB by pressing the **<F2>** key. The name can also be changed by right mouse clicking on the name and selecting the function "Edit Name". The name can be up to 32 characters long. Confirm the new name with the **<Enter>** key.

To delete an entire IFB entry, select the row you wish to delete and click the  button or press **<Delete>** on the keyboard.

The selection of several IFBs at once is possible with the **<Ctrl>** or **<Shift>** keys.

You can now assign ports or groups to the individual IFBs. For every IFB there is the possibility to assign an “Input,” a “Mix Minus” and an “Output.”

<b>Input (Name changeable)</b>	Routes the selected sources to the ports that have the IFB assigned. For example, if a talent is selected as an input, their microphone can be heard by everyone who has this IFB. The input is not necessary for normal IFB functions.
<b>Mix Minus (Name changeable)</b>	Describes the input source that should be dimmed when the output is called. For example, a program audio source that should always be heard as long as the talent is not called.
<b>Output (Name changeable)</b>	Describes the destination of the IFB. For example, the talent's earpiece.

Figure 160: Table - IFB table - column meaning

Select the desired ports or groups to assign. Double click on the respective field and select a port/group from the drop down list.

You can sort the list by ports or groups. By using the filter you can search for a specific port/group. The Director is storing the last view per column.

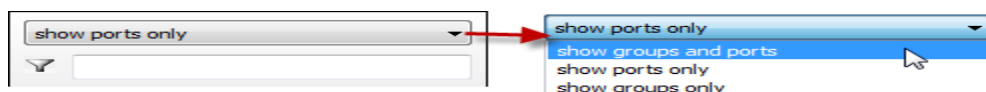


Figure 161: IFB table - selection ports/groups

For example, choose a program source for the “Mix Minus.”

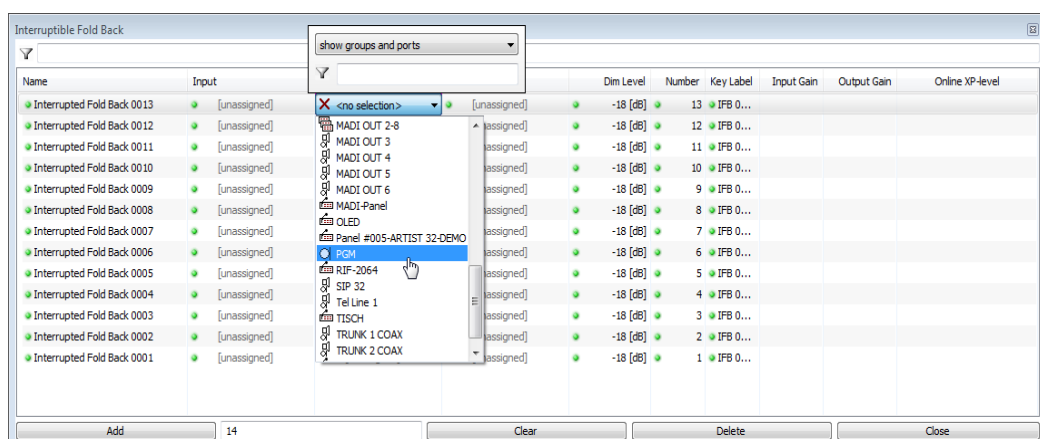


Figure 162: IFB table - Selecting the Mix Minus source

Select the desired output from the port list. You can select the output using Drag & Drop directly from the network tab or port list.

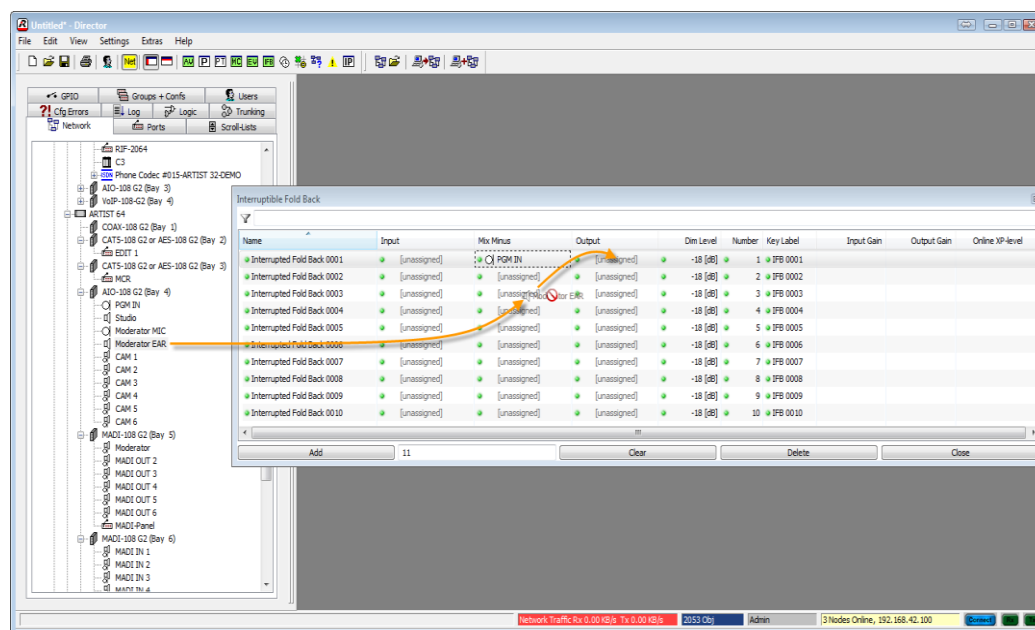


Figure 163: IFB table - assignments by Drag & Drop

The contents of selected rows can be deleted by clicking the  button.

If desired, you can also drag the talent to the "Input". This will result in all ports using this IFB hearing the audio feed from the talent directly.

As needed, you can also set the "Dim Level" for the IFBs. This determines how many dB's the "Mix Minus" is dimmed by when someone calls this IFB. Double click on this field and choose the desired dim level. You can also change the dim value using the <+> and <-> keys.

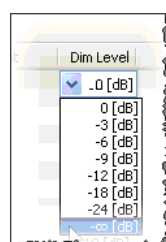


Figure 164: IFB table - Setting the dim level

In the "Number" column you can assign each IFB a number in order to sort the IFB table by number.

Enter a key label for each IFB. Double click on the field "Key Label" and enter a name with a maximum of 8 characters. Confirm the name with the <Enter> key. The name can also be changed by pressing the <F2> key or with a right mouse click and selecting "Edit Key Label". As soon as the name is changed in the table it will also be changed on all keys that have been assigned the IFB.



The newly created IFBs can now be distributed throughout the system.

Add the new function ***“Call to IFB”*** to a key or Virtual Function using a right mouse click and ***“Add Function”***. Choose the desired IFB from the list.

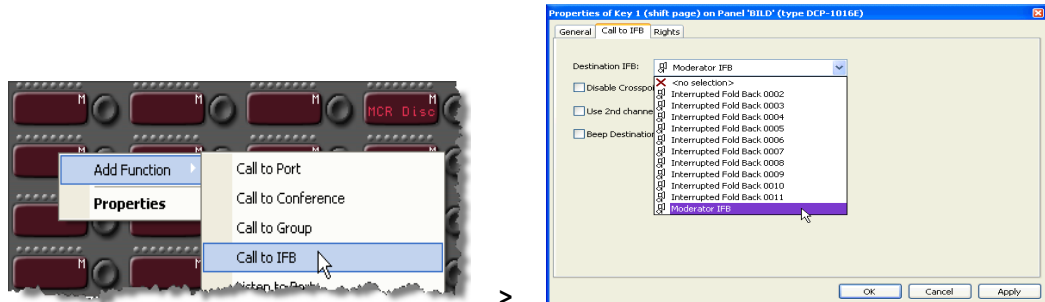


Figure 165: IFB table - Adding a “Call to IFB” function

You can also put IFB’s from the IFB table directly to keys or virtual functions using drag&drop.

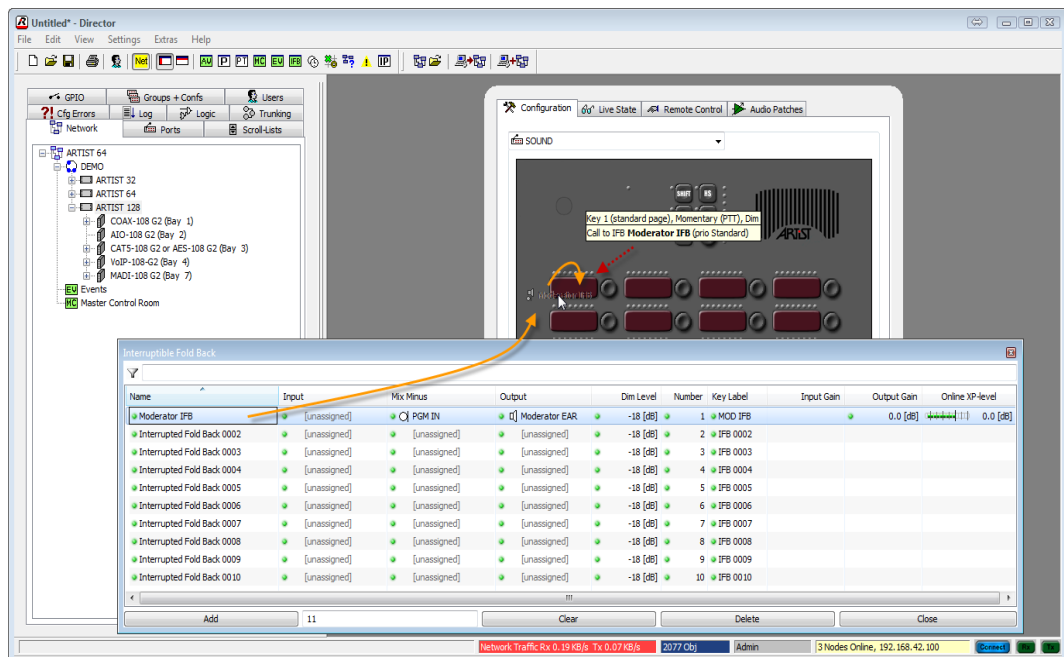


Figure 166: IFB table - Drag & Drop an IFB

In the columns **“Input Gain”** and **“Output Gain”** you can directly set the gain level of the input and output ports. Double click on the gain you wish to set and choose a level between **-18 dB** and **+18 dB**.

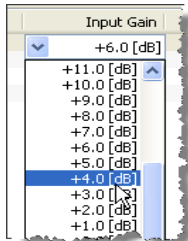


Figure 167: IFB table - Setting the gain

There are also several submenus in the IFB table to help in editing IFBs and locating programming errors.

If you right click on an IFB in the IFB table you can select **“Usage selected IFB(s)”**. This displays a list of all locations that can currently call this IFB.

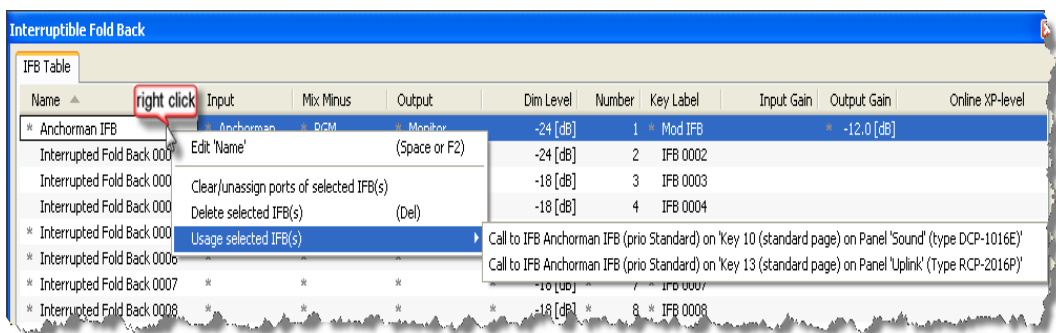


Figure 168: IFB table - Usage selected IFB(s)

A right mouse click on a port offers the possibility to go directly to its properties or find its location in the various views in the configuration.

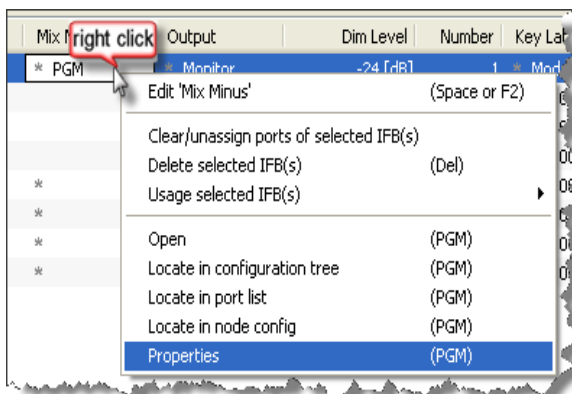





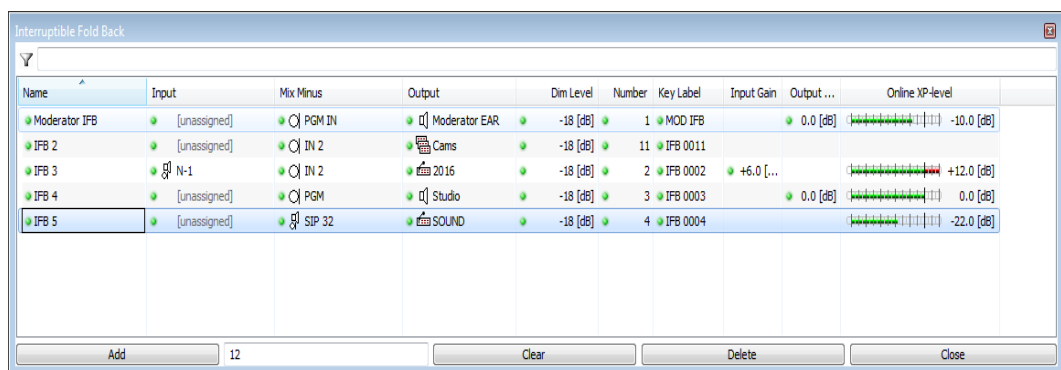
Figure 169: IFB table - Properties of an IFB port

#### 8.16.1.4 IFB Table: Online View

If Director is online with the system the status of every IFB element will be shown. It is displayed whether or not each element already exists in the online configuration.

-  : a new IFB was created, but have not yet been sent to the system
-  : the element has been changed, but the changes have not yet been sent to the system
-  : the element is available in the online configuration

Click the  key or press **<F5>** to send changes in the IFB table to the system.



Name	Input	Mix Minus	Output	Dim Level	Number	Key Label	Input Gain	Output ...	Online XP-level
Moderator IFB	[unassigned]	PGM IN	Moderator EAR	-18 [dB]	1	MOD IFB	0.0 [dB]		-10.0 [dB]
IFB 2	[unassigned]	IN 2	Cams	-18 [dB]	11	IFB 0011			
IFB 3	N-1	IN 2	2016	-18 [dB]	2	IFB 0002	+6.0 [...]		+12.0 [dB]
IFB 4	[unassigned]	PGM	Studio	-18 [dB]	3	IFB 0003	0.0 [dB]		0.0 [dB]
IFB 5	[unassigned]	SIP 32	SOUND	-18 [dB]	4	IFB 0004			-22.0 [dB]

Figure 170: IFB table -Online view

In online mode, the current audio level of the crosspoint *Mix Minus* -> *Output* is displayed graphically in the “Online XP” column.

You can directly adjust this crosspoint level in the system in real-time. Double click on the XP level you wish to change and adjust it with the control.

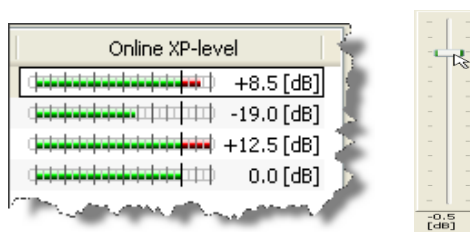


Figure 171: IFB table - Online XP level adjust

The level can also be adjusted with the “+” and “-” keys of your keyboard. An update with **<F5>** is not necessary.

**Attention:** When you are using a group as In/output or Mix minus the gain-setting is not available.

If you have assigned an input port this will be displayed and heard on the control panel. In our example, the volume of the talent's microphone can be adjusted via the corresponding encoder.

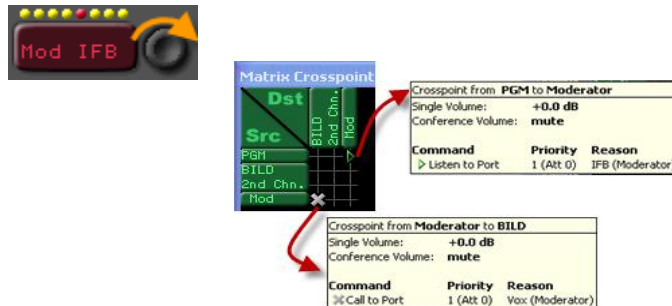


Figure 172: IFB table - IFB Crosspoint View input and no active "Call to IFB"

As soon as the "Call to IFB" key is pressed, you can speak to the talent and the "Mix Minus" will be dimmed the set level.

This can be recognized in the Crosspoint View  as follows:

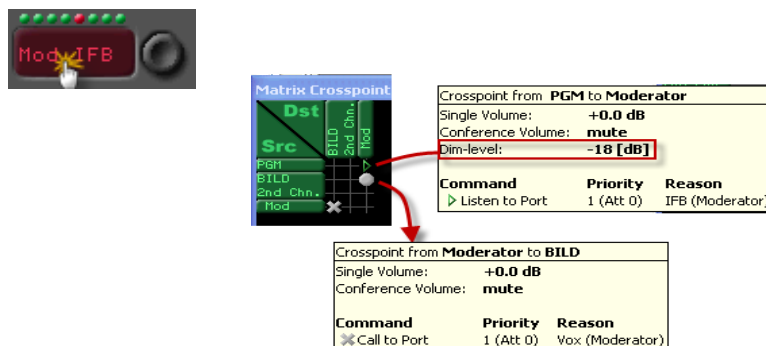


Figure 173: IFB table - Crosspoint View with an active IFB

### 8.16.2 ISO (Isolated Calls)

The ISO (Isolate Call) is a special intercom function. If an isolated call is made, all other audio paths (*call, listen, route*) to the destination are muted. This is used to create a secure connection where the called port can only hear the ISO caller, without being distracted by other audio sources. In addition, the microphone at the ISO call destination is activated and automatically routed to the source of the call. The person called can answer without having to press a key.

No special function is needed to create an ISO call. ISO calls can be activated simply by clicking the “*Isolate*” checkbox found on the “*Call to Port*” function.

#### Activating the ISO function

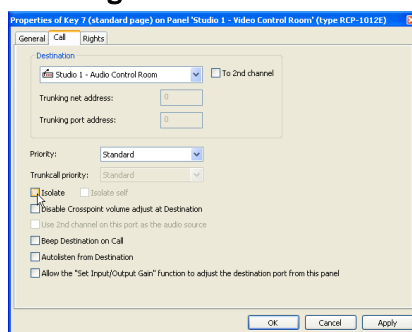



Figure 174: ISO - Activating the ISO function

Open the properties of a “*Call to Port*” on a key.

Selecting “*Isolate*” with a . It activates the ISO function for this call. As soon as this option has been activated, the “*Isolate Self*” box can be selected.

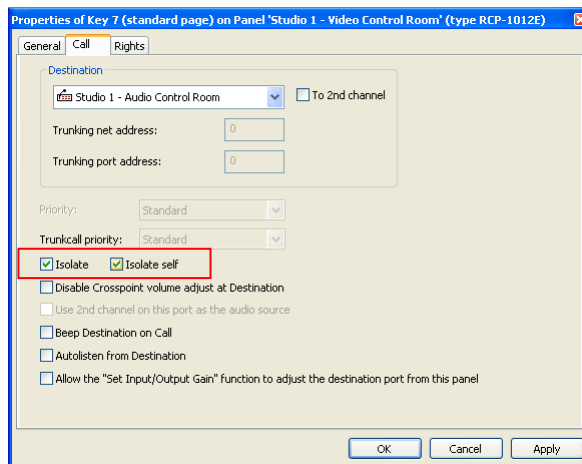


Figure 175: ISO - Isolate options

#### Isolate:

- Only the destination will be isolated from all other audio paths. The microphone of the destination will be automatically routed to the source.

#### Isolate self:


- Both the called destination and the originating source will be isolated from all other audio paths. Both microphones will be automatically opened.

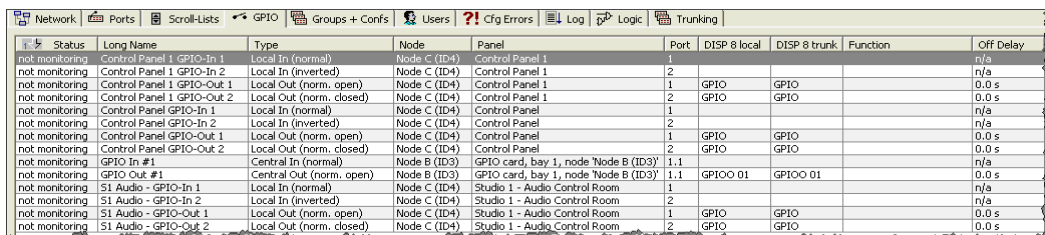
## 8.17 Programming GPIs

The General Purpose Interfaces (Input/Output) can be used to control internal and external system events, as well as interpreting external information for use in the system. The GPIs can be programmed so that they can be used just like control panel keys or Virtual Functions.

The GPI In and Out default states have to be defined for both the internal GPI cards in the mainframe (see: [8.7.3 Adding a GPI card](#)) as well as for GPIs in control panels (see: [8.12.18 Panel GPI](#)). The opto-isolated inputs can be set as either normal or inverted, in case of incorrect wiring or inverted voltage. The solid-state relays outputs can be set as either normally closed or normally open, depending on the requirements of the external devices. For further information on pin outs and other technical details, please see the installation manual.


### 8.17.1 Navigation

The details of all GPIs in the system, both central and panel GPIs, are available in the GPIO list. The GPI tab is best viewed with the Navigation bar docked on the top, either by clicking the Toolbar button  or pressing **<F10>** on the keyboard.



Status	Long Name	Type	Node	Panel	Port	DISP 8 local	DISP 8 trunk	Function	Off Delay
not monitoring	Control Panel 1 - GPIO-In 1	Local In (normal)	Node C (ID4)	Control Panel 1	1				n/a
not monitoring	Control Panel 1 - GPIO-In 2	Local In (inverted)	Node C (ID4)	Control Panel 1	2				n/a
not monitoring	Control Panel 1 - GPIO-Out 1	Local Out (norm. open)	Node C (ID4)	Control Panel 1	1	GPIO	GPIO		0.0 s
not monitoring	Control Panel 1 - GPIO-Out 2	Local Out (norm. closed)	Node C (ID4)	Control Panel 1	2	GPIO	GPIO		0.0 s
not monitoring	Control Panel GPIO-In 1	Local In (normal)	Node C (ID4)	Control Panel	1				n/a
not monitoring	Control Panel GPIO-In 2	Local In (inverted)	Node C (ID4)	Control Panel	2				n/a
not monitoring	Control Panel GPIO-Out 1	Local Out (norm. open)	Node C (ID4)	Control Panel	1	GPIO	GPIO		0.0 s
not monitoring	Control Panel GPIO-Out 2	Local Out (norm. closed)	Node C (ID4)	Control Panel	2	GPIO	GPIO		0.0 s
not monitoring	GPIO In #1	Central In (normal)	Node B (ID3)	GPIO card, bay 1, node 'Node B (ID3)'	1.1				n/a
not monitoring	GPIO Out #1	Central Out (norm. open)	Node B (ID3)	GPIO card, bay 1, node 'Node B (ID3)'	1.1	GPIO00 01	GPIO00 01		0.0 s
not monitoring	S1 Audio - GPIO-In 1	Local In (normal)	Node C (ID4)	Studio 1 - Audio Control Room	1				n/a
not monitoring	S1 Audio - GPIO-In 2	Local In (inverted)	Node C (ID4)	Studio 1 - Audio Control Room	2				n/a
not monitoring	S1 Audio - GPIO-Out 1	Local Out (norm. open)	Node C (ID4)	Studio 1 - Audio Control Room	1	GPIO	GPIO		0.0 s
not monitoring	S1 Audio - GPIO-Out 2	Local Out (norm. closed)	Node C (ID4)	Studio 1 - Audio Control Room	2	GPIO	GPIO		0.0 s

Figure 176: GPIO - Navigation Bar GPI tab

All of the columns can be adjusted to display the names and other information more clearly. Move the mouse pointer to the line between columns until it changes to a , then hold down the left mouse button and adjust the column widths.

All entries in the GPIO list are sorted alphanumerically by column. In order to sort by another column, simply click on the column label. Another click on the same column changes the sorting from ascending to descending. Clicking on other column while holding down the **<Ctrl>** key allows sorting by more than one criterion. To edit the individual GPIs, double click on the row or right mouse click and choose **"Properties,"** to open the properties of the GPI in a separate window for editing. For details, see: [9.20 GPI Properties](#).

## 8.17.2 Assigning functions to a GPI

To configure a GPI, right mouse click on the GPI to be programmed and select the desired function.

<b>Add Function</b>	Adds a new function to the GPI (maximum 32)
<b>Edit Function</b>	Changes an already existing function
<b>Delete Function</b>	Deletes an existing function
<b>Locate In Node config*</b>	Opens the hardware setup of the node and highlights the GPI
<b>Properties</b>	Displays the GPI's properties

Figure 177: Table - GPIO - right click menu

\* available only for central GPIOs

**Note:** If the GPI does not yet have any functions programmed to it, only the “Add Function” command will be displayed. Edit and Delete functions are not available.

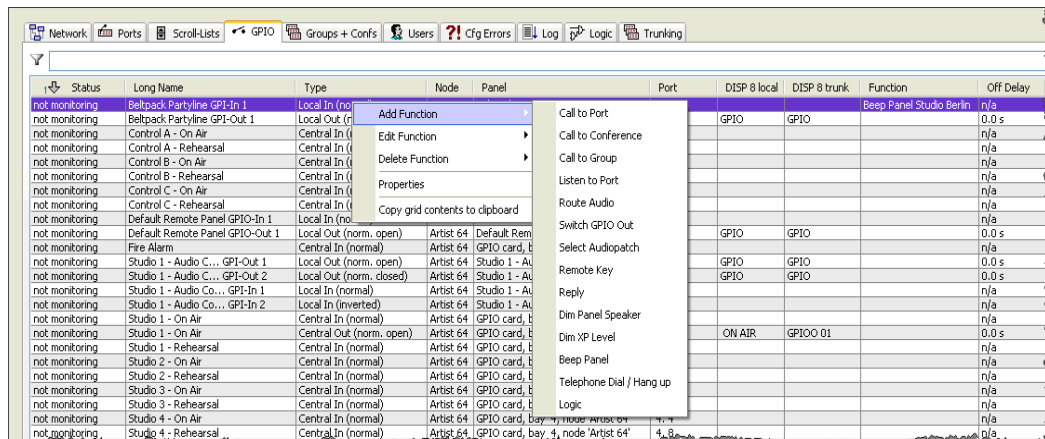


Figure 178: GPIO - GPI functions

### GPI Functions

<b><u>Call to Port*</u></b>	Point-to-point call between two port
<b><u>Call to Conference*</u></b>	Multipoint-to-multipoint call. Talk or listen to a conference (partyline)
<b><u>Call to Group*</u></b>	Point-to-multipoint call. From one port talk to several at the same time. Operates only from the source to the destination
<b><u>Listen to Port*</u></b>	Listen to an audio source (control panel, 4-wire, etc.)
<b><u>Route Audio</u></b>	Routes audio directly from a source to a destination. In addition, the crosspoint level can be adjusted (only at panels).
<b><u>Switch GPI Out</u></b>	Activates a local or central GPI output
<b><u>Select Audiopatch</u></b>	Loads predefined audio settings to a particular panel in the system
<b><u>Remote Key</u></b>	Remote control of control panel keys, lock keys or activation of key signalization
<b><u>Reply*</u></b>	Automatic call-back function for point-to-point calls

<b><u>Dim Panel Speaker</u></b>	Dims the loudspeaker of a selected panel
<b><u>Dim XP Level</u></b>	Dims a particular crosspoint in the system
<b><u>Beep Panel</u></b>	Triggers an audible call signal at the selected panel
<b><u>Dial / Hangup</u></b>	Enables the dialing and hook control for a telephone number
<b><u>Logic</u></b>	Triggers a predefined logic input
<b><u>Send String*</u></b>	Sends a data command to higher ordered systems

\* only available for panel GPIs

Figure 179: Table - GPIO functions

All functions work the same way as if they were programmed on a panel key or Virtual Function. Up to **32 functions** can be triggered at the same time by a single GPI. All GPIOs, regardless of location, can be made available to any user in the system.

As soon as a GPI has been assigned a new function, the properties window opens to the tab of the corresponding function so that necessary details can be defined.

### Assigning a new function to a GPI

Example: Assigning a “Dim Speaker” function to a GPI

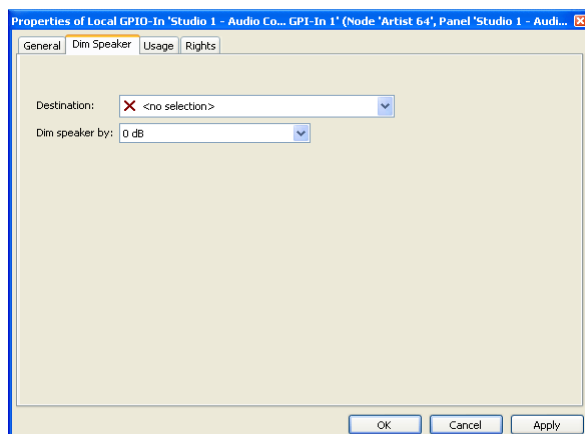


Figure 180: GPIO - Dim Speaker tab

Right mouse click on the GPI and select “Add Function.”

Select the function “Dim Panel Speaker.”

Choose the control panel where the loudspeaker should be dimmed. Either select the panel from the list or drag it to the destination field from the network list or port list using Drag & Drop.



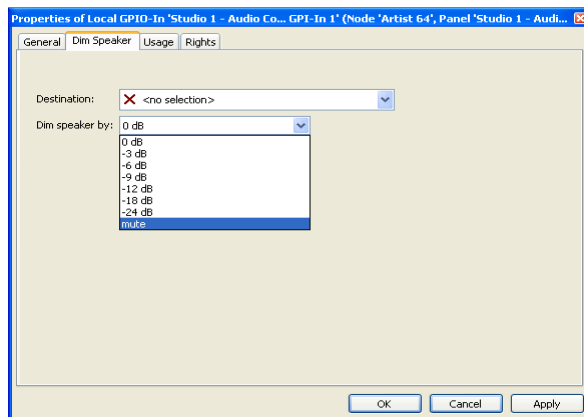


Figure 181: GPIO - Dim Speaker - level options

The 1000 and 2100 series control panels each have 3 GPI inputs and outputs that can be used just like a panel key, or alternatively can be triggered by other users in the system (see [8.12.18 Panel GPI](#)).

A panel GPI can be used for functions that have nothing to do with the panel itself, such as closing a PTT contact to trigger the transmission of a radio interface. Therefore it is not necessary to always create a separate, often long, connection to a central GPI card. Instead, you can simply use the GPI contact on the panel that is closest to the radio interface. This can greatly reduce cabling costs and hassles.

## 8.18 Create and Manage Groups and Conferences


### Definition of a Group

A group consists of a number of members that are addressed in a point-to-multipoint fashion. A single source talks to multiple destinations with one key press. However, the return route of a group call is always a point-to-point connection. This means that when a group member answers, only the port that initiated the group call will hear the reply. This function is normally used to send a message to a number of people at the same time.

### Definition of a Conference

A conference is made up of a number of ports which every member can hear. It is a multipoint-to-multipoint call similar in function to a conference room where anyone in the room can contribute at anytime. However, it is possible in Artist to block certain members from speaking into the conference. These members are then only allowed to hear the discussion. The signalization on the conference key becomes active as soon as anyone speaks into the conference. For example, conferences are often used during rehearsals or planning exercises if it is necessary that various members should be listening at the same time.

### 8.18.1 Groups + Confs - tab

The details of groups and conferences are displayed in the  Groups + Confs tab. There is no separate workspace for groups and conferences. The following information can be found in the table on this tab:

<b>Long Name</b>	Displays the long name of the conference or group (up to 32 characters long, only displayed in Director)
<b>Type</b>	Shows whether an item is a group or conference
<b>GPI OUT</b>	Shows which GPI output is activated, if desired, when the group or conference is active
<b>Alias / Display 8</b>	Shows the display names or the assigned alias names
<b>Membercount</b>	Displays the number of members in the group or conference

Figure 182: Table - Groups+Confs - tab column function

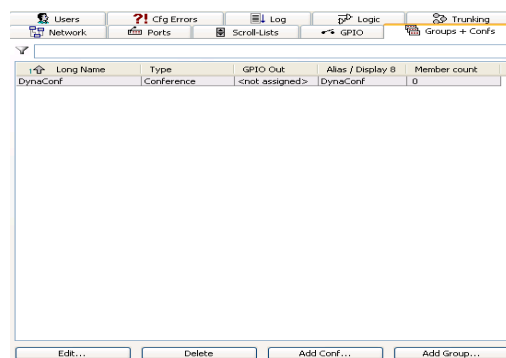


Figure 183: Groups + Confs - tab

### DynaConf

Director always includes a conference with 0 members. This DynaConf is used internally for the “Edit Conference” function and cannot be used for normal configuration purposes.

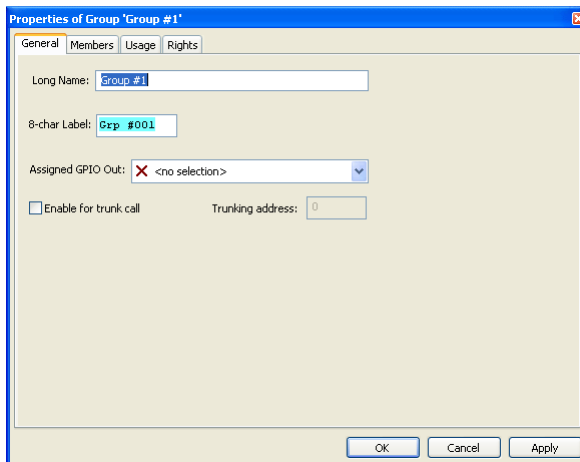
The “Edit Conference” function allows members to be dynamically added or removed from a conference using a control panel.

### Creating a new group or conference

To add a new group or conference click on either the “Add Group...” or “Add Conf...” buttons. This will display the properties window of the new group or conference.

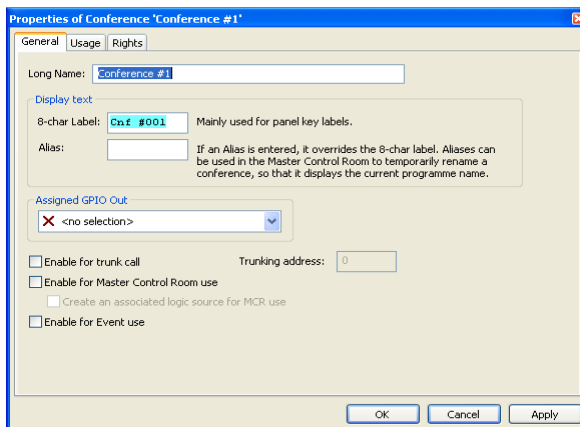


Figure 184: Groups + Confs - Creating groups and conferences



See [9.17 Group Properties](#)


Figure 185: Groups + Confs - Group properties



See [9.18 Conference Properties](#)

Figure 186: Groups + Confs - Conference properties

A GPI contact that is switched as soon as the group or conference is active can be assigned to a group or conference.

In order to delete a group or conference, select the group or conference you wish to delete and click the  button.

**Note:** Director does not ask for confirmation before deleting a group or a conference. Be sure you have selected the correct item from the list before deleting it.

## 8.18.2 Adding members to a group

Open the properties of the group by selecting the group and clicking the **Edit...** button or simply double click on the group you wish to open. Once the group properties are displayed, select the “Members” tab. New group members can be added by clicking on the **Add Port...** button and choosing group members from the drop down list that appears.

Alternatively, you can simply drag new members from the network or port lists into the member's window using drag & drop.

**Attention:** Using drag & drop will always use the 1<sup>st</sup> audio channel of a panel. If you wish to add the 2<sup>nd</sup> audio channel of a panel to a group, you must add this port using the **Add Port...** button and activate the “2<sup>nd</sup> Channel” option.

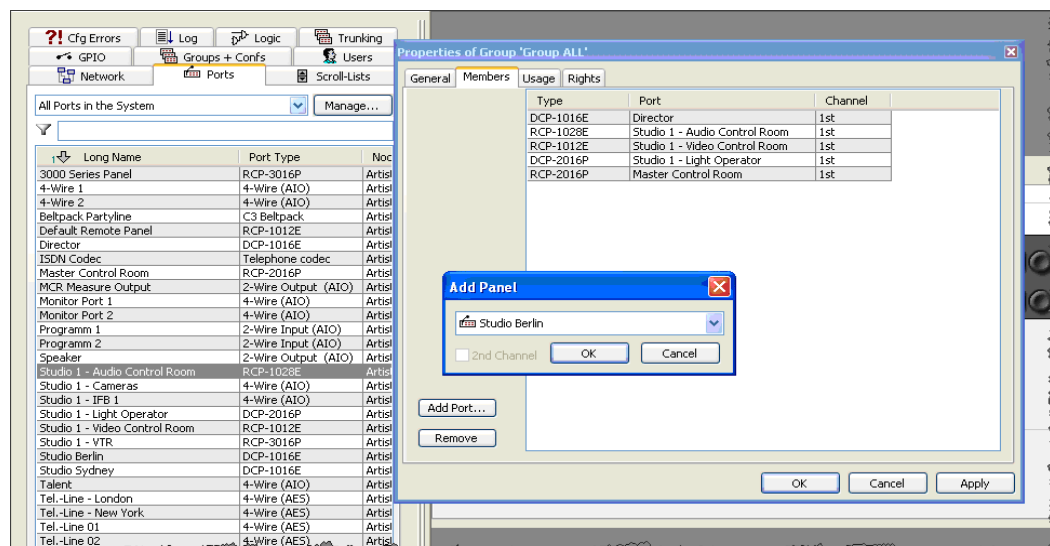


Figure 187: Groups - adding members

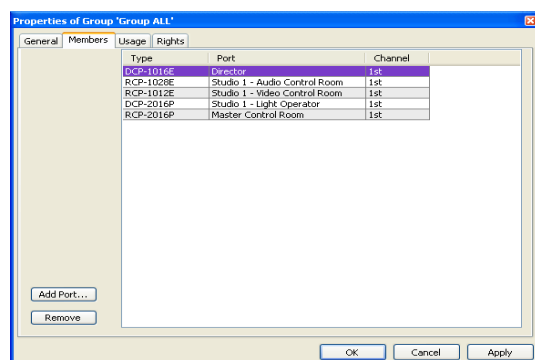


Figure 188: Groups - Properties of the members tab

The member list shows all group members with information on port type, name and which audio channel is being used.

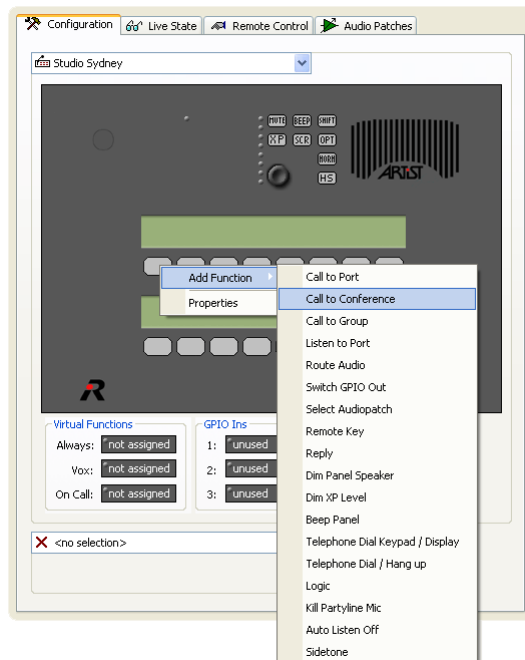
To delete a member from the group, select the member you wish to delete and press the **Remove** button.

**Attention:** Director does not ask for confirmation before deleting a group member. Be sure you have selected the correct member from the list before deleting it.

### 8.18.3 Adding members to a conference

New members are automatically added to a conference as soon as the conference is added to a port using the **“Call to Conference”** - command. The **“Call to Conference”** function has two sides to it. Separate **“talk”** and **“listen”** functions allows members to be individually assigned whether they should hear the conference or should also be allowed to talk into it. Control panels can be added to a conference by programming the **“Call to Conference”** function to one or more panel keys or to one of the Virtual Functions on the panel. 4-wires can only be assigned to a conference by programming it on a Virtual Function. It is also possible to assign members to conferences dynamically from a panel if the **“Edit Conference”** function is used. The following example shows how a control panel or 4-wire is assigned to a conference.

#### Assigning a panel to a conference



Right mouse click on a panel key and choose **“Add Function”** -> **“Call to Conference”**. The properties of the key will automatically open to a new tab with the conference function.

Alternatively, you can drag a conference to a key from the **“Groups+ Confs”** list using Drag & Drop.

In this case, the **“Call to Conference”** function will always be automatically configured for both **“talk”** and **“listen.”**

To later change the properties of the conference call, right mouse click on the key and choose the **“Conference”** tab.

Figure 189: Conference - Assigning a conference to a panel key

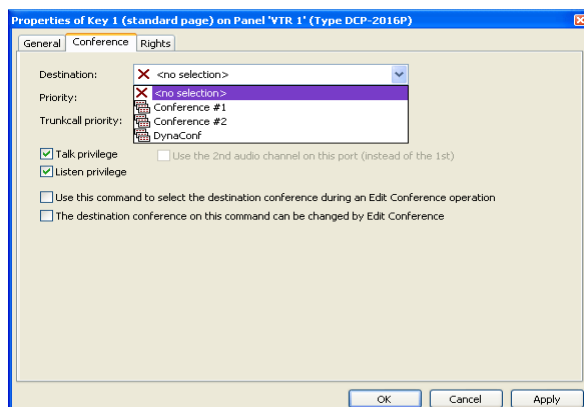
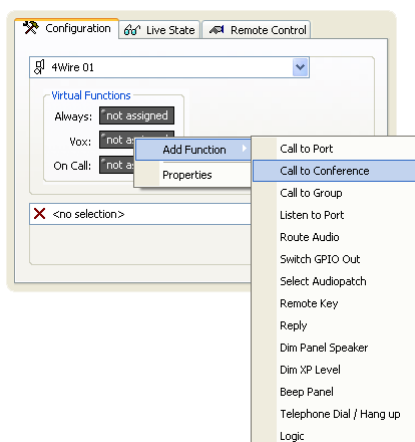


Figure 190: Conference - Key properties - Conference tab

## Assigning a 4-wire port to a conference



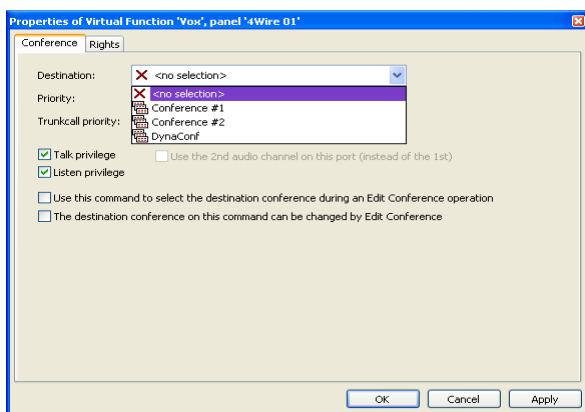
Right mouse click on a Virtual Function and choose **"Add Function" -> "Call to Conference"**. The properties of the Virtual Function will automatically open to a new tab with the conference function.

Alternatively, you can drag a conference to a Virtual Function from the **"Groups+ Confs"** list using Drag & Drop.

In this case, the **"Call to Conference"** function will always be automatically configured for both **"talk"** and **"listen."**

To later change the properties of the conference call, right mouse click on the Virtual Function and

Figure 191: Conference - Assign a Conference to a 4-Wire



Choose a conference from the list of conference destinations.

The **"talk"** privilege allows this member to speak into the conference.

The **"listen"** privilege allows this member to listen to the conference.

Select the talk and listen privileges as required.

Figure 192: Conference - Virtual Function properties - Conference tab

## 8.19 Configuring “Edit Conference” Function

The “Edit Conference”- Function allows users to modify conference members on a panel.

### 8.19.1 Edit Conference

1. Make sure that a PC is connected to the Artist system. “Edit Conference” requires that the Director software is running, since Director handles all edit conference requests. One copy of the Director software must be defined for this purpose. In Director select “Settings” -> “Options” -> “Miscellaneous”. Click the option “Handle EditConf Requests.”

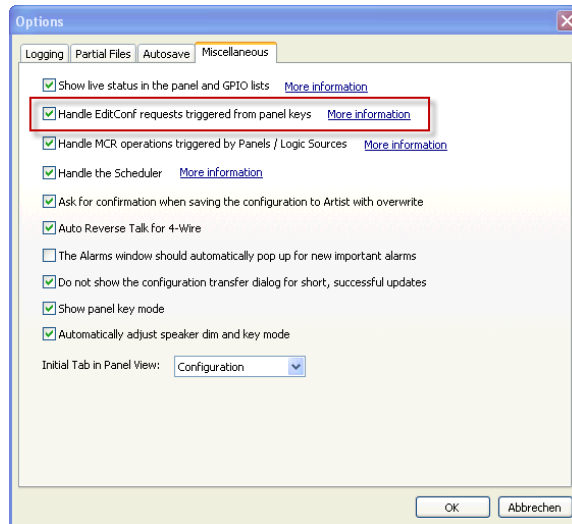


Figure 193: Edit conf - Activating the Edit Conference function

■ **Note: Only one copy of Director in the network should have this option activated**

2. Create conferences, as described above, that you would later like to edit.
3. Add a “**Call to Conference**” function to ports (keys or Virtual Functions) with the conference that should later be edited. The quickest way to do this is to drag the conference from the list using Drag & Drop.
4. Choose one or more panels that should later have the ability to edit conferences. (NOTE: This function is only possible on 1000 series panels.) With a right mouse click open the properties of the conference key and select the “Conference” tab. Select the check box next to “Use this command to select the destination conference during an Edit Conference operation”.

The system now knows that this conference is allowed to be changed from the panel.

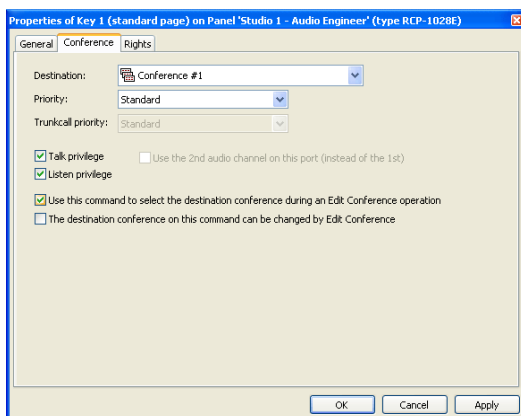


Figure 194: Edit conf - Key properties - Conference tab - properties for Edit Conference

5. In addition, the panels that will be used to make conference assignments need a **“Call to Port”** command to each member that should be available for dynamic conferences. Drag the members from the network or port lists to panel keys using Drag & Drop.
6. Add the **“Edit Conference”** function to an empty key by selecting it from the **“Add Function”** menu. The key will now display **“EditConf”**. To allow one-handed operation of the function, open the properties of the key and set the key mode to Latching with a timeout of around 3 seconds. Deselect the **“Dim Panel Speaker”** option. The **“Edit Conference”** tab contains no options to change.
7. Finally, on all of the ports that should be able to be dynamically selected for conferences, the properties of the **“Call to Conference”** command need to be adjusted. One after another, open each of the corresponding ports, right mouse click on the **“Call to Conference”** key or Virtual Function and choose the **“Conference”** tab. Click the checkbox next to the option **“The destination conference on this command can be changed by Edit conference”**.

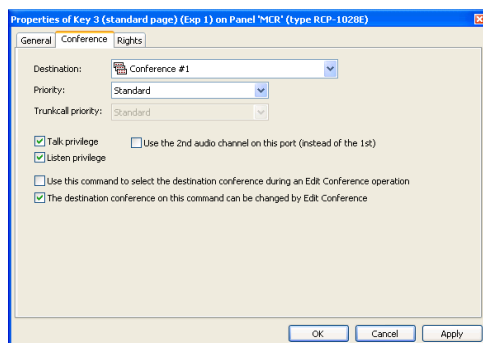


Figure 195: Edit Conf - The destination conference on this command ...



### 8.19.2 Operating the Edit Conference function

With this configuration it is now possible to dynamically assign members to the enabled conferences from a panel. In order to do so, press the “EditConf” key.



Figure 196: Edit conf - Activating the Edit Conference function

Conferences that can be edited begin to blink. Press the conference that you would like to edit. Now all possible members that are available light up. Red LEDs above a name indicate that the port is not currently a member of the conference. Green LEDs mean that the member is already assigned to the conference. Members can be added or removed from the conference by pressing their corresponding keys on the panel. You can also assign whether the member should be able to talk or listen. If you press the left side of the key, the member will be assigned the listen option (L). Pressing the right side of the key will assign the talk option (T).



Figure 197: Edit conf - Selecting the conference to edit

After you have made all of the changes you wish to make, press “Yes” in the EditConf key. Director will then send the updated configuration to the system. The newly edited conference will now be available.



Figure 198: Edit conf - Adding and deleting members

It is also possible to remove members from a conference with this function. As before, press the “EditConf” key, select a conference, and press the key of the member to be removed as often as needed until “Remove” is displayed. Press “Yes” to confirm.

The display on the conference key of the removed member changes to “DynaConf”. This key is thus reserved with a placeholder for when the member is again added to the conference.

## 8.20 Configuration and Operating the „Edit IFB“- Function

With the „Edit IFB“- Function it is possible to modify IFBs apart from the IFB-Table also on standard panels. All changes are directly adopted to the IFB assignment and to the system.

**For editing IFB on panels, you can only use 4-wires and 4-wires split Inputs as Mix Minus sources.**

**To use the “Edit IFB”- Function on panels it is not necessary to have a Director-PC connected to the system.**

### 8.20.1 Configuration

Create an IFB-Table in your Director-configuration. [8.15.1.3 Using the IFB-Tables.](#)

Because with the “Edit IFB“- Function you can only assign or modify „Mix Minus“ sources to predefined IFBs, make sure you have already created some IFBs with outputs assigned in the IFB-Table.

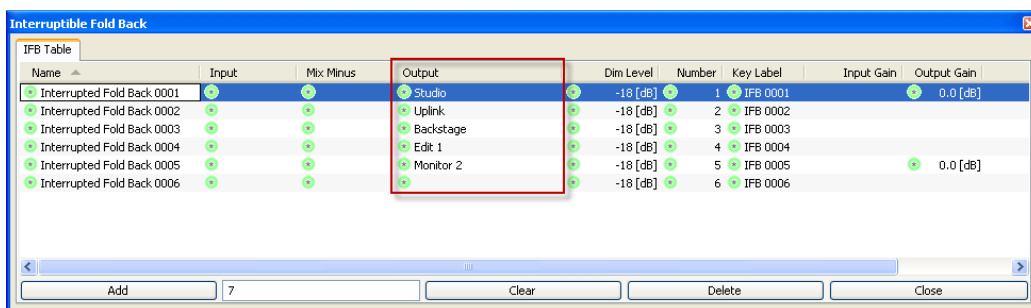


Figure 199: Edit IFB - IFB-Table with predefined outputs

Also the „Dim Levels“ and „Gain“- Settings need to be prepared in the IFB-Table.

Open the panel you want to edit IFBs (works only on 1000- , or 2000 series) and create the “Edit IFB“- function on an empty key. There are no further settings needed to use this function.

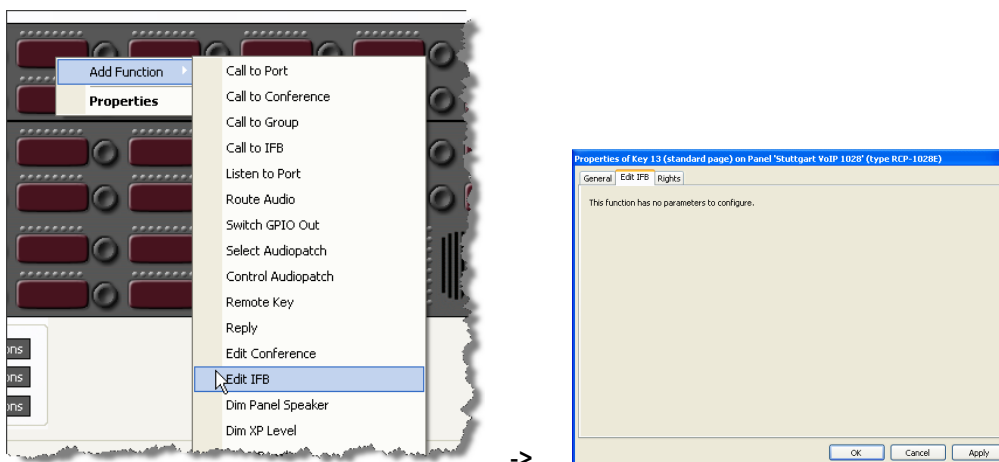



Figure 200: Edit IFB - Add function „Edit IFB“

Now open the IFB-Table by pressing the  -Button.

Drag&drop the predefined IFBs you want to use on the panel to different empty keys of your panel.

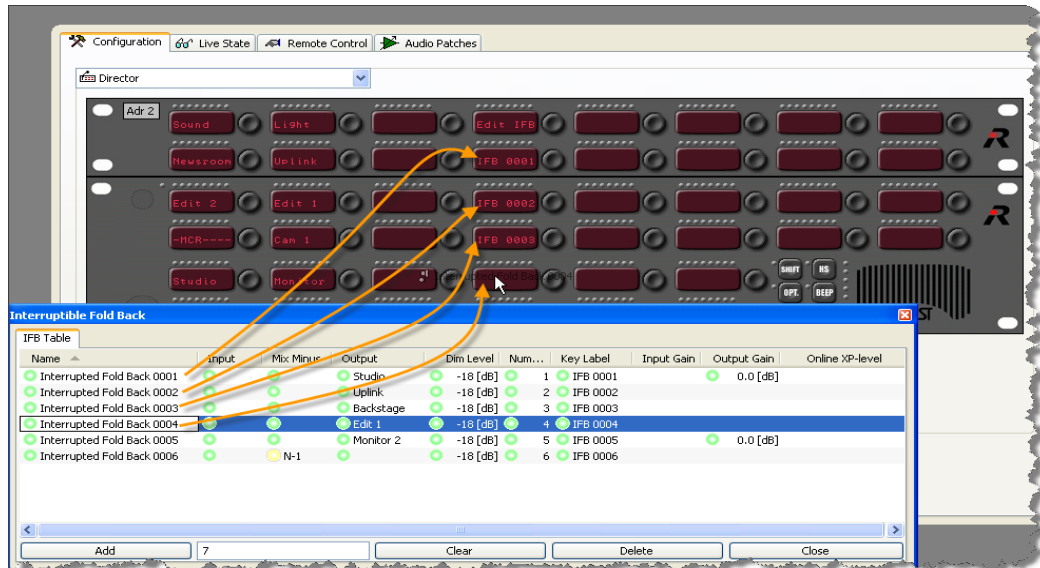


Figure 201: Edit IFB - Drag&Drop IFBs

Following drag&drop the „Mix Minus“- sources you want to use to different empty keys. Only 4-wire or 4-wire split ports can be used with the „Edit IFB“- Function afterwards.

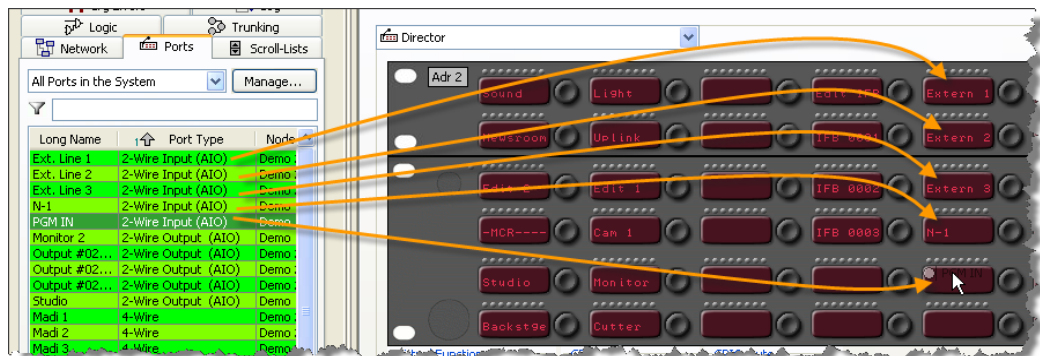


Figure 202: Edit IFB - Add „Mix Minus“- ports to the panel

**Attention:** If you are using pure 4-Wires as „Mix Minus“, you have to configure a „listen to“- function for every „Mix Minus“- key.

That is all you have to do to configure the „Edit IFB“- Function.

If you want, you can now also configure other panels with the same functionality.

## 8.20.2 Operating the „Edit IFB“- Function

To use now the „Edit IFB“- Function on a panel, you have to press the key “Edit IFB”. All available IFBs on this panel will show up with red markers (depending of the settings in the [„9.8.7 Marker Definitions“](#)).

Now press the key with the IFB you want to edit. The marker will change to green.

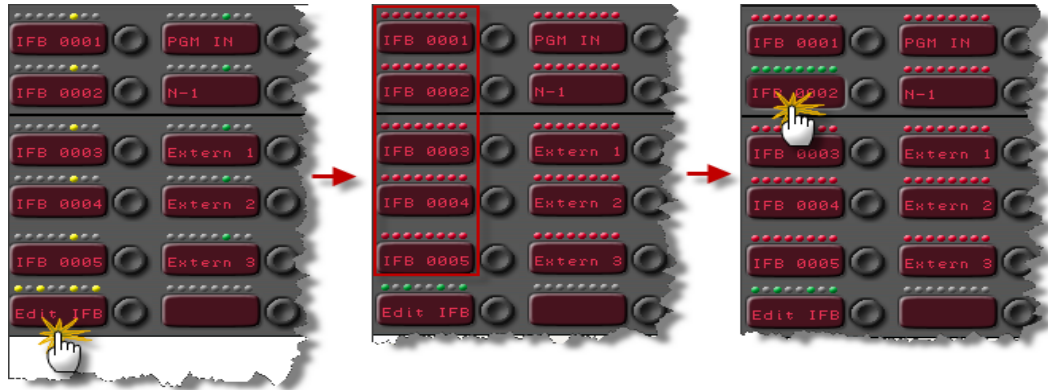


Figure 203: Edit IFB - Selecting an IFB

After the IFB is selected, you can assign the Mix-Minus source to this IFB. Therefore press the key with the source configured. The key will show „Waiting“ for a short moment. Then the source-key changes to a green marker.

You can always assign just one source to an IFB. If there was another source assigned to this IFB before, it will be deactivated and its marker changes back to red.

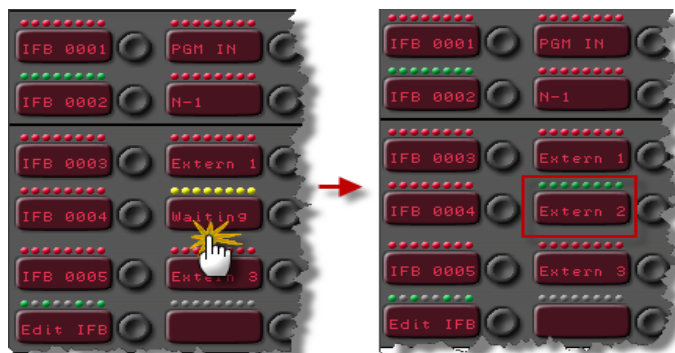



Figure 204: Edit IFB - Assigning of an IFB „Mix Minus“

This example shows „IFB 0002“ with assigned source „Extern 2“. If you have the “Edit IFB“- Function also configured and activated on other panels with the same sources, you can see the changes immediately on all these panels.

After pressing the „Edit IFB“- Button, you can also press first a source button. When this source is already assigned to an IFB, the according IFB-key will show a green marker. By pressing now another IFB key, the allocation for this source changes to the selected IFB.

As soon as an IFB assignment has been changed on a panel, the IFB-table shows which port has been changed.

The modified IFB entry will be shown with a  in the IFB-table. The name of the new source port is not yet shown.

To display the latest source names assigned to the IFBs, you have to load the system-configuration to your PC by pressing the  - button.

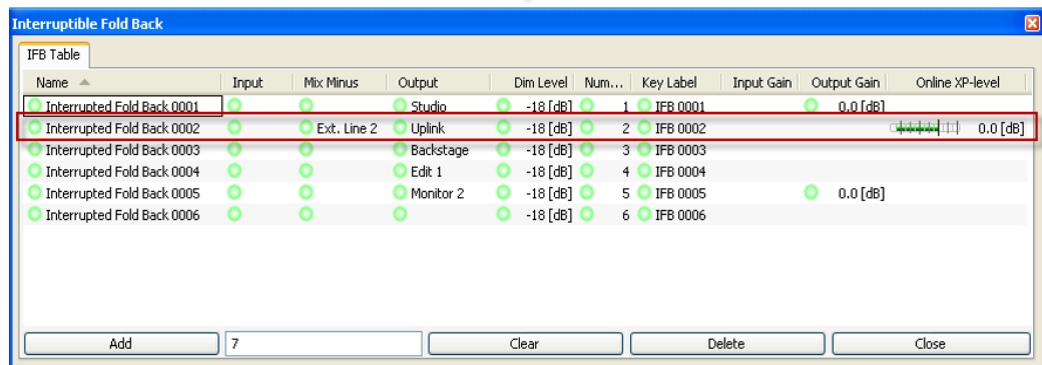
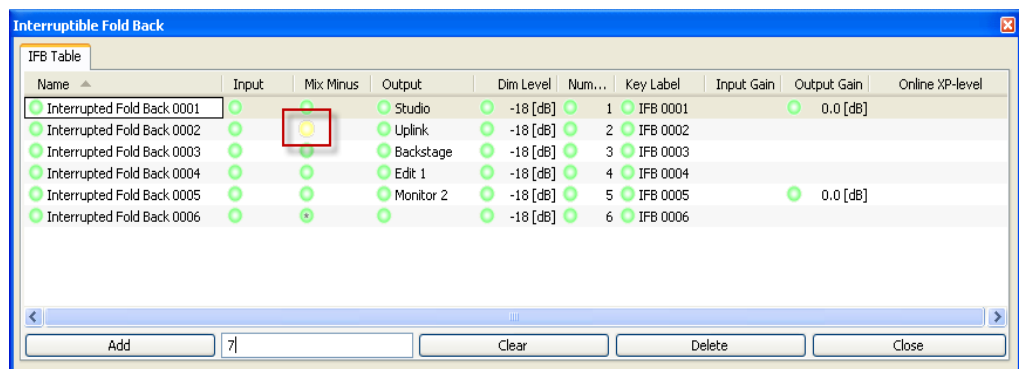


Figure 205: Edit IFB - Display IFB-changes in the IFB-table

You can also modify the source assignment parallel on the IFB-table. When you send the changes to the system, all panels with the “Edit IFB”- Function enabled will show the latest assignment.

## 8.21 Creating and managing Scroll Lists

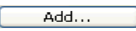
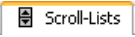


A scroll list can consist of up to 1000 different entries. They can include most commands, for example, “Call to Port”, “Route Audio”, “Switch GPI” etc. A scroll list can be assigned to each panel. Using the scroll function of a key a user can select one of the commands from the scroll list directly from the panel. This provides access to a host of commands that might only be needed infrequently without using a large number of keys. It is also possible to assign individual functions a fixed ID number that can be used to activate them directly from a keypad.

**Each panel can only have a single scroll list assigned to it. However, any number of panels can have access to the same list. A maximum of 100 scroll lists can be created.**

**Attention: 3000 and 5000 series control panels cannot use scroll lists.**

Scroll list details are found in the  **Scroll-Lists** tab of the Navigation Bar.

### 8.21.1 Adding a new Scroll List

To create a new scroll list, click on the  button in the  **Scroll-Lists** tab of the Navigation Bar. This automatically opens a new window where the functions and settings of the list can be defined. To edit an existing list, select the list and press the  button, or double click on the list. Pressing the  button will delete the selected list. Please note that Director will not ask you to confirm before deleting a scroll list.

A unique name for the scroll list can be entered in the “Long Name” field.

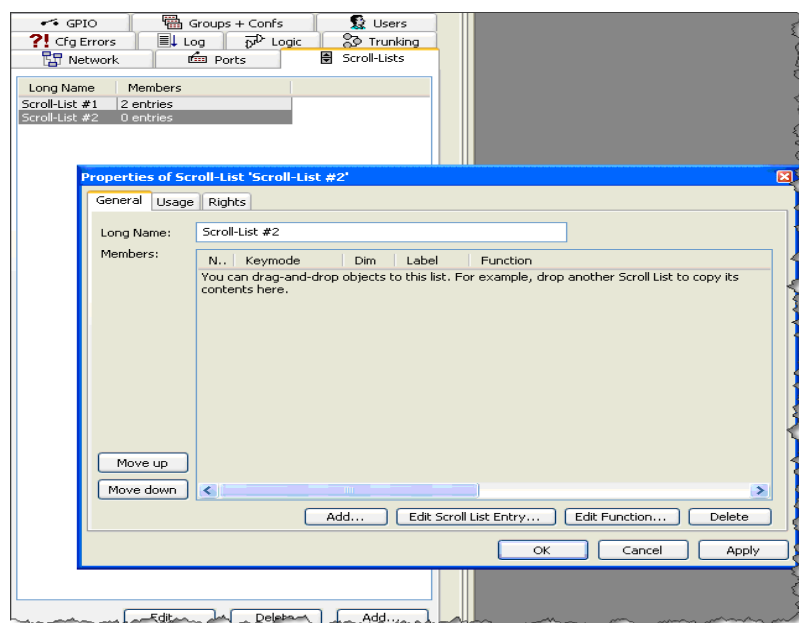


Figure 206: Scroll Lists - tab and properties of a Scroll List

### 8.21.2 Editing Scroll List entries and functions

Functions can be added to or deleted from the scroll list in the scroll list's properties. To add a new function click the **Add...** button and choose the desired function from the list. To delete an entry from the list select it and click the **Delete** button.

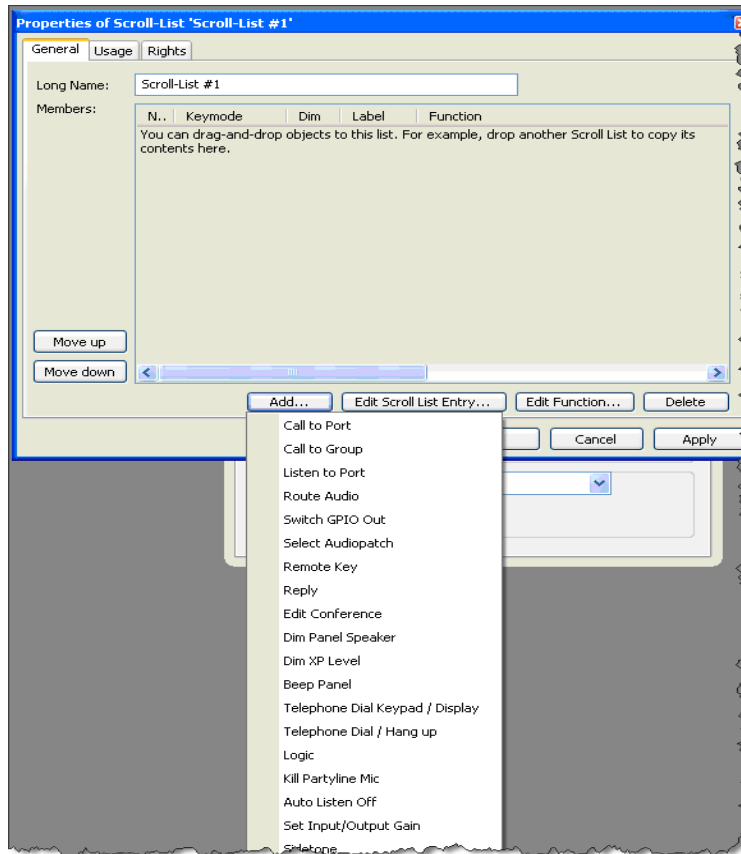


Figure 207: Scroll Lists - Adding a new function

Standard functions, such as **“Call to Port”**, **“Call to Group”**, **“Logic”** and **“Switch GPIO”** can also be dragged to the scroll list from the corresponding list in the Navigation Bar using **Drag & Drop**.

To define or edit a function you have added, select the function and click the **Edit Function...** button. Confirm your changes with the **Apply** button to return to the scroll list view.

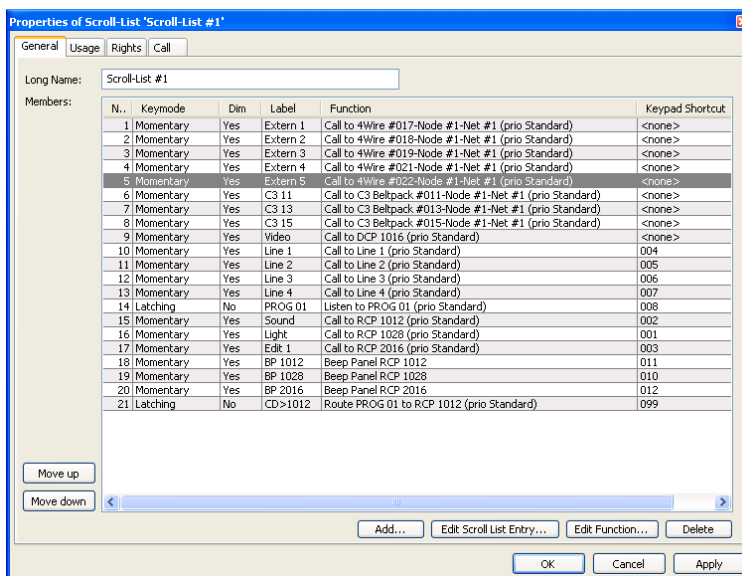


Figure 208: Scroll Lists - example

To adjust the order of the entries, mark an item in the list and click the **Move up** or **Move down** buttons.

The corresponding key properties can be adjusted for every item in a scroll list. For example, key mode, key label and dim function can be separately set for each list entry. Select an entry in the scroll list and press the **Edit Scroll List Entry...** button.

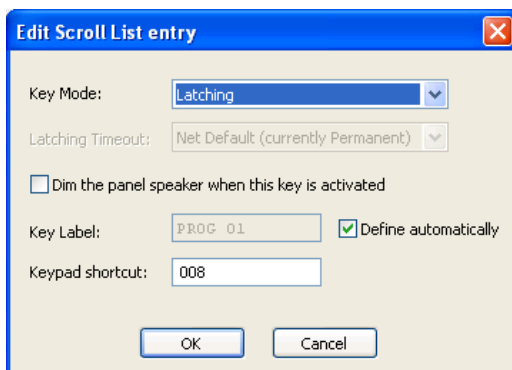


Figure 209: Scroll Lists - Edit Scroll List entry

In addition, each entry in the scroll list can be assigned a unique number (*Keypad shortcut*). This number allows the function to be selected by entering the number on a numeric keypad.



### 8.21.3 Assigning a Scroll List to a control panel

Each control panel, except for the 3000 and 5000 series panels, can access a single scroll list. To assign a scroll list to a panel, open the panel and its **properties**, for example by double clicking on the gray area on the panel view. In the “General” tab you can choose a predefined scroll list that the panel should be able to access under “Scroll List”.

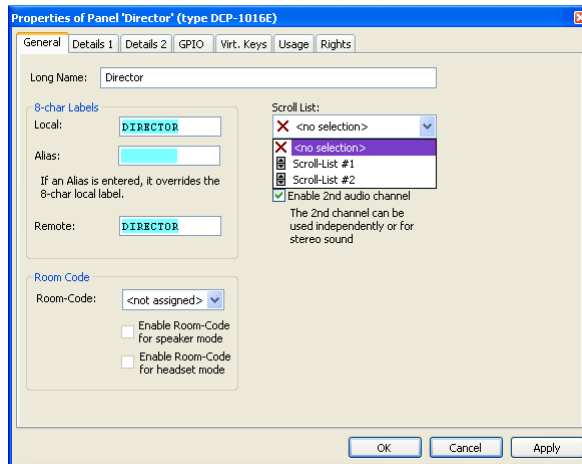


Figure 210: Scroll Lists - Panel properties - choosing a scroll list

Now individual keys on the control panel can be enabled to access the list. In order to do so, open the **properties** of a key. In the “General” tab the option “Scroll enable” must be selected. Any number of keys on a control panel can be set in this way.

**Note:** You should only activate the scroll function on empty keys, since after the first time something is selected from the scroll list the original functions on the key will be overwritten. The last function chosen from the list will remain even after a node reset.

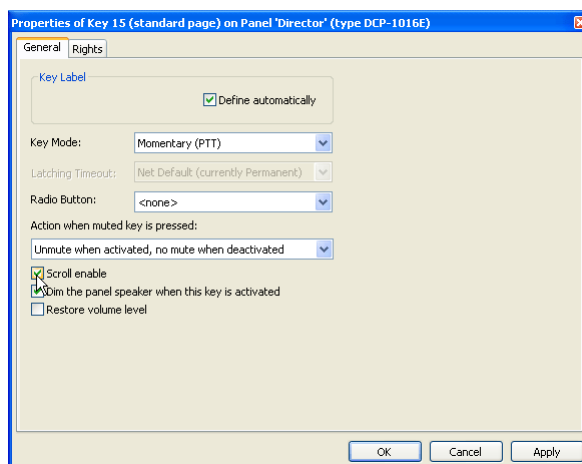


Figure 211: Scroll Lists - Properties of a key - scroll enable

### 8.21.4 Scroll Lists – operation from a panel

To show the keys on a panel that have scroll capabilities, press the master volume control. The displays of any keys that can scroll change to “SCRL KEY”. To select an entry from a scroll list, double click on the volume control next to the key where you want the function to be assigned. Functions can be selected in different ways:

- searching alphabetically by name
- using a keypad
- by type of function

#### 8.21.4.1 Alphabetical Search



Activate the scroll function by double clicking on the volume control



Turn the encoder until “Search” is displayed. Press the encoder once to confirm.



The first position in the name blinks. Choose the first letter of the name by turning the encoder. Confirm by pressing the encoder once.



The second letter in the name can now chosen by turning the encoder. Confirm your choice by pressing the encoder once. Repeat.



A long press on the encoder selects the final name.

➤ **The function can now be used.**

#### 8.21.4.2 Selection via a keypad



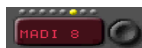
Activate the scroll function by double clicking on the volume control. Turn the encoder until "Search" is displayed.



Type an assigned "Keypad Shortcuts" number into the keypad (or on panel keys configured as a keypad).



The number will be displayed directly on the scroll key.



As soon as the number has been correctly identified, the corresponding function will be automatically assigned to the key.

#### 8.21.4.3 Selection by function type



Activate the scroll function by double clicking on the volume control.

Choose the function type by turning the encoder.



"C2 Port" means "Call to Port"



"L2 Port" means "Listen to Port"



"C2 Group" means "Call to Group"



"Logic" means select a logic source.  
Confirm by pressing the encoder once.



Choose an available function by turning the encoder.



Confirm by pressing the encoder once.



Figure 212: Scroll Lists - selecting an entry on a panel

On 2000 series control panels the click function of the encoder is activated with the "SCR" key. To scroll in a list on these panels use the master volume control. The rest of the procedure is identical to that of the 1000 series panels.

## 8.22 Logic Functions

Logic functions offer the possibility to implement and combine various functions system wide based on particular conditions. Each logic function can have up to 8 input variables that can be connected to one another by logic gates as required. These inputs lead to a logic output which can activate one or more system actions, for example GPI outputs, audio routes, signalizations, the activation of keys, further logic functions, etc. In a logic function, inputs (logic sources) and outputs (logic destinations) are differentiated according to Boolean logic definitions. The logic inputs of a function can be, for example, a GPI input, a Vox function, or a key press anywhere in the system.

### 8.22.1 Logic workspace

In order to add or edit a logic function, click on the  **Logic** tab in the **Navigation** bar. Next, the inputs and outputs of the logic function must be defined. Click on  to add a logic output in which the actual logic function will be built. A window opens where you must select a node that will process the logic function. The logic function can also be given a unique name.

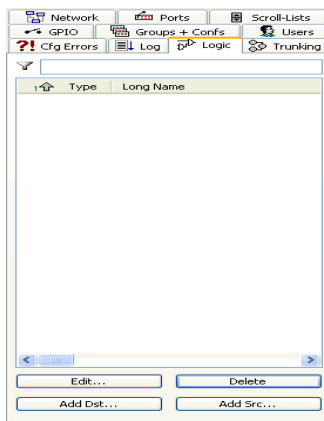


Figure 213: Logic - Logic tab

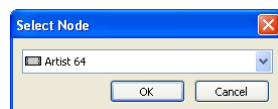


Figure 214: Logic - Selection of a node

Since a node can only manage up to a **maximum of 64 logic functions**, the individual logic functions must be assigned to a specific node. It is not relevant whether or not the logic inputs and outputs are actually carried out on the node assigned. It is only being defined which CPU on the fiber ring makes the necessary calculations for the function.

Create the desired number of logic inputs using the  button.

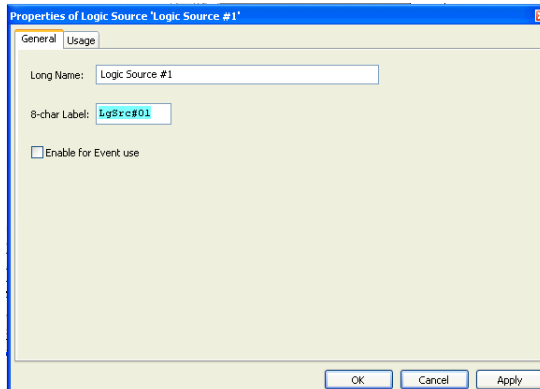


Figure 215: Logic - Properties of a Logic Source

In the “**Properties of Logic Source...**” window you can give the entry a unique long name as well as a display name. The “**Enable for Event use**” is only for use in conjunction with the optional “**Events**” special feature. See: [14.2.8 Event: Logic Source](#)

Double clicking on a destination will display a white piece of paper with a pink box in the Workspace. This box represents the output of the logic function. Using Drag & Drop, pull the desired logic sources from the table to the workspace. Later, you can create the actual logic function with the help of logic gates.

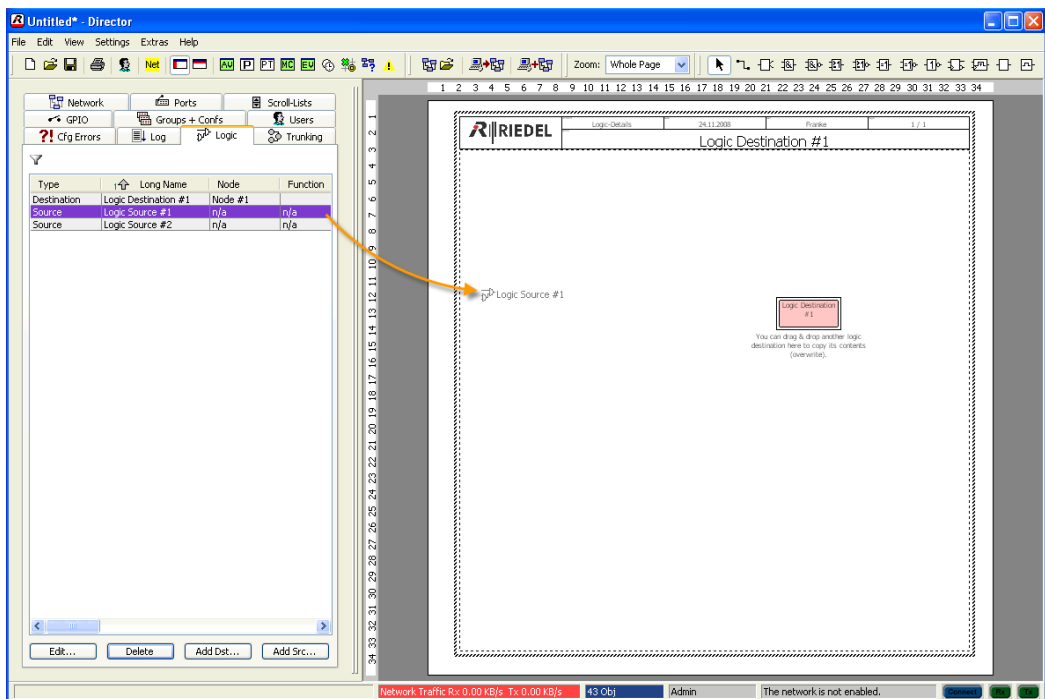


Figure 216: Logic - Drag & Drop a logic source

### 8.22.2 Logic Gates

The logic gates can be selected in the logic function Workspace. The following functions are available:















	Pointer, to move items and lines
	Create a new connection
	Connection Splitter
	AND - gate
	NAND - gate
	OR - gate
	NOR - gate
	XOR - gate
	XNOR - gate
	NOT - gate
	D-Flip-flop
	Monoflop (from 100ms – 24h, optionally retriggerable)
	NOP – gate (No Operation)
	Clock –Generator (adjustable from 125ms – 24h)

Figure 217: Table - Logic - Available logic functions









								
IN A	IN B	AND	NAND	OR	NOR	XOR	XNOR	NOT
0	0	0	1	0	1	0	1	1
0	1	0	1	1	0	1	0	
1	0	0	1	1	0	1	0	0
1	1	1	0	1	0	0	1	

Figure 218: Table - Logic - Truth table for the logic functions

### 8.22.3 Building a logic function

Click on one of the logic gate buttons. The selected gate will be highlighted. Move the mouse pointer to the workspace. The pointer changes to a crosshair cursor  $+$ . Click once on the workspace to place the gate in particular place. If you click again somewhere else, another gate will be placed there as well. If there is not enough room to place an object the mouse pointer will change to  $+$  with a red circle. To select another kind of gate, click on it and place it on the workspace.

To move a gate you placed earlier, choose the  button, click on the gate and hold the mouse button down. You can now move the element as you wish. Letting go of the mouse button places the gate in its new position.

To delete an element, right click on it and choose "Delete Logic Gate".

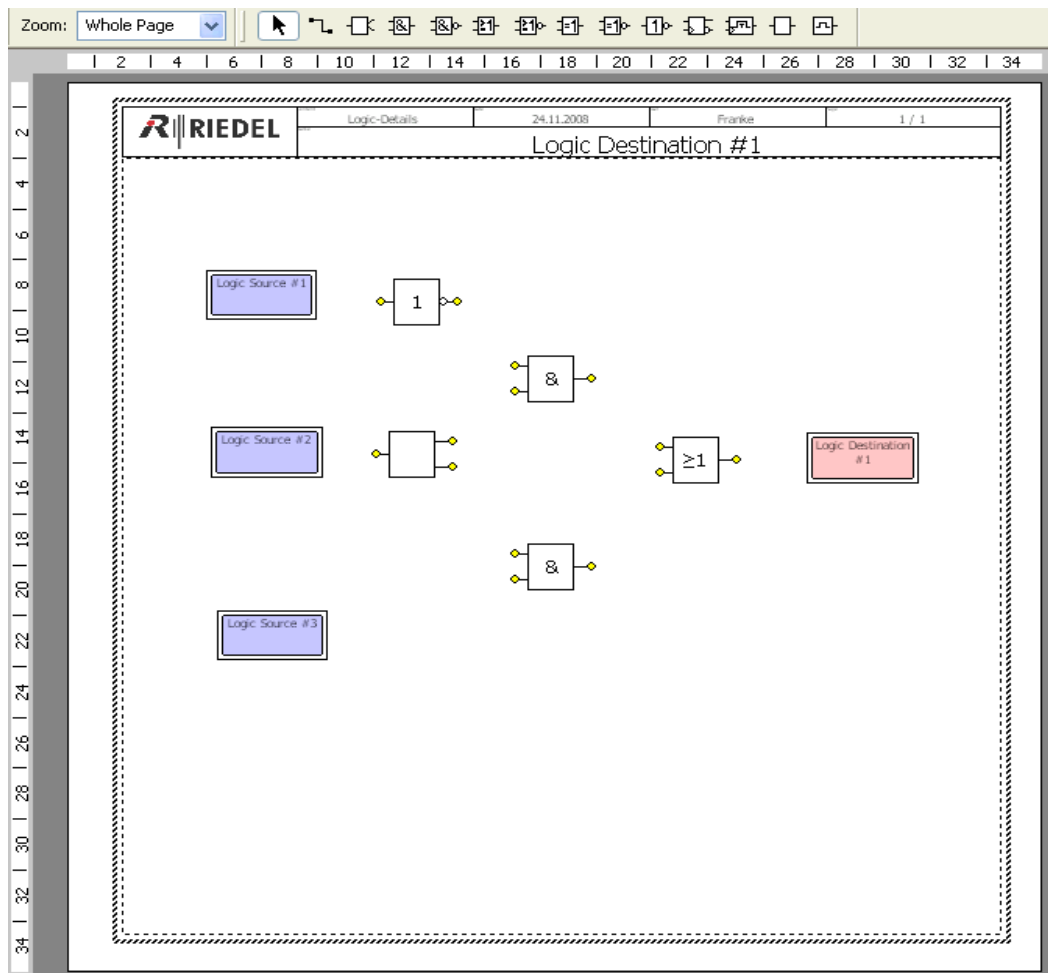



Figure 219: Logic - Building a logic function

Select the  symbol to connect the various logic elements with one another.

The word “From” appears on the mouse pointer in black. As soon as you place the pointer on an available output of a source or gate, the “From” changes to green . Click with the mouse and a line will be docked to the output and the pointer label changes to “To”. As soon as you place the pointer over an available input, the “To” becomes green. Another mouse click then creates the connection between the output and input.

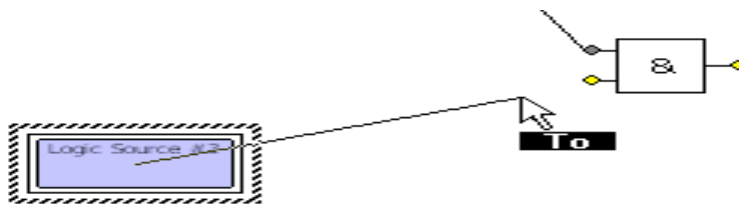


Figure 220: Logic - Creating a new connection

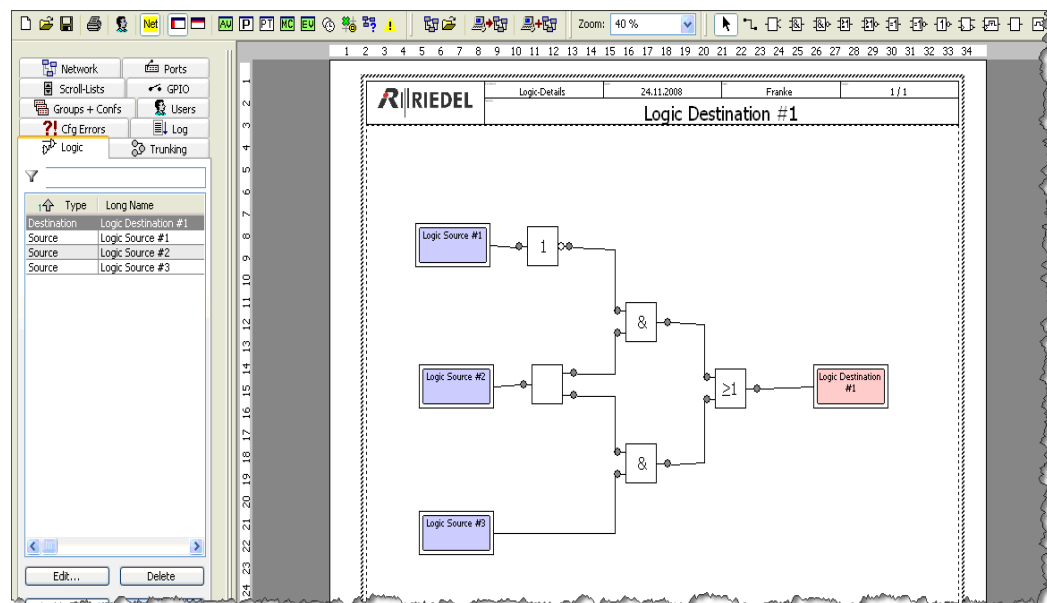
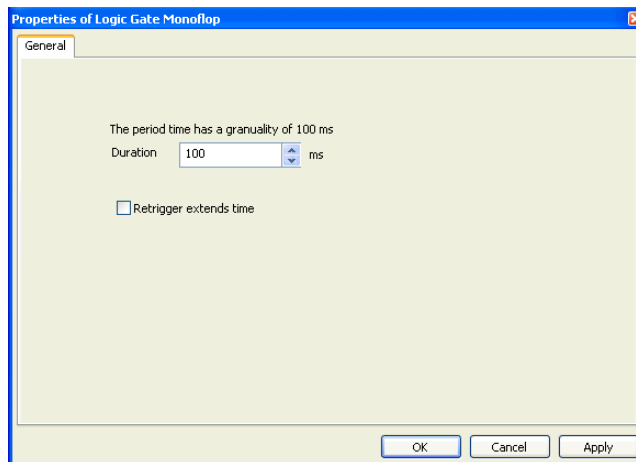


Figure 221: Logic - Logic Workspace

By selecting the  symbol you can select and move an element or connection.



Additional parameters can be set for the logic gates “Clock” und “Monoflop”. Right mouse click on the gate and choose “Properties”.



In the properties of the monoflop you can set its hold time in ms. In addition, with the „Retrigger extends time” you can extend the hold time by triggering the monoflop again.

Figure 222: Logic - Properties of a monoflop

## 8.22.4 Assigning actions to a logic function

After the logic function has been built it must still be defined what happens when the conditions are fulfilled. Functions are added to a logic destination with a right mouse click and selecting “Add Function” just like when programming a control panel key or Virtual Function. You can add functions to a logic destination either in the logic list or on the Workspace.

A maximum of **32 functions** can be carried out by a single logic function. The configured function will be displayed in the “Function” column of the logic tab.

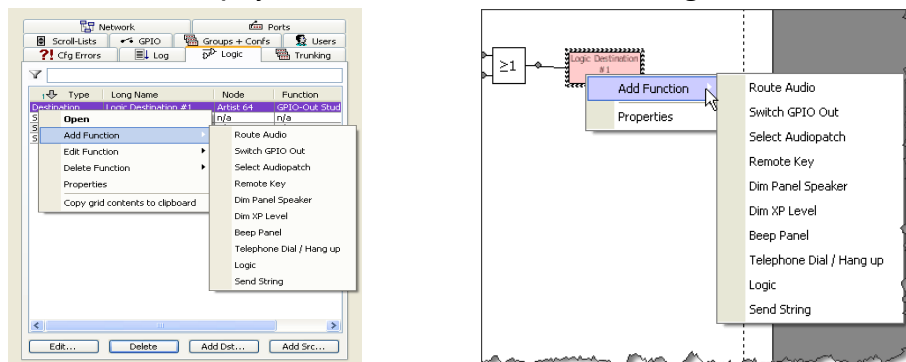


Figure 223: Logic - “Add Function” on a logic destination

**Note:** The functions “Call to Port”, “Call to Conference” and “Listen to Port” are not available on logic functions since a logic function is not a physical port but rather a type of virtual function.

## 8.22.5 Creating a macro

Logic functions offer the possibility to quickly and easily create macros. Macros can be used if several functions need to be carried out for every key press on a control panel, for example switching a particular GPI, dimming a panel speaker and activating a particular signalization. All of these functions can be combined together in a single logic destination. This saves lots of time when configuring the system. Changes to the macro can also be made very quickly and only in one place.

- Create a new logic destination with a unique name
- Create a new logic source with the same name as the destination
- Create a logic function by double clicking on the new destination in the logic list
- Connect the output of the new source directly with the input of the destination

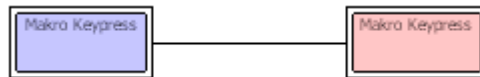


Figure 224: Logic - Macro logic

- At the destination add the functions that should be carried out using the “Add Function” command.
- Open a panel that should carry out these functions and add the source for the macro function to the desired keys either by drag & drop or “Add Function” > “Logic”.

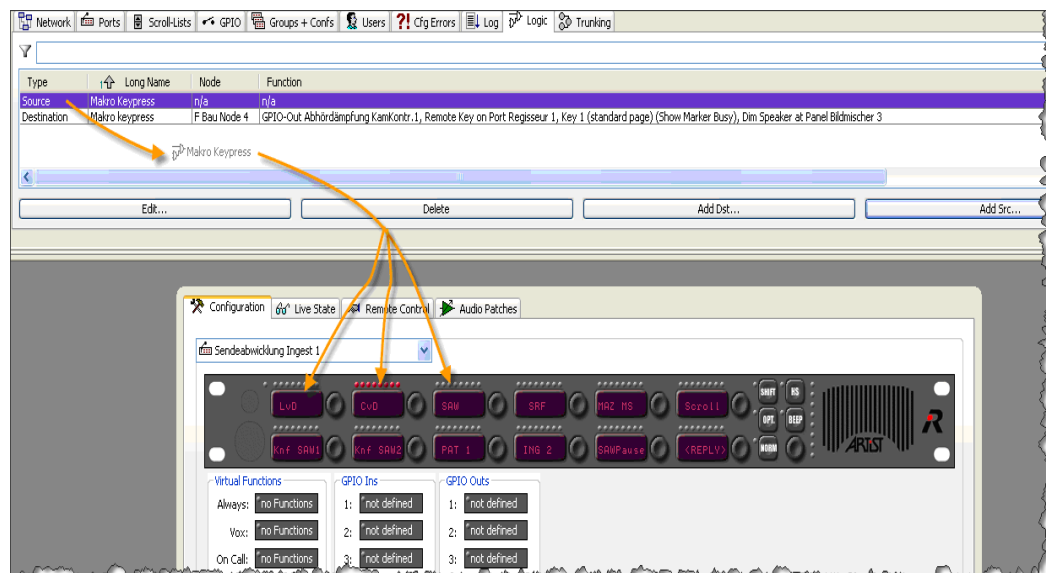


Figure 225: Logic - Macro sources programmed to panel keys

## 8.23 Log System Activity

Director allows all system activities to be logged. This can be accomplished visually in Director and can be saved to a hard drive, if desired. The log offers a rich overview of the current system status and records all system activity during normal operation. In the case of system problems, the log file offers a good way to localize the issue. System **alarms** are shown in **red**.

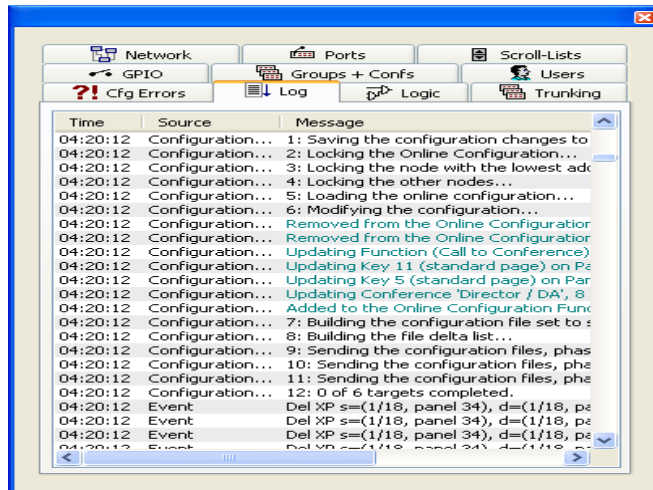


Figure 226: Logging - Log tab

### 8.23.1 Log settings

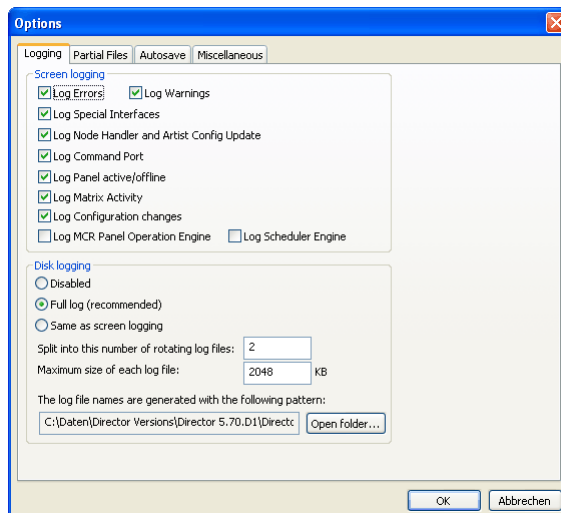


Figure 227: Logging - Settings / Options / Logging

Choose “Settings” > “Options” in Director. The log settings can be accessed in the “Logging” tab. You can set which information will be displayed in “Screen logging” and which information will be saved to disk in “Disk logging”.

### Screen logging

<b>Log Errors</b>	Logs hardware errors
<b>Log Warnings</b>	Logs warnings
<b>Log Special Interfaces</b>	Logs the optional software special features
<b>Log Node Handler /Artist Config Update</b>	Logs configuration changes
<b>Log Command Port</b>	Logs the Director connection to Artist
<b>Log Panel active/online</b>	Logs the port status (online/offline)
<b>Log Matrix Activity</b>	Logs matrix activities (every key press, GPI, etc.)
<b>Log Configuration changes</b>	Logs configuration changes
<b>Log MCR Panel Operation Engine</b>	Logs MCR panel operations (optional)
<b>Log Scheduler Engine</b>	Logs automatic times (optional)

### Disk logging

<b>Disabled</b>	The log file will not be saved
<b>Full log (recommended)</b>	Saves all log file details, independent of screen login settings
<b>Same as Screen logging</b>	Only saves the log details that are set in screen logging
<b>Split Into number of rotating files</b>	Maximum number of log files (FIFO principle) (recommended: 6)
<b>Maximum Size of each log file</b>	Size of individual log files (recommended approx. 10000kB)


Figure 228: Table - Logging - Screen/Disk logging functions

The log-files are stored as “*Director-Uxx.txt*” files in the same folder, the Director is started from.

**Tip:** When you want to open several instances of Director on the same Computer, the “*Disk logging*” needs to be *disabled*, or you have to copy and start the different Directors from different folders of your hard disk.

## 8.24 Node and Client logging

In addition to the Director log, you can transfer the internal log files of individual system cards to the PC. Each CPU and every client card generates its own log information recording the condition and internal processes of the card. In the case of system errors this information is very important and is used to find the cause of the problem. Director must be connected to the system to access the files.

Open the **“Online View”** with the  button or select **“View” > “Artist Online View”** in the menu.

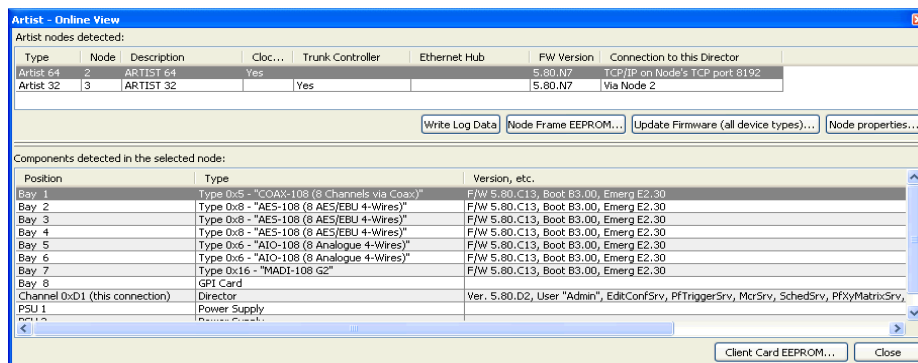



Figure 229: Logging - Artist Online View

- Make sure that disk logging is activated (Settings/Options/Logging).
- Make sure that the file size of the log file is large enough (recommended: 6 files at 10MB).
- Click the  button. The system begins to read the log files of each individual card and saves them.

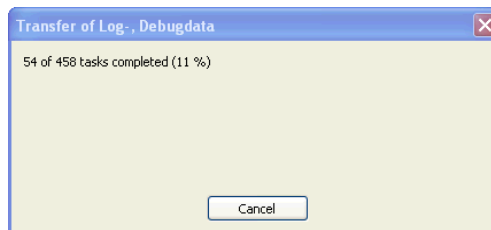


Figure 230: Logging - Transfer of Log

This process can take several minutes, depending on the size of the system.

All log information will now be saved in the Director log file in the same directory as Director.

## 8.25 Resolving Configuration Errors

During the configuration process small mistakes can occur, such as creating undefined functions. Since such errors could have unknown effects on the system, Director provides a central list of all configuration errors.

Downloads and any changes to the current system are blocked if there are any unresolved configuration errors. Each error reported must be corrected and removed from the error list prior to the software allowing a download or update to take place.

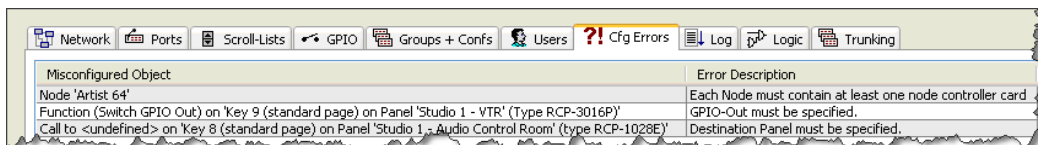



Figure 231: Cfg Errors - Navigation Bar - Configuration Errors tab

Clicking on the Navigation bar “Cfg Errors”  Cfg Errors tab displays any configuration errors that have been detected and are unresolved.

The width of each column can be adjusted in order to read the complete error descriptions. Move the mouse pointer to the edge of a column. The pointer changes to a  . Hold the left mouse key pressed and drag the column to the desired width. The table is divided into two columns. The first column describes the exact position of the configuration error and the second describes the problem.

Double click on an entry to open the properties window of the misconfigured object directly. You can then correct the problem.

As soon as the configuration error is corrected it disappears from the *Cfg-Errors* tab.

Repeat this process for all further errors in the Cfg-Errors list.

Only when all configuration errors have been corrected can the configuration be sent to the system.

## 8.26 Monitor ‘Live State’

Director offers the possibility to monitor all panels connected to the system in real-time using “Live State”. For example, this feature gives an exact picture of current volume settings and key presses for control panels. Director only offers a visual monitoring of a port. The audio to and from a port cannot be monitored.

Communication and functions between ports are normally accompanied by a signalization on the panel. All incoming and outgoing calls plus other active functions can be monitored on the basis of their signalization. Even the current state of the function keys, like “Shift” or “HS”, is displayed in real-time. This allows problems to be quickly found, such as a pressed “HS” key when no headset is connected. The monitoring can be carried out from any PC that has Director and that is connected via Ethernet with the Artist system. There is no limit to the number of PCs that can monitor the same port at the same time.

### Panel Workspace

The “Live State”  monitoring mode is accessible from the configuration view of a port.

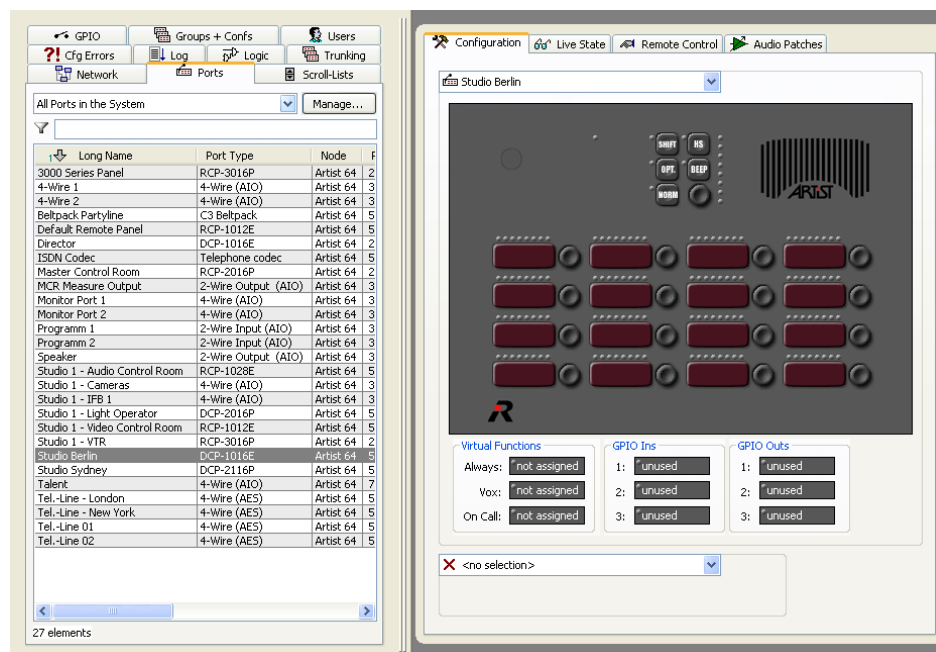



Figure 232: Panel live state - workspace with panel configuration

Double click on the port you wish to open in the port or network lists found in the Navigation Bar. The port will be opened on the right side of Director and the configuration view shown.

A second port can also be displayed below the first by selecting it from the drop down list or by dragging it to the list from the Navigation Bar using Drag & Drop.

## Switching to Live State monitoring

The control panel worksheet contains four tabs that are used for different modes of operation or programming. Depending on the user rights, fewer tabs may be available. If you cannot see all four tabs, please contact your Artist system administrator.

Select the tab  Live State to switch to the monitoring view. The panel opens in real-time view. As long as Director is connected to the system, you possess the necessary user rights, and the panel is online this tab will show the current state of the panel. If you have opened a second port in the Workspace its live state will be shown as well.

The panel will now be displayed with all of its current actions, volume levels and signalizations. The status of the Virtual Functions and GPIOs will also be displayed. If one of these functions is active it will be indicated by a small red signal next to the function.

**In this mode the ports can only be visually monitored. In order to make changes to the configuration you must return to the configuration view by clicking the  Configuration tab.**

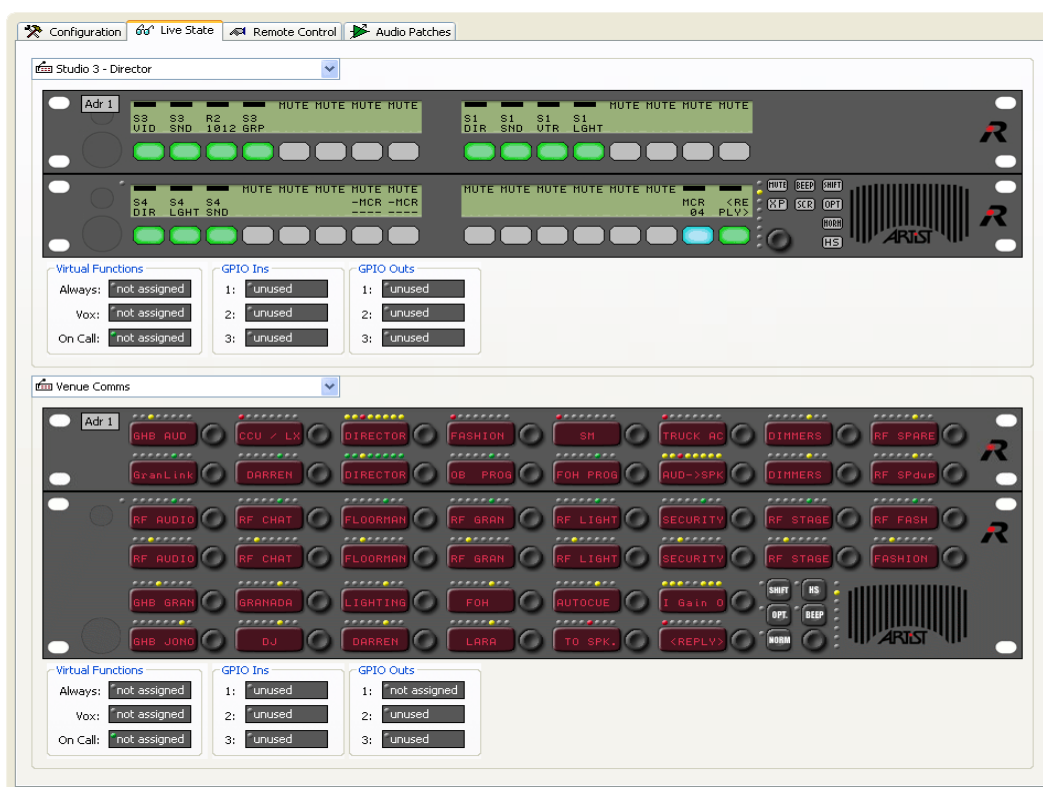
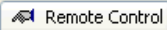


Figure 233: Panel live state - Live state monitoring



## 8.27 Remote Control a Panel

Using Director and the  Remote Control tab it is possible to monitor and remotely control every port in the system in real time. The panel can be operated completely online, as if you were sitting directly before it. However, only the panel hardware can be monitored and controlled. The audio to and from the control panel is not available in Director.

Communication and functions between ports are normally accompanied by a signalization on the panel. All incoming and outgoing calls plus other active functions can be monitored on the basis of their signalization. Even the current state of the function keys, like “Shift” or “HS”, is displayed in real-time. This allows problems to be quickly found, such as a pressed “HS” key when no headset is connected, or muted incoming audio. The monitoring can be carried out from any PC that has Director and that is connected via Ethernet with the Artist system. There is no limit to the number of PCs that can monitor the same port at the same time.

### Panel Workspace

The  Remote Control monitoring is accessible from the configuration view of a port.

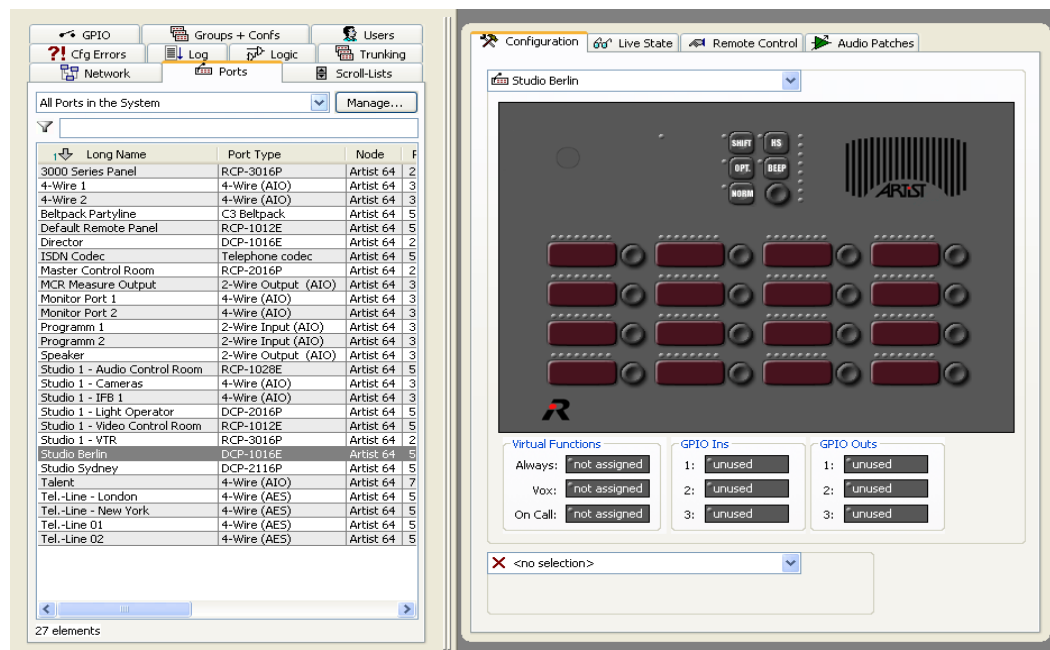
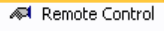
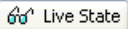


Figure 234: Remote Control - Panels tab with panel workspace

Double click on the port you wish to open in the port or network lists found in the **Navigation Bar**. The port will be opened on the right side of Director and the configuration view shown. A second port can also be displayed below the first by selecting it from the drop down list or by dragging it to the list from the Navigation Bar using Drag & Drop.

## Switching to Remote Control Mode

The control panel worksheet contains four tabs that are used for different modes of operation or programming. Depending on the user rights, fewer tabs may be available. If you cannot see all four tabs, please contact your Artist system administrator.

Select the tab  Remote Control to switch to the remote control view. The panel opens in real-time view. As long as Director is connected to the system, you possess the necessary user rights and the panel is online this tab will show the current state of the panel. In addition to the  Live State view, you have the possibility to remote control the panel from Director. If you have opened a second port in the Workspace its live state will also be shown.

The panel will now be displayed with all of its current actions, volume levels and signalizations. The status of the Virtual Functions and GPIOs will also be displayed. If one of these functions is active it will be indicated by a small red signal next to the function. All key functions, volume controls, Virtual Functions, GPIOs and function keys can now be operated from Director

**All remote control actions will affect the control panel in real-time. Make sure that you have the correct port open.**

If you press a panel key with the mouse this action will also take place at the panel. This will be visually signalled in Director in that you can see the key being pressed. It is also possible to activate GPIOs and Virtual Functions. Click on the small dot next to the Virtual Function or GPIO.



Figure 235: Remote Control - operating remote control

You can also adjust all of the volume controls in real-time. Click on an encoder and hold the mouse button pressed. Begin to slowly move the mouse in a circle in the desired direction. A line labelled “Turn” will be displayed that can be moved to adjust the volume level. In addition, the level will be shown live in Director.

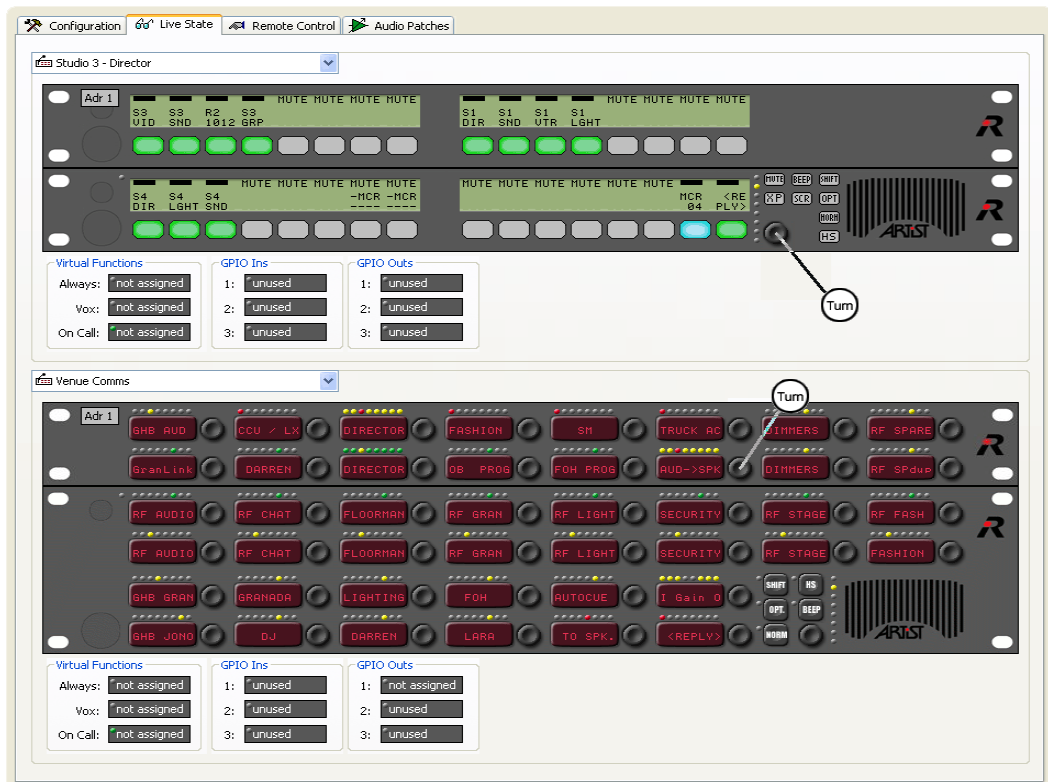



Figure 236: Remote Control - Volume Control


To use the function keys, for example “Beep Panel”, right mouse click on the “Beep” key and select “Hold Pressed”. The key will remain pressed. Now you can also press the desired destination key. When you are finished, you can deactivate the “Hold Pressed” by repeating the steps above.



Figure 237: Remote Control - Hold pressed

In this mode the ports can only be visually monitored. In order to make changes to the configuration you must return to the configuration view by clicking the  Configuration tab.

## 8.28 Crosspoint View

The Crosspoint View allows you to monitor the live state of all crosspoints in the system. It is activated by clicking the  button or selecting "Crosspoint View" from the drop-down menu "View".

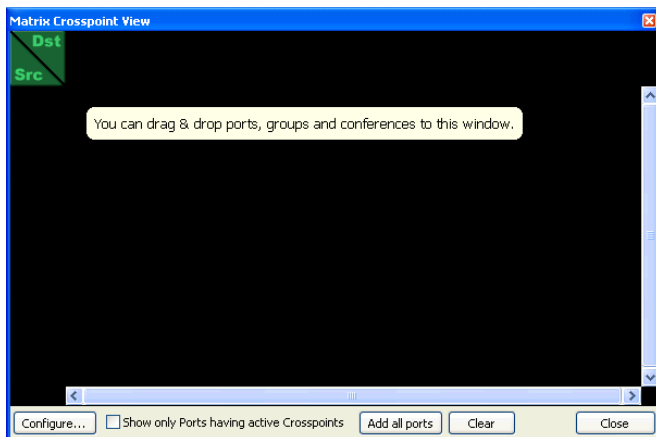


Figure 238: Crosspoint View - window before configuration

In order to use the Crosspoint View, you must first set up the display window to indicate which ports should be displayed. There are several ways to do so:

Drag ports from the port or network list directly into the Crosspoint View. All of the active audio connections to or from the port will be shown, depending on whether you drag the port to the "Scr" (source) column or "Dst" (destination) row. Groups and conferences can also be dragged into the crosspoint view to display all of their members' audio routes.


To quickly add all ports in the system, click on the  button. All available members in the system will be shown in both the "Scr" and "Dst". It does not matter if the port is online or offline. The port will be shown as red (offline) or green (online).



Figure 239: Crosspoint View - example

Depending on the system size, it can quickly become difficult to keep a clear overview of the system in the window. To make this easier, you can activate the option “*Show only Ports having active crosspoints*”. This option will dynamically change the display to only show ports that have active audio routes.

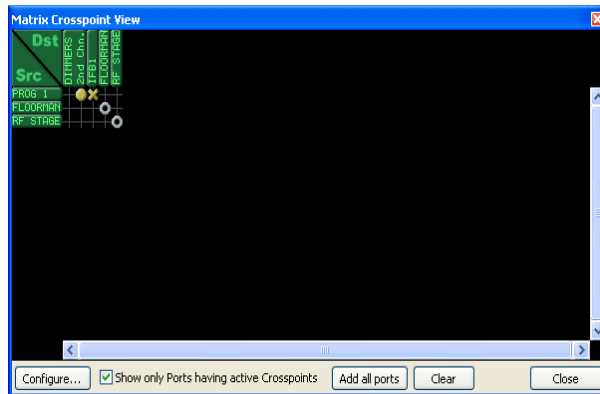


Figure 240: Crosspoint View - Show only Ports having active Crosspoints

If you drag a port to “Scr” or “Dst”, all other ports that are configured to have an audio connection with this port will be automatically added.

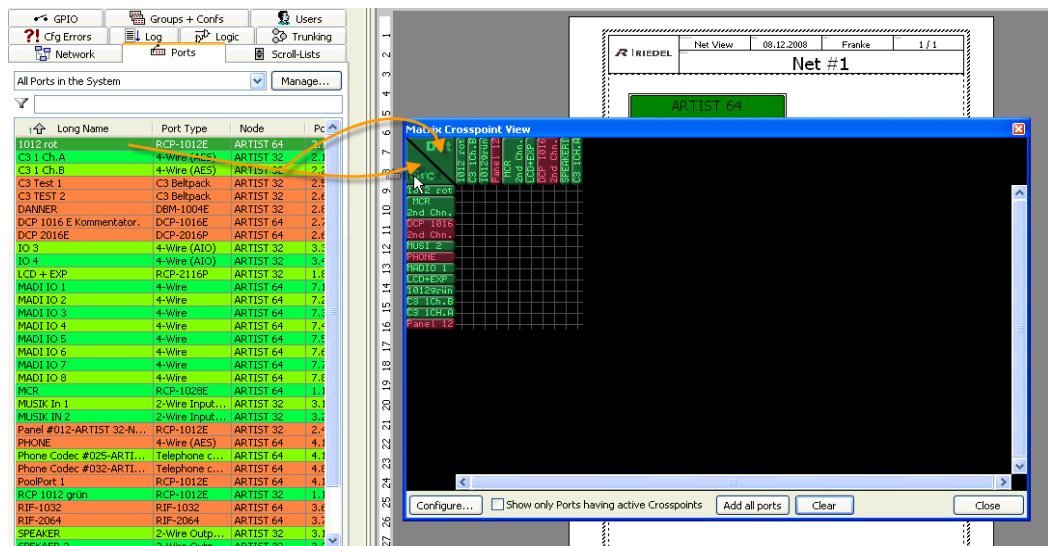




Figure 241: Crosspoint View - Drag & Drop in the Crosspoint View

To manually edit the Crosspoint View display, click the  button. In the configuration window you can add ports either as sources or destinations using the  buttons.

Using the **Move up** and **Move down** buttons you can change the order of ports in the list. Ports, groups and conferences can also be dragged directly into this window using Drag & Drop.

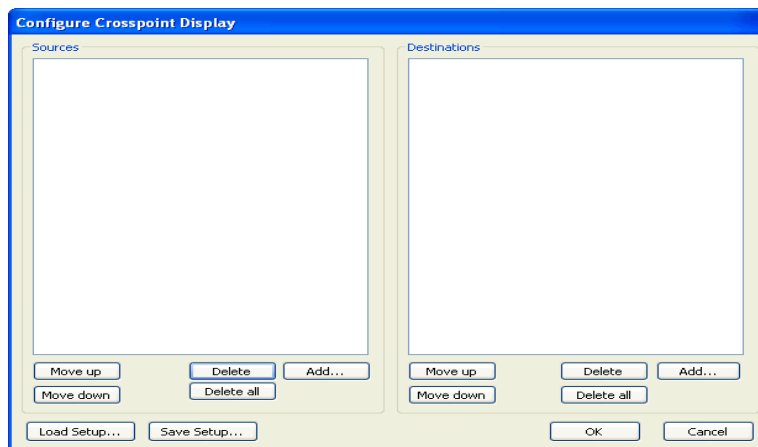


Figure 242: Crosspoint View - Configure crosspoint display window

In addition, there is the possibility to save the current view. Click the button **Save Setup...** and give the setup a unique name. To load a previously saved setup, click the **Load Setup...** button. The presets are saved with the configuration in the nodes and in the configuration file.

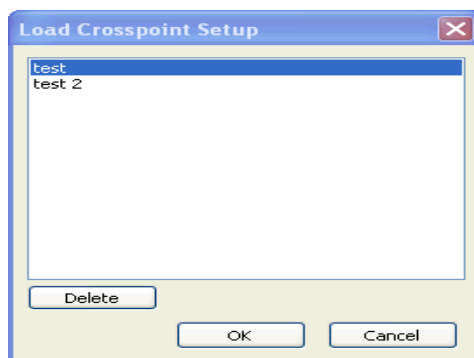


Figure 243: Crosspoint View - Load crosspoint setup window

The “Crosspoint View” displays all active crosspoints between the selected members using various symbols. Each symbol shows the type of audio connection and what caused it.

		Crosspoint - Function								
		Call to Port	Call to Conferenc	Call to Group	Call to IFB	Listen to Port	ISO Call	Route Audio	Sidetone	Call to IFB
Crosspoint trigger	Director (Force Crosspoint)	+								
	Panel-Key	●	●	●	●	●	●	●	●	▶
	Always	○	○	○	○	○	○	○		▶
	Vox	×	×	×	×	×	×	×		▶
	On Call	□	□	□	□	□	□	□		▶
	Logic Destination							◇		
	GPI Input Local (Panel)	△	△	△	△	△	△	△		▶
	GPI Output Local (Panel)	■	■	■	■	■	■	■		▶
	GPI Input Central (Mainframe)							▲		
	GPI Output Central (Mainframe)							■		

Figure 244: Crosspoint View - legend

If a crosspoint is active because of more than one function, the “Crosspoint View” will always display the highest order function (the order is the same as the order of functions under “Add Function”).

As soon as you hold the mouse pointer over an active crosspoint in the Crosspoint View, a window opens with details about the crosspoint. Information includes the volume level, priority and the type of audio connection. In addition, the “Reason” explains exactly why this crosspoint is active.

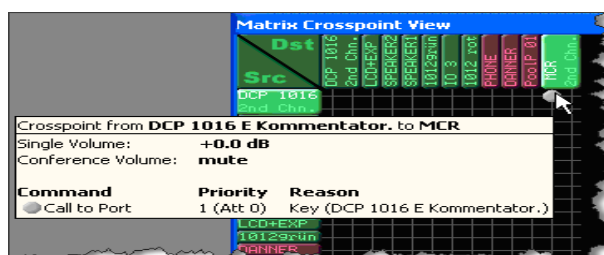


Figure 245: Crosspoint View - Crosspoint information

To get an overview of all active crosspoints related to a certain port, position the mouse pointer over the port. During so in the “Src” column will show all audio coming from that source, while doing so in the “Dst” row will show all active audio going to that destination. After a brief delay, a popup window will show all active connections and their details.

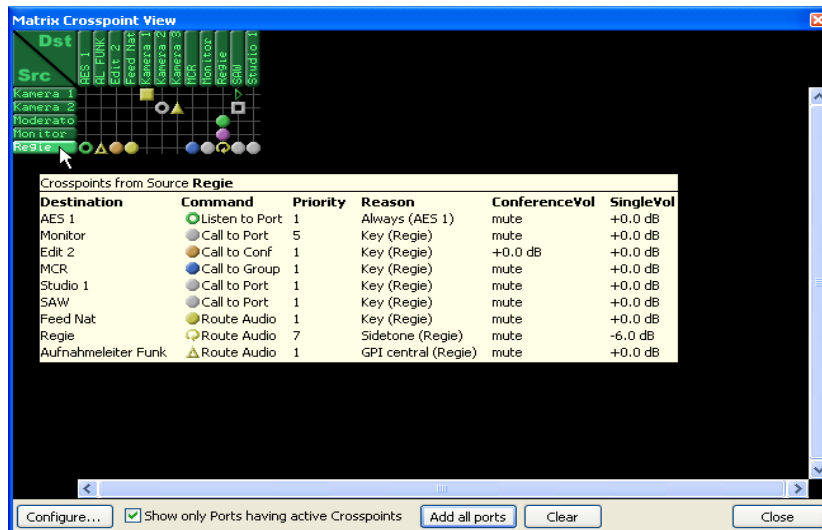


Figure 246: Crosspoint View - Popup window

You can change a crosspoint directly by right mouse clicking on it in the Crosspoint View. The function “Kill Crosspoint” manually deactivates the crosspoint. Affected control panels will see “Ext.Off” in their display, but users can reactivate the crosspoint from the panel if necessary. “Force Crosspoint” manually forces a crosspoint between a particular source and destination without the crosspoint existing in the configuration. This can be used for test and commissioning purposes. The volume level of each crosspoint can also be adjusted between 3 levels.

**Note:** Force Crosspoint, Kill Crosspoint and changes made to crosspoint levels are not intended for use in the normal configuration and control of the system. Any changes made to crosspoints with these features are not saved in the configuration and will not be available after a system reset. These options should only be used for testing and troubleshooting purposes.

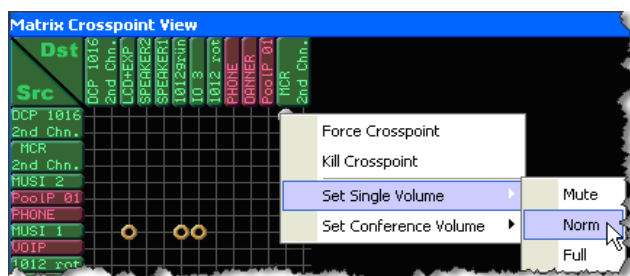


Figure 247: Crosspoint View - Manipulating a Crosspoint



## 8.29 Software Updates

New software versions for Artist are periodically available and include new features and bug fixes.

**Note:** Every software release comes with release notes and update instructions describing any special update procedures. Please read these documents carefully before updating your system.

Each software release consists of at least 3 components. A new version of Director always requires the current firmware in the system cards. It is imperative to update all components to the latest version when performing a software update.

<b>Director Software</b>	PC configuration and control software
<b>Node Firmware</b>	CPU operating system
<b>Client Firmware</b>	Client card operating system
<b>Panel Firmware</b>	Control Panel operating system (an update is not always necessary)

Figure 248: Table - Software update components

**Warning:** Not following correct update procedures or using the wrong update files can damage the system and lead to a total system failure. If this occurs, all matrix cards must be sent to the factory for service and the system cannot be used. Disregarding update instructions will also void any warranty and service agreements.

## 8.29.1 Before beginning the update:

Check the software versions that are currently installed on your system.

### Director Version

The version number of Director is found under **“Help”** -> **“About”** in Director.



Figure 249: Software update - About Director

### Node and client version

The version information for the CPU and client cards is found in the **Online View**. Press **?** or select **“View”** -> **“Artist Online View”**.

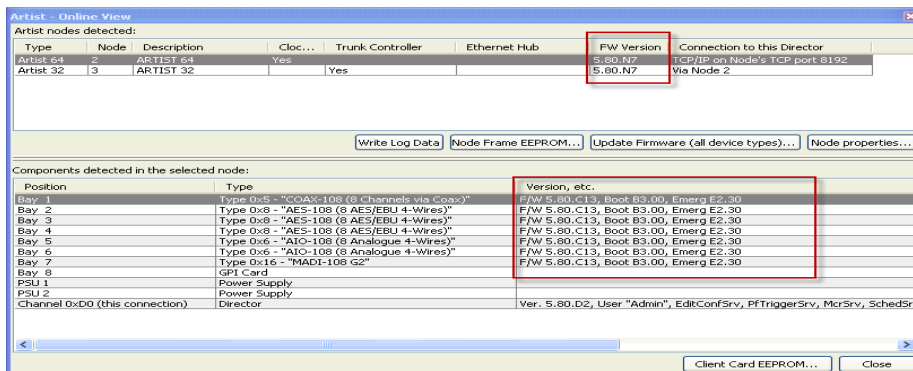


Figure 250: Software update - Artist Online View

Before beginning an update, save your original configuration with the old version of Director!

Start the new version of Director and open a configuration from your hard drive.

If you receive error messages such as **“duplicate commands”**, **“missing calls”**, **“MCR..”**, send your configuration file to [customerservice@riedel.net](mailto:customerservice@riedel.net) and **DO NOT UPDATE YOUR SYSTEM**.

## 8.29.2 Director update

To update Director, simply copy the new Director.exe file to the directory of your choice.

If you use *Partial Files*, *XY-Matrix* or the *Partial Files Trigger* you must also copy the files ***“Director.ETR”*** and ***“Director.RPS”*** “ from the directory with the old version of Director to where the new version is located.

**WARNING:** Director, CPU firmware and client firmware always come together as a package!

Different versions are not compatible with one another. Please contact Riedel Customer Service if you are uncertain about compatibility issues.

Old configuration files can be opened with the new Director, but older versions of Director cannot open configuration files written with a newer version.

Therefore, always make a backup copy of your configuration files before performing an update. This will ensure that you can still open the files with the old version of Director in case of an emergency.

## 8.29.3 Firmware update

Open the **“Artist – *Online View*”** by clicking the . Select one of the nodes and click the **Update Firmware (all device types)...** button.

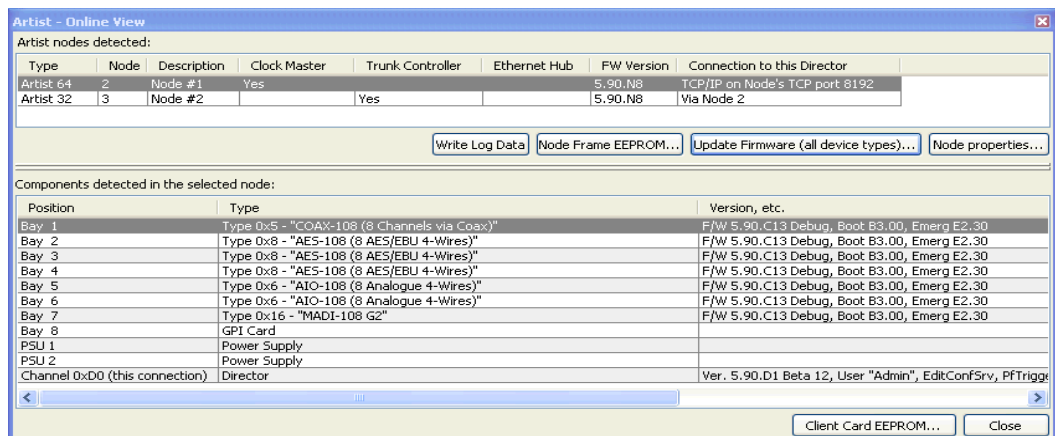
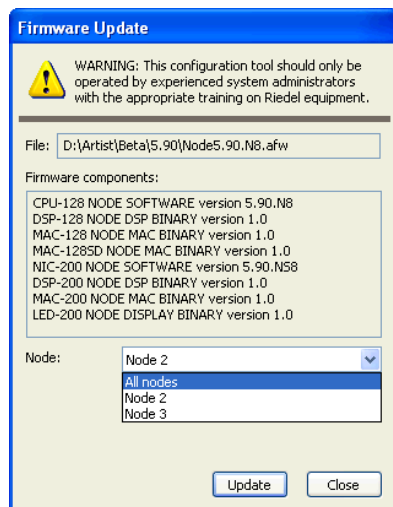


Figure 251: Firmware update - Artist - Online View

Select the correct firmware file in the open **“Select Firmware File”** window. Director automatically recognizes whether the firmware is for a node or for a client card.

## 8.29.3.1 Node Update



After selecting a node firmware file select the node to update. You can choose to update nodes one at a time or update them all together over the fiber ring. After selecting a node, click the **Update** button. The CPUs indicate that an update is taking place through the blinking of all of their LEDs. A progress bar in Director also displays the update process. A message will appear after a successful update.

**Note:** If there are 2 CPUs in a node, the redundant CPU automatically starts when the software is being updated. Do not reset the node during this time.

Figure 252: Firmware update - Selecting a node

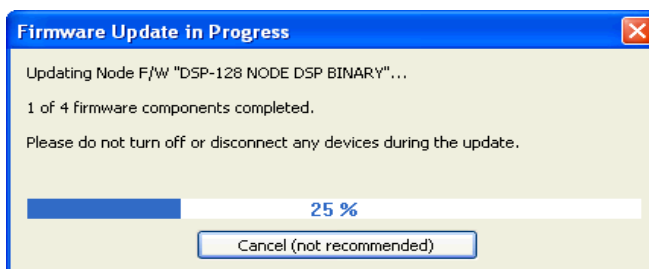


Figure 253: Firmware update - Update progress

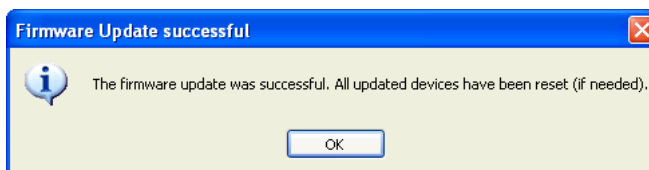
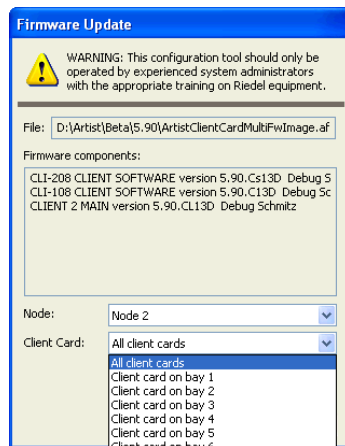


Figure 254: Firmware update - Successful node update

### 8.29.3.2 Client Update



After selecting a client firmware file, you can choose to either update all of the cards together over the fiber ring or to update cards individually. After selecting a card, click the **Update** button. The client cards signal that an update is taking place through the blinking of all of their LEDs. A progress bar in Director also displays the update process. A message will appear after a successful update.

**Tip:** If you have VoIP cards in your system, the client card update can take longer than an update without VoIP cards.

Figure 255: Firmware update - Selecting the node and client cards

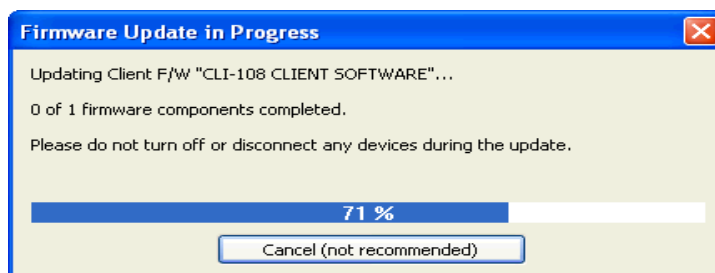


Figure 256: Firmware update - Update progress

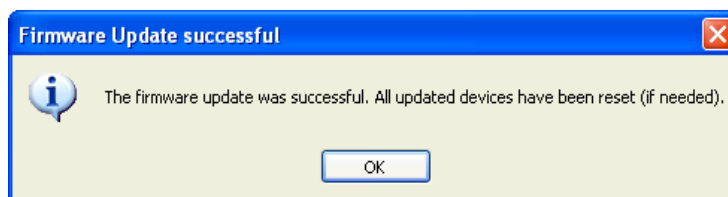


Figure 257: Firmware update - Successful client card update

If you have several nodes connected in a fiber ring and you did not select “All Nodes” during the update, repeat the process above for each node. The update can be carried out from any PC that is connected to the Artist system.

After updating the firmware, open the previously saved configuration with the new version of Director and send it to the Artist system. Reset the system (“**Extras**”->“Reset all Nodes”). The system update has been completed successfully.

## 9 FUNCTIONS AND FEATURES IN DETAIL

This part of the document provides supplementary information on the functions and features of the Director software. All functions and settings will be described in detail.

### 9.1 Menu Bar

The Menu bar provides the basic set of functions needed to manage the Director software. Many of these functions are identical to those in other Windows programs.

There are six main menus that each contains further functions.



Figure 258: Director - Menu bar

#### 9.1.1 File

With the file menu you can open, save and manage configuration files. You can also send changes to the system and read out configurations.

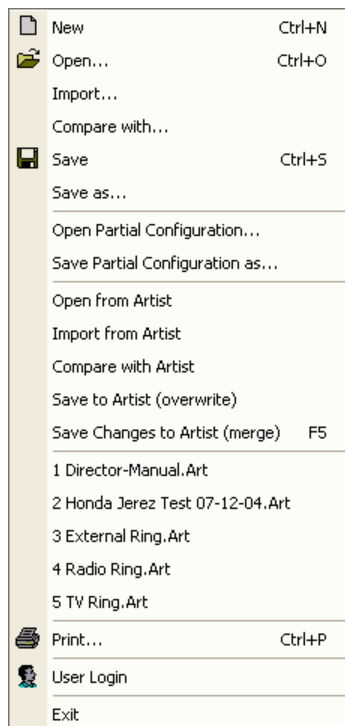


Figure 259: Menu bar - file options

**Menu Bar - File Commands**

<b>New</b>	Creates a new empty configuration (Keyboard shortcut: Ctrl + N)
<b>Open...</b>	Opens an existing configuration file (Keyboard shortcut: Ctrl + O)
<b>Import...</b>	Imports a configuration from a hard disk to the current configuration The current configuration and the configuration imported will be merged
<b>Compare with...</b>	Compares the current configuration with an existing configuration on hard disk
<b>Save</b>	Saves the active Director configuration with its current file name to hard disk. (Keyboard shortcut: Ctrl + S)
<b>Save as...</b>	Saves the active configuration under a different file name, location
<b>Open Partial Configuration...</b>	Opens a partial configuration file *.PAR, which only makes partial changes to the existing configuration (Only available if the Partial File option is installed)
<b>Save Partial Configuration as ...</b>	Saves only a part of the configuration as a *.PAR file. The details to be saved can be manually selected. (Only available if the Partial File option is installed)
<b>Open from ARTIST</b>	Loads the current configuration from an online Artist system to Director
<b>Import from ARTIST</b>	Imports the current configuration in Artist to the configuration open in Director. The current configuration and the configuration imported will be merged
<b>Compare with ARTIST</b>	Compares the configuration in Director to the current system configuration in Artist
<b>Save to ARTIST (overwrite)</b>	Sends the complete configuration in Director to the Artist system
<b>Save Changes to Artist (merge)</b>	Sends only the changes in the configuration open in Director to the Artist system
<b>Print...</b>	Prints system information such as port lists, GPIs, etc.
<b>User Login</b>	Select user and password entry
<b>Exit</b>	Closes Director

Figure 260: Table - Menu bar - File functions

## 9.1.2 Edit

The “Edit” menu can adjust some basic settings in order to make changes in the configuration.

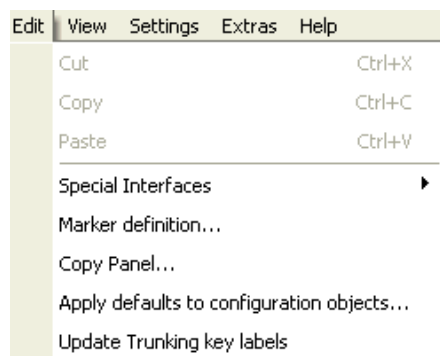


Figure 261: Menu bar - Edit options

### 9.1.2.1 Menu Bar - edit commands

<b>Cut</b>	Currently not available
<b>Copy</b>	Currently not available
<b>Paste</b>	Currently not available
<b>Special Interfaces</b>	Adds/removes Special Interfaces to/from the working configuration
<b><u>Marker definition...</u></b>	Opens the marker (signalization) properties for panels
<b><u>Copy panel...</u></b>	Copies a complete panel configuration or Audiopatch to one or more panels
<b><u>Apply defaults to configuration objects...</u></b>	Globally applies NET properties to all ports in the configuration (See: <a href="#">NET Properties</a> )
<b><u>Update Trunking key labels</u></b>	This function updates port names in a trunked system (See: <a href="#">Trunking</a> )

Figure 262: Table - Menu bar - Edit functions

### 9.1.2.2 Special Interfaces

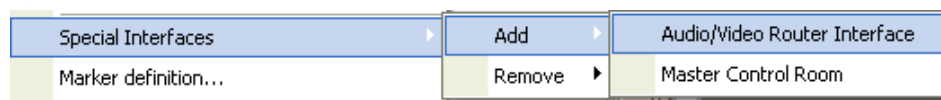


Figure 263: Menu bar - Edit - Add special features

Using the menu selection “Add” you can add the “Audio/Video Router” or “Master Control Room” option software modules. Note that this will also require either a special USB dongle or an activation code. (See: [11 Special Features](#))



9.1.2.3 Marker definitions

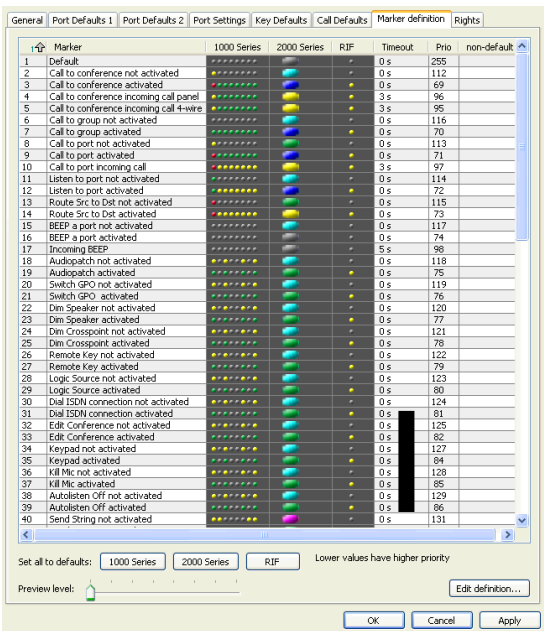


Figure 264: Menu bar - Edit - Marker definitions

In “Marker Definitions”, all panel signalizations can be changed for each panel type.

(See: [9.8.7 Marker definitions](#))

9.1.2.4 Copy Panel

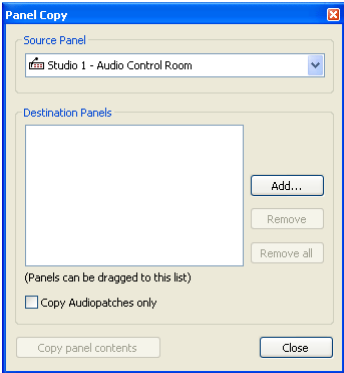


Figure 265: Menu bar - Edit - Copy Panel

Choose the source panel that should be copied.

Add destination panels using the **Add...** button or Drag & Drop.

To delete panels from the list, select them and click the **Remove** button. To remove all panels, click the **Remove all** button.

To only copy the Audio Patches from the source panel, choose the option “Copy Audiopatches only”. None of the keys or other functions of the destination panels will be changed.

To copy the panel, click **Copy panel contents**.

**Note:** All settings and keys will be overwritten at the destination panel. Panels can only be copied to other panels of the same type.

## 9.1.3 View

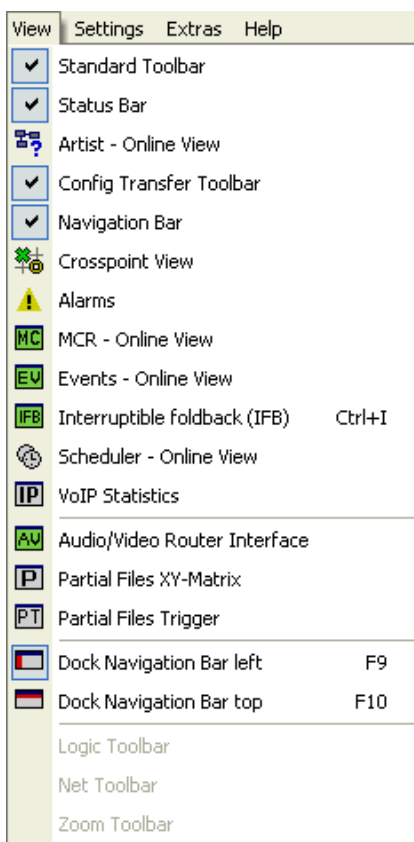


Figure 266: Menu bar - View options

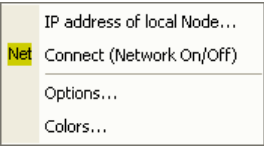
### Menu Bar View Commands

<b><u>Standard Toolbar</u></b>	Displays or hides the standard Toolbar
<b><u>Status Bar</u></b>	Displays or hides the Status Bar
<b><u>Artist Online View</u></b>	Opens the Artist Online View window
<b><u>Config Transfer Toolbar</u></b>	Displays or hides the Artist Update button
<b><u>Navigation Bar</u></b>	Displays or hides the Navigation Bar
<b><u>Crosspoint View</u></b>	Opens the Crosspoint View
<b><u>Alarms</u></b>	Opens the Alarm window
<b><u>MCR - Online View</u></b>	Opens the MCR Tool (Only available if this option is activated)
<b><u>Events – Online View</u></b>	Opens the “Events” window (Only available if this option is activated)
<b><u>Interruptible Foldback (IFB)</u></b>	Opens the IFB configuration table
<b><u>Scheduler – Online View</u></b>	Opens the Scheduler window (Only available if this option is activated)
<b><u>VOIP Statistics</u></b>	Opens the VoIP connection statistics window (if the system contains a VPIO 108 card)

<b><u>Audio/ Video Router Interface</u></b>	Opens the Audio/ Video Router Interface window (Only available if this option is activated)
<b><u>Partial Files XY-Matrix</u></b>	Opens the XY-Matrix window (Only available if this option is activated)
<b><u>Partial Files Trigger</u></b>	Opens the <i>Partial File Trigger</i> window (Only available if this option is activated)
<b>Dock Navigation Bar left</b>	Docks the Navigation Bar to the left side of Director (Keyboard shortcut: <F9>)
<b>Dock Navigation Bar top</b>	Docks the Navigation Bar to the top of Director (Keyboard shortcut: <F10>)

Figure 267: Table - Menu bar - View functions

9.1.4 Settings



In *Settings* system parameters and user options can be defined.

Figure 268: Menu bar - Settings

<b><u>IP address of local Node...</u></b>	Opens the IP address entry window
<b>Connect (Network On/Off)</b>	Activates / deactivates the IP connection to the Artist or Performer system
<b>Options...</b>	Opens the Options window
<b>Colors</b>	Allows changes to be made to the port list's color scheme

Figure 269: Table - Menu bar - Settings functions

9.1.4.1 IP-Address of local Node

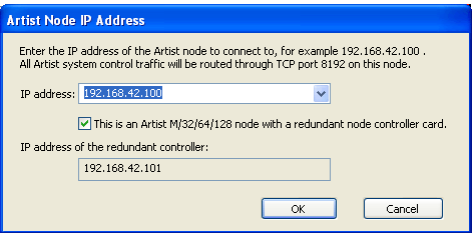
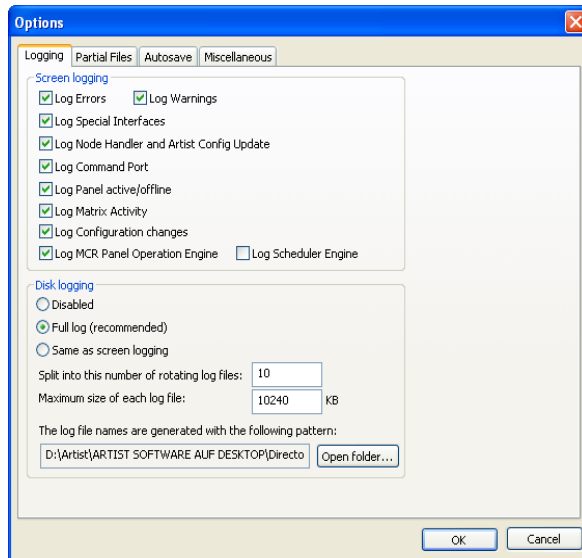


Figure 270: Settings - ARTIST Node IP Address

Manually set the IP address of the node you wish to connect to. The drop down menu contains the last 10 IP addresses entered.

If you are connecting to a node with 2 CPU cards, check the option “*This is an Artist M/32/64/128 node with redundant controller card*”. This ensures that Director looks at both IP addresses and that it can switch to the 2<sup>nd</sup> CPU if necessary.

## 9.1.4.2 Options - Logging



The various log parameters can be set in the Logging tab.

Figure 271: Menu bar - Settings - Options - Logging

### Screen logging

<b>Log Errors</b>	Logs hardware errors
<b>Log Warnings</b>	Logs warnings
<b>Log Special Interfaces</b>	Logs the optional software special features
<b>Log Node Handler /Artist Config Update</b>	Logs configuration changes
<b>Log Command Port</b>	Logs the Director connection to Artist
<b>Log Panel active/online</b>	Logs the port status (online/offline)
<b>Log Matrix Activity</b>	Logs matrix activities (every key press, GPI, etc.)
<b>Log Configuration changes</b>	Logs configuration changes
<b>Log MCR Panel Operation Engine</b>	Logs MCR panel operations (optional)
<b>Log Scheduler Engine</b>	Logs automatic times (optional)

### Disk logging

<b>Disabled</b>	The log file will not be saved
<b>Full log (recommended)</b>	Saves all log file details, independent of screen logging settings
<b>Same as Screen logging</b>	Only saves the log details that are set in screen logging
<b>Split into number of rotating files</b>	Maximum number of log files (FIFO principle) (recommended: 6)
<b>Maximum Size of each log file</b>	Size of individual log files (recommended approx. 10000kB)

Figure 272: Table - Logging functions

The log-files are stored as “Director-Uxx.txt” files in the same folder, the Director is started from.

**Tip:** When you want to open several instances of Director on the same Computer, the *Disk logging* needs to be *disabled*, or you have to copy and start the different Directors from different folders of your hard disk.

9.1.4.3 Options - Partial Files

Partial Files is a special software feature that allows certain parts of a configuration to be saved to a file and later opened. Partial Files must be activated with either an activation code or a special USB dongle before it can be used. For details see: [12.1 Partial Files](#)

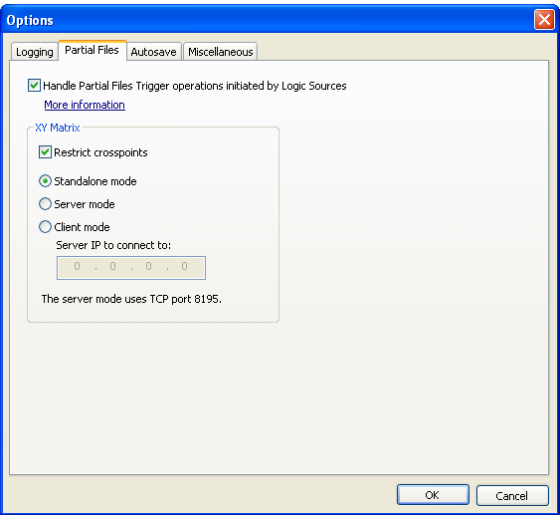


Figure 273: Menu bar - Settings - Options - Partial Files

Handle Partial Files Trigger operations initiated by Logic Sources	By checking this box it is possible to load partial files with a Logic Source. Only one PC in a network should have this option activated. That PC must then be permanently connected to the Artist system. If a logic source triggers a partial file the PC will automatically manage the configuration changes.
Restrict crosspoints	Tick this box to use the XY-matrix in such a way that crosspoints will not be automatically released when a new one is activated.
Standalone mode	All partial files are located on the local PC.
Server mode	Only for use with Partial Files client/server. Activating server mode makes Partial Files available to other computers. The control of the files will be handled by the client PC.
Client mode	Only for use with Partial Files client/server. When client mode is activated, this PC takes control of the partial files on the server PC. This allows remotely controlling the partial files.
Server IP to connect to	Only for Partial Files client operation. Enter the IP address of the server PC here.

Figure 274: Table - Partial file functions

#### 9.1.4.4 Options - Autosave

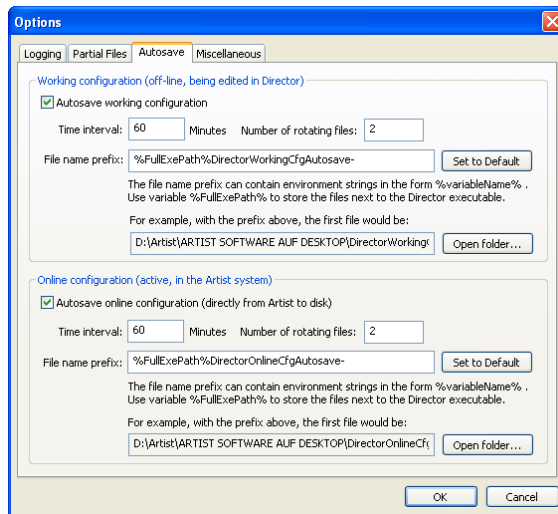


Figure 275: Menu bar - Settings - Options - Autosave

#### Autosave the current Director configuration

<b>Autosave working configuration</b>	Activating this option saves the current Director configuration at predefined intervals. The files are saved in the directory where Director resides
<b>Time interval</b>	Defines how often the file is saved
<b>Number of rotating</b>	Sets the number of rotating backup files
<b>File name prefix</b>	Provides individual names for the backup files
<b>Set to Default</b>	Sets the names of the backup files to factory presets
<b>Open folder...</b>	Opens the folder where the backup files are stored (same directory as Director)

#### Autosave the online configuration

<b>Autosave online configuration</b>	Activating this option saves the current configuration from the Artist system that the PC is connected to at predefined intervals. The files are saved in the directory where Director resides.
<b>Time interval</b>	Defines how often the file is saved.
<b>Number of rotating</b>	Sets the number of rotating backup files
<b>File name prefix</b>	Provides individual names for the backup files
<b>Set to Default</b>	Sets the names of the backup files to factory presets
<b>Open folder...</b>	Opens the folder where the backup files are stored (same directory as Director)

Figure 276: Table - Autosave functions

### 9.1.4.5 Options - Miscellaneous

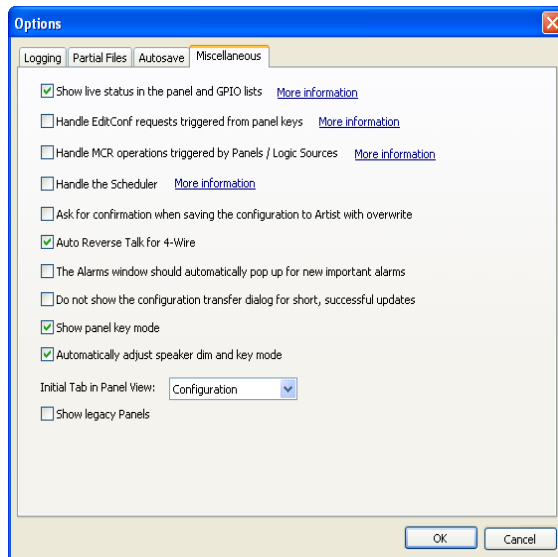


Figure 277: Menu bar - Settings - Options - Miscellaneous

<b>Show live status in the panel and GPIO lists</b>	Check this box to display the online status of ports and GPI activity
<b>Handle EditConf requests triggered from panel keys</b>	Tick this box to define this PC as the one handling the EditConf requests from the Artist system (only one PC in a network should have this option activated at a time)
<b>Handle MCR operations triggered by Panels / Logic Sources</b>	Tick this box to define this PC as the one handling MCR Tool requests (only one PC in a network should have this option activated at a time)
<b>Handle the Scheduler</b>	Tick this box to define this PC as the one handling scheduled events (only one PC in a network should have this option activated at a time)
<b>Ask for confirmation when saving the configuration to Artist with overwrite</b>	Tick this box to require a confirmation prompt before performing the "Save to Artist (overwrite)" command
<b>Auto Reverse Talk for 4-Wire</b>	Tick this box to activate this configuration tool. When active, a return audio connection will be automatically programmed on 4-wire ports when a "Call to..." command to the port is programmed elsewhere
<b>The Alarms window should automatically pop up for new Important alarms</b>	Tick this box to allow the <b>Alarms window</b> to open automatically when a new system alarm occurs
<b>Do not show the configuration transfer dialog for short, successful updates</b>	Tick this box to deactivate the transfer dialog for successful updates. The window will only be shown if the configuration update was not successful
<b>Show panel key mode</b>	Tick this box to show key modes in the panel view (M: Momentary, L: Latching, A: Auto)

<b>Automatically adjust speaker dim and key mode</b>	When this option is active, Director automatically deletes the dim panel speaker function for commands where the panel's microphone is not used. The key mode for special functions is also automatically set to latching
<b>Initial Tab in Panel View</b>	Defines the tab that is initially selected when opening a panel
<b>Show legacy Panels</b>	When this option is active, older panel types will also be displayed in the port type list when defining matrix ports (ex. xCP, 10xxB). This function is normally deactivated

Figure 278: Table - Options - Miscellaneous functions



Figure 279: Options - Miscellaneous - Show Panel Key Mode (Momentary, Auto, Latching)

## 9.1.4.6 Colors

Allows the display colors in the port list to be changed

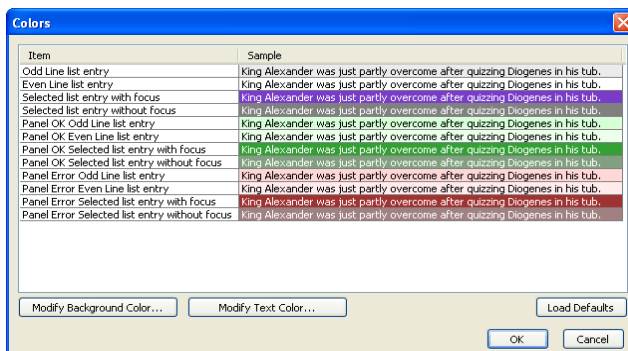


Figure 280: Menu bar - Settings - Colors

## 9.1.5 Extras

The **Extras** features provide the means to reset various aspects of the system and to register and activate special features.

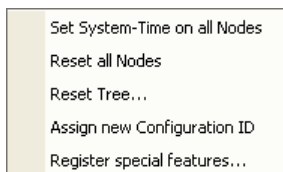


Figure 281: Menu bar - Extras



#### 9.1.5.1 Set System-Time on all nodes

Synchronizes the internal clocks on all nodes in the net to the PC's clock

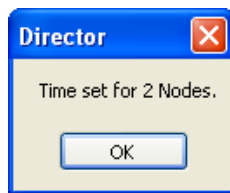


Figure 282: Menu bar - Extras - Set System Time on all nodes

#### 9.1.5.2 Reset all nodes

Resets all available nodes on a fiber ring, as soon as the reset command is confirmed. A complete system reset takes approximately 20-40 seconds, depending on the system size.

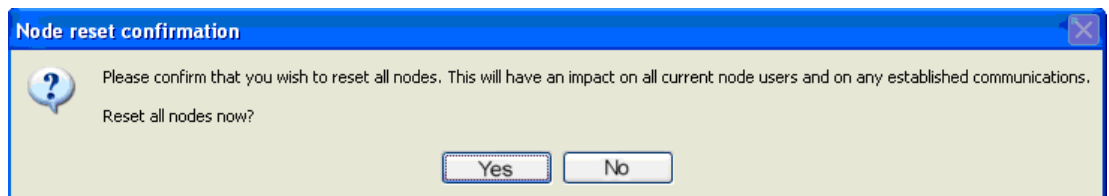


Figure 283: Menu bar - Extras - Reset all Nodes

### 9.1.5.3 Reset Tree ...

The reset tree allows panels, client cards or nodes to be reset individually, without affecting the rest of the system.

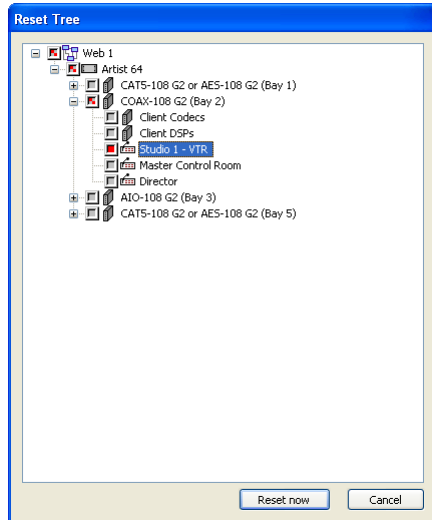


Figure 284: Menu bar - Extras - Reset Tree ...

Select the item that you would like to reset. Depending on where you mark the reset tree (■), all components below that point will be reset. You can choose to reset a complete node, only a certain client card or a particular panel.

### 9.1.5.4 Assign new Configuration ID

This command is only used when merging two configurations that were originally created from the same configuration file (see also: [8.6.7 Merge](#)). Please note that a new configuration ID makes any Partial Files incompatible to the merged configuration.

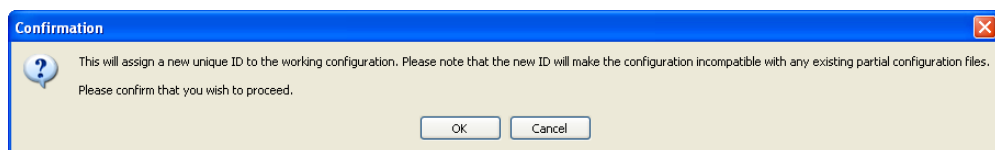


Figure 285 Menu bar - Extras - Assign new Configuration ID

#### 9.1.5.5 Register special features ...

Use this function to register any special features you have purchased. You will need an activation code from Riedel that is only valid for a single PC. Special features include:

- Partial Files
- Audio Video Router
- Master Control Room
- Scheduler/Events

For details see "[11.1 Unlocking Software Add-ons](#)"



Figure 286: Menu bar - Extras - Register Special Features

## 9.1.6 Help

Here you can find additional information about the Director software and Riedel support services.

Command-line arguments...
Limits...
Support...
About...

Figure 287: Menu bar - Help options

<b>Command line arguments...</b>	Allows an automatic start up of Director. Changes the options for the Director.exe shortcut
<b>Limits...</b>	Describes the system limits of Artist
<b>Support...</b>	Displays the contact information for Riedel support
<b>About...</b>	Opens the Director start up window (splash window), which displays information such as the version number

Figure 288: Table - Menu bar - Help functions

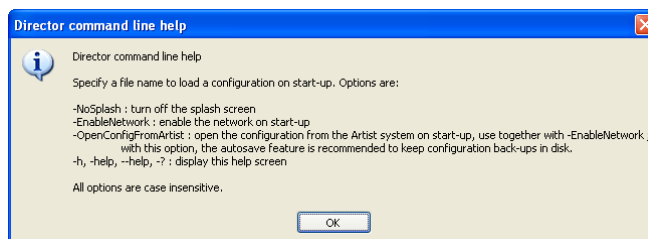


Figure 290: Menu bar - Help - Command Line Arguments...

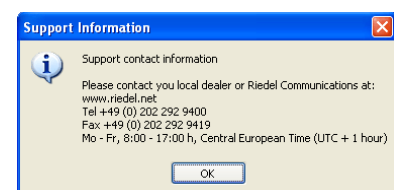


Figure 289: Menu bar - Help - Support...

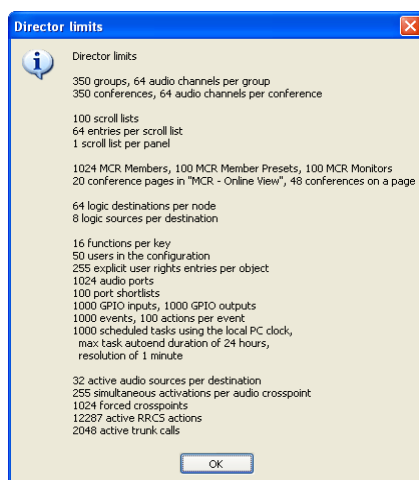


Figure 292: Menu bar - Help - Limits...



Figure 291: Menu bar - Help - About...

## 9.2 Toolbar

The toolbar provides quick access to the most important and most often used functions.



Figure 293: Director - Toolbar


















	<b>New</b>	Opens a new blank configuration file
	<b>Open</b>	Opens an existing configuration file
	<b>Save</b>	Saves the current configuration in Director under its current file name
	<b>Print</b>	Prints selected information about the configuration
	<b>User Login</b>	Select user and password entry
	<b>Net</b>	Connect / disconnect the network connection to Artist
	<b>Dock Navigation Bar left</b>	Docks the Navigation Bar to the left side of Director window (= F9)
	<b>Dock Navigation Bar top</b>	Docks the Navigation Bar to the top of Director window (= F10)
	<b>Audio/Video Router Interface</b>	Opens the Audio/Video Router Interface window
	<b>Partial Files - XY Matrix</b>	Opens the Partial Files XY-Matrix
	<b>Partial Files Trigger</b>	Opens the Partial Files Trigger window
	<b>Master Control Room</b>	Opens the MCR user interface
	<b>Events</b>	Opens the Events window
	<b>IFB</b>	Opens the IFB table
	<b>Scheduler</b>	Opens the Scheduler window
	<b>Crosspoint View</b>	Opens the Crosspoint View window
	<b>Online View</b>	Opens the Online View window
	<b>Alarms</b>	Opens the Alarms window
	<b>VoIP Statistics</b>	Opens the Statistics window for all VoIP connections

Figure 294: Table - Director - Toolbar buttons

The position of the toolbar can be moved both within and outside of the Director window.

## 9.3 Navigation Bar

The Navigation Bar provides the basic functions for creating an Artist configuration. The individual tabs in the Navigation Bar allow the programming and editing of the system.

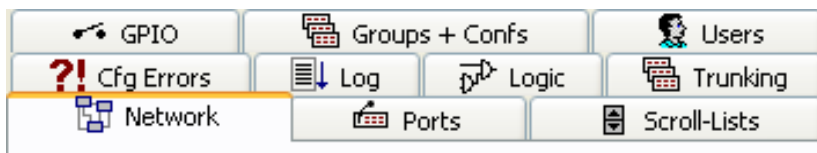


Figure 295: Director - Navigation bar

There are 10 different tabs on the Navigation Bar. Some are also associated with their own Workspace that is used for the programming and display certain features. Only one tab can be selected at time, but other tabs can be selected even if the workspace of a different tab is open.

<b>Network</b>	Set up the net and the hardware configuration of the node
<b>Ports</b>	Port and panel properties / view
<b>Scroll-Lists</b>	Creation and management of scroll lists for control panel keys
<b>Cfg Errors</b>	Displays configuration errors
<b>Log</b>	Displays log entries from Director
<b>Logic</b>	Program and edit logic functions
<b>Trunking</b>	Management of trunking assignments
<b>GPI</b>	View and edit central and panel GPIs
<b>Groups + Confs</b>	Create and edit groups and conferences
<b>Users</b>	Create and edit users and user rights

Figure 296: Table - Director - Navigation bar tabs

The Navigation Bar can be repositioned by dragging it with the mouse. It can also be moved outside of the Director window, for example to a second monitor. This provides the maximum viewing area in the Workspace.

## 9.4 Workspace

The Workspace is used to program and view system functions in association with the Navigation Bar tabs. This includes, among other features, the configuration of the system, ports and control panels and creating logic functions.

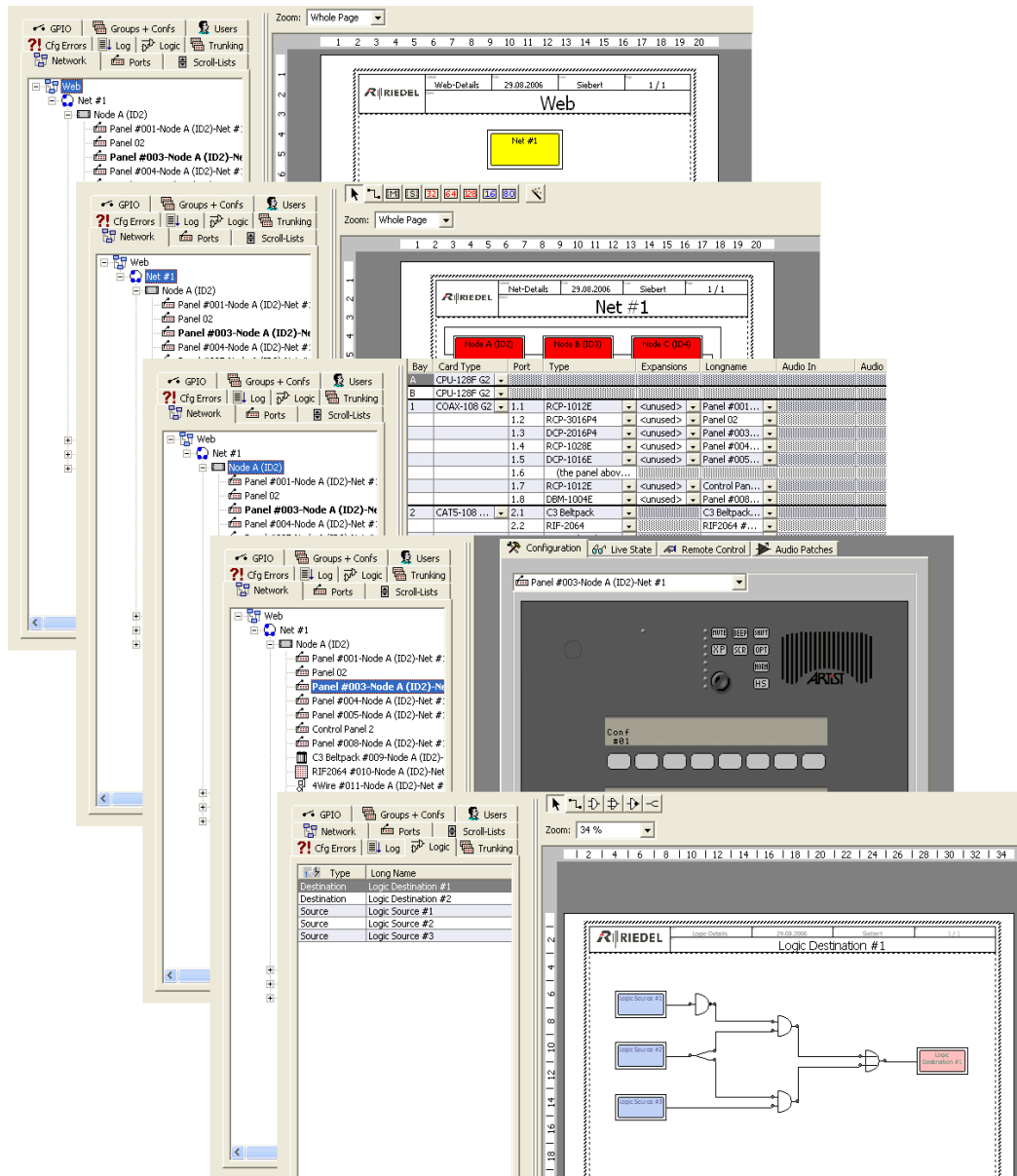


Figure 297: Director - Navigation bar - Workspace

The corresponding Workspaces are normally accessed by double clicking on an entry in one of the tabs of the Navigation bar.

## 9.5 Update Bar

The Update Bar manages the transfer of configuration data between Director and the Artist system. There are 3 ways to transfer configurations. They can only be used if there is a working IP connection to the system, there are no configuration errors, and the user has the necessary user rights.

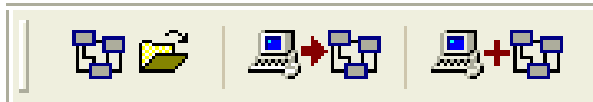


Figure 298: Director - Update Bar

	<b>Open Online Configuration (from Artist)</b>	Loads the current configuration in Artist to Director (the existing configuration in Director can be saved beforehand)
	<b>Save to ARTIST (overwrite)</b>	Sends the complete configuration from the PC to the Artist system
	<b>Save Changes to ARTIST (merge)</b>	Sends only the changes made to the configuration to the Artist system

Figure 299: Table - Director - functions update buttons

**Warning:** If several Director PCs are connected to the same system at the same time, only the “Save Changes to Artist” button should be used. Otherwise, the changes made by one PC may be overwritten by another PC.

It is strongly recommended to load the current system configuration to the PC with the button before making any system changes.

If you use “Partial Files”, do not save the configuration from Artist for use as a template for other configurations. Any active partial configurations may have changed the file from its original settings. Before saving a file with “Partial Files”, make sure that no “Partial File” is active.



## 9.6 Status Bar

The Status Bar shows detailed information about the configuration status and the status of the connection to Artist.

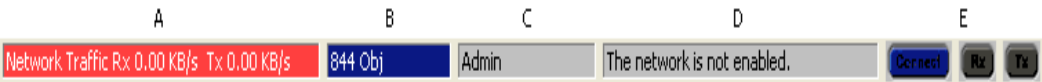


Figure 300: Director - Status bar

A	Ethernet data bandwidth and connection status
B	Number of objects created in the configuration
C	User currently logged in
D	Network status and the number of nodes connected. The IP address of the node Director is connected to is shown if the connection is active. A yellow background when Director is connected to a node means that the Artist system contains an active, functioning configuration.
E	Network connection and data traffic icons

Figure 301: Table - Director - Status bar functions

The Status Bar can be moved and placed outside of the Director window.

## 9.7 Online View

Using the “Online View” window you can monitor nodes, change basic settings and update firmware in the cards in the mainframe. The Online View is normally only needed during initial system setup, for software updates, troubleshooting or when system parameters need to be changed. The current software version of individual cards in the system is also displayed. For day-to-day use, the Online View is not relevant.

You can open the „Online View“ in „[View](#)“>“Online View“ or with the button 

**Note:** The use of the Online View, changing system parameters and updating firmware should only be done by trained personnel. Access to the “Online View” can be controlled using user rights.

The “Node Frame EEPROM” and “Client Card EEPROM” buttons are only for use by Riedel service personnel.

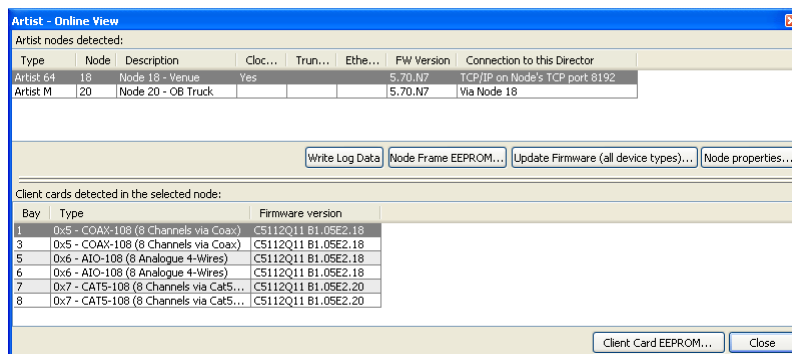


Figure 302: Director - Online View

### 9.7.1 Node properties

Basic settings for each individual node can be changed in the node properties window. Select a node in the Online View and click the [Node properties...](#) button.

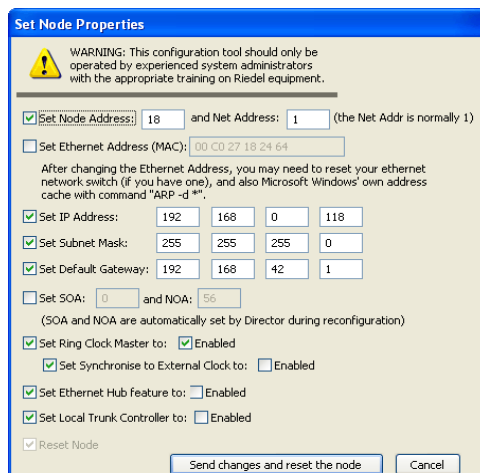


Figure 303: Online View - Node Properties

To change settings you must first tick the box next to the setting you would like to change.

**WARNING: Changes should only be made by trained personnel..**

<b>Set Node Address</b>	Set the node address here (addresses begin at 2). See: <a href="#">8.6.6.1 Setting the Net and Node addresses</a>
<b>Set Ethernet Address</b>	Shows the Ethernet MAC address. Changes are not possible
<b>Set IP Address</b>	Set the IP address of the node
<b>Set Subnet Mask</b>	Set the Subnet Mask
<b>Set Default Gateway</b>	Set the gateway (if needed)
<b>Set Ringclockmaster to</b>	Activates the node as ring clock master. This node will provide the audio clock to the fiber ring. The green LED on the CPU of the clock master will blink. <b>WARNING:</b> Only one node in a fiber ring should be set as ring clock master.
<b>Set Synchronize to External Clock</b>	If a node is set to <i>Ringclockmaster</i> , it can also be set to synchronize to an external clock. This requires an optional sync module in the node
<b>Set Ethernet Hub feature to</b>	This function can tunnel an Ethernet signal over the fiber ring. <b>WARNING:</b> Only use this option if the individual nodes are not running on the same IP network
<b>Set local Trunk Controller to</b>	If you want to use trunking, one node on the fiber ring must be defined as the Trunk Controller. This node then handles any trunking requirements

Figure 304: Table - Online View - Node Properties functions

After making changes, click the button “*Send changes and reset the Node*”. The selected node then undergoes a reset.

### 9.7.2 Write log data

This button offers the possibility to read out the internal log files of all system cards in the mainframe. The information will be placed in the Director log files. For details see: [8.23 Node und Client logging](#)

### 9.7.3 Update firmware

This button is used to update the internal operating system, firmware and the individual system components. This includes the node, client and panel firmware. For trouble free operation, all system cards must have the same software version. The corresponding version numbers are found in the Online View. For further details on updating software see: [8.28.3 Firmware Update](#)

## 9.8 Net Properties

The tabs of the Net Properties define the default settings that are applied to all nodes, panels and system wide settings. Of course, these settings can also be adjusted individually for each panel, if required.

The properties window can be opened by right mouse clicking on the *NET* in the Navigation Bar. Each tab of the net properties can change different parameters.

### 9.8.1 General

The “*General*” tab allows you to give a meaningful name to the *NET*.

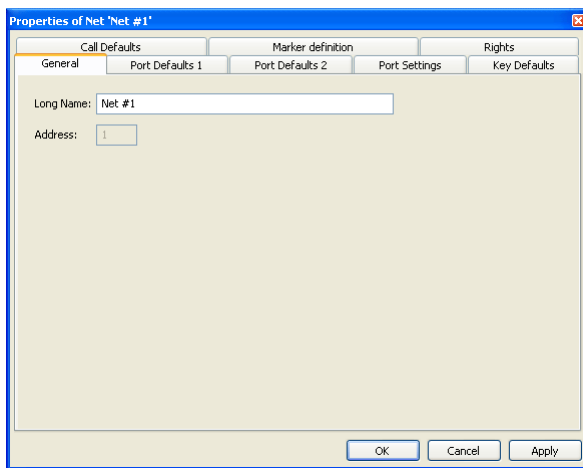


Figure 305: Net Properties - General tab

<b>Long Name</b>	The net can be given a meaningful name in Director. Up to 32 characters can be used
<b>Address</b>	The Address is a reference address assigned by the system; it cannot be changed by the user

Figure 306: Table - Net Properties - General tab

9.8.2 Port Defaults 1

Default volume level settings for control panels can be changed in the “Port Defaults 1” tab.

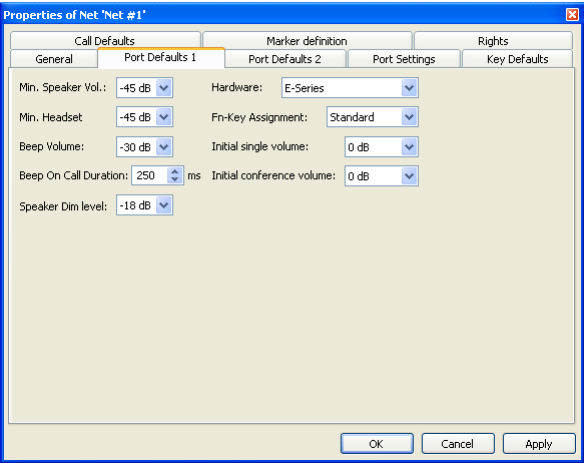


Figure 307: Net Properties - Port Defaults 1 tab

Min. Speaker Vol.	Minimum speaker volume level on a control panel
Min. Headset	Minimum headset speaker volume level on a control panel
Beep Volume	Volume of the Beep tone
Beep On Call Duration	Duration of the initial beep tone prior to a call (if configured)
Speaker Dim Level	Level that the control panel loudspeaker is dimmed when a key is pressed
Hardware	Selection of hardware type for 1000 series panels (E = with encoder, B = no encoders)
Fn-Key Assignment	Allows assignment of the special function key layout for 1000 B-series panels
Initial single volume	Standard point-to-point volume
Initial conference volume	Standard conference call volume

Figure 308: Table - Net Properties - Port Defaults 1 tab

**NOTE:** If changes are made to these global default settings, the changes will only affect new ports defined after the changes were made.

If changes to the defaults should apply retroactively to all previously configured ports, you must select “Edit” -> “Apply defaults to configuration objects”. This will also overwrite all previously made changes to individual port settings.

### 9.8.3 Port Defaults 2

The “Ports Defaults 2” tab can change default settings for VOX sensitivity, LED brightness levels and busy signals.

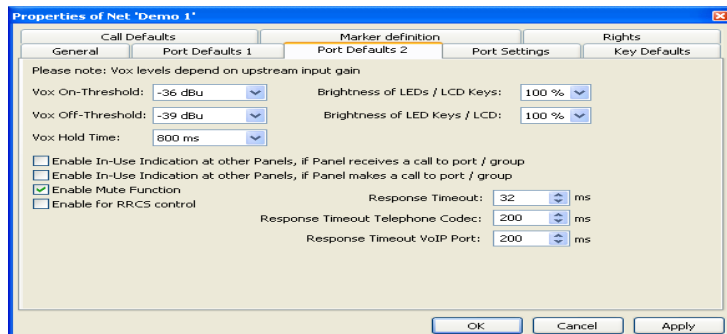


Figure 309: Net Properties - Port Defaults 2 tab

<b>Vox On-Threshold</b>	Signal level above which the Vox switch is activated
<b>Vox Off-Threshold</b>	Signal level below which the Vox switch is deactivated
<b>Vox Hold Time</b>	Duration a Vox switch remains active after the signal level falls below the Off-Threshold
<b>Brightness of LEDs / LCD Keys</b>	Brightness of the signalization LEDs/LCD keys
<b>Brightness of LED Keys / LCD</b>	Brightness of the 8 character LED / LCD panel key displays
<b>Enable In-Use Indication ...</b>	Triggers a busy signalization on other panels when the panel is called or when it calls someone
<b>Enable Mute Function</b>	Activates the "Press to Mute" function on the panels' rotary encoders
<b>Enable for RRCS control</b>	Enables third party control of the system
<b>Response Timeout</b>	Internal system timeout for panel response. This value must be increased on remote panels connected via IP because of longer response times.
<b>Response Timeout Telephone Codec</b>	Internal system timeout for panel response. This value must be increased on remote panels connected via ISDN because of longer response times.
<b>Response Timeout VoIP Port</b>	Internal system timeout for panel response. This value must be increased on remote panels connected via VoIP because of longer response times.

Figure 310: Table - Net Properties - Port Defaults 2 tab

**NOTE:** If changes are made to these global default settings, the changes will only affect new ports defined after the changes were made. If changes to the defaults should apply retroactively to all previously configured ports, you must select **"Edit" -> "Apply defaults to configuration objects"**. This will also overwrite all previously made changes to individual port settings.

## 9.8.4 Port Settings

The **"Port Settings"** tab manages the dim levels for the various call priorities and other miscellaneous port settings.

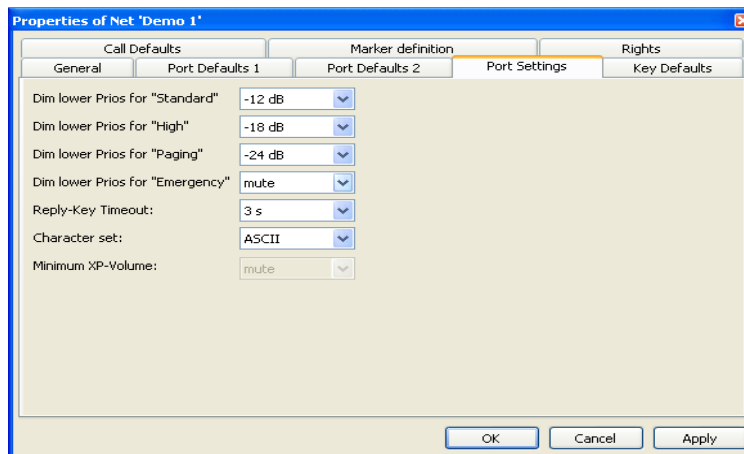


Figure 311: Net Properties - Port Settings tab

<b>Dim lower Prios for "Standard"</b>	Volume level by which <b>"Below Standard"</b> calls are dimmed when a <b>"Standard"</b> priority call is received
<b>Dim lower Prios for "High"</b>	Volume level by which calls with <b>"Standard"</b> or <b>"Below Standard"</b> priorities are dimmed when a call with <b>"High"</b> priority is received
<b>Dim lower Prios for "Paging"</b>	Volume level by which calls with <b>"High"</b> , <b>"Standard"</b> or <b>"Below Standard"</b> priorities are dimmed when a call with <b>"Paging"</b> priority is received
<b>Dim lower Prios for "Emergency"</b>	Volume level by which calls with <b>"Paging"</b> , <b>"High"</b> , <b>"Standard"</b> or <b>"Below Standard"</b> priorities are dimmed when a call with <b>"Emergency"</b> priority is received
<b>Reply-Key Timeout</b>	Timeout after which the last call is no longer displayed on the <b>"Reply"</b> key
<b>Character set</b>	Enables Director to be switched to the Katakana character set (Japan)
<b>Minimum XP-Volume</b>	Currently not available

Figure 312: Table - Net Properties - Port Settings tab

## 9.8.5 Key Defaults

The “*Key Defaults*” tab can change the default settings for control panel keys.

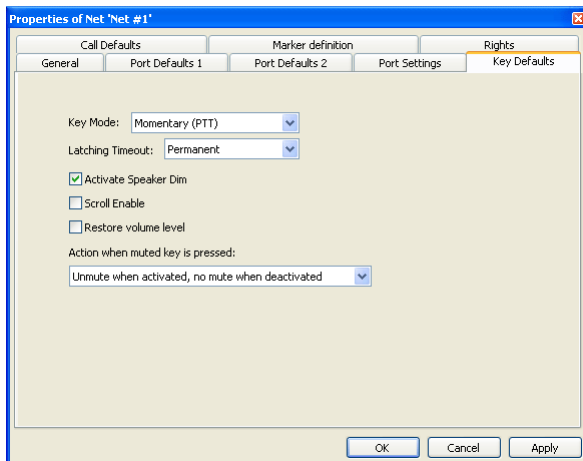


Figure 313: Net Properties - Key Defaults tab

<b>Key Mode</b>	Specifies the key behaviour <i>Auto</i> (latch/non-latch), <i>Momentary</i> , <i>Latching</i>
<b>Latching Timeout:</b>	Defines the timeout for Auto and Latching mode keys
<b>Activate Speaker Dim</b>	Activates the “ <i>Speaker Dim</i> ” function as soon as a panel key is pressed
<b>Scroll Enable</b>	Allows the use of Scroll Lists on the keys
<b>Restore Volume Level</b>	When activated, dynamically assigned conferences return with their last volume level
<b>Action when muted key is pressed</b>	Determines the behaviour of a muted key when the key is pressed

Figure 314: Table - Net Properties - Key Defaults tab

**NOTE:** If changes are made to these global default settings, the changes will only affect new ports defined after the changes were made.

If changes to the defaults should apply retroactively to all previously configured ports, you must select “*Edit*” -> “*Apply defaults to configuration objects*”. This will also overwrite all previously made changes to individual port settings.



9.8.6 Call Defaults

In the “Call Defaults” tab the default priorities for the various audio functions can be set.

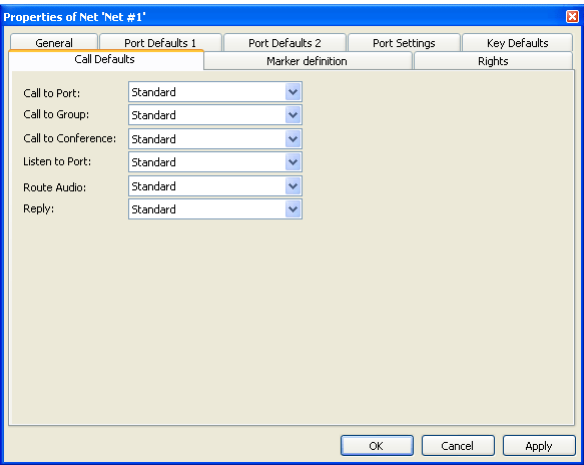


Figure 315: Net Properties - Call Defaults tab

Call Priority	Below Standard	Lowest Priority
	Standard	
	High	
	Paging	
	Emergency	Highest Priority

Figure 316: Table - Net Properties - Call Defaults tab

**NOTE:** If changes are made to these global default settings, the changes will only affect new ports defined after the changes were made.

If changes to the defaults should apply retroactively to all previously configured ports, you must select “Edit” -> “Apply defaults to configuration objects”. This will also overwrite all previously made changes to individual port settings.

## 9.8.7 Marker Definition

The signalizations on control panels can be managed in the “Marker Definition” tab. For every function available in Artist, the corresponding signalization can be edited.

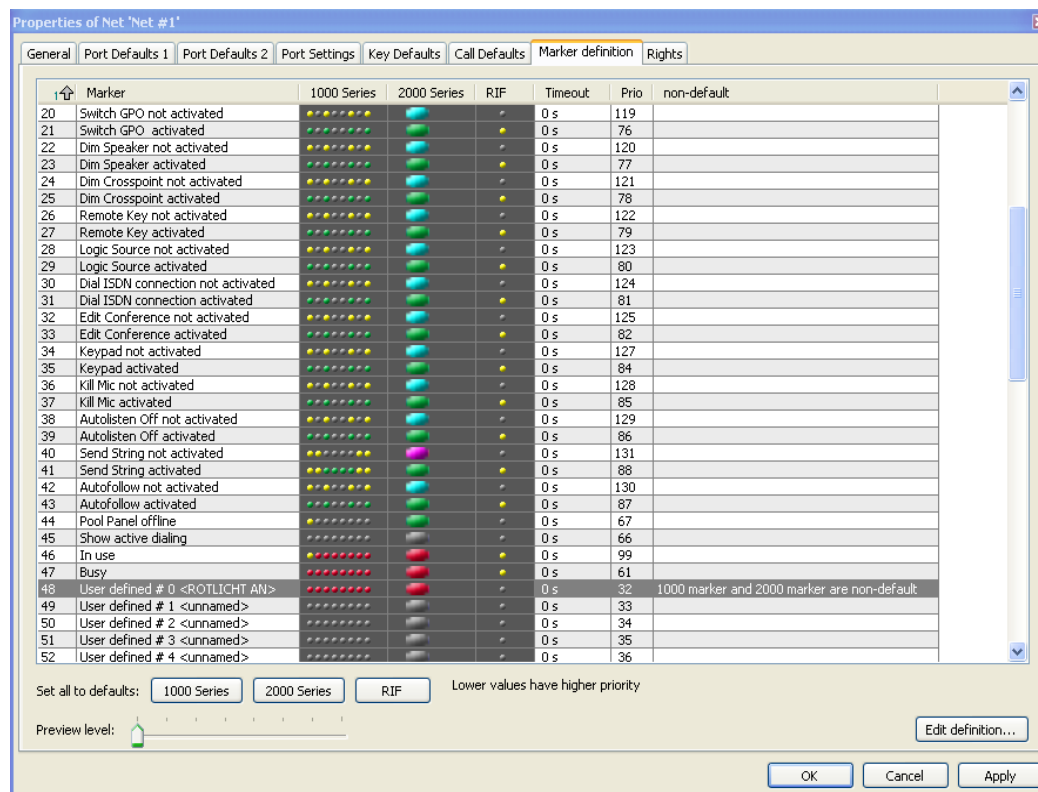



Figure 317: Net Properties - Marker Definition tab

<b>Set to defaults</b>	These buttons reset the markers for 1000 series, 2000 series and RIF-1032 / RIF-2064 panels back to factory default settings
<b>Preview level</b>	Shows how the markers will appear when the volume control on the panel is changed (only for 1000 series panels). Move the slide with the mouse
<b>Edit definition...</b>	Opens the edit marker window (can also be reached by double clicking on a marker)

Figure 318: Table - Net Properties - Marker Definition tab

### 9.8.7.1 Edit Marker

Click the  button or double click on a marker to edit the marker. Each marker can be set separately for each control panel type.

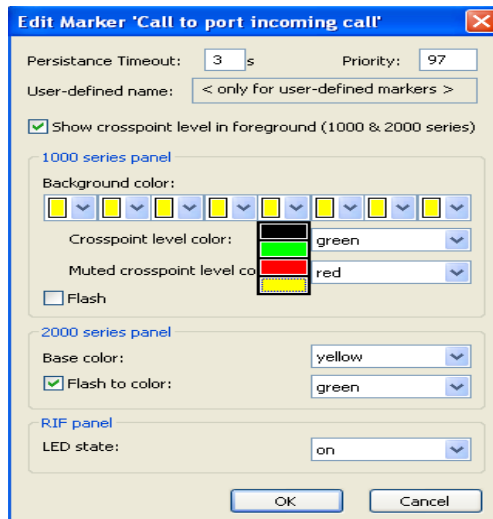


Figure 319: Net Properties - Marker definition tab - Edit Marker

<b>Persistence Timeout</b>	Defines how long a marker is displayed after the corresponding command has been terminated
<b>User-defined name</b>	Allows a marker name to be entered (only available for the user defined markers 0-17)
<b>Priority</b>	Defines the marker's priority (highest priority = 1). Used to define which marker is visible when several functions are on a single key
<b>Background color</b>	For 1000 series panels: color of the marker (except for possible volume level display). For each of the 8 LEDs one of 4 states can be chosen (off, red, yellow, green)
<b>Show crosspoint level in foreground</b>	Activates the display of the volume level in the foreground
<b>Crosspoint level color</b>	Color of the volume control indicator
<b>Muted crosspoint level color</b>	Color indicating the volume level is set to mute
<b>Flash</b>	Sets the marker to flash on and off
<b>Base color</b>	Defines the default color for 2000 and 3000 series control panels
<b>Flash to color</b>	Sets the marker on 2000 and 3000 series control panels to flash to another color
<b>LED state</b>	Defines the marker for a RIF-1032 / RIF-2064

Figure 320: Table - Net Properties - Marker definition tab - Edit Marker

### 9.8.8 Rights

The “Rights” tab manages the user rights of the net. A “Rights” tab is found in all “Properties” windows. See: [9.22 User Rights](#)

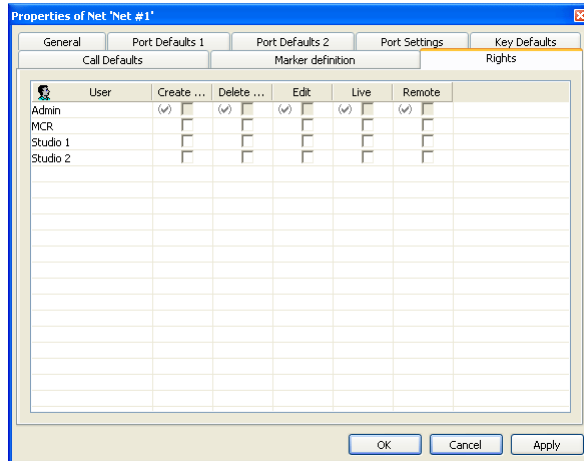


Figure 321: Net Properties - Rights tab

## 9.9 Node - Properties

In the “*Properties of the Node*” the default settings of the node are defined. The properties window can be opened with a right mouse click on the node in the Navigation Bar or by right clicking on the node in the net Workspace.

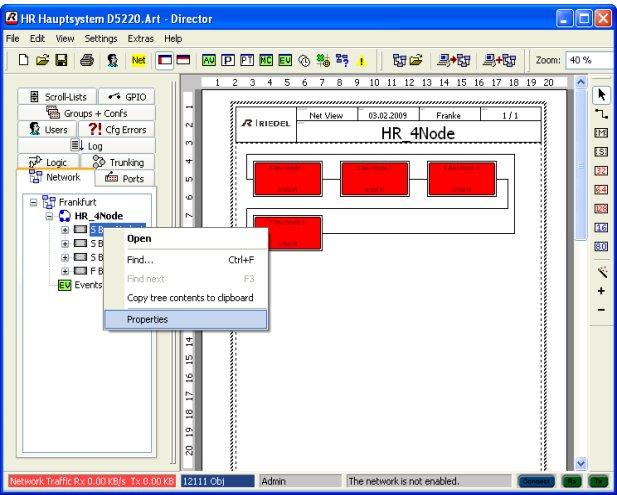


Figure 322: Node Properties - Opening the Node Properties

### 9.9.1 General

The “*General*” tab manages the node identification details.

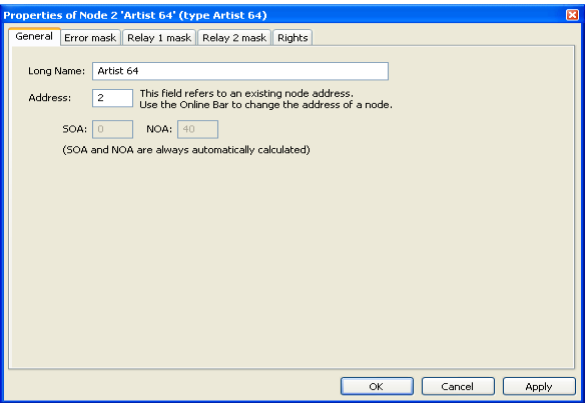


Figure 323: Node Properties - General tab

Long Name	A unique description of the node (maximum 32 characters)
Address	Enter a valid node address (except 0 or 1). The node address must correspond to the address of the connected node
SOA	Audio channels used. Automatically assigned by the system
NOA	Audio channels used. Automatically assigned by the system

Figure 324: Table - Node Properties - General tab

## 9.9.2 Error mask

The “*Error mask*” defines which system components can cause an alarm. The alarms are displayed red in a pop-up window in Director, when you are connected online. Choose the components that are included in your system.

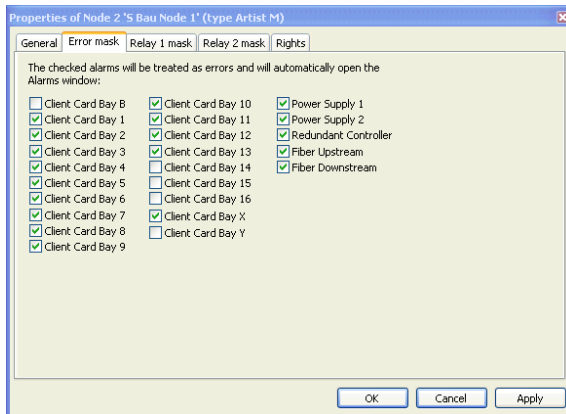


Figure 325: Node Properties - Error mask tab

### 9.9.2.1 ALARMS

When you are connected to the system, you might see the *Alarm* window. It will pop up, if there are any alarm-messages created by the system, like wrong firmware version of a card, a not working or present component, etc. You can also open this window by pressing



There are two differentiated alarm categories:

**Message in red** = Alarm (automatically pop up of the window)

**Message in black** = just information (no automatically pop up of the window)

In the Error mask tab of the Node properties, you can select which hardware component should be monitored and show up as a red alarm.

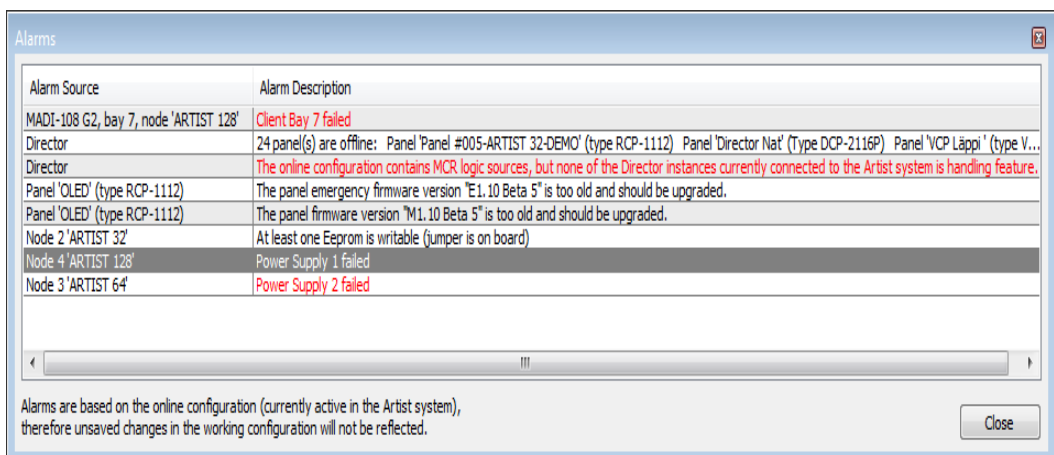


Figure 326: Alarm - Window

By doing a double-click on an entry, you get detailed information. Helpful for long error descriptions.

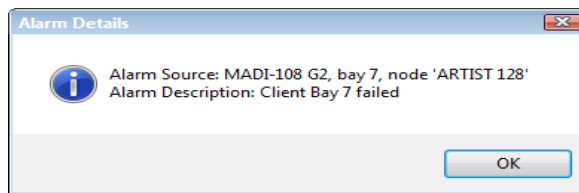


Figure 327: Alarm Details

**Also if there are errors shown, you still can up- and download configurations to/from the system.**

When all alarms are resolved, the Alarm-window stays open until you close it manually. So when a Alarm appears and disappears by itself, you can see that there was a problem, also when you are not sitting all the time in front of the Director. You can open the [Director-Logs](#), to see what the problem was.

In “Settings” > “Options” > [Miscellaneous](#)” you can also disable the automatically pop up of the alarm window.

### 9.9.3 Relay 1 mask

In addition to the alarms in Director, the alarm relays on the CPU rear cards can also be used to report errors. The “Relay 1” tab defines which errors should trigger Relay 1 to open (the relay is normally closed).

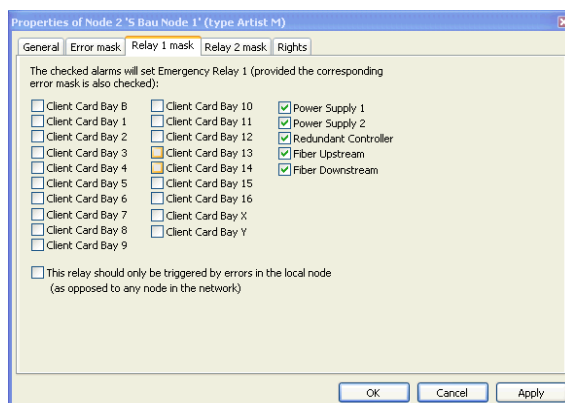


Figure 328: Node Properties - Relay 1 mask tab

The option “*This relay should only be triggered by errors in the local node*” means that the relay will only be activated by errors in the local node. If this option is not set, the relay will react to any of the defined errors in any node within the fiber ring.

## Relay 2 mask

The “Relay 2” tab defines which errors should trigger Relay 2 on the CPU rear card to open.

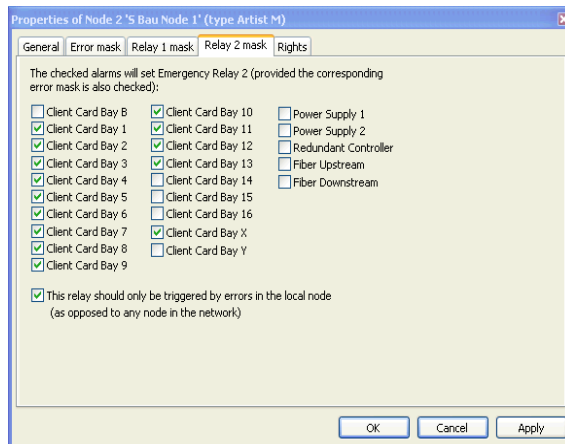


Figure 329: Node Properties - Relay 2 mask tab

The option *"This relay should only be triggered by errors in the local node"* means that the relay will only be activated by errors in the local node. If this option is not set, the relay will react to any of the defined errors in any node within the fiber ring.

## Rights

Corresponding user rights can be managed in the “Rights” tab. A “Rights” tab is found in all “Properties” windows. See: [9.22 User Rights](#)

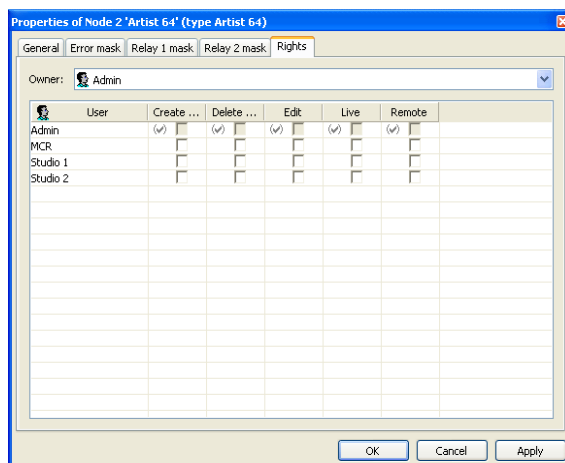
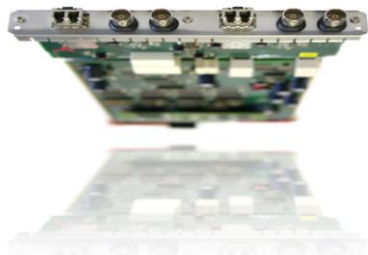


Figure 330: Node Properties - Rights tab



## 9.10 MADI – Client Card Properties



Each MADI card supports 8 MADI channels. The card can access any 8 channels from an established MADI data stream and bring them into the intercom system. Each card can also send 8 channels to an established MADI data stream. If more than 8 channels are required, individual MADI cards can be cascaded. The connection between cards is accomplished with either 2 coax cables or a duplex fiber optic cable.

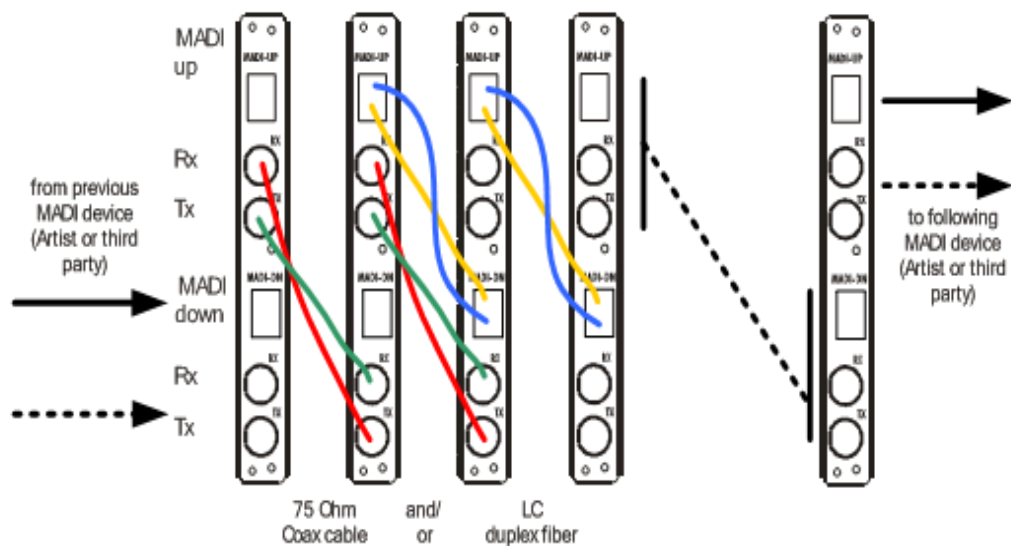


Figure 331: MADI - Cascading cards

To add a MADI client card to the configuration, select the desired bay in the node configuration and choose the MADI-108 G2 client card.

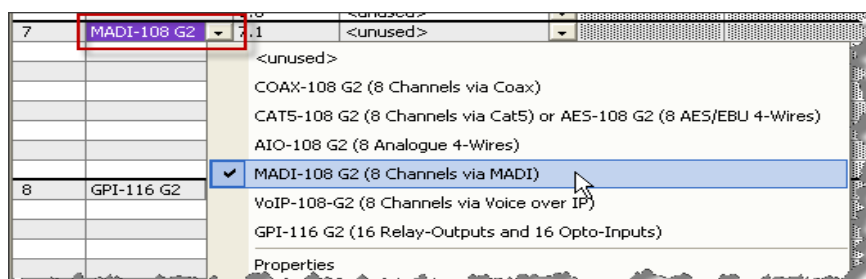


Figure 332: MADI - Adding a MADI card

All available port types can be selected on the individual ports of a MADI card.

MADI cards will also appear in the network view in Director. Right mouse click on a MADI card to set its default properties.

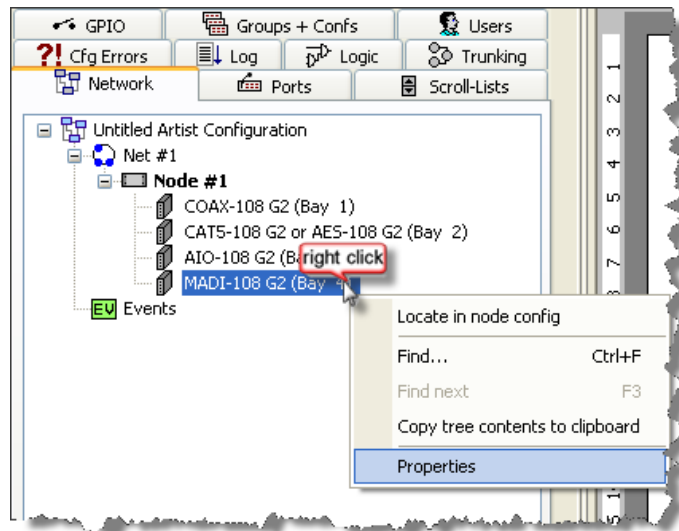


Figure 333: MADI - Opening MADI properties

## General

In the “General” tab of each card you can set the frame length, which MADI channels are used, as well as the connection type to the next MADI card or device (“Electrical” or “Optical”).

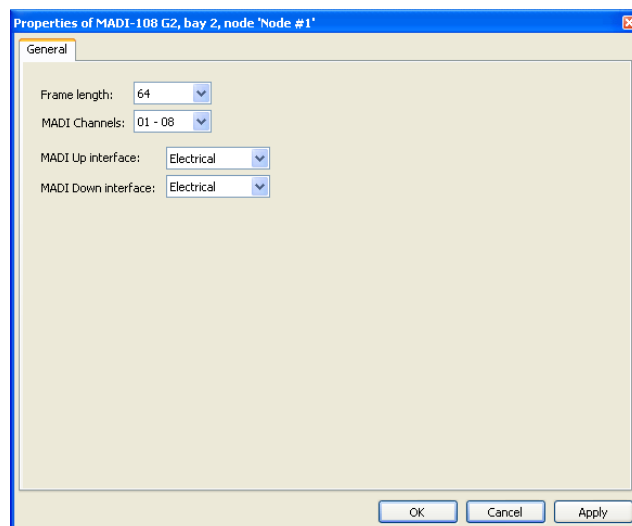


Figure 334: MADI - Properties of MADI Client Card - General tab

<b>Frame length</b>	Defines whether a 56 or 64 channel MADI system is being used
<b>MADI Channels</b>	Selects which 8 audio channels this MADI client card uses (1-8, 9-16, 17-24, 25-32, 33-40, 41-48, 49-56, 57-64*)
<b>MADI Up Interface</b>	Selects the uplink interface (COAX or fiber)
<b>MADI Down Interface</b>	Selects the downlink interface (COAX or fiber)

Figure 335: Table - MADI - Properties functions

## 9.11 VoIP

VoIP 108 client cards are available for the Artist 32/64 and Artist 128. The VoIP card allows 8 ports to be remoted via an Ethernet connection. You can choose whether you want to use the ports for 4-wires, 4-wire splits or control panels. Sending 4-wire ports over VoIP cards is an easy way to connect two Artist networks with one another. For example, using the “*Trunk Navigator*”, IP connections could function as “*Trunklines*”. (For trunking details, see: [16 Trunking](#)).

An additional interface on the panel side is required to remote a control panel over a VoIP connection (for example, CONNECT IPx8, CONNECT IPx2). The interface converts the IP data to an Artist compatible AES signal.



### System Overview

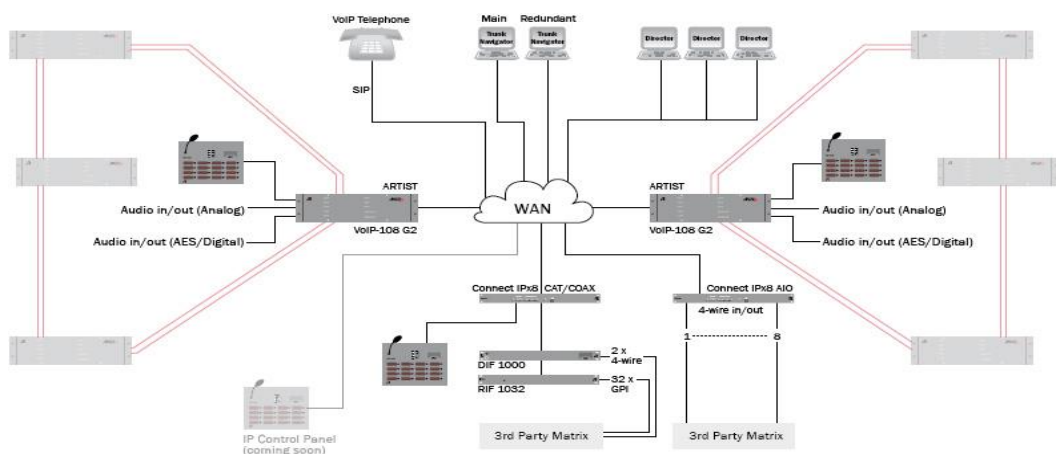


Figure 336: VoIP - Application example

## 9.11.1 VoIP - Client card properties

To add a VoIP client card to the configuration, select the desired bay in the node configuration and choose the VoIP-108 G2 client card.

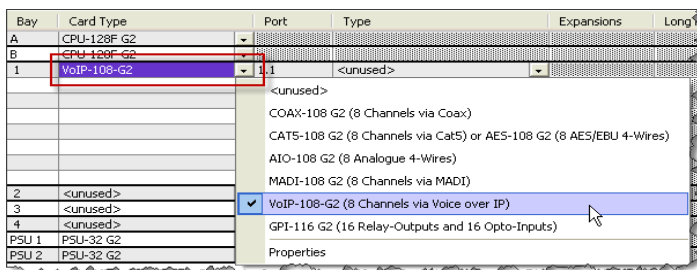


Figure 337: VoIP - Adding a VoIP-108 G2 client card

After adding the card, you can define the port types for the 8 available ports. All available port types can be selected on a VoIP card.

Switch to the "Network" view to set the default settings of the VoIP card. Right mouse click on the card and choose "Properties".

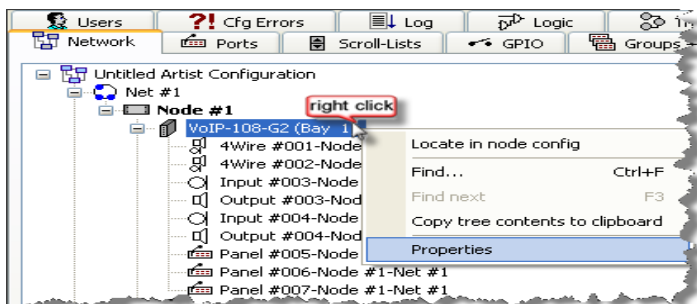


Figure 338: VoIP - Opening the VoIP Properties

In the "Properties" window you can enter the IP settings for the VoIP 108 card.

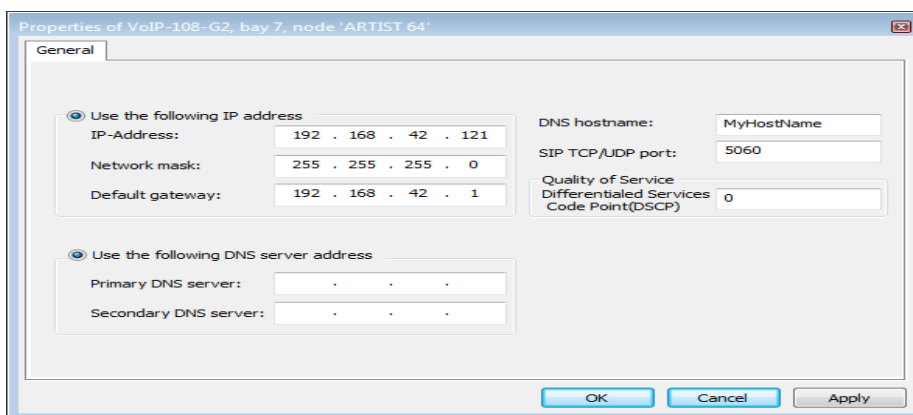
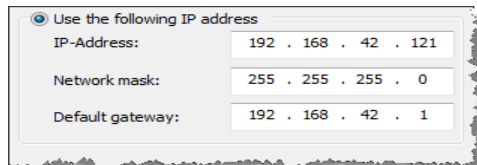


Figure 339: VoIP - Properties of the VoIP-108 card

Enter the IP address that the card should use in your local network in the “*IP-Address*” field. The local IP range can be set in “*Network mask*”.

To enable access to other IP networks (for example, internet access), enter the IP address of your router in the “*Default Gateway*” field. Contact your network administrator for details.



Use the following IP address

IP-Address:	192 . 168 . 42 . 121
Network mask:	255 . 255 . 255 . 0
Default gateway:	192 . 168 . 42 . 1

Figure 340: VoIP - IP settings

#### 9.11.1.1 VoIP - DNS

DNS serves as a “*phone book*” for the network by translating IP addresses into human-friendly computer hostnames. DNS allows connecting to network members by entering the unique DNS-name. You can decide if you want to enter the IP-, or the DNS address to connect to a device. Also if the IP- address of a device has been changed in the same network, you can reach it always with the DNS name.

If your network supports the **DNS (Domain Name System)** - functionality, you can enter the IP address of your DNS-Server into „*Primary DNS server*“. If you have also a secondary DNS Server, you can enter the IP in into „*Secondary DNS Server*“.

You can enter the DNS host name of your VoIP card in „*DNS hostname*“.



Use the following DNS server address

Primary DNS server:	.	.	.
Secondary DNS server:	.	.	.

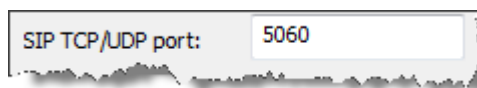
DNS hostname: MyHostName

Figure 341: VoIP - DNS settings

#### 9.11.1.2 VoIP - SIP port

If the standard SIP-port **5060** is already in use within your network by another SIP application, you can choose another SIP port for the Artist VoIP communication. Contact your network administrator to get a usable port. You can enter the new port setting in „*SIP TCP/UDP Port*“.

**ATTENTION:** The Sip - port is related to all 8 matrix ports on this VoIP card. The settings of all devices connected to this card (Panels, VCP-10xx, SIP-Phone, etc.) needs to be modified to the same SIP - port setting. (For VCP10xx see: [Setup VCP-1004/VCP-1012](#))



SIP TCP/UDP port: 5060

Figure 342: VoIP - SIP Port

### 9.11.1.3 VoIP - QoS

Quality of service is the ability to provide different priorities in your network to different applications, users, or data flows, or to guarantee a certain level of performance to a data flow. For example, a required bit rate, delay, jitter, packet dropping probability and/or bit error rate may be guaranteed. Quality of service guarantees are important if the network capacity is insufficient for applications such as voice over IP, since these often require fixed bit rate and are delay sensitive, and in networks where the capacity is a limited resource, for example in cellular data communication.

Please contact your network administrator if there is already a QoS code for VoIP application available in your network. You can enter this code in "Quality of Service"-*"Differentiated Services Code Point (DSCP)"* to prioritize the Artist VoIP packets. The default setting is "0", so no QoS support.

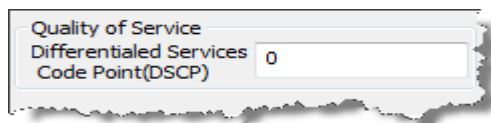


Figure 343: VoIP - QoS settings

## 9.11.2 Creating VoIP Ports

Create the port type you want to connect to the VoIP card in the hardware setup of a node. It is the same procedure then creating a port type on a standard digital client card. On a VoIP card you have 4 different possibilities.

⇒ **4-Wire / 4 Wire-Split:**

*VoIP-connection to another Artist system (also an installed VoIP card required)*

Only Audio is transmitted via VoIP. You can free route this audio in the destination system.

⇒ **Any hardware Panel type:**

You can connect any panel or analogue/AES 4-Wires. A Riedel **Connect IPx2/x8** is required on the opposite side.

⇒ **Software-Panel**

Any PC with the VCP-1004/1012 Softpanel, soundcard and network connection installed can be connected to a VoIP card. You can use your PC as a full member of the intercom system. Per VoIP port you can use one Softpanel.

⇒ **SIP-Telephony** (new in version 6.20)

Allows to use IP-telephony by using the standard SIP-protocol. With this functionality you can call any SIP-phone connected to the network/Internet.

You can completely free mix these possibilities within a VoIP card

Select the port type you want to use for every VoIP port in the hardware setup:

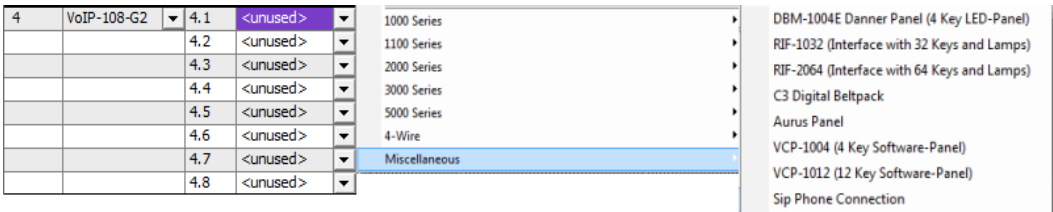


Figure 344: VoIP - available port types

Now you can set the IP parameters for the individual ports. Right mouse click on a port and select “Properties”. Choose the “VoIP” tab.

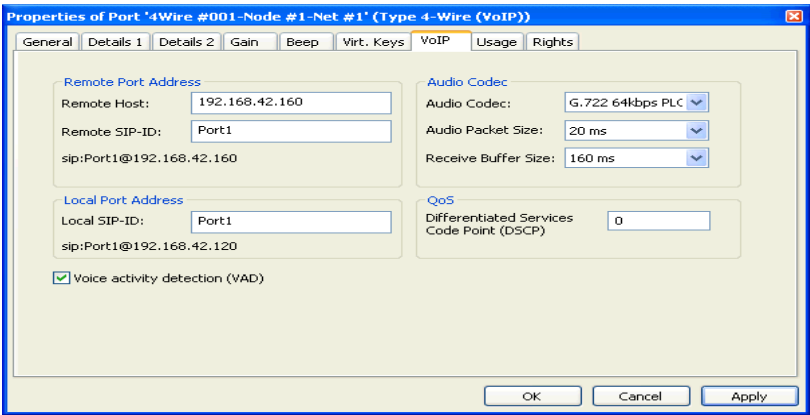


Figure 345: VoIP - Properties of a VoIP port

Remote Host	Enter the destination IP address that this port should connect to
Remote SIP-ID	Enter the name of the destination port that should be connected to. VoIP cards usually use the name “Port ‘number x’”
Local SIP-ID	Enter the name of the local port. VoIP cards normally use the name “Port ‘number x’”
Audio Codec	Select the desired audio codec. Depending on the quality of the codec, a larger bandwidth may be required. The following codec’s are currently available: PCM, G.711, G.722 PLC
Audio Packet Size	Enter the audio packet size. Many transmission failures can be resolved by choosing the smallest possible packet size
Receive Buffer Size	Set the receiving buffer size. The larger the value, the more information from the stream is temporarily saved. This will also increase the audio delay. This value should be adjusted depending on the quality of your IP connection
QoS	Some network devices support “Quality of Service”. That means that certain data packets have priority over others, such as internet data
Voice activity detection (VAD)	This option reduces data transmission. Data will only be transmitted if it contains an audio signal

Figure 346: VoIP - Properties functions

Enter the values required by the remote station to establish a connection.

To connect two Artist systems via *VoIP-108 G2* cards, select a *4wire/4wire split* as port-type and set the parameters in the remote system using its Director software.

If you want to remote one or more panels/4-wires over VoIP using a *CONNECT IPx2* or *x8*, you must first set the parameters of the *CONNECT IP* and the individual ports using the corresponding web interface. For details, see the interface manuals. To remote a control panel over VoIP, a data rate of at least 80kB/s is required, depending on the audio codec.

As soon as all of the parameters are correctly set up, the IP connection will be automatically established. If a destination port is connected, it will appear green in the Director port list. The individual VoIP ports can be configured and assigned functions like any other port in the system.

### 9.11.3 Bandwidth calculation

The VoIP transmission is based on two parts, control (signalization) data and audio data. The control data is very constant and can not be influenced by the user. The audio data depends on several factors:

- Configured audio codec
- Configured packet size
- Network type
- Jitter
- Voice activity (if enabled)

The bandwidth for the control data is quite constant: **20 kb/s**.



### 9.11.3.1 Audio bitrates required by the codec's

Each audio codec has different properties and one of it is the audio data bandwidth. This is the data which is used for the raw audio excluding any network protocol overhead.

Codec	Required audio bandwidth	Audio-bandwidth	Notes
<b>G711 U-law 8k</b>	64kB/s	3,5kHz	Mainly used in the USA
<b>G711 A-law 8k</b>	64kB/s	3,5kHz	Standard Codec
<b>G711 U-law 16k *</b>	128kB/s	7kHz	Mainly used in the USA
<b>G711 A-law 16k*</b>	128kB/s	7kHz	Standard Codec
<b>PCM 8k*</b>	128kB/s	8kHz	Uncompressed audio
<b>RARe U-law*</b>	64kB/s	3,5kHz	Riedel Codec. Similar to G711, but with better dynamics
<b>RARe A-law*</b>	64kB/s	3,5kHz	Riedel Codec. Similar to G711, but with better dynamics (for USA)
<b>G722 64kbps PLC*</b>	64kB/s	7kHz	PLC= Packet Loss Concealment (automatic error correction)
<b>G722 48kbps PLC*</b>	48kB/s	7kHz	PLC= Packet Loss Concealment (automatic error correction)

\* not available for VCP-1004 Softpanel

Figure 347: Table VoIP - Audio codec bandwidth

VoIP traffic is not streamed over the network. It is separated into packets.

For each VoIP channel the user can individually select the size of the packets: 20ms, 40ms, 80ms or 160ms. Default is 20ms. When the transmitter wants to send a packet, it has to wait until enough audio is available for sending, e.g. for a 40ms packet it has to wait 40ms. So the delay depends on the packet size. Small packets create less delay, but create more protocol overhead, because you need to send more packets for the same amount of audio. E.g. 20ms packets add 8 times the protocol overhead as 160ms packets.

### 9.11.3.2 UDP Protocol

The audio data is encapsulated into UDP datagrams which adds protocol overhead.

Each packet UDP adds 64 Bits overhead resulting in additional bandwidth.

Audio packet size	Packets/Second	Bandwidth bw UDP protocol
20 ms	50	3,2 kb/s
40 ms	25	1,6 kb/s
80 ms	12,5	0,8 kb/s
160 ms	6,25	0,4 kb/s

Figure 348: Table - VoIP UDP Protocol bandwidth

### 9.11.3.3 IP Protocol

The UDP packets are encapsulated into IP datagrams.  
Each IP packet adds 160 Bits overhead.

Audio packet size	Packets/Second	Bandwidth bw IP protocol
20 ms	50	8 kb/s
40 ms	25	4 kb/s
80 ms	12,5	2 kb/s
160 ms	6,25	1 kb/s

Figure 349: Table - VoIP IP Protocol bandwidth

### 9.11.3.4 Ethernet Protocol

The network protocol depends on the network type. E.g. Ethernet is using the Ethernet protocol. Wide area networks are based on DSL, Cable, E1, T1 etc. and use other protocols and therefore create different overhead. Thus the same IP traffic results in different network traffic between the LAN and the WAN. This example only handles Ethernet networks as an example.

The Ethernet protocol adds 144 Bits overhead for each Ethernet packet.

Audio packet size	Packets/Second	Bandwidth bw Network protocol
20 ms	50	7,2 kb/s
40 ms	25	3,6 kb/s
80 ms	12,5	1,8 kb/s
160 ms	6,25	0,9 kb/s

Figure 350: Table - VoIP Ethernet Protocol bandwidth

### 9.11.3.5 Jitter

Jitter is the time variation of the VoIP packet transmission. It has an influence on the bandwidth, since the transmission is not constant when there is network jitter. Regarding a limited timeframe, it can happen that there are less packets transmitted, resulting in a lower bandwidth. Of course the opposite can also happen, resulting in a temporary higher bandwidth. Theoretically the temporary bandwidth could be infinite. It's nearly impossible to calculate the bandwidth variation caused by Jitter beforehand. As an advice it's a good idea to have 25% bandwidth reserve. The user should check the Jitter and the bandwidth variation when the system is installed.

For more detailed information, please check the "VoIP Network Planning Guide", available for download in the [www.riedel.net](http://www.riedel.net) member area.

### 9.11.3.6 Calculation example for a VoIP SIP-Port:

Audio Codec: **G.722, 64kps**

Audio Packetsize: **20ms**

Networktype: **Ethernet LAN**

<b>Bandwidth Total</b>	=	bw ControlData	=>	20 kb/s
	+	bw AudioCodec	=>	64 kb/s
	+	bw <b>UDP Protocol</b> Overhead	=>	3,2 kb/s
	+	bw <b>IP Protocol</b> Overhead	=>	8 kb/s
	+	bw <b>Network</b> Overhead	=>	7,2 kb/s

**102,4 kb/s**

Artist VoIP channels have a configurable Voice activity detection (VAD) flag. Per default it is enabled, which means that the audio transmission stops, when the audio drops below the Vox threshold. In this case the bandwidth is **reduced to bwControlData (20kb/s)**. The network should always be designed to transmit the bandwidth for a permanent audio signal, but VAD is a nice feature to reduce the data volume in practice.

**ATTENTION:** This calculation is just a theoretically example. It is not paying attention of any local network factors like Jitter, etc. So you have to add around +25% bandwidth overhead to be on the save side.

## 9.11.4 Distribute a panel / 4-wire with CONNECT IPx2 / x8



Figure 351: CONNECT IP x2 /x8

With the Interfaces **CONNECT IPx2** and **CONNECT IPx8** you can distribute 2-, resp. 8 - Matrix ports via VoIP. By defining the hardware you can choose if you want to use digital Panel ports (AES) or analog audio ports as IO's on the CONNECT IPxX. Every port can be connected to another VoIP-client card. This means, you can connect one CONNECT IPxX to different matrixes at the same time. The assignment of the ports is just done by the IP-address and the SIP-ID's in the different Systems.

### System Overview

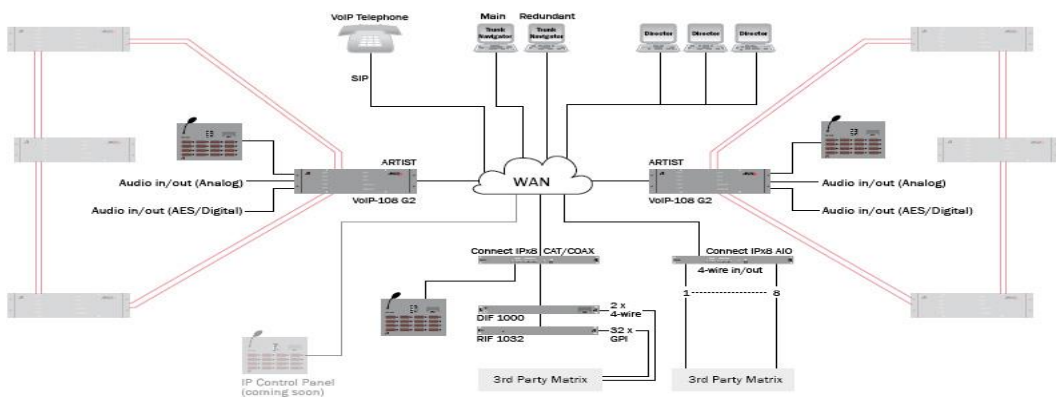


Figure 352: CONNECT IPx2/x8 - Application example

To edit the basic setup of the **CONNECT IPx2/x8** you have to connect the device via a LAN to a PC. Please note, that the PC and the **CONNECT IPxX** needs to be in the same IP range.

**The Default IP-address of a CONNECT IPxX is 192.168.42.160**

### 9.11.4.1 Configuration of the CONNECT IPx2 / x8

Open any Internet-Browser on the PC and enter the IP-address of the **CONNECT IPxX** to get into the webinterface of the device.

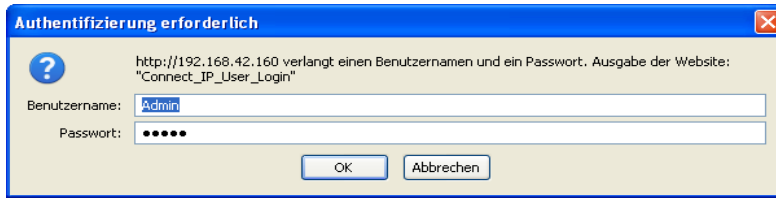


Figure 353: CONNECT IPxX - Open the webinterface

Login to the webinterface:

Username: **Admin**

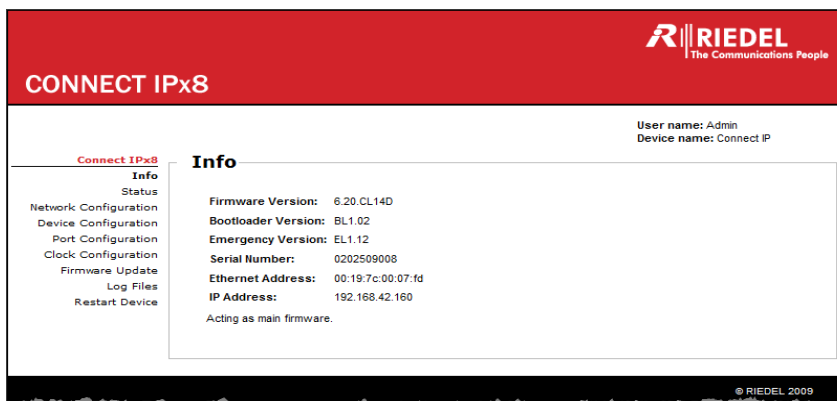
Password: **Admin**



A login dialog box titled "Authentifizierung erforderlich" (Authentication required). It contains a message: "http://192.168.42.160 verlangt einen Benutzernamen und ein Passwort. Ausgabe der Website: 'Connect\_IP\_User\_Login'". Below the message are two input fields: "Benutzername:" (Username) with "Admin" entered, and "Passwort:" (Password) with masked characters "•••••". At the bottom are "OK" and "Abbrechen" (Cancel) buttons.

Figure 354: CONNECT IPxX Login

Now you have access to the webinterface. On the homepage you get general information about the device, like IP-address, software version and status.



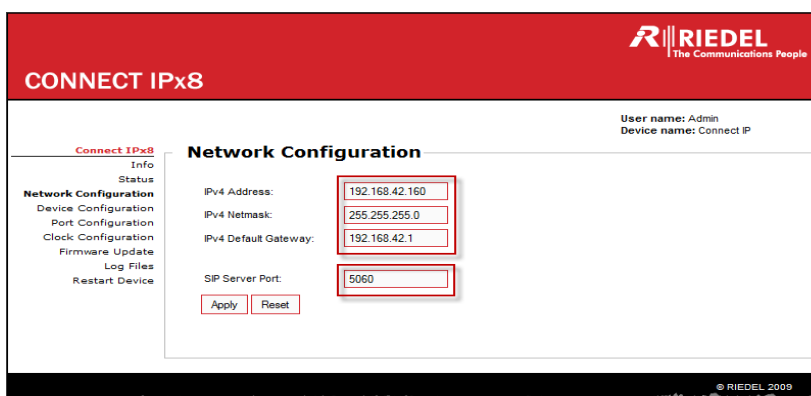
The "CONNECT IPx8" webinterface homepage. The top header is red with the RIEDEL logo and tagline "The Communications People". Below the header, the page is titled "CONNECT IPx8". On the right, it shows "User name: Admin" and "Device name: Connect IP". The main content area is divided into a left sidebar with a menu (Connect IPx8, Info, Status, Network Configuration, Device Configuration, Port Configuration, Clock Configuration, Firmware Update, Log Files, Restart Device) and a main "Info" section. The "Info" section displays the following details:
 

- Firmware Version: 6.20.CL14D
- Bootloader Version: BL1.02
- Emergency Version: EL1.12
- Serial Number: 0202509008
- Ethernet Address: 00:19:7c:00:07:fd
- IP Address: 192.168.42.160
- Acting as main firmware.

 The footer shows "© RIEDEL 2009".

Figure 355: CONNECT IPxX - Webinterface - Info

In „Network Configuration“ you can change the IP-address, Networkmask, Gateway and SIP-Port, if needed.



The "CONNECT IPx8" webinterface "Network Configuration" page. The layout is similar to the Info page. The left sidebar menu has "Network Configuration" selected. The main section is titled "Network Configuration" and contains four input fields, each with a red border:
 

- IPv4 Address: 192.168.42.160
- IPv4 Netmask: 255.255.255.0
- IPv4 Default Gateway: 192.168.42.1
- SIP Server Port: 5060

 Below these fields are "Apply" and "Reset" buttons. The footer shows "© RIEDEL 2009".

Figure 356: CONNECT IPxX - Webinterface - Network Configuration

**ATTENTION:** Only change the default SIP-Port, if the default Port 5060 is already used by another application in your network. When you change the SIP-Port in the CONNECT IPxX, you also have to change the SIP-Port on the connected VoIP-cards. In this case, the new SIP-Port is used for all 8 Ports of the VoIP-card. See [9.11.1.2 VoIP - SIP Port](#).

Press „Apply” to accept the new settings. In the following window press Please restart your Connect IP by pressing this button to reboot the CONNECT IPxX with the new settings.

If needed, you can also change the Device name, Username and password in „Device Configuration”.

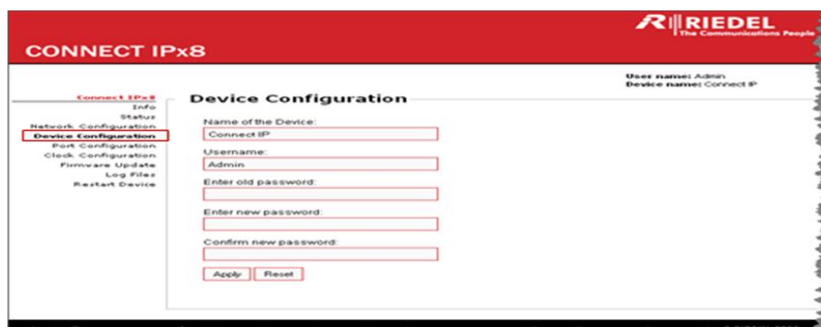


Figure 357: CONNECT IPxX - Webinterface - Device Configuration

In „Port Configuration” you can give different names (= SIP-ID) to the single ports of the Connect IPxX. The default-names for the ports in the CONNECT IPxX and the VoIP-card is „Port1 – Port8”. With the button „Apply” you can accept the new SIP-ID´s per port.

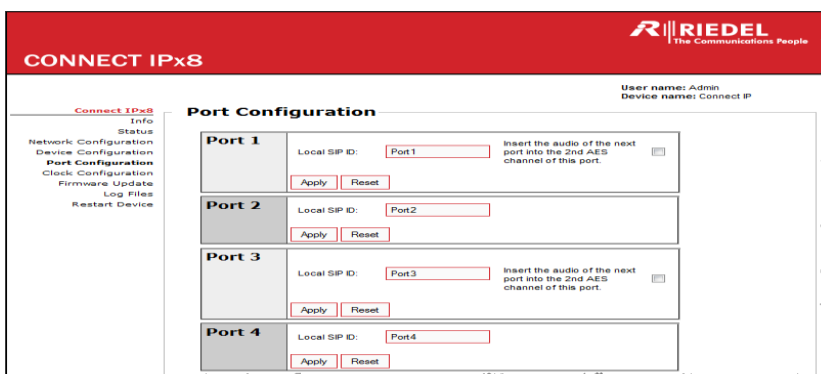


Figure 358: CONNECT IPxX - Webinterface - Port Configuration

**ATTENTION:** Exactly the same names (SIP-ID´s) need to be used for the Director configuration of the ports. This is necessary, because the configured port on the VoIP-card and on the CONNECT IPxX uses this ID to connect. You can change the SIP-ID in the Director configuration in the „**Properties**” of the VoIP-Port.

When you are using a Stereo AES 4-wire with separated channels (see [8.7.2.3 Configuring a 2 channel 4-wire port](#)), you have to activate the flag „Insert the audio of the next port...” for the port in the webinterface. Then the audio of the following even port is routed to the 2nd channel of the odd port. A 2-channel Panel or 4-wire (with 2nd channel flag active) will be detected and routed automatically.

All further settings will be done in the Director configuration.

For more detailed information about the CONNECT IPxX please read the „[CONNECT IPx2-8 Setup](#)” - guide, you can download from [www.riedel.net](http://www.riedel.net) as registered user.

#### 9.11.4.2 Configuration of the VoIP-Ports in Director

When you have created a new port, for example a panel on a VoIP-card (see [9.11.2 Creating VoIP Ports](#)), open the “Properties” of the port with a right click on the port. Open the “VoIP”-tab.

Now enter the IP-address and the **exact** SIP-ID of the port on the CONNECT IPxX that should be used.

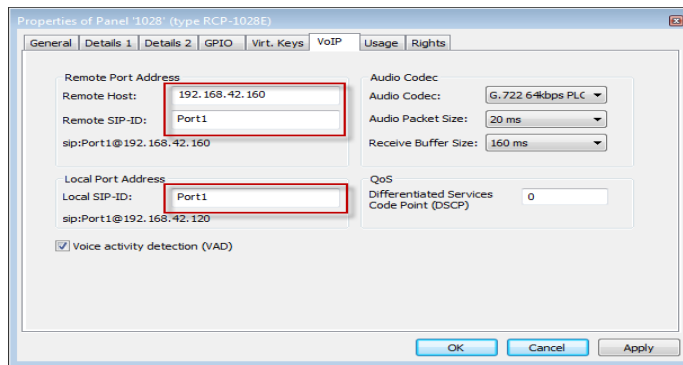
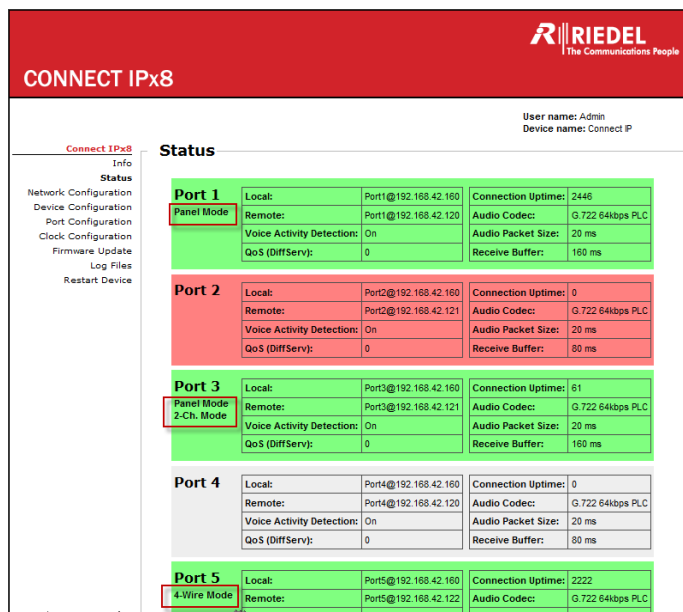


Figure 359: CONNECT IPxX - Director - Port configuration

Choose the audio codec, audio packet size and receive buffer size for this port you want to use (see [9.11.3 Bandwidth calculation](#)).

**NOTE:** These settings only need to be set in the Director configuration. When the CONNECT IPxX is connected, all settings are automatically set for this port in the CONNECT IPxX.

When the CONNECT IPxX is connected, you can see the status of all ports in the [VoIP Statistics](#) of the Director or in the [Webinterface](#) -> “Status” of the CONNECT IPxX.



Port	Local	Remote	Connection Uptime	Audio Codec	Audio Packet Size	Receive Buffer
Port 1	Port1@192.168.42.160	Port1@192.168.42.120	2446	G.722 64kbps PLC	20 ms	160 ms
Port 2	Port2@192.168.42.160	Port2@192.168.42.121	0	G.722 64kbps PLC	20 ms	80 ms
Port 3	Port3@192.168.42.160	Port3@192.168.42.121	61	G.722 64kbps PLC	20 ms	160 ms
Port 4	Port4@192.168.42.160	Port4@192.168.42.120	0	G.722 64kbps PLC	20 ms	80 ms
Port 5	Port5@192.168.42.160	Port5@192.168.42.122	2222	G.722 64kbps PLC	20 ms	160 ms

Figure 360: CONNECT IPxX - Webinterface - Status

## 9.11.5 Softpanel VCP-1004/ VCP-1012

Up from version 6.10 you can also use the free virtual Softpanel VCP-1004 and the fee required VCP-1012 to be connected to a VoIP card.

With the VCP-10xx you can use any Windows® PC as a full intercom member. A soundcard and a connection to the VoIP network are required. For audio in- and output the sound device of your PC is used, that is set as default in your PC settings.

There are 4/12 keys on 2 layers available. They can be configured like any other panel key by the Director. To operate the keys a PC-Mouse is required.

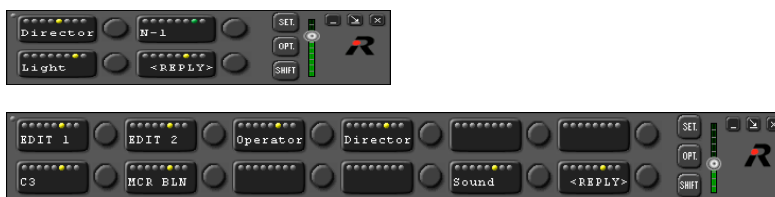


Figure 361: VCP-1004 / VCP-1012

**Attention: For every Softpanel one port of the VoIP card is required.**

### 9.11.5.1 Installation of the VCP-1004/VCP-1012 Softpanel

Download the VCP-1004 Softpanel from [www.riedel.net](http://www.riedel.net). Unpack the file in any folder.

A double click on „VCP-1004-Setup.msi“/„VCP-1012-Setup.msi“ will start the installation process.

**Attention: The VCP-1012 is fee required. Starting and using the panel is only possible, if you have a Riedel USB-Dongle installed and connected to your computer with this feature enabled.**

The required „NET Framework 2.0“ will be installed automatically if it is not yet installed on your PC. With „Setup.exe“ you can start the „Dotnetfx“ installation also manually.

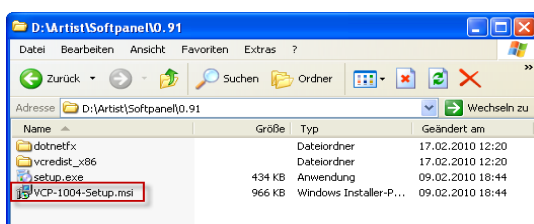


Figure 362: VCP-10xx - Softpanel Setup-Files in Explorer

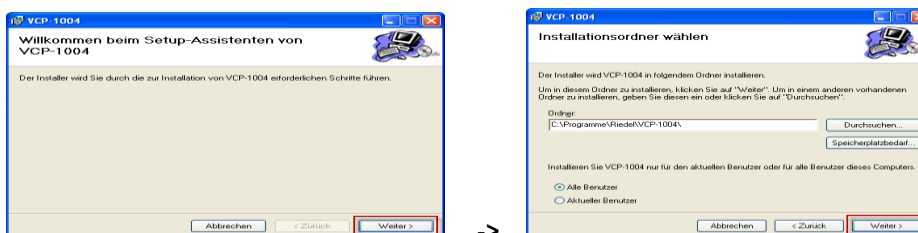


Figure 363: VCP-10xx - Installing VCP-1004



If you want you can select another folder to install the application. Select if this application should be installed for all PC users or only the actual one.

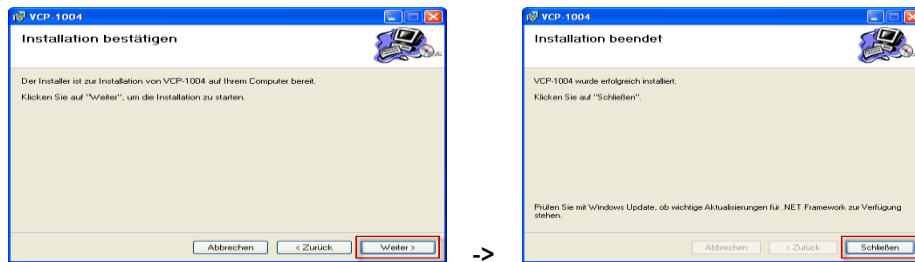


Figure 364: VCP-10xx - Installing VCP-1004

When the VCP-1004/1012 is successfully installed, you can find the application in the program group "Riedel". A shortcut on your Desktop will be automatically generated.

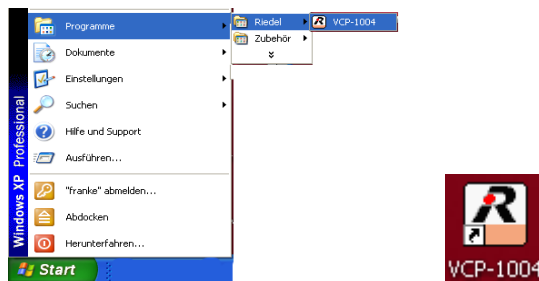



Figure 365: VCP-10xx - starting VCP-1004

### 9.11.5.2 Setup VCP-1004/VCP-1012

To start the Softpanel, double click the icon .

If your PC is not yet connected to any network the VCP-10xx will show "No Link" in the Displays.




Figure 366: VCP-10xx - VCP-1004 No Link

Connect your network card with a LAN network. The VCP-1004 will show "Wait\_for connect" automatically.



Figure 367: VCP-10xx - VCP-1004 Wait for Connect

Press the  - button, to change to basic settings of your Softpanel. In the options window you can enter the SIP-Username of your panel.

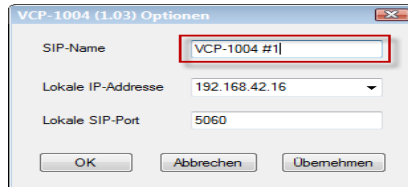


Figure 368: VCP-10xx - SIP Name

**Attention: The same SIP User name needs to be used later also in the Director configuration.**

In „IP-Address“ automatically the IP-Address of your PC network card is used. If you have more network cards installed, you can select, which IP (>network card) should be used for the VCP-1004.

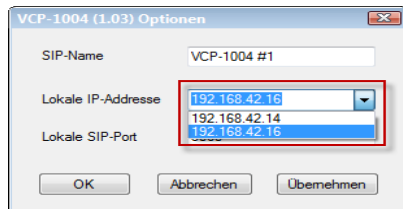


Figure 369: VCP-10xx - IP Address



Figure 370: VCP-10xx - SIP Port

In „Local SIP-Port“ you can change the network port for the SIP connection to be used. For example, if the default SIP-port 5060 is already used by another application on your PC

**Attention: The SIP-Port of the VCP-10xx and the Sip-Port of the VoIP-card the panel is connected to, needs to be identical.**

In the properties of the VoIP-card you can edit the SIP-Port of the VoIP-card. If you change the SIP-Port, all 8 Ports of the VoIP card are affected!

See [9.11.1.2 VoIP – SIP port](#)

### 9.11.5.3 Configuration VCP-10xx In Director

Do a double click on a Node in the *Network-Tab* to open the hardware configuration. Select the port of the VoIP card you want to use for the new Softpanel. Create a new VCP-1004 panel by selecting it from the drop-boxes „Miscellaneous“ -> „VCP-1004“.

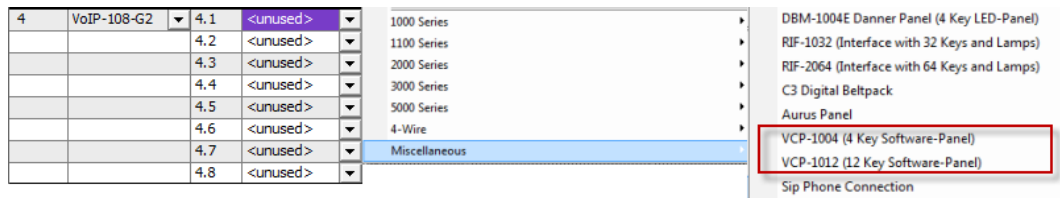


Figure 371: VCP-10xx - Creating a new VCP-10xx

Afterwards the new panel will show up in the *“Port”*- and also in the *“Network”* tab of the Director

Open the properties of the new VCP-10xx with a double click on the displayed panel or by doing a right click on the panel in the Network- or Port list. Select *“Properties”*.

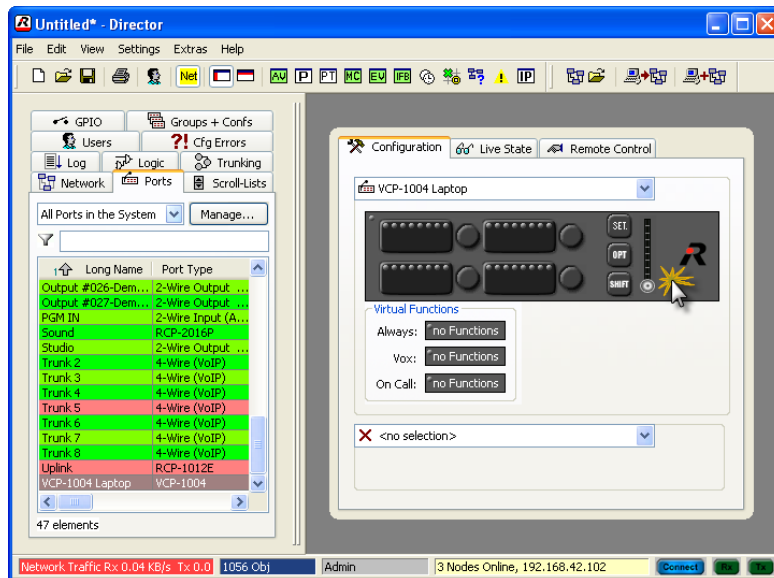


Figure 372: VCP-10xx - Director-View VCP-1004

Select the tab „VoIP“ to configure the connection settings to the VCP-1004. All other tabs are nearly identical with standard panels.

Enter the IP-address of the PC with the installed VCP-1004 into *“Remote Host”*.

Also enter the SIP-ID of the Softpanel into *“Remote SIP-ID”* and *“Local SIP-ID”*. The ID needs to be identically with the ID given in the settings of the VCP-1004 application.

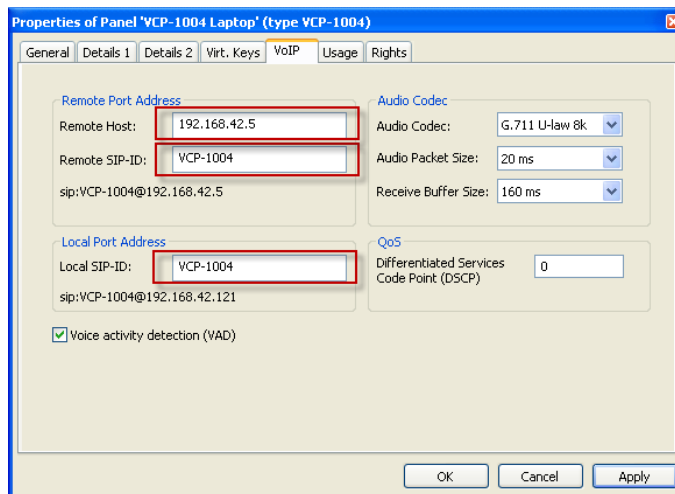


Figure 373: VCP-10xx - Properties of VCP-10xx - VoIP

Depending on the quality of your network, you can now also adjust the audio-codec type and also the “Audio Packet Size” and “Receive Buffer Size” if it is necessary to get a stable connection to the Softpanel.

Now you can configure the keys of the VCP-1004 in the Director like on all standard panels.

Send the configuration changes to your Artist system.

When all settings are correct and the Softpanel application is running and connected to the network, the VCP-1004 on your PC should now connect to the Artist.



Figure 374: VCP-10xx - Connected VCP-1004 Panel

The panel will now also show a green online status in the “Port” tab of the Director.

You can now also monitor and control the VCP-1004 panel in „Live View“ and „Remote Control“ in the Director like every other hardware panel.

#### 9.11.5.4 Operate VCP-10xx on the PC

The VCP-10xx Softpanel is using the standard sound device installed in your PC for incoming and outgoing audio. If you want to change the audio device (for example to an USB-Headset) you have to set the new device as default in your Windows settings. Restart the VCP-10xx application to use the new device for your Softpanel.

To press a key on the Softpanel just move your mouse to the key and press the left mouse button.






Figure 375: VCP-10xx - Activating a key on VCP-1004

To change the volume of a key, you have to click the rotary encoder and keep the mouse button pressed. Now move your mouse in circles to change the volume. If you just do a short click on a rotary encoder, you can mute/unmute the incoming audio of the key.





Figure 376: VCP-10xx - Changing Volume on a VCP-1004

Press  - button to switch to the 2<sup>nd</sup> page of the panel. When the Panel shows the 2<sup>nd</sup> page, the “Shift” button is marked yellow .

Like on all other panels you can enter the option menus of the panel with the buttons  and  + .

On the “Opt” page the keys show on which Port of the Artist system this VCP-1004 is connected to and also the own name.

The installed Client version and the used Roomcode for this panel is shown in the keys when you first press  and then .

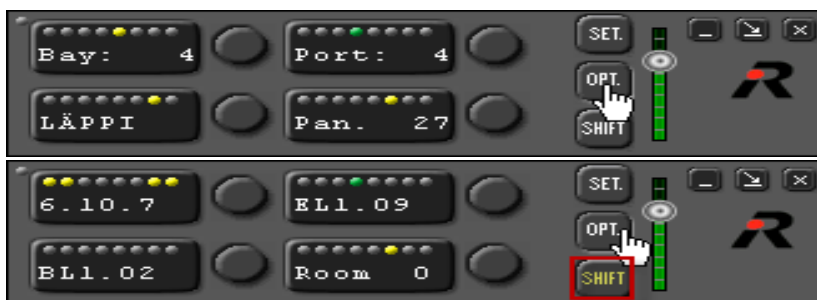





Figure 377: VCP-10xx - Option Display

With the button  you can minimize the VCP-1004 to the Taskbar. Press the button  to minimize the application to the system tray . In both situations the application is still active and incoming audio is coming out of your speaker.

When the VCP-1004 is losing the connection to the VoIP card, it will show also up in the symbol of the task bar.



> VCP-1004 not connected



> VCP-1004 connected

## 9.11.6 SIP - Telephony (new in version 6.20)

To use IP - telephony, an installed VoIP card and an available SIP-Server is necessary.

Create a new port on a VoIP card in the [node configuration table](#). Choose “Miscellaneous” > “Sip Phone Connection” to create a new SIP Phone. This SIP phone is now working like a standard telephone codec with a straightforward telephone number.

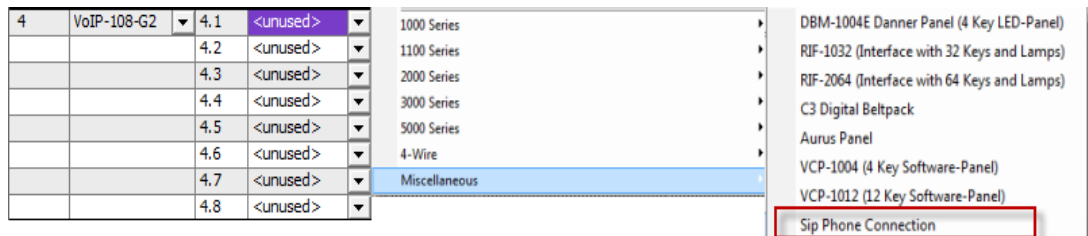


Figure 378: SIP phone - creating a new SIP-Phone

The new SIP-Phone shows up in the „Network“- tab with its own symbol.

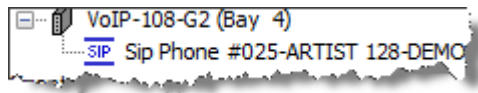


Figure 379: SIP Phone - SIP-Phone in the Network

### 9.11.6.1 SIP-Phone Basic setup

Before you can use IP-Telephony, you have to know the needed log-in information to your SIP-Server. These account information need to be entered into the Artist configuration.

Open the „**Properties**“ of the SIP-Phone port and go to the „**SIP Phone connection**“ tab.

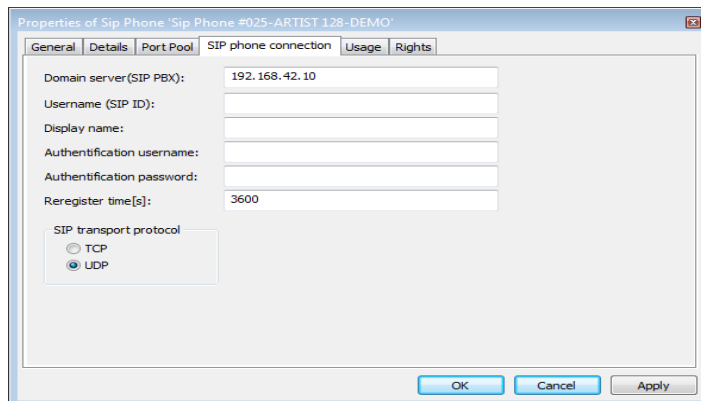


Figure 380: SIP Phone - connecting to a SIP-Server

Following data's need to be entered, that the VoIP port is able to connect and log-in to a SIP-server. Please contact your network administrator or phone provider to get all needed information.

<b>Domain server (SIP PBX)</b>	Enter the DNS-Name or IP-address of your SIP Server (also called <b>Registrar</b> ) the VoIP card need connect to.
<b>Username (SIP ID)</b>	Enter the SIP-ID or Username for your phone port.
<b>Display name</b>	Here you can enter a name, which should be displayed on other compatible phones, when this port is calling. Not all PBX are supporting this feature.
<b>Authentification username</b>	Login name for this telephone member on the PBX system
<b>Authentification password</b>	Login-password for this telephone member on the PBX system
<b>Reregister time(s)</b>	Enter the time, the port should reconnect and reregister to the PBX system. Depending on the used PBX
<b>SIP transport protocol</b>	Select if the UDP or TCP IP protocol is used for the communication with the PBX. Depending on the used PBX

Figure 381: Table - SIP Phone - Settings

When all settings are correct, the SIP port should connect to the PBX. The SIP port will show green in the “Ports” tab. Also you can see the connection status in the VoIP statistic window. (See [9.11.6 VoIP Statistic](#))

```
13:58:35 Sip Phone Demo 2,Client 4,ARTIST 128, Local: [17.09.2010 14:00:17.532]: Successfully registered with SIP server '192.168.42.16' ('3CXPhoneSystem 9.0.13530.0')
```

Figure 382: SIP Phone - successful log in to SIP Server

If your PBX is using a different SIP-Port, you can adjust it in the “[Properties](#)” of the VoIP card”.

### 9.11.6.2 Creating of PoolPorts

PoolPorts are the members that belong to a SIP Port. You can create several members with unique names, which can use the connection of a single SIP port. All are using the same outgoing number but can have different destination numbers configured. In „Phone No. Incoming“ in „[Properties](#)“ of the PoolPort you can add a fix allocation to designated incoming numbers. Only one PoolPort can use the Sip-Phone connection at the same time.

To create new PoolPorts open the „[Properties](#)“ of the PoolPort and go to the tap „[Port Pool](#)“

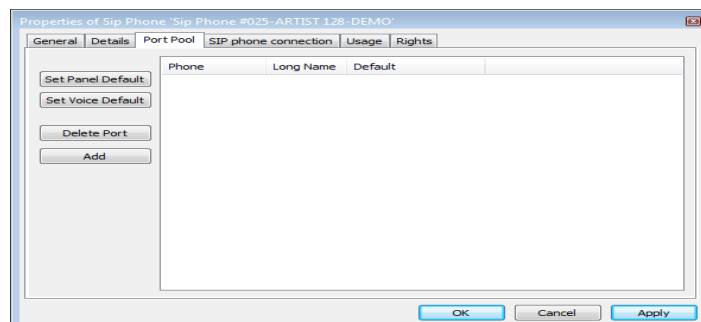


Figure 383: SIP phone - Properties - PoolPorts

Press  to add a new PoolPort. Minimum one PoolPort is required per SIP Phone. The number of PoolPorts per Sip Phone is not limited.

Select one of the PoolPorts and press  to define this Port as „Voice default“. This settings tells the system, which PoolPort should be used, when a caller with an unknown number is calling into the system.

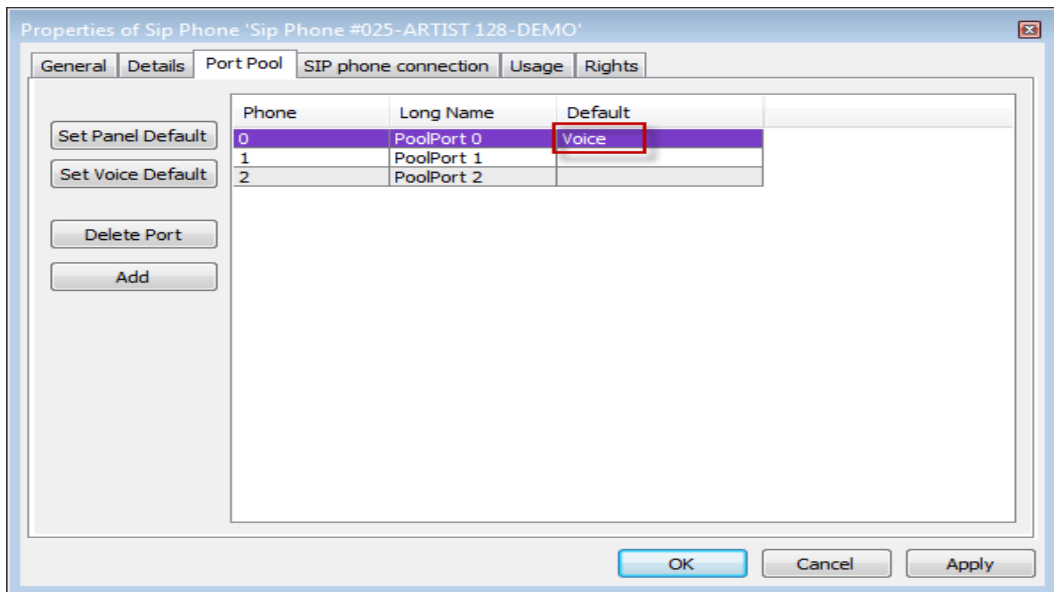


Figure 384: SIP Phone - creating PoolPorts and defining Voice defaults

**ATTENTION:** Also if only one PoolPort is created, you have to define it as “voice default” to accept incoming calls with unknown or not configured numbers.

If the PoolPort should only accept incoming calls of a defined number, you have to enter this number into „Incoming number“ in the Properties des PoolPort. All other incoming calls will be blocked.

You can see all created PoolPorts also in the „Network“ list of the Director underneath the SIP Phone port.

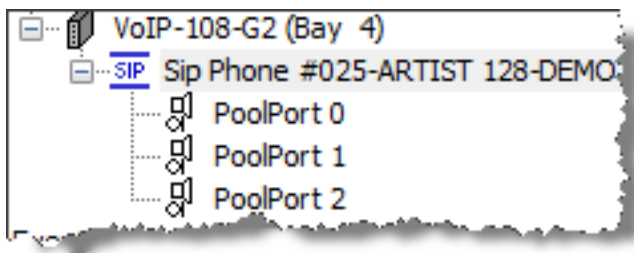


Figure 385: SIP Phone - PoolPorts in the Network



### 9.11.6.3 Configuration of the PoolPorts

Open the „**Properties**“ (right click->Properties) of a selected PoolPort to edit the basic settings.

The tabs „General“, „Details 1+2“ etc. are identically to the settings of an ordinary 4-wire. To edit the telephony connection settings open the new tab „**SIP phone connection, pool port**“

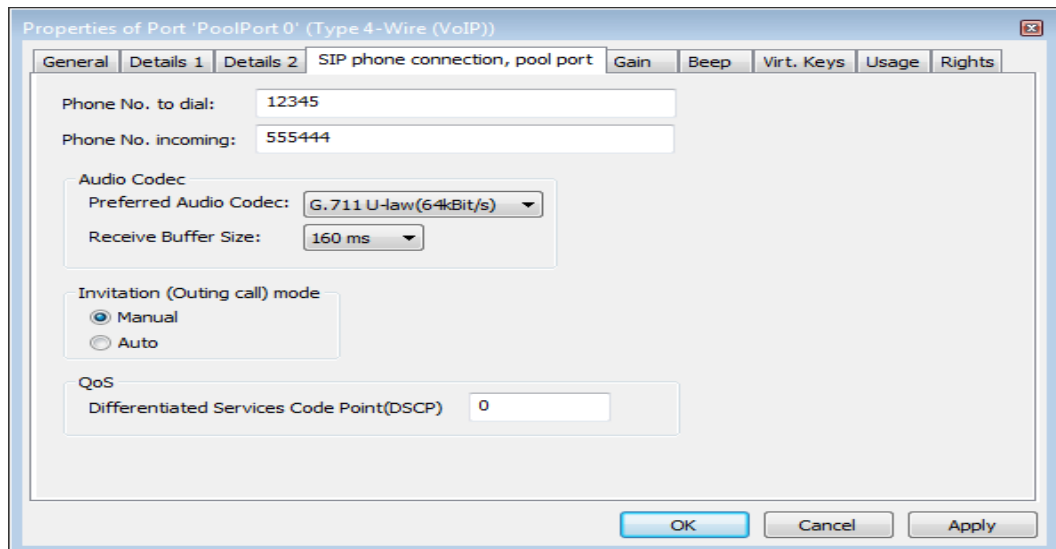


Figure 386: SIP phone - connection, pool port

In „**Phone No. To dial**“ you can enter a telephone number to call, when this port is activated with the „**Dial**“ function. If you want to dial different numbers via a telephone keypad this field can also stay empty.

In „**Phone No. Incoming**“ you can enter a number (or just a part of a number), that is allowed to call this PoolPort. Now only callers with this number (or part of the number) are accepted. All other callers will be blocked.

In „**Audio Codec**“ you can select the audio codec and audio quality which should be used, when you are starting an outgoing call. You can select G711 or G722 with a bandwidth of 64kBit/s each

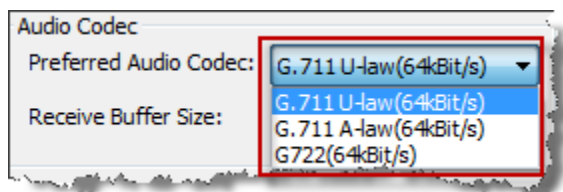


Figure 387: Sip Phone - Audio Codec's

Depending of the quality of you network, you can adjust the size of the „**Receive Buffer**“. The size of these settings dedicate how many ms of the incoming audio should be buffered to

avoid audio drops. In a bad network this setting can improve the quality of the audio but also increase its delay. Default is 160ms.

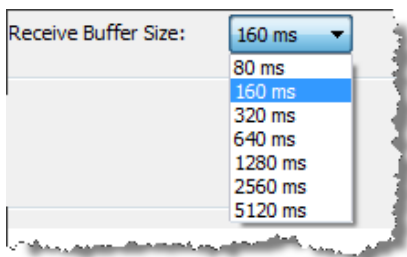


Figure 388: SIP Phone - Receive Buffer

For details see: [9.11.3 Bandwidth calculation](#)

In **“Invitation”** you can choose the mode of the outgoing call.

If **„Manual“** (default) is selected, the destination number will be dialled only manually by using the **“Dial”** function.

If **„Auto“** mode is chosen, the defined number will be dialled automatically as soon the VoIP card is started. So it establishes a permanent connection like a leased line. For example to use as a „Trunkline“.

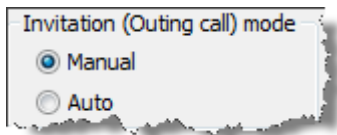



Figure 389: SIP Phone - Invitation

The configuration to use SIP PortPools on panels is identically to the telephony with CONNECT SOLO/DUO.

See: [9.23.9 Setting up a panel to use a CONNECT/SIP codec](#)

## 9.11.7 VoIP statistics

Using the “VoIP Statistics” window you can monitor all IP connections by various criteria.

Click the  button in the tool bar to open the window.

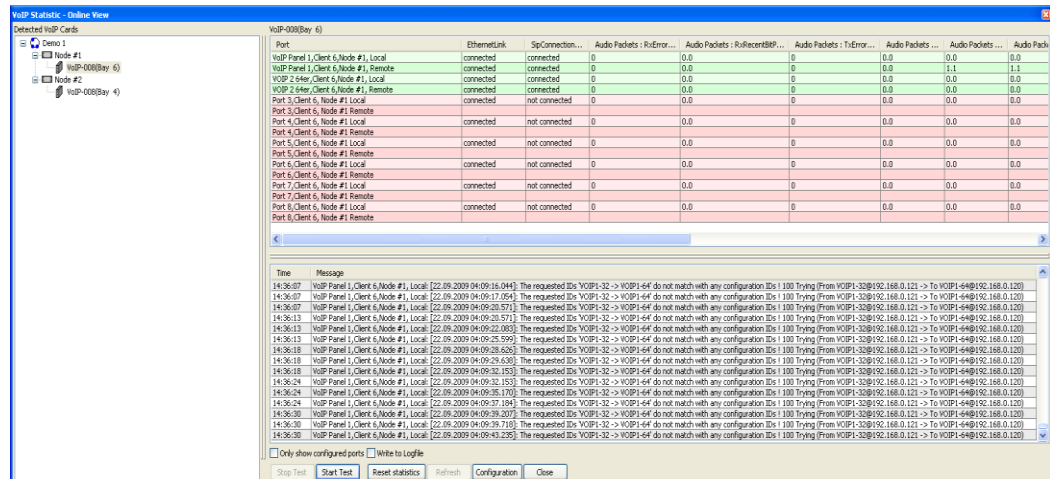



Figure 390: VoIP statistics

All available IP connections for the card selected will be displayed under “Detected VoIP Cards” on the left. If you click on the Net symbol, all VoIP cards in the Artist network will be displayed. Ports with established connections will be green.

If the option ☐ Only show configured ports is activated, only configured ports will be shown in the list.

You can choose which statistics are displayed by clicking the  button. Press this button to customize the view.

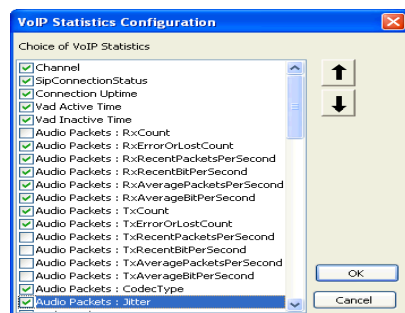



Figure 391: VoIP statistics - Statistics configuration

Select the desired statistics from the overview window. By activating the ☐ Write to Logfile option, the statistics will also be saved in the “Director.log” file, which is saved in the same directory as the Director program.

After you have selected a VoIP card, you can also generate an audio test signal to test the audio connection. Click the  button.

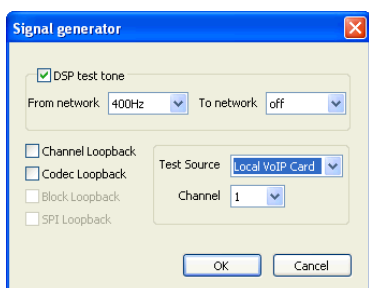


Figure 392: VoIP statistics - Signal generator

This window allows you to set the test signal frequency that should be sent to or from the card. Also select the source of the test signal and the channel.

To shut off the signal generator, click the  button.

## 9.12 Panel - Properties

The basic properties of an individual control panel are set in the panel's *“Properties”*. The properties can be accessed by right mouse clicking on either a port in the network or port list, or by right clicking on the panel. Double clicking on the panel in the Workspace also opens the properties. The properties vary slightly by port type (panel, 4-wire, ISDN, etc).

### 9.12.1 General

The *“General”* tab manages general settings like the port name, scroll lists, etc.

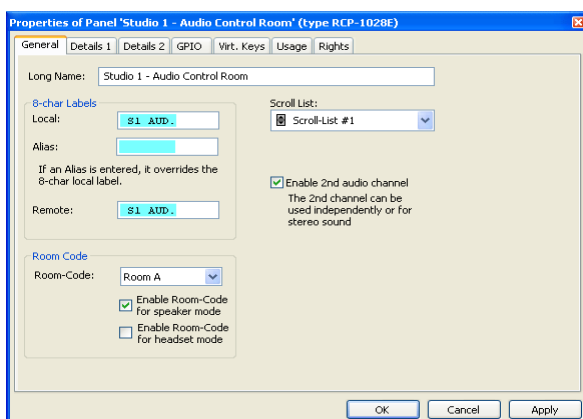


Figure 393: Panel Properties - General tab

<b>Long Name</b>	Unique name for the panel that is used in Director (maximum of 32 characters)
<b>Local</b>	Display name (maximum 8 characters). This name appears on control panel keys
<b>Allas</b>	Allows the entry of a temporary name for the port that is used in key displays system wide without changing the actual local name in the configuration
<b>Remote</b>	Additional display name for trunked systems. The remote name is displayed on a remote system connected via trunking. (not currently supported)
<b>Room-Code</b>	Activates a room code for conferences. Room codes are used when control panels in the same conference are physically near each other. This helps avoid feedback problems. Ports in the same Roomcode mute the audio between them as soon as a conference is active. Roomcodes can be activated for both speaker and headset modes
<b>Scroll-List</b>	Selects a pre-defined scroll list that can be accessed by the panel. (maximum of one scroll list per panel)
<b>Enable 2nd audio channel</b>	Activates the 2nd audio channel of the control panel. (This function is only available if the panel is connected to an odd numbered port and the next port is unused)

Figure 394: Table - Panel Properties - General tab

## 9.12.2 Details 1

Default audio parameters and functions can be set in the “*Details 1*” tab of the panel properties.

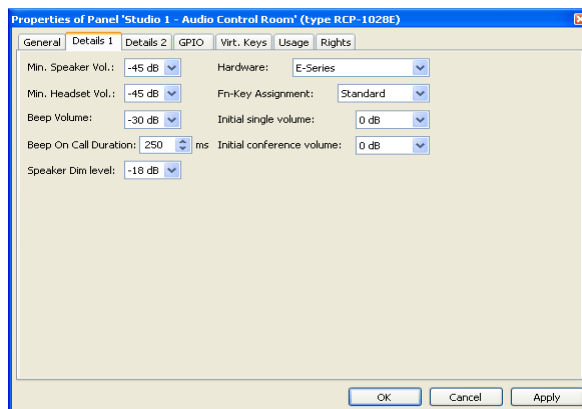


Figure 395: Panel Properties - Panel Details 1 tab

<b>Min. Speaker Vol.</b>	Minimum speaker volume level on a control panel
<b>Min. Headset</b>	Minimum headset speaker volume level on a control panel
<b>Beep Volume</b>	Volume of the Beep tone
<b>Beep On Call Duration</b>	Duration of the initial beep tone prior to a call (if configured)

<b>Speaker Dim Level</b>	Level that the control panel loudspeaker is dimmed when a key is pressed
<b>Hardware</b>	Selection of hardware type for 1000 series panels (E = with encoder, B = no encoders)
<b>Fn-Key Assignment</b>	Allows assignment of the special function key layout for 1000 B-series panels. In addition, the key functions of the Beep or Norm key can be switched to a monitoring function. See details below
<b>Initial single volume</b>	Standard point-to-point volume
<b>Initial conference volume</b>	Standard conference call volume

Figure 396: Table - Panel Properties - Panel Details 1 tab

### 9.12.2.1 Monitoring Function

Under “Fn-Key Assignment” there is the possibility to replace either the “Beep” or “Norm” function keys with a monitoring function.

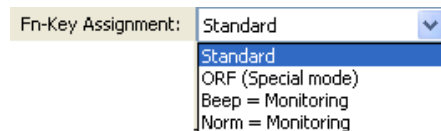


Figure 397: Monitoring - FN key assignment

This makes it possible to monitor a selected port in the system. That means that as soon as the monitored panel talks to a destination, the audio from the monitored panel will also be routed to the monitoring panel.

To activate monitoring, either the “Norm” or “Beep” key is pressed, depending on how the function is configured. The key has a latching timeout of around 2 seconds. During this time, press a “Call to” key on your panel to monitor this port.

It is not possible to monitor keys programmed with functions like “Call to Conference/Groups”, “Listen”, or other functions.

Repeat the steps to deactivate the monitoring function.

As soon as the monitoring function is activated on a port, it is signalled by the marker “Call to port not activated, monitoring activated”. The appearance of the signalization can of course be changed in “[Marker Definition](#)”. When the panel being monitored activates a call, it is signalled on the panel doing the monitoring with the normal “Call to port incoming call” marker. The audio from the monitored panel will be routed through and its volume can be adjusted or muted with the corresponding encoder. The monitored panel **DOES NOT** appear in the “Reply” key.

46	Call to port not activated, monitoring activated		
47	Call to port activated, monitoring activated		

Figure 398: Monitoring - marker definition

**Example:**

1.) Change the “Norm” key to a monitoring key.

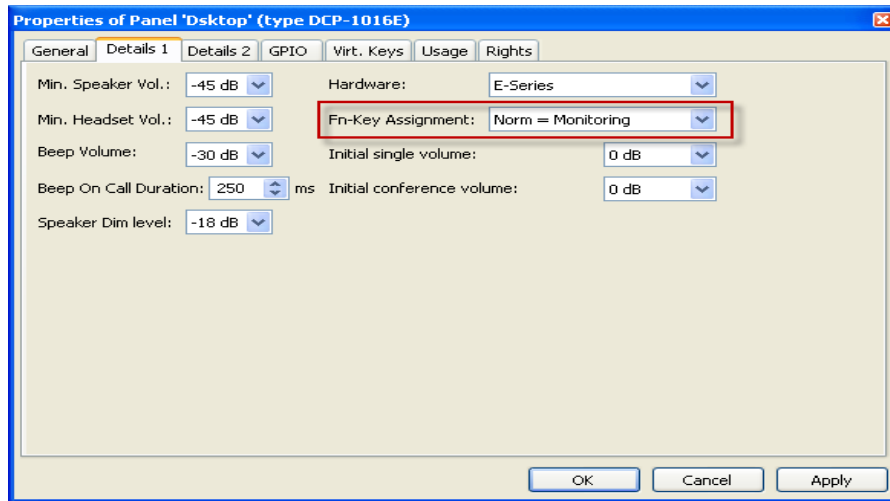


Figure 399: Monitoring - Properties - Details 1 - FN-Key Assignment

2.) Activate the monitor function on the panel



Figure 400: Monitoring - Activating the monitor function on the panel

The red marker indicates an active monitoring function. (You can monitor as many ports as you like at the same time).

As soon as the port being monitored makes a call, the call is also routed to the monitoring panel and signalled on a key. The key can also be used for calls to this port, as normal.



To stop monitoring, repeat Step 2.

### 9.12.3 Details 2

The “Details 2” tab of the panel properties sets the brightness, Vox sensitivity and other general functions.

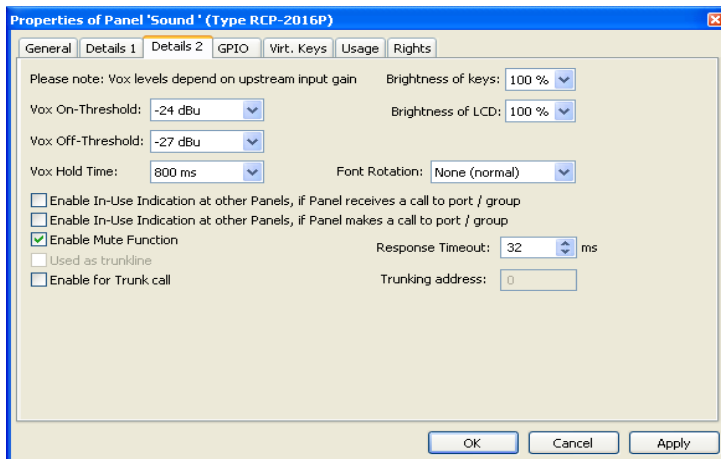


Figure 401: Panel Properties - Panel Details 2 tab

<b>Vox On-Threshold</b>	Signal level above which the Vox switch is activated
<b>Vox Off-Threshold</b>	Signal level below which the Vox switch is deactivated
<b>Vox Hold Time</b>	Duration a Vox switch remains active after the signal level falls below the Off-Threshold
<b>Brightness of LEDs</b>	Brightness of the signalization LEDs (1000 series) or LCD keys (2000/3000 series)
<b>Brightness of keys</b>	Brightness of the 8 character displays
<b>Font Rotation (only for 2000 series available)</b>	Orientation of the displays in steps of 90°
<b>Enable In-Use Indication ..., If Panel receives a call...</b>	Triggers a busy signalization on other panels when the panel receives a call
<b>Enable In-Use Indication ..., If Panel makes a call...</b>	Triggers a busy signalization on other panels when the calls makes a call
<b>Enable Mute Function</b>	Allows incoming volume levels to be muted by pressing the corresponding encoder
<b>Enable for RRCS control</b>	Enables third party control of the system (optional)
<b>Enable for Trunk call</b>	Allows the use of this panel in a trunked system; see <a href="#">Trunking</a>
<b>Response Timeout</b>	Internal system timeout for the communication between the matrix and the control panel (must be increased for connections with large delays, such as ISDN, VoIP, etc.)
<b>Trunking address</b>	For the entry of a unique trunking address for this port. The address is normally assigned automatically. See: <a href="#">Trunking</a>

Figure 402: Table - Panel Properties - Panel Details 2 functions



### 9.12.4 GPI

The “**GPI**” tab of the panel properties manages the panel’s GPIOs. The behaviour of the individual GPIOs can be defined (GPI In: *normal*; *inverted*, GPI Out: *normally open*; *normally closed*) and the names of the GPIOs can be changed.

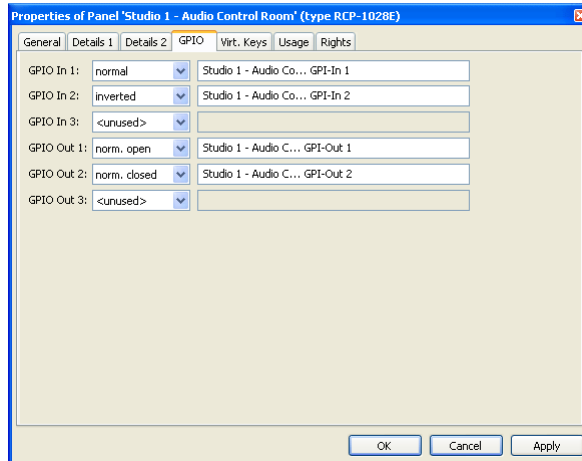


Figure 403: Panel Properties - GPI tab

### 9.12.5 Virtual Keys

The tab “Virt. Keys” allows the creation of additional virtual keys for the panel. Click on the individual keys to activate them. The virtual keys will appear under the control panel.

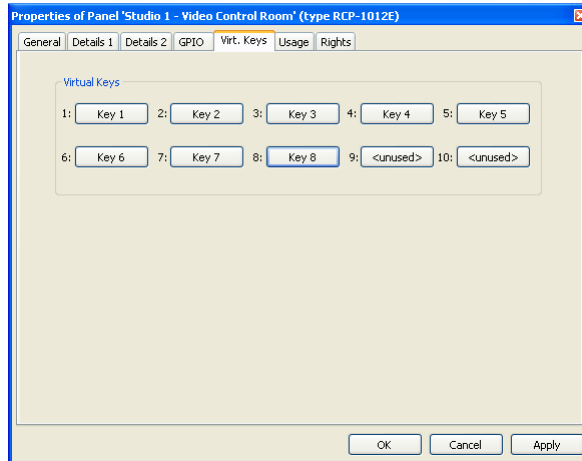


Figure 404: Panel Properties - Virtual Keys tab

The example below shows a control panel with all 10 virtual keys activated.

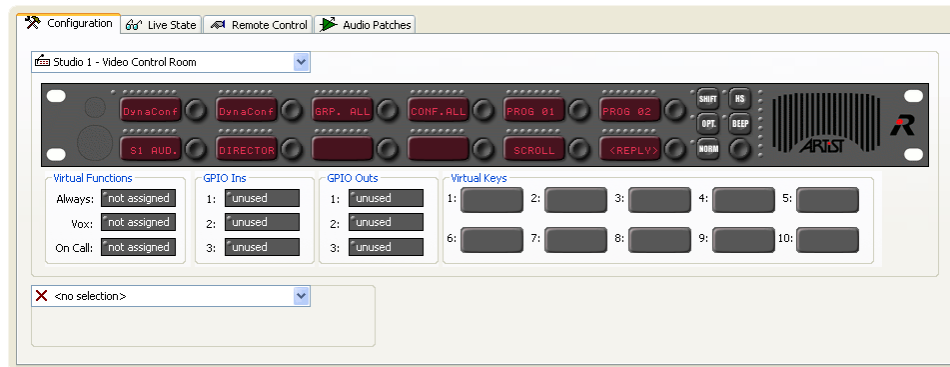


Figure 405: Panel - Virtual Keys

The keys can be configured just like any other key and can be assigned up to **32 functions**. These keys can be activated via the Remote Key command from any point in the system (for example, a Vox switch or GPI input). See: [9.16.11 Remote Key](#)

## 9.12.6 Usage

The “Usage” tab shows all of the sources that can talk to this panel or activate a function at the panel.

The table is divided into 3 columns. The list can be sorted by column by clicking on a column label. A double click on an entry opens the corresponding function in the properties windows of the source’s port.

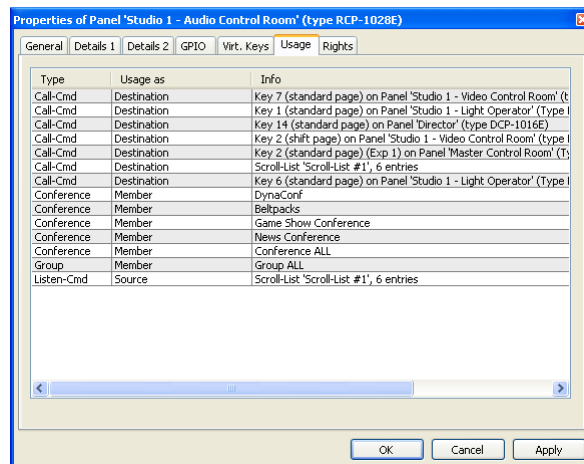


Figure 406: Panel Properties - Usage

## 9.12.7 Rights

Corresponding user rights can be managed in the “Rights” tab. A “Rights” tab is found in all “Properties” windows. See: [9.22 User Rights](#)

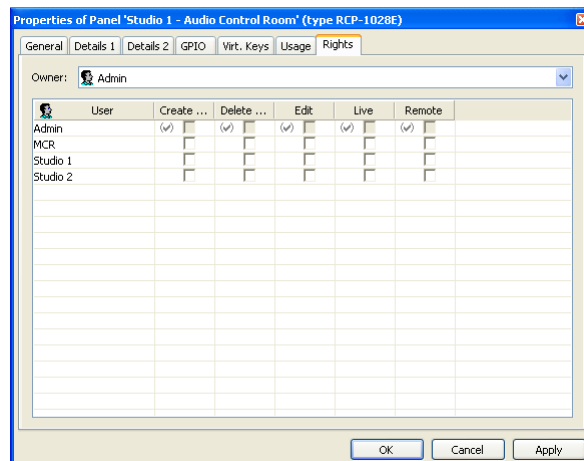


Figure 407: Panel Properties - Rights

## 9.13 4-wire Properties

The basic settings of a 4-wire port are defined in the port *“Properties”*. The properties of a 4-wire can be opened with a right mouse click on either the port in the network list or in port list, as well as by right mouse clicking on a port in the Workspace. A double click on the port in the Workspace also opens the properties.

### 9.13.1 General

The *“General”* tab manages the port names and other settings.

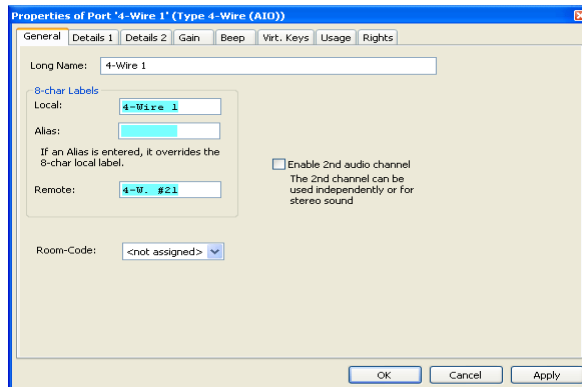


Figure 408: 4-Wire Properties - General tab

<b>Long Name</b>	Unique name for the port that is used in Director (maximum of 32 characters)
<b>Local</b>	Display name (maximum 8 characters). This name appears on control panel keys
<b>Alias</b>	Allows the entry of a temporary name that is used system wide in key displays where this port appears without changing the actual local name in the configuration
<b>Remote</b>	Additional display name for trunked systems. The remote name is displayed on a remote system connected via trunking. (not currently supported)
<b>Room-Code</b>	Activates a room code for conferences. Room codes are used when control panels or ports in the same conference are physically near each other. This helps avoid feedback problems. Ports in the same room code mute the audio between them as soon as a conference is active.
<b>Enable 2nd audio channel</b>	Activates the 2nd audio channel of a digital port. (This function is only available if the port is connected to an odd numbered port and the next port is unused)

Figure 409: Table - 4Wire Properties - General functions

9.13.2    **Details 1**

The “*Details 1*” tab allows the parameters of incoming audio to be set.

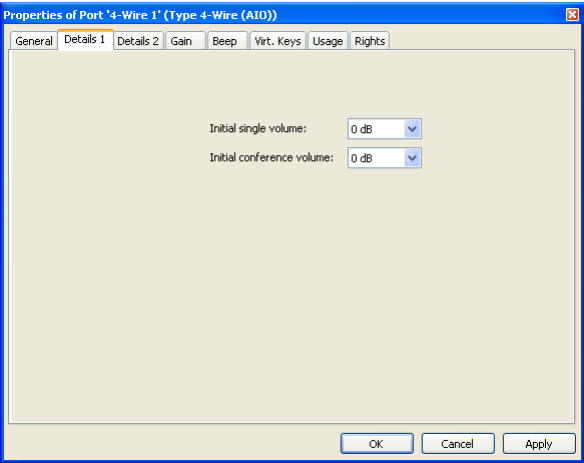


Figure 410: 4Wire Properties - Details 1 tab

<b>Initial single volume</b>	Standard point-to-point and group call volume
<b>Initial conference volume</b>	Standard conference call volume

Figure 411: Table - 4Wire Properties - Details 1 functions

### 9.13.3 Details 2

The “Details 2” tab allows Vox settings, signalization options and some miscellaneous options to be set.

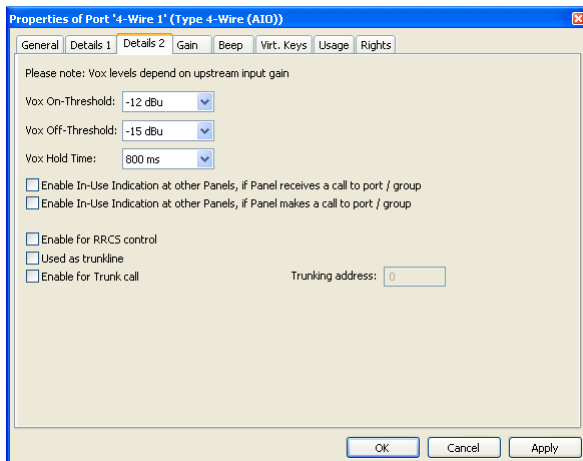


Figure 412: 4Wire Properties - Details 2 tab

<b>Vox On-Threshold</b>	Signal level above which the Vox switch is activated
<b>Vox Off-Threshold</b>	Signal level below which the Vox switch is deactivated
<b>Vox Hold Time</b>	Duration a Vox switch remains active after the signal level falls below the Off-Threshold
<b>Enable In-Use Indication ..., If Panel receives a call...</b>	Triggers a busy signalization on other panels when the port receives a call
<b>Enable In-Use Indication ..., If Panel makes a call...</b>	Triggers a busy signalization on other panels when the port makes a call
<b>Enable for RRCS control</b>	Enables third party control of the system (optional)
<b>Used as trunkline</b>	Uses this port as a trunkline to another system
<b>Enable for Trunk call</b>	Allows the use of this port in a trunked system; only available if “Used as Trunkline” is not activated See: <a href="#">Trunking</a>
<b>Trunking address</b>	For the entry of a unique trunking address for this port. The address is normally assigned automatically. See: <a href="#">Trunking</a>

Figure 413: Table - 4Wire Properties - Details 2 functions

9.13.4 Gain

The “Gain” tab allows the input and output gain levels to be set for the port. In addition, you can select whether the gains for this port can be controlled by a panel using the “Set Input/Output Gain” function. See:“[7.16.20 Set Input/Output Gain](#)”

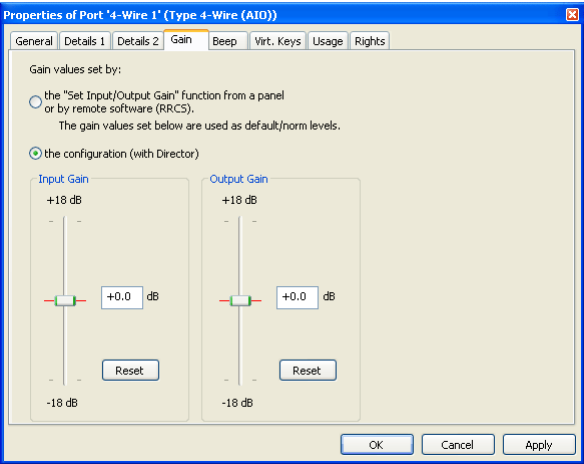


Figure 414: 4Wire Properties - Gain tab

... the “Set Input/Output Gain” function from a panel...	Allows control of the gain settings by a 1000 series control panel. See:“ <a href="#">9.16.20 Set Input/Output Gain</a> ”. The settings in the tab then serve as default settings.
... the configuration ...	The gain settings are exclusively set in the Director configuration
Input Gain	Set the input gain level (coming into the matrix)
Output Gain	Set the output gain level (going from the matrix)
Reset	Resets the selected gain parameter back to 0dB

Figure 415: Table - 4Wire Properties - Gain functions

### 9.13.5 Beep

Since a 4-wire cannot generate a beep tone, it is possible to instead activate a GPI output when the port is beeped.

The selected GPI contact will be activated as soon as the 4-wire is beeped by a control panel.

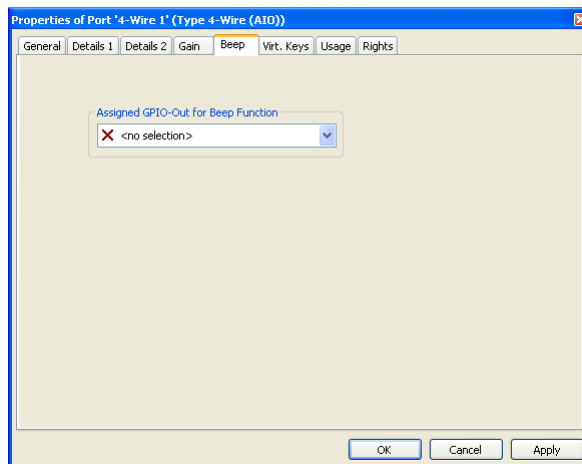


Figure 416: 4Wire Properties - Beep tab



### 9.13.6 Virtual Keys

The tab “Virt. Keys” allows the creation of additional virtual keys for the port. Click on the individual keys to activate them. The virtual keys will appear next to the 4-wire.

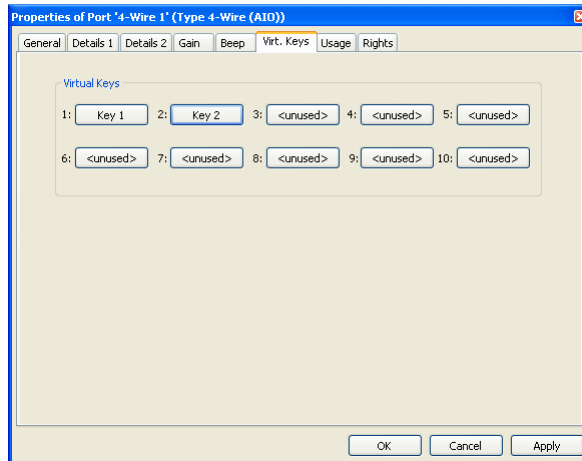


Figure 417: 4Wire Properties - Virtual Keys tab

The example below shows a 4-wire port with 2 virtual keys activated.

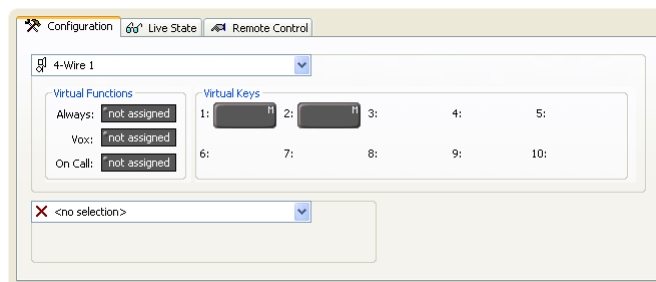


Figure 418: 4Wire Port - Virtual Keys

The keys can be configured just like any other key and can be assigned up to **32 functions**. These keys can be activated via the Remote Key command from any point in the system (for example, a Vox switch or GPI input). See: [9.16.11 Remote Key](#)

### 9.13.7 Usage

The “Usage” tab shows all of the sources that can talk to this port or activate another function at the port.

The table is divided into 3 columns. The list can be sorted by column by clicking on a column label. A double click on an entry opens the corresponding function properties windows of the sources port.

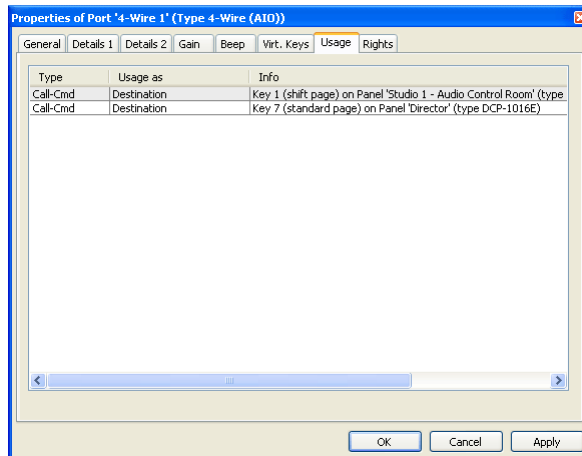


Figure 419: 4Wire Properties - Usage tab

### 9.13.8 Rights

Corresponding user rights can be managed in the “Rights” tab. A “Rights” tab is found in all “Properties” windows. See: [9.22 User Rights](#)

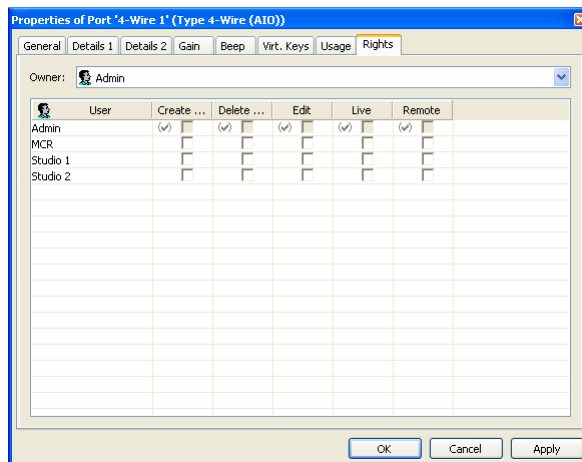


Figure 420: 4Wire Properties - Rights Tab

## 9.14 Key Properties

The “*Properties*” of a key can set basic key parameters for each individual key on a control panel. To open the “*Properties*”, right mouse click on a key and choose “*Properties*”, or double click on a key. There will be one tab for every function the key has been assigned. The tabs “*General*” and “*Rights*” are also always present.

The “*General*” tab can set the key label, key mode, whether a key press causes the loudspeaker to dim, etc.

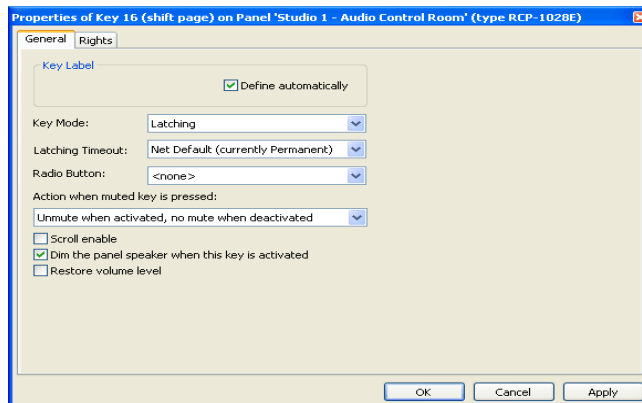


Figure 421: Key Properties - General tab

<b>Key Label</b>	If the option "Define automatically" is activated, the pre-assigned display name for the programmed function will be used. Uncheck this box if you want to manually assign the display text for the key
<b>Key Mode</b>	Specifies the key behaviour: Momentary (PTT), Latching (switch); Auto (momentary or latching, depending on how long the key is pressed. >350ms: Momentary, <350ms Latching)
<b>Latching Timeout</b>	If the key mode is set to “ <i>Latching</i> ” or “ <i>Auto</i> ”, the key can be set to automatically deactivate after a specified period
<b>Radio Button</b>	Places the key in one of 4 available groups. Each key on the panel in the same group is deactivated as soon as another key in the group is pressed. That means that only one key from each group can be active at the same time. Radio buttons groups only function on a single control panel
<b>Action when muted key is pressed:</b>	Describes what happens when a key that was previously muted by pressing its corresponding encoder is pressed
<b>No unmute when activated, no mute when deactivated</b>	The volume level does not change when the key is pressed. It remains muted
<b>Unmute when activated, no mute when deactivated</b>	If the key is pressed, the volume control jumps back to its last position. The volume remains to mute after the key is released.
<b>Unmute when activated, mute again when deactivated</b>	If the key is pressed, the volume control jumps back to its last position. The volume is muted again as soon as the key is no longer active

<b>Scroll enable</b>	Allows the key to access the panel's scroll list (a scroll list must have been previously defined and assigned to the panel). See: <a href="#">8.20 Scroll Lists</a>
<b>Dim the panel speaker ...</b>	Dims the panel loudspeaker as soon as the key is pressed (NOTE: not recommended for <i>latching</i> keys)
<b>Restore volume level</b>	When activated, dynamically assigned conferences on this key are always shown with their last stored volume level

Figure 422: Table - Key Properties - General functions

## 9.14.1 Key Modes:

<b>Auto</b>	If the key is tapped quickly (>350ms) it acts like a latching key. If the key is held pressed for longer than 350ms, it acts like a momentary key
<b>Momentary (PTT)</b>	The functions on the key are only active as long as the key is pressed
<b>Latching</b>	The functions on the key are turned on and off by pressing the key

Figure 423: Table - Key properties - Key modes

## 9.14.2 Rights

Corresponding user rights can be managed in the “Rights” tab. A “Rights” tab is found in all “Properties” windows. See: [9.22 User Rights](#)

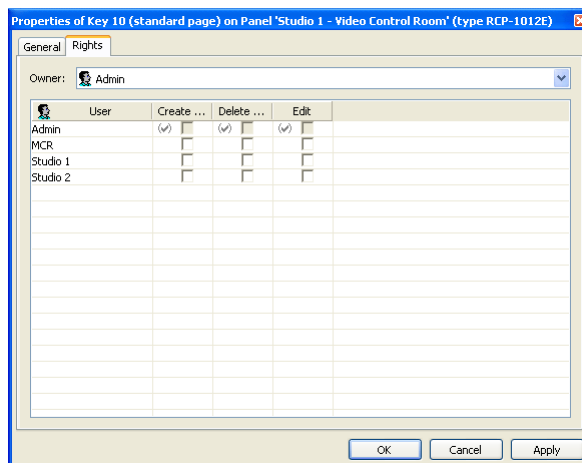


Figure 424: Key Properties - Rights tab

## 9.15 Virtual Function Properties

The properties of the Virtual Functions can be opened by right mouse clicking on the Virtual Functions of a control panel or 4-wire port. Only the user rights can be changed in the properties window. To change other settings, such as the Vox parameters, open the properties of the port and select tab “Details 2”.

### 9.15.1 Rights

Corresponding user rights can be managed in the “Rights” tab. A “Rights” tab is found in all “Properties” windows. See: [9.22 User Rights](#)

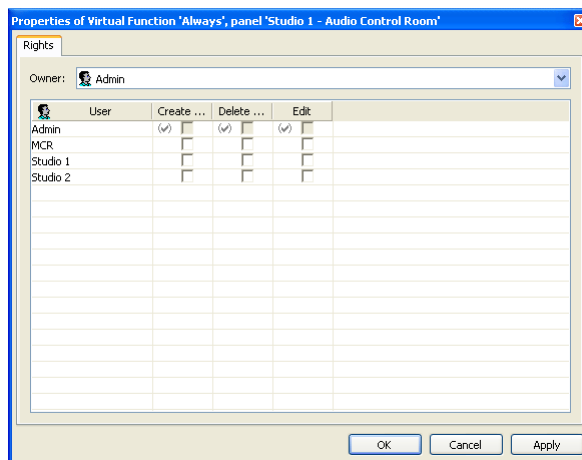


Figure 425: Key Properties - Rights tab

## 9.16 Overview of Functions (Commands)

Functions (commands) are the actions that are triggered by key presses, virtual functions, logics functions and GPIs. Each function receives its own tab in the properties of the object that activates it where further options of the function can be defined.

This chapter describes in detail each function and its available options.

### Available commands:





Keys	Virtual Functions	Logic Outputs	GPI Inputs/Outputs
<ul style="list-style-type: none"> <li>Call to Port</li> <li>Call to Conference</li> <li>Call to Group</li> <li>Call to IFB</li> <li>Listen to Port</li> <li>Route Audio</li> <li>Switch GPIO Out</li> <li>Select Audiopatch</li> <li>Control Audiopatch </li> <li>Remote Key</li> <li>Reply</li> <li>Edit Conference </li> <li>Edit IFB </li> <li>Dim Panel Speaker</li> <li>Dim XP Level</li> <li>Beep Panel</li> <li>Telephone Dial Keypad / Display</li> <li>Telephone Dial / Hang up</li> <li>Logic</li> <li>Kill Partyline Mic</li> <li>Auto Listen Off</li> <li>Set Input/Output Gain </li> <li>Sidetone</li> <li>Send String</li> </ul>	<ul style="list-style-type: none"> <li>Call to Port</li> <li>Call to Conference</li> <li>Call to Group</li> <li>Call to IFB</li> <li>Listen to Port</li> <li>Route Audio</li> <li>Switch GPIO Out</li> <li>Select Audiopatch</li> <li>Remote Key</li> <li>Dim Panel Speaker</li> <li>Dim XP Level</li> <li>Beep Panel</li> <li>Telephone Dial / Hang up</li> <li>Logic</li> <li>Send String</li> </ul>	<ul style="list-style-type: none"> <li>Route Audio</li> <li>Switch GPIO Out</li> <li>Select Audiopatch</li> <li>Remote Key</li> <li>Dim Panel Speaker</li> <li>Dim XP Level</li> <li>Beep Panel</li> <li>Telephone Dial / Hang up</li> <li>Logic</li> <li>Send String</li> </ul>	<ul style="list-style-type: none"> <li>Route Audio</li> <li>Switch GPIO Out</li> <li>Select Audiopatch</li> <li>Remote Key</li> <li>Dim Panel Speaker</li> <li>Dim XP Level</li> <li>Beep Panel</li> <li>Telephone Dial / Hang up</li> <li>Logic</li> </ul>

Figure 426: Add function - function overview depending of the activator



only available on 1000 series control panels



only available on 1000- and 2000 series control panels

### 9.16.1 Call to Port

The “*Call to Port*” function is a point-to-point call from a caller (source) to a target (destination). It is the standard function for communication between two individuals.

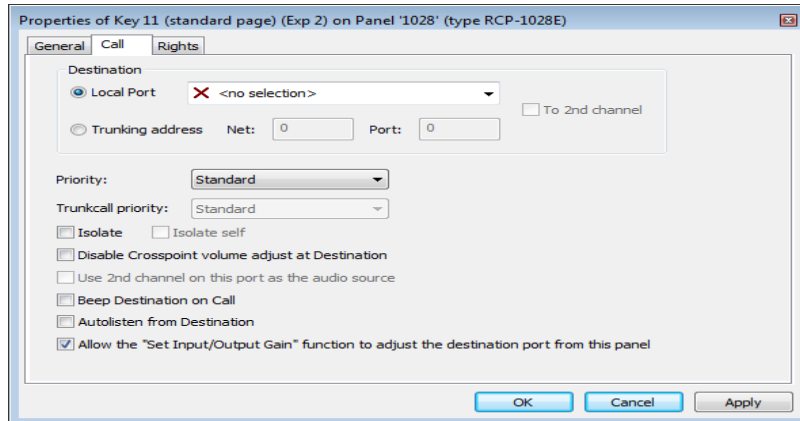


Figure 427: Call to port - Call tab

<b>Destination</b>	Defines the target port to be called
<b>Local Port</b>	Selection of a port of the local system
<b>Trunking address</b>	Possibility to enter a trunking address, to configure a trunkcall offline (see <a href="#">16.4.5 Offline-configuration of trunkcalls (new in Director 6.20)</a> )
<b>To 2nd channel</b>	Defines whether the call should target the 2nd audio channel of the destination port (if available)
<b>Trunking net address</b>	Only available in trunked systems; (See: <a href="#">Trunking</a> )
<b>Trunking port address</b>	Only available in trunked systems; (See: <a href="#">Trunking</a> )
<b>Priority</b>	Defines the priority level for this call; See: <a href="#">9.8.4 Net Properties -&gt; Port Settings</a>
<b>Trunkcall priority</b>	Only available in trunked systems; (See: <a href="#">Trunking</a> )
<b>Isolate</b>	Blocks all other calls to the destination port as long as this call is active. When calling a control panel, the microphone at the destination will automatically be activated and the audio routed to the calling port
<b>Isolate self</b>	Blocks all other calls to the local port while this call is active
<b>Disable Crosspoint volume adjust at Destination</b>	The destination panel is not allowed to change the volume level of the incoming call. The crosspoint will be set to 0dB, regardless of other volume settings or priorities
<b>Use 2nd channel on this port as the audio source</b>	Selects the 2nd audio channel of the port as the audio source for the call (if a 2nd channel is available)
<b>Beep destination on Call</b>	Triggers a short beep tone at the destination panel before the source microphone is activated

<b>Autolisten from Destination</b>	Activates the “Autolisten” function for this call; see below: <a href="#">Autolisten</a>
<b>Allow the “Set Input/Output Gain” function to adjust the source port from this panel</b>	Enables the use of the I/O gain control on this panel for the selected port (only for 2 and 4-wires). The function “Set Input/Output Gain” is required on another panel key. See: “ <a href="#">9.16.23 Set Input/Output Gain</a> ”

Figure 428: Table - Call to port - Call functions

#### 9.16.1.1 Autolisten

The Autolisten function allows hands-free operation at the destination port. When called by an Autolisten call, the return path is activated automatically and stays open until deactivated with the “Autolisten OFF” command from either side (See: “[9.16.22 Autolisten OFF](#)”). If the destination port makes an autolisten call to the source, the automatic return path is reversed. This means that the audio from the original source is automatically routed to the destination.

Activate the Autolisten-function, by activating this function for the „[Call to...](#)” command, you want to use it ☒ [Autolisten from Destination](#)

If the Autolisten function is used on a 4-wire port, a permanent “Listen” to the destination command will be triggered as soon as the 4-wire’s Vox is activated. This listen function can only be deactivated from a control panel using the “[Autolisten Off](#)” command. Therefore, it is imperative that the panel also has an Autolisten command to the 4-wire port.



## 9.16.2 Call to Conference

A “Call to Conference” is a multipoint-to-multipoint function between the multiple members of a conference. Every member can talk into the conference at the same time and hear the sum of all active members (if they have the necessary privileges).

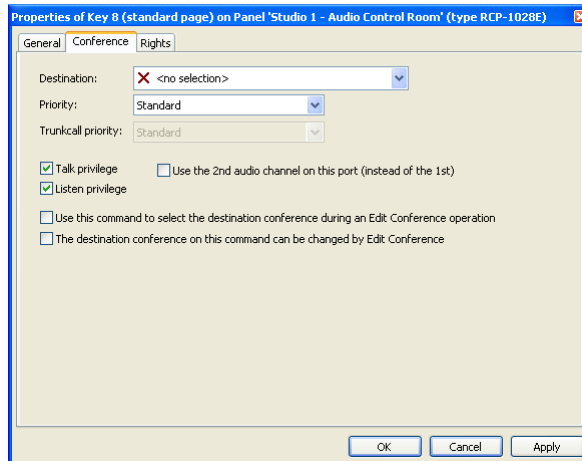


Figure 429: Call to conference - Conference tab

<b>Destination</b>	Select the conference to speak to (Conference must be defined in advance, see <a href="#">8.17 Add Conference</a> )
<b>Priority</b>	Sets the priority for the call (see <a href="#">9.8.4 Net Properties -&gt; Port Settings</a> )
<b>Trunkcall priority</b>	Only available in trunked systems (see <a href="#">Trunking</a> )
<b>Talk privilege</b>	Allows the member to speak into the conference
<b>Listen privilege</b>	Allows the member to hear the conference
<b>Use 2nd audio channel on this port (Instead of the 1st)</b>	Sets the 2nd audio channel of the port as the audio source (can only be selected if a 2nd audio channel is available)
<b>Use this command to select the destination conference during an Edit Conference operation</b>	Allows the Edit Conference command to change the members of this conference. The command “Edit Conference” is also required on the control panel. See: <a href="#">9.16.13 Edit Conference</a> )
<b>The destination conference on this command can be changed by Edit Conference</b>	Allows the edit conference panel to dynamically add or delete this member to a conference

Figure 430: Table - Call to conference - Conference functions

### 9.16.3 Call to Group

The “*Call to Group*” function is a point-to-multipoint call. A single port calls several ports at the same time. This method of communication always goes in only one direction. Any answers to the call from group members are always point-to-point calls back to the source.

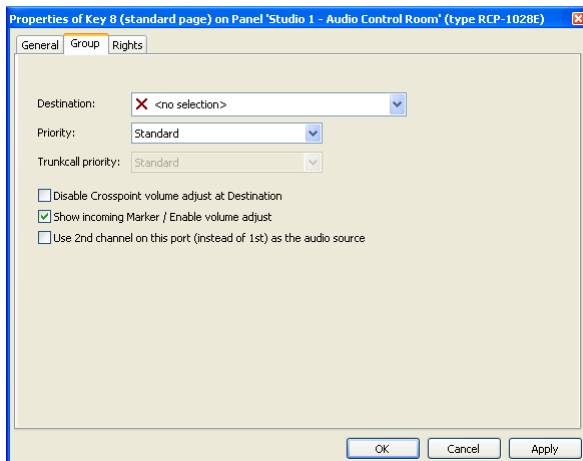


Figure 431: Call to group - Group tab

<b>Destination</b>	Selects the group to be called (the group must have been previously created). (See: <a href="#">8.17 Add Group</a> )
<b>Priority</b>	Defines the priority level for this group call (see: <a href="#">9.8.4 Net Properties - &gt;Port Settings</a> )
<b>Trunkcall priority</b>	Only available in trunked systems (see <a href="#">Trunking</a> )
<b>Disable Crosspoint volume adjust at Destination</b>	The destination panel is not allowed to change the volume level of the incoming call. The crosspoint will be set to 0dB, regardless of other volume settings or priorities
<b>Show incoming Marker / Enable volume adjust</b>	Activates the incoming marker and the incoming volume control when a group member answers the call. This option should not be used if group members are also programmed on the same panel as individual calls. Doing so would link together their incoming level controls and thus prevent individual volume control for calls coming from these ports.
<b>Use 2nd channel on this port (instead of the 1st) as the audio source</b>	Selects the 2nd audio channel of the port as the audio source for the call (if a 2nd channel is available)

Figure 432: Table - Call to group - Group functions

## 9.16.4 Call to IFB

The “*Call to IFB*” function allows IFBs to be quickly configured using the IFB table. To use an IFB it must have been previously defined in the IFB table. (See: [8.15.1.3 Using the IFB table](#)).

To program IFBs, select a previously defined IFB from the list or drag an IFB from the IFB table to a key or Virtual Function.

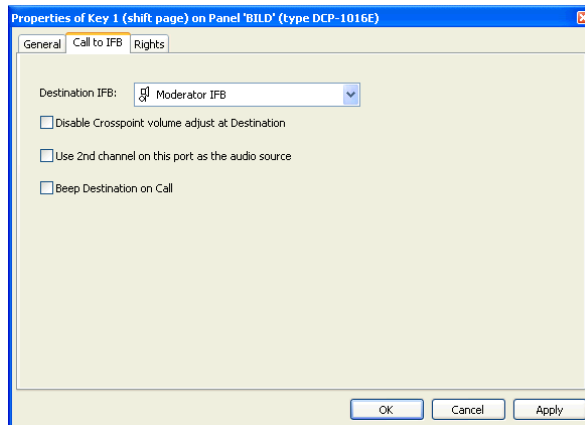


Figure 433: Call to IFB - Call to IFB tab

<b>Destination IFB</b>	Selects a predefined IFB from the IFB table
<b>Disable Crosspoint volume adjust at Destination</b>	The destination panel is not allowed to change the volume level of the incoming call. The crosspoint will be set to 0dB, regardless of other volume settings or priorities. (This function is only available when a control panel is the destination)
<b>Use 2nd channel on this port as the audio source</b>	Selects the 2nd audio channel of the port as the audio source for the call (if a 2nd channel is available)
<b>Beep destination on call</b>	Triggers a short beep tone at the IFB (only available when the destination is a control panel)

Figure 434: Call to IFB - Call to IFB functions

### 9.16.5 Listen to Port

The “*Listen to Port*” command is a point-to-point function. It routes the audio from the target port (Source) to the port activating the command.

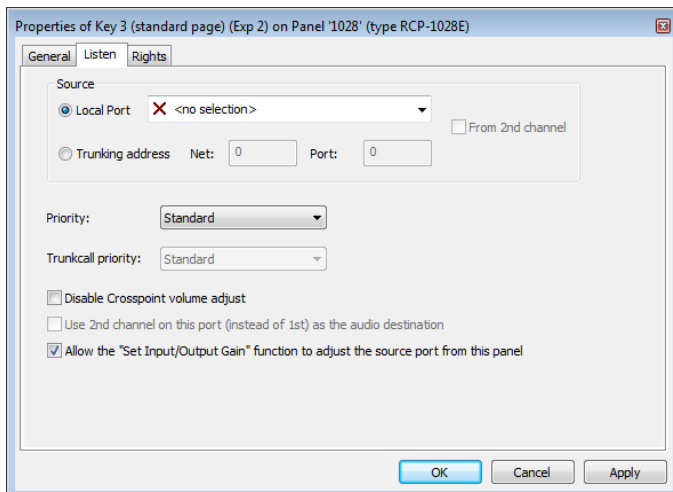


Figure 435: Listen to port - Listen tab

<b>Source</b>	Select the port that should be listened to
<b>Local Port</b>	Selection of a port of the local system
<b>Trunking address</b>	Possibility to enter a trunking address, to configure a listen to trunkport offline (see <a href="#">16.4.5 Offline-configuration of trunkcalls (new in Director 6.20)</a> )
<b>From 2nd channel (instead of 1st)</b>	Listens to the 2nd audio channel of the target port (only available if a second audio channel is available)
<b>Priority</b>	Sets the priority level for the listen command (see: <a href="#">9.8.4 Net Properties -&gt; Port Settings</a> )
<b>Disable Crosspoint volume adjust</b>	The incoming volume level from the port being listened to cannot be changed. The crosspoint will be set to 0dB, regardless of other volume settings or priorities.
<b>Use 2nd channel on this port (instead of the 1st) as the audio destination</b>	Sets the 2nd channel of the port as the destination for the audio being listened to (only available if a second audio channel is available)
<b>Allow the “Set Input/Output Gain” function to adjust the source port from this panel</b>	Enables the use of the I/O gain control on this panel for the selected port (only for 2 and 4-wires). The function “ <i>Set Input/Output Gain</i> ” is required on another panel key. See: “ <a href="#">9.16.23 Set Input/Output Gain</a> ”

Figure 436: Table - Listen to port - Listen functions

9.16.6 Route Audio

The “Route Audio” function can route audio from a source to a destination within the system. If the command is programmed on a control panel the panel can also adjust the volume level and mute the audio route. *Route Audio* is also a point-to-point function.

If different panels have the same route audio command configured on any key, the volume indicator is synchronized on all panels if the volume is changed on one key (new In Version 6.10)

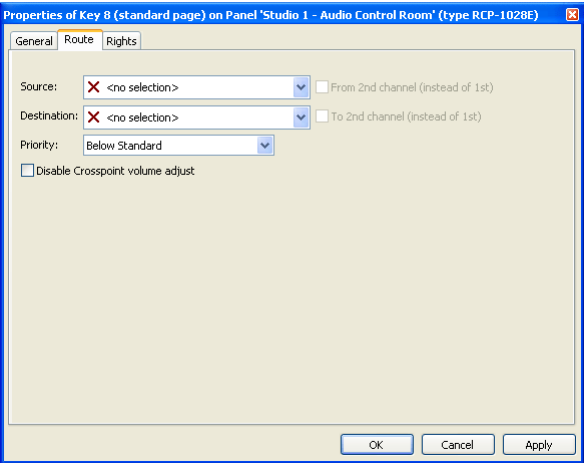


Figure 437: Route Audio - Route tab

Source	Defines the source port
From 2nd channel (Instead of 1st)	Routes the audio from the 2nd channel of the source port. (only available if a second audio channel is available)
Destination	Defines the destination port (output)
To 2nd channel (Instead of 1st)	Routes the audio to the 2nd audio channel of the destination port (only available if a second audio channel is available)
Priority	Sets the priority level of the audio route (see: <a href="#">9.8.4 Net Properties -&gt; Port Settings</a> )
Disable Crosspoint volume adjust	Deactivates the crosspoint level control. The crosspoint will be set to 0dB, regardless of other volume settings or priorities. <b>Attention: Also in this software version the volume indication on a key still shows a volume change when this option is enabled, but the volume is fixed to 0dB</b>

Figure 438: Table - Route Audio - Route functions

### 9.16.7 Switch GPI Out

The “Switch GPI Out” function can activate any GPI output in the system, whether on a GPI card or a control panel.

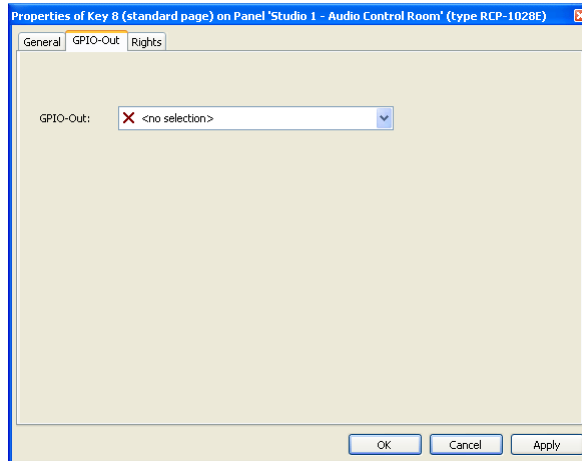


Figure 439: GPI Out tab

#### GPI-Out

Sets which GPI output will be triggered

9.16.8 Select Audiopatch

The “Select Audiopatch” allows a predefined Audiopatch to be activated on a control panel,  
For information on creating audio patches, see: Chapter [8.13 Audiopatches](#)

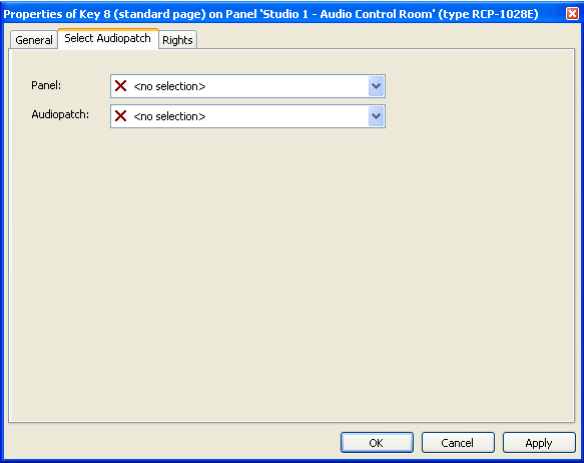


Figure 440: Select Audiopatch tab

Panel	Selects the panel where the Audiopatch should be changed
Audiopatch	Selects which predefined Audiopatch on the panel should be activated



Figure 441: Table - Select Audiopatch functions

## 9.16.9 Control Audiopatch

The function “Control Audiopatch” allows particular crosspoints or amp gain settings in an audio patch to be adjusted from a control panel key.

**Note:** This function is not available on 3000 and 5000 series control panels.

Before an audio patch crosspoint is available for control with the “Control Audiopatch” function, it must first be unlocked in the audio patch. Open the audio patch of a panel. Select the crosspoint or the amplifier that you like to adjust and check the option

☒ Adjust from command. The crosspoint or amplifier will turn blue  /  and is now available for control with the “Control Audiopatch” function.

**Warning:** Elements that are unlocked for use with the “Control Audiopatch” function are permanently activated, regardless of the settings in the current Audiopatch.

On a control panel key, under “Add Function” select the command “Control Audiopatch.” (This command is not available for use on virtual keys or Virtual Functions.)

A new window opens where you can select the Audiopatch element that you would like to control.

First, choose a control panel from the drop down menu, or drag one to the menu from the port or network lists using Drag & Drop.

**Note:** Only panels that have an Audiopatch element unlocked will be available for selection or can be dragged into the menu.

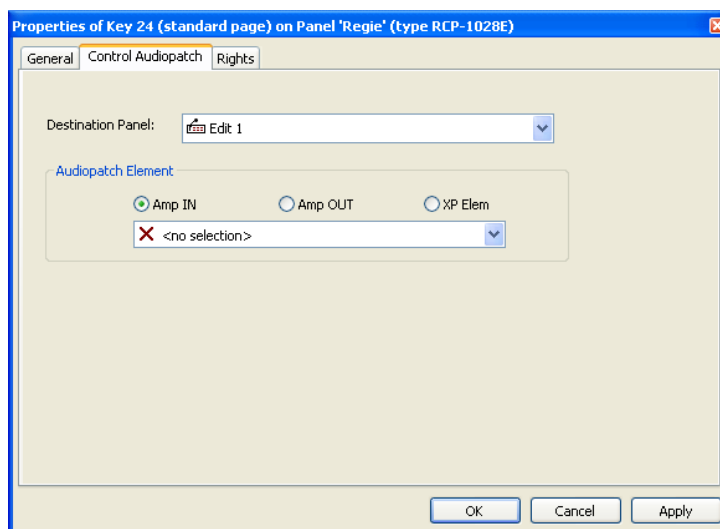


Figure 442: Control Audiopatch - panel choice



Select the type of element that should be adjusted from the panel. Choose ☐ Amp IN for an input amplifier, or chose ☐ Amp OUT for an output amplifier. To adjust a crosspoint gain in the Audiopatch matrix, select ☒ XP Elem. Next, choose the exact element that you would like to adjust. Only unlocked elements will be shown in the list.

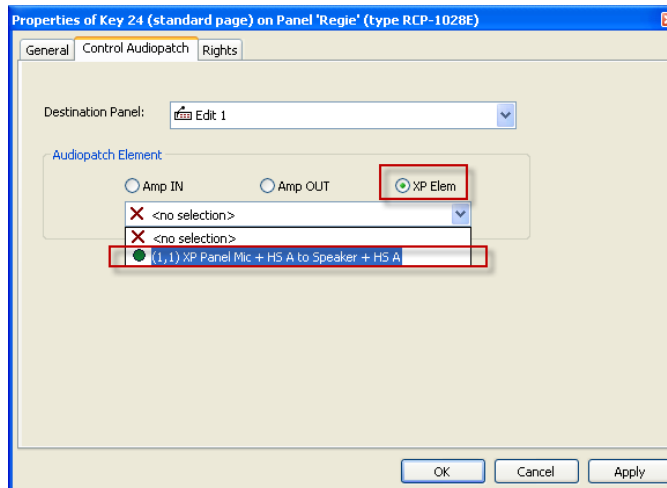



Figure 443: Control Audiopatch - element selection

The panel key will display . You can also change the display name on the key in the key's properties.

To adjust the gain level, turn the corresponding encoder. On 1000 series control panels the level can also be reduced by pressing on the left side of the key and increased by pressing on the right side of the key. As soon as the gain level is adjusted it will be displayed in "dB" on the key display. After a timeout of approximately 3 seconds the display will return to the original display name.



On 2000 series control panels the level is adjusted using the "XP" function key. Press the "XP" key and select the key with the Audiopatch gain you would like to adjust. The gain can now be changed using the panel's master volume control.

**Note:** If the ability to adjust a particular crosspoint is available from several keys or on several panels, the gain displays will not be synchronized. A change in the gain made from one position will only be displayed at other locations when the gain is changed from these locations.

It is strongly recommended not to add any additional functions to the key.

### 9.16.10 Remote Key

The “Remote Key” function can influence or remote control any key in the system.

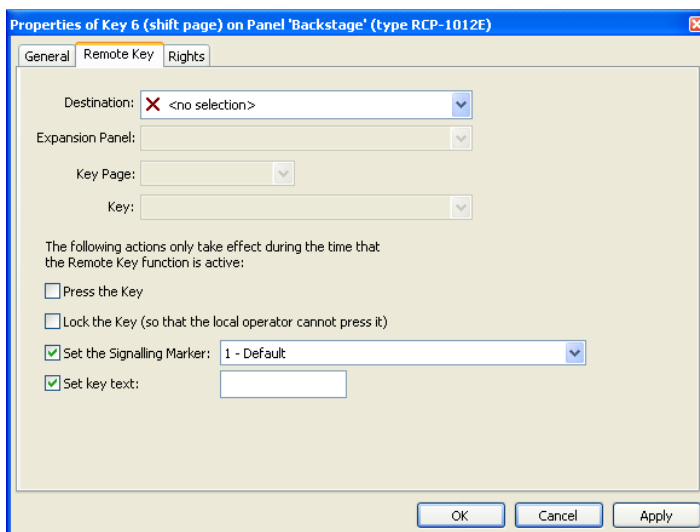


Figure 444: Remote Key tab

<b>Destination</b>	Selects the panel with the key to be controlled
<b>Expansion Panel</b>	Selects whether or not the key is on the main panel or an expansion panel
<b>Key Page</b>	Selects whether the key is on the main page or the shift page
<b>Key</b>	Selects the key to be controlled by key number and current display name. (Key numbers are counted from left to right and from top to bottom)
<b>Press the Key</b>	Activates the selected key (the key will be remotely controlled)
<b>Lock the Key (so that the local operator cannot press it)</b>	Locks the selected key on the panel
<b>Set the Signalling Marker</b>	Displays the selected marker above the key (Standard or user defined markers. See: <a href="#">9.8.7 Marker Definition</a> )
<b>Set key text</b>	Displays the entered text in the selected key, as long the Remote Key function is active. The existing text on the key will be overwritten temporary.

Figure 445: Table - Remote Key functions

9.16.11 Reply

The “Reply” command offers an easy-to-use call-back function for control panels. The last incoming call is automatically displayed in the reply key. “[Call to Conference](#)” calls do not normally appear in the reply key. The duration that calls are displayed can be adjusted (see: [9.8.4 Net Properties -> Port Settings](#)). Pressing the reply key always calls back the last destination that called, even if the key has switched back to displaying “Reply”. If the destination that called is already programmed on another panel key, the reply key will reflect the volume level previously set.

If in the “Net-Properties”-> “Port Settings” the “Reply-Key Timeout” is set to 24 hours, the last caller will remain displayed on the key until the call is answered. Afterwards, the key will revert to “Reply” in its display.

If the reply key is also set to “Scroll enable” (key properties, general tab), the last 20 calls can be accessed in chronological order by using the scroll function. (See: [8.20.4 Scroll Lists - operation from a panel](#))

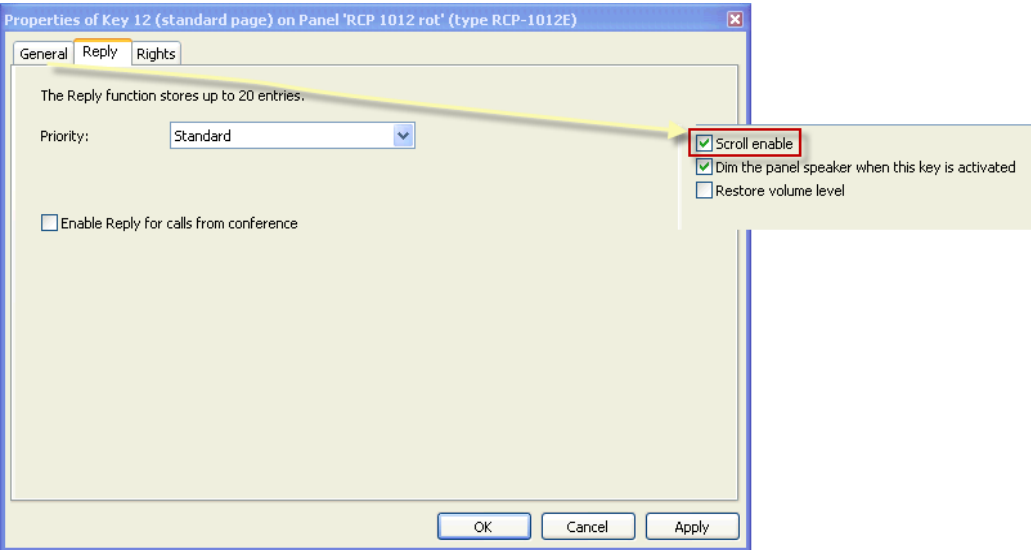


Figure 446: Reply tab

Priority	Sets the priority for reply calls; See: <a href="#">9.8.4 Net Properties -&gt; Port Settings</a>
Enable Reply for calls from conference	If this option is activated, ports that call using conference calls will also be displayed in the reply key

Figure 447: Table - Reply tab

### 9.16.12 Edit Conference

This function is only available on 1000 series control panels. The “*Edit Conference*” function allows the user to add and remove members to and from a conference, as well as assigning talk and listen privileges to these members. All conferences and members to be assigned must be available as keys on the user’s panel. See: [8.18 Configuring “Edit Conference”](#)

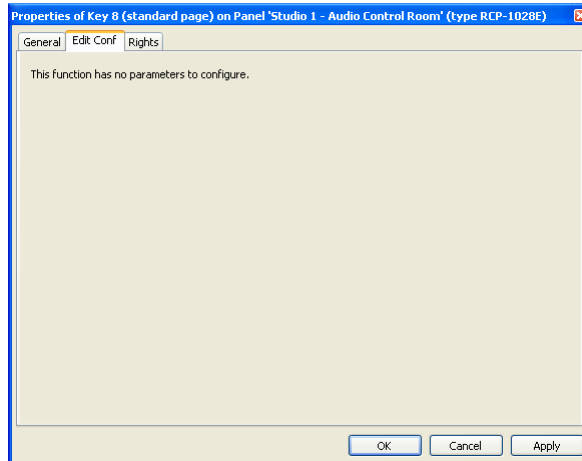


Figure 448: Edit Conference tab

The “*General Properties*” of the “*Edit Conference*” key should be set to “*Latching*” (with a short timeout) and without the “*Dim the panel speaker ...*” option activated.

### 9.16.13 Edit IFB

The „*Edit IFB*“- Function is only for panels of the 1000- and 2000series available. With the „*Edit IFB*“ - Function you can easily assign IFB-sources to IFBs directly on panels without using the Director software.

For further details about configuration and operation see [8.19 Configuration and Operation the „Edit IFB“- Function](#)

To use this function on a panel, you need to add the “*Edit IFB*”- function to an empty key of your panel. There are no further parameters to set up.

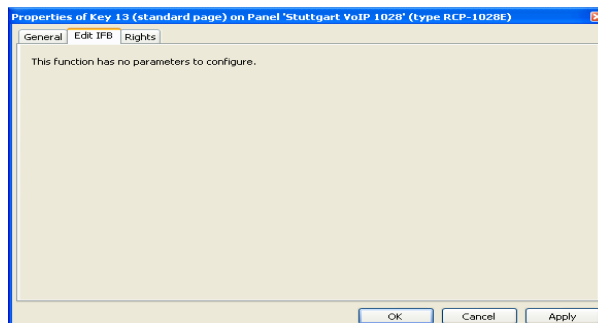


Figure 449: Edit IFB tab

9.16.14 Dim Panel Speaker

The “Dim Speaker” function allows the volume level of a particular control panel speaker to be reduced.

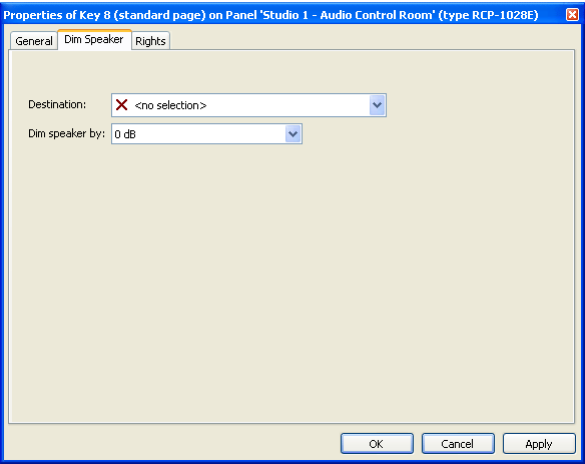


Figure 450: Dim Speaker tab

Destination	Selects the panel where the loudspeaker should be dimmed
Dim speaker by	Defines the dim value (in dB)

Figure 451: Table - Dim Speaker tab

### 9.16.15 Dim XP Level

The “*Dim XP-Level*” function allows a particular crosspoint in the matrix to be dimmed by a certain amount or muted.

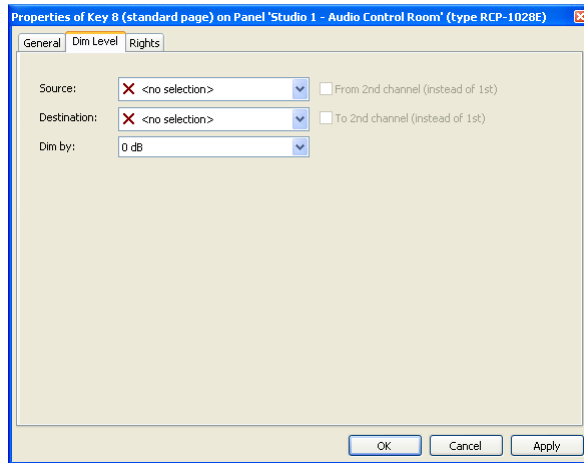


Figure 452: Dim Level tab

<b>Source</b>	Selects the crosspoint source
<b>Destination</b>	Selects the crosspoint destination
<b>Dim by</b>	Defines the amount of dimming (in dB)

Figure 453: Table - Dim Level tab

### 9.16.16 Beep Panel

The “*Beep Panel*” generates a beep tone at the destination panel or triggers a GPI contact for 4-wires. The function is identical to the “*Beep*” function key + destination on a panel.

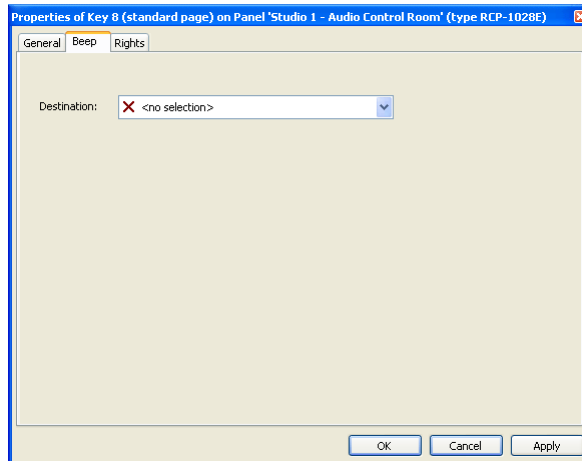


Figure 454: Beep tab

Destination	Select the port to be beeped
-------------	------------------------------

### 9.16.17 Telephone Dial Keypad / Display

The “Keypad” function allows the creation of a telephone keypad on a control panel without a dedicated hardware keypad and also provides other telephone functions. For further details, see: [9.23.9 Setting up a panel to use a CONNECT/SIP codec](#)

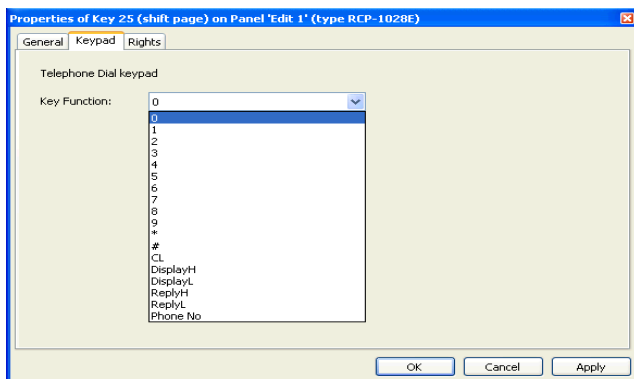


Figure 455: Keypad tab

The key function can be selected in the drop-down menu.

<b>0 - #</b>	Selects a keypad digit to assign. Only one number can be assigned per key
<b>CL</b>	Clear – each key press deletes the previous digit
<b>DisplayH</b>	Displays the telephone number entered. The digits “scroll” on to the key as they are dialed. If the telephone number has more than 8 digits, they “scroll” on to the <i>Display H</i> key
<b>DisplayL</b>	<p>Displays the telephone number entered. The digits “scroll” on to the key as they are dialed. The <i>Display L</i> key shows the last 8 digits of the number dialed</p> <p>Numbers can also be entered manually by pressing the corresponding level control and scrolling</p> <p>Pressing the display key dials the number entered (comparable to Dial/Off). Any preset telephone numbers will be temporarily ignored and the manually entered telephone number will be dialed</p>
<b>ReplyH</b>	Shows the first 8 digits of an incoming telephone number (if available)
<b>ReplyL</b>	<p>Shows the last 8 digits of an incoming telephone number (if available). The number of the last caller will always be displayed.</p> <p>Pressing the key dials the last incoming telephone number (Dial/Off)</p>
<b>Phone No</b>	Allows the entry of a telephone number that is dialed when the key is pressed. (This function is perfect for multiple use in scroll lists to create a telephone book)

Figure 456: Table - Keypad tab



### 9.16.18 Telephone Dial / Hang up

The “*Dial*” function is used in conjunction with CONNECT SOLO or CONNECT DUO. It enables a control panel to call a preset telephone number from the configuration.

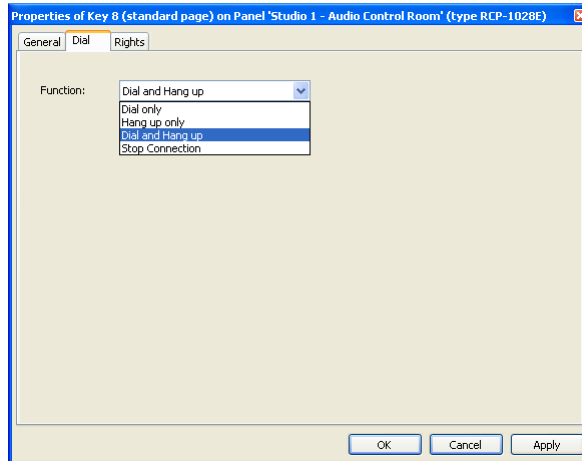


Figure 457: Dial tab

<b>Dial only</b>	With this function it is possible to dial a preset telephone number. The command can only be used in combination with a separate “ <i>Call to</i> ” key that is set to a telephone port
<b>Hang up only</b>	It is possible to end a telephone connection with this function. The command can only be used in combination with a separate “ <i>Call to</i> ” key that is set to a telephone port
<b>Dial and Hang up</b>	Combines the functions “ <i>Dial only</i> ” and “ <i>Hang Up only</i> ” in one key. The command can only be used in combination with a separate “ <i>Call to</i> ” key that is set to a telephone port
<b>Stop Connection</b>	Allows a remote panel connected via ISDN to break the connection. This command is only available on remote panels that are connected using a CONNECT DUO.

Figure 458: Table - Dial functions

### 9.16.19 Logic

The “*Logic*” function assigns a Logic Source to a key, Vox or GPI. A logic source can be assigned any number of times within the system. See: [8.21 Logic Functions](#).

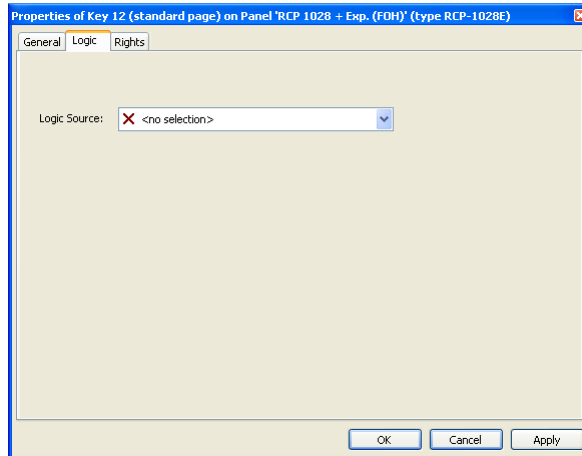


Figure 459: Logic tab

### 9.16.20 Kill Partyline Mic

The “*Kill Partyline Mic*” offers a way to shut off the microphones on a connected Performer partyline system. The function only works if the partyline is a member of a conference and the conference key is also programmed on the control panel. For example, to kill the mikes on active C3 beltpacks the “*Kill Mic*” key and the key for the corresponding conference must be pressed at the same time.

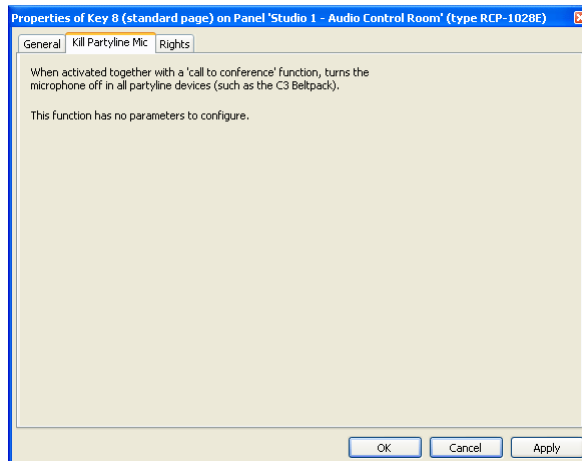


Figure 460: Kill Partyline Mic tab

To operate this function with only one finger, it is useful to set the „*Kill Mic*“ - key as “*Latching*” with a **Timeout**.

When you now activate the „*Mic Kill*“ - key, all keys with an active “**Call to Conference**”-function will show a flashing marker as long the timeout is set. Now press the key you want to switch off all microphones. All mikes of the Partyline(s) in this conference will be switched off.

**Attention:** Always all mikes for both channels of the complete Partyline will be switched off. It is not possible to just switch of the mic for only one channel of the Partyline.

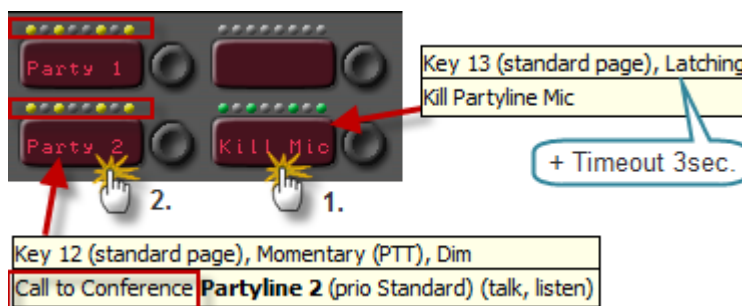


Figure 461: Kill Partyline Mic - Panel operation

## 9.16.21 Autolisten Off

The “Autolisten Off” function turns an active Autolisten off. The “AL OFF”- key and the corresponding “Call to...”- key that has “Autolisten” activated must be pressed at the same time.

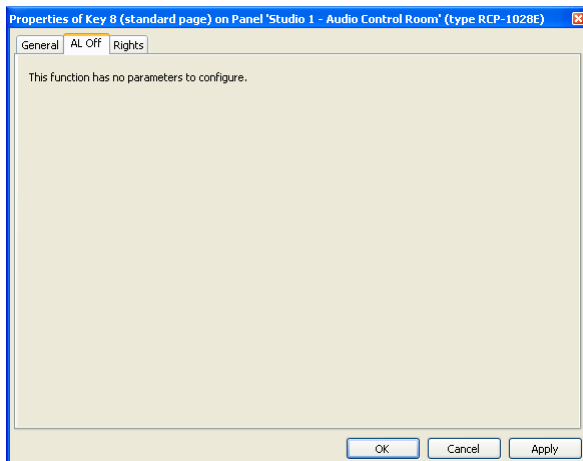


Figure 462: AL Off tab

To operate this function with only one finger, it is useful to set the „AL Off“ - key as “Latching” with a Timeout.

When you now activate the „AL Off“ - key, all keys with an active Autolisten function will show a flashing marker as long the timeout is set. Now press the key that should stop the Autolisten function.

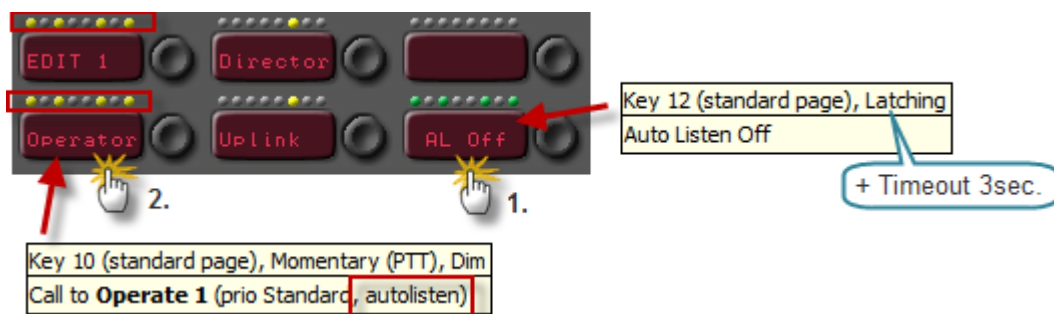


Figure 463: Autolisten Off - Panel operation

### 9.16.22 Set Input/Output Gain

For every 4-wire in the system you have the choice of how you would like to control the I/O gains (**Properties > Gain**). You can choose whether the gain should only be set in the Director configuration or whether it can also be adjusted from a control panel. To adjust the input and output gains from a control panel, select “Set the Input/Output Gain function from a panel...” on the 4-wire port that the panel should control.

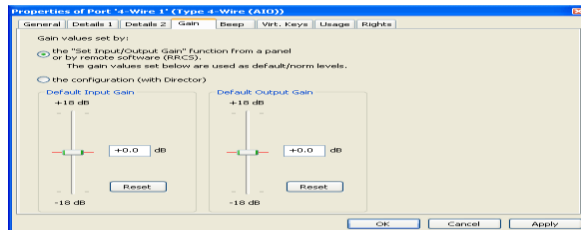


Figure 464: Set Input/Output Gain of a port to Panel control / RRCS control

**Attention:** The Set Input/Output Gain function is only available on 1000 series control panels because the function requires keys with separate left and right contacts. This key type is currently only available on 1000 series control panels.

The “Set Input/Output Gain” function can be configured in two different ways.

#### Version 1: Set Input/Output Gain of a particular port

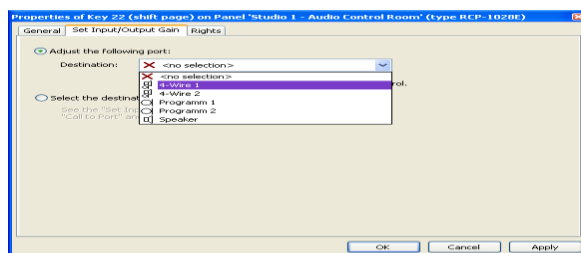


Figure 465: Set Input/Output Gain - “Adjust following Port”

In this version, the key is assigned to a specific port. The key display will show the name of the port, but with a different marker. It is recommended to set the key to “Latching” (possibly with a timeout) and to deactivate the “Dim” option.

To adjust the input gain of the 4-wire, press the left side of the key. The key will now show “In Gain” and the volume LED will begin to flash. As soon as the encoder next to the key is turned, the gain level will change with the current gain displayed in dB. To adjust the output gain, press the right side of the key. The display will change to “Out Gain”. The volume LED will likewise correspond to the approximate gain level.



Figure 466: Operating “Set In/Output Gain” on the panel (direct access)

**Version 2:** Another way to program this command uses a special function key. Pressing the “I GAIN O” key switches all “Call to” and “Listen to” 4-wire keys, that are available for gain control, to gain adjust mode.

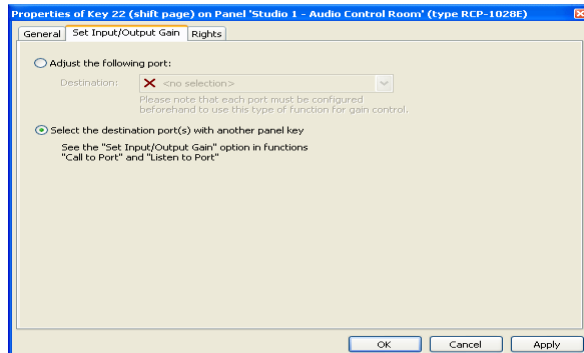


Figure 467: Set I/O gain - Set Input/Output Gain with a dedicated function key

Either the input or output gain can be changed, depending on whether the “I GAIN O” key was pressed on the left or right side. The respective gain levels will be displayed both in dB and by the position of the volume control LED. To enable one handed operation, set the Set Input/Output Gain key to “Latching” with a short timeout.

<b>Adjust the following port</b>	Defines this key as the I/O-Gain control key for the selected 4-wire port (Key mode Latching, short Timeout, no Dim).
<b>Select the destination port(s) with another panel key</b>	<p>Defines the key as a function key that toggles 4-wire ports between Call/Listen and Gain Adjust (Key label: “I Gain O”).</p> <p>Suggested key behaviour: Latching with a short timeout, no Dim.</p> <p>If the key is pressed on the left side (input) or right side (output), the volume LEDs of all of the 4-wire keys on the panel that are available for gain adjust will begin to flash. The key displays will show their port names. Turning the corresponding encoders will adjust the gain with the current gain shown in dB (range: mute, -18dB to +18dB). Pressing the encoder toggles between mute and the last gain level set. If you double click on the master volume control when in Gain Adjust Mode, all of the 4-wire gains on the panel will be set to the norm level (independent of whether the input or output gain had been selected). A second press on the “I Gain O” key returns the 4-wire keys to their original “Call” or “Listen”- function.</p>

Figure 468: Table - Set I/O gain functions



Figure 469: Operating I/O gain on a panel (indirect access)

9.16.23     **Sidetone**

This function key is used to activate the “*Sidetone*” feature on a panel and to control the sidetone level. “*Sidetone*” is the volume level at which users hear themselves (useful in headset mode). Once the command has been placed on a panel key and the microphone is active, the panel’s audio will also be routed back to its own output. The level can be controlled using the rotary encoder next to the “*Sidetone*” key. Pressing the “*Sidetone*” key allows users to talk to themselves so that they can adjust their own “*Sidetone*” levels.

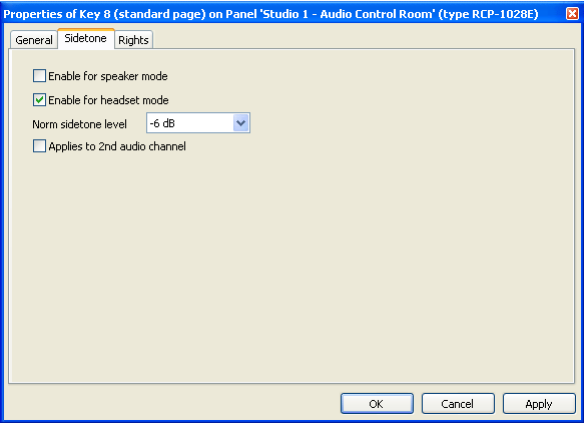


Figure 470: Sidetone tab

<b>Enable for speaker mode</b>	Activates sidetone in speaker mode (only useful if the speaker mode has been routed to the headset in the Audio Patch)
<b>Enable for headset mode</b>	Activates sidetone in headset mode
<b>Norm sidetone level</b>	Initial sidetone level when the command is placed on a key
<b>Applies to 2<sup>nd</sup> audio channel</b>	Activates the sidetone on the 2nd audio channel of the panel (if available)

Figure 471: Table - Sidetone functions

### 9.16.24 Send String

This function key is used to send a data string of up to 256 characters to RRCS (Riedel Router Control Software). When activated, the command sends the data string to a third party control system to activate a particular function. For more information, please refer to the RRCS documentation.

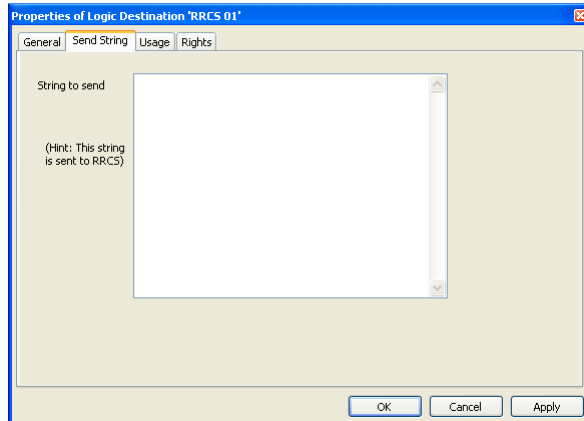


Figure 472: Send String tab



## 9.17 Group Properties

The “properties” of a group contains all of the group settings and information. To create a new group, click the [Add Group...](#) button in the [Groups + Confs](#) tab of the [Navigation Bar](#).

### 9.17.1 Group “General” tab

The “General” tab sets basic parameters such as names and GPIOs assignments to the group.

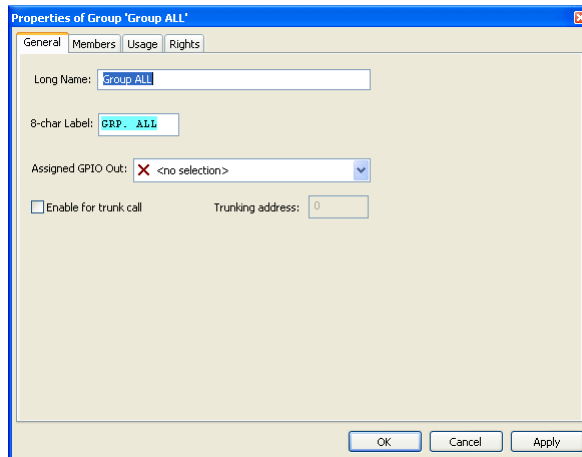


Figure 473: Group Properties - General tab

<b>Long Name</b>	Unique group name used in Director (up to 32 characters)
<b>8-char Label</b>	Group name that appears on key displays (max. 8 characters)
<b>Assigned GPI Out</b>	Allows the assignment of a GPIO that is always triggered when this group call is activated
<b>Enable for trunk call</b>	Allows the group to be used between trunked systems; see <a href="#">Trunking</a>
<b>Trunking address</b>	Entry of a unique trunking address. To use a group in a trunked system, the groups in the systems must have the same trunking address; see <a href="#">Trunking</a>

Figure 474: Table - Group Properties - General functions

## 9.17.2 Group “Members” tab

The “Member” tab manages the list of members that makes up the group.

Group members can be added by clicking the “Add Port...” button and then selecting members from a drop down menu. Members can also be dragged into the group from either the network list or the port list using Drag & Drop. By default, this will add the 1<sup>st</sup> audio channel of the port to the group. If you want to add the 2<sup>nd</sup> audio channel of a port, the member must be added using the  button and selecting the “2<sup>nd</sup> Channel” option. Selected members can be deleted from the group using the  button.

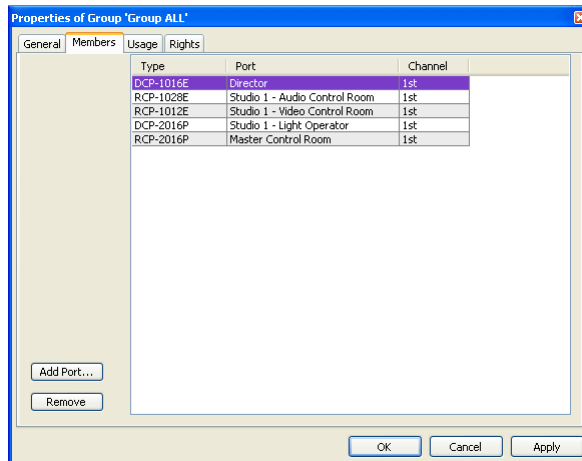


Figure 475: Group Properties - Members tab

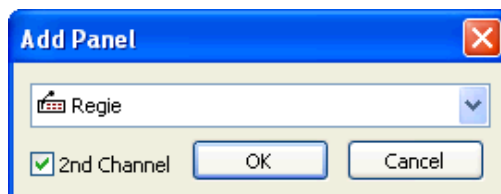


Figure 476: Group Properties - “Add Port...” window

### 9.17.3 Group “Usage” tab

The “Usage” tab lists detailed information on all locations that have a “Call to Group” command to this group. The port name and the exact location of the group call are shown. If you double click on an entry in the list, it will open the corresponding properties of the command on that port so that you can make adjustments.

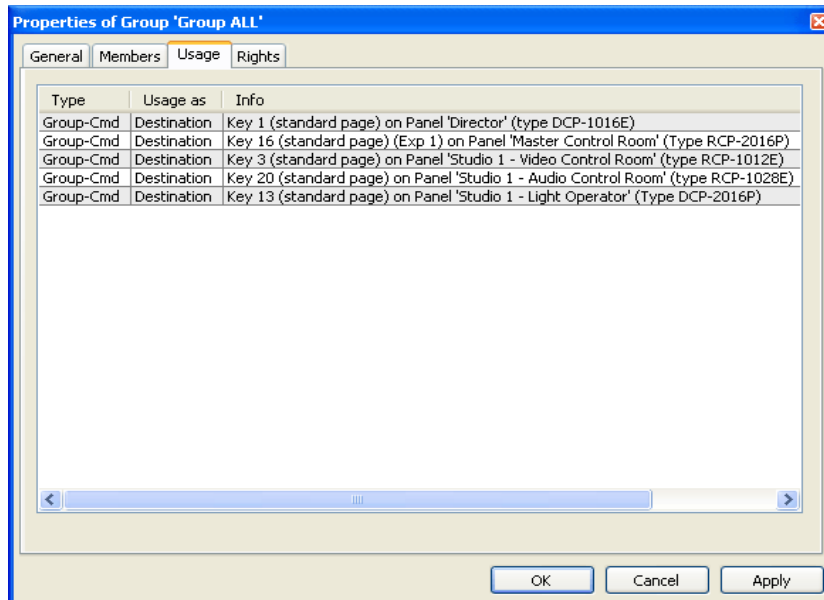


Figure 477: Group Properties - Usage tab

Corresponding user rights can be managed in the “Rights” tab. A “Rights” tab is found in all “Properties” windows. See: [9.22 User Rights](#)

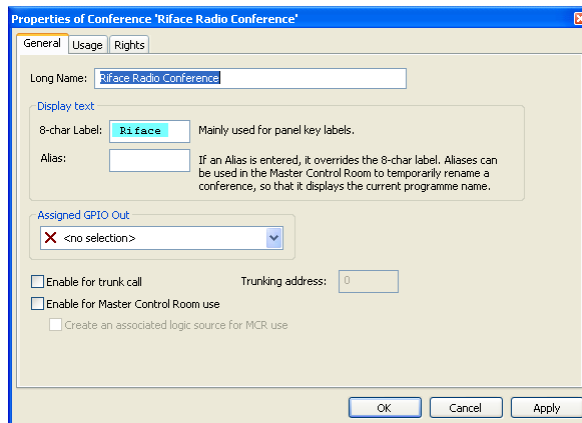
Figure 478: Group Properties - Rights tab

## 9.18 Conference Properties

In the properties of a conference you can define basic conference parameters as well as see a list of all conference members.

### 9.18.1 Conference “General” tab

The name of the conference is entered in the “General” tab. The conference can also be assigned a GPIO contact. In addition, this tab can be used to unlock the conference for use in trunked systems or with the “**MCR**” or “**Events**” software add-ons.



The screenshot shows the 'Properties of Conference' dialog box with the 'General' tab selected. The 'Long Name' field contains 'Riface Radio Conference'. The '8-char Label' field contains 'Ri face'. The 'Alias' field is empty. The 'Assigned GPIO Out' dropdown shows '<no selection>'. The 'Enable for trunk call' checkbox is checked. The 'Trunking address' field contains '0'. The 'Enable for Master Control Room use' checkbox is unchecked. The 'Create an associated logic source for MCR use' checkbox is unchecked. The dialog has 'OK', 'Cancel', and 'Apply' buttons at the bottom.

Figure 479: Conference Properties - General tab

<b>Long Name</b>	Unique conference name used in Director (up to 32 characters)
<b>8-char Label</b>	Local conference name that is displayed on keys (max. 8 characters)
<b>Alias</b>	As soon as it is entered, this 8 character display name temporarily overrides the “8-char Label”. If the Alias name is deleted, the “8-char Label” will again be displayed on panel keys
<b>Assigned GPI Out</b>	Allows a GPIO to be assigned to a conference. The GPIO will always be triggered as soon as a member speaks into the conference
<b>Enable for trunk call</b>	Activates the conference for use in trunked systems. See: “ <b>Trunking</b> ”
<b>Trunking address</b>	Assigns a unique trunking address. To use a conference in a trunked system, the conferences in the systems must have the same trunking address; see <b>Trunking</b>
<b>Enable for Master Control Room use</b>	Allows the conference to be used in the “MCR” software add-on. See: “ <b>13 Master Control Room Software</b> ”
<b>Create an associated logic source for MCR use</b>	A logic source will be automatically created for this conference. This is required to control the “MCR” software add-on from a control panel

Figure 480: Table - Conference Properties - General functions

### 9.18.2 Conference “Usage” tab

The “Usage” tab lists detailed information on all locations that have a “Call to Conference” command to this conference and who are thereby conference members. The port name, the exact location of the conference call, and conference privileges (talk, listen) are shown. If you double click on an entry in the list, it will open the corresponding properties of the command on that port so that you can make adjustments.

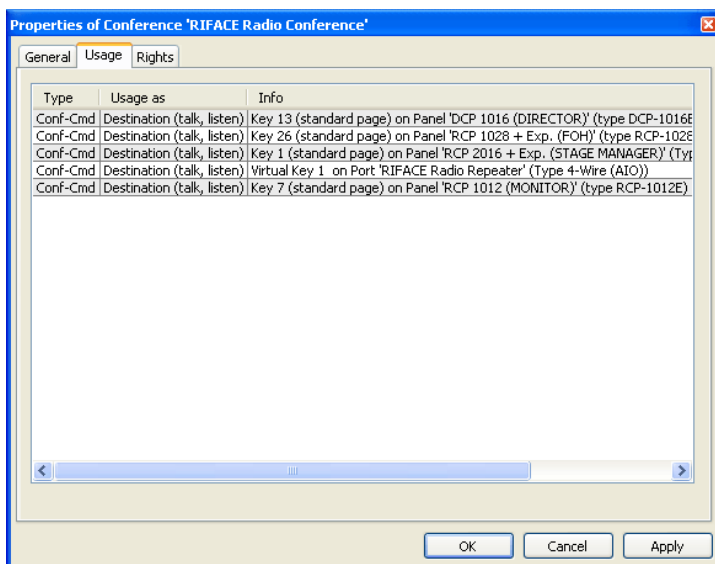


Figure 481: Conference Properties - Usage tab

### 9.18.3 Conference “Rights” tab

Corresponding user rights can be managed in the “Rights” tab. A “Rights” tab is found in all “Properties” windows. See: [9.22 User Rights](#)

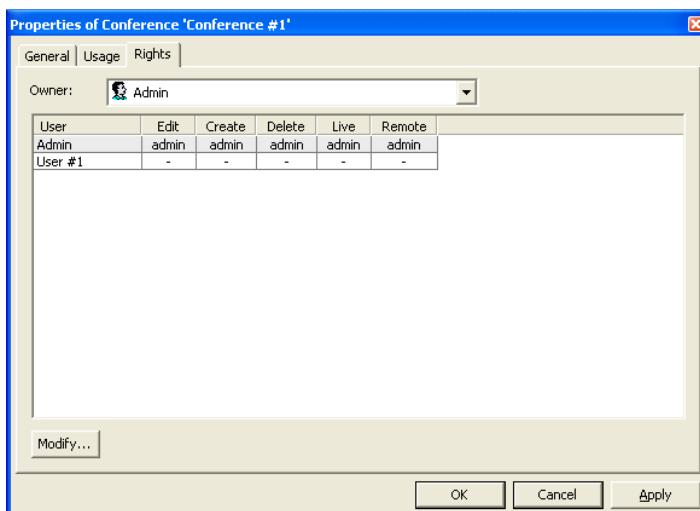


Figure 482: Conference Properties - Rights tab

## 9.19 Scroll List Properties

The properties of a scroll list allow individual functions to be added to the list as well as offering an overview of who can use the list. Double click on a scroll list in the “*Scroll List*” tab of the Navigation Bar to open the list’s properties.

### 9.19.1 Scroll List “General” tab

The “*General*” tab allows all scroll list functions and their options to be defined and changed. The list can also be given a unique name. For details on creating a scroll list see: “[8.20 Creating and Managing Scroll Lists](#)”

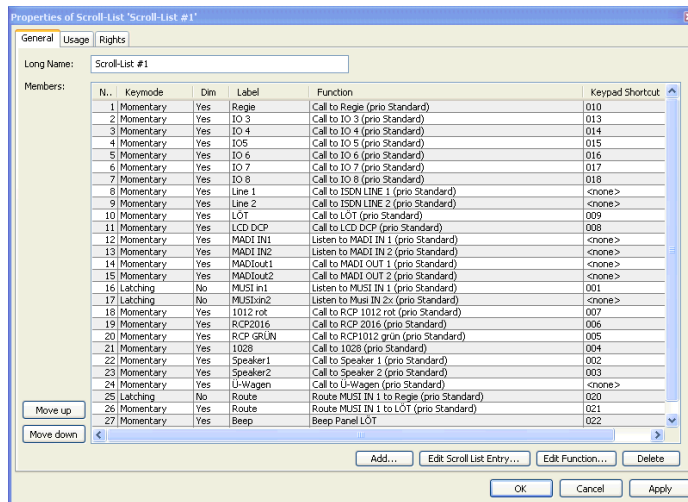


Figure 483: Scroll List Properties - General tab

<b>Long Name</b>	Unique scroll list name used in Director (up to 32 characters)
<b>Members</b>	All scroll list functions and details are defined in this window
<b>Move up</b>	Changes the order of scroll list entries. Select an entry from the list and click the “Move up” button to move the entry one position higher with each mouse click
<b>Move down</b>	Changes the order of scroll list entries. Select an entry from the list and click the “Move down” button to move the entry one position lower with each mouse click
<b>Add...</b>	Adds a new function. The same functions are available that can normally be used on control panels
<b>Edit Scroll List Entry...</b>	Allows a scroll list entry to be edited. This includes changing the name, key mode, etc. (see details below)
<b>Edit function...</b>	This button allows the selected function to be customized. The available options for functions are identical with those that are normally available when the function is programmed to a panel key
<b>Delete</b>	Deletes the selected entry from the Scroll List

Figure 484: Table - Scroll List Properties - General functions

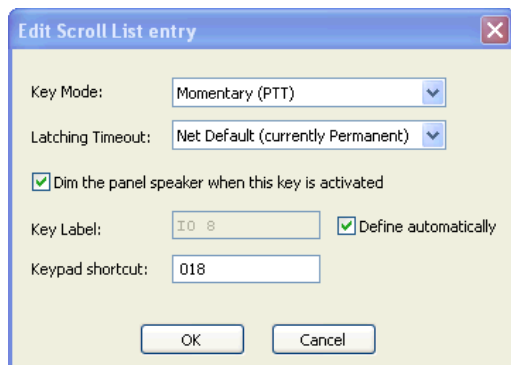


Figure 485: Scroll List Properties - Edit Scroll List entry

<b>Key Mode</b>	Defines the key mode that the function should use: "Auto", "Momentary" or "Latching"
<b>Latching Timeout</b>	If the key mode is set to "Auto" or "Latching", an additional timeout can be added. After the timeout period, the key will automatically be deactivated
<b>Dim the panel speaker ...</b>	Defines whether the control panel loudspeaker should be dimmed when the function is active
<b>Key Label</b>	If the "Define automatically" option is activated, the default name for the function will be used on the key. When deactivated, a custom name of up to 8 characters can be assigned.
<b>Keypad shortcut</b>	A unique ID number can be assigned for each scroll list entry. This allows the entry to be retrieved by using a telephone keypad

Figure 486: Table - Scroll List Properties - Edit Scroll List functions



### 9.19.2 Scroll List “Usage” tab

All the panels that can access this scroll list can be seen the “Usage” tab. Double clicking on an entry opens the properties of the selected control to allow a different list to be assigned.

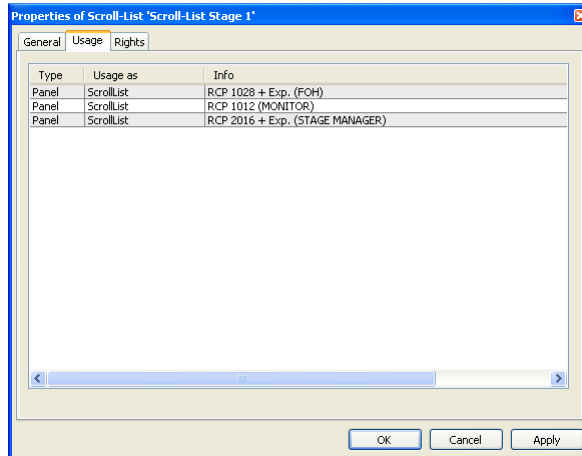


Figure 487: Scroll List Properties - Usage tab

### 9.19.3 Scroll List “Rights” tab

Corresponding user rights can be managed in the “Rights” tab. A “Rights” tab is found in all “Properties” windows. See: [9.22 User Rights](#)

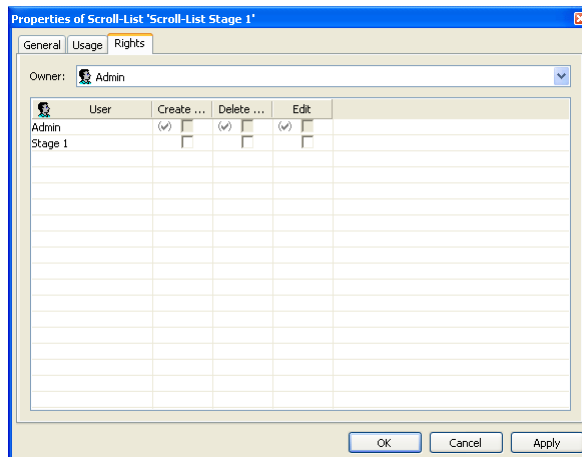


Figure 488: Scroll List Properties - Rights tab

## 9.20 GPI In Properties

The default parameters for the GPI Input can be set in the properties tab. Choose a GPI Input from the “GPIO” tab in the Navigation Bar. Double click on the GPI or right mouse click and select “Properties”.

### 9.20.1 GPI In “General” tab

The name and type of GPI Input are entered in the “General” tab.

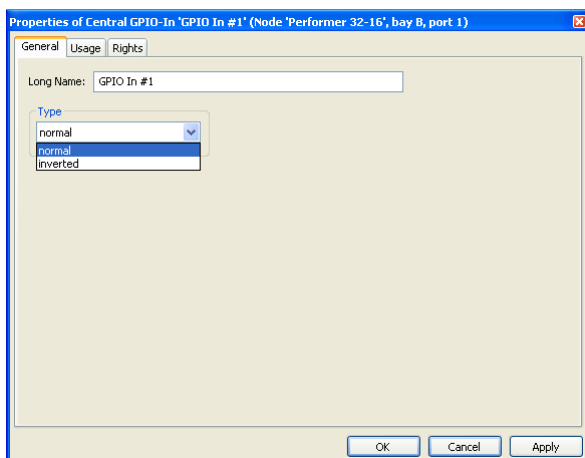


Figure 489: GPI In Properties - General tab

<b>Long Name</b>	Unique name used in Director (up to 32 characters)
<b>Type</b>	Defines the behaviour of the input. Select whether an incoming external signal switches the input to active (normal) or inactive (inverted)

Figure 490: Table - GPI In Properties - General functions

The “Usage” tab is always empty for GPI Inputs, because no member of the system can activate an input.

## 9.20.2 GPI In “Rights” tab

Corresponding user rights can be managed in the “Rights” tab. A “Rights” tab is found in all “Properties” windows. See: [9.22 User Rights](#)

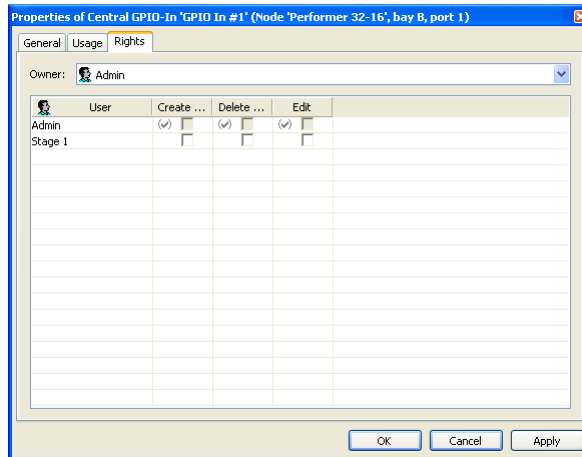


Figure 491: GPI In Properties - Rights tab

## 9.21 GPI Out - Properties

The default parameters for the GPI Output can be set in the properties tab. Choose a GPI Output from the “GPIO” tab in the Navigation Bar. Double click on the GPI or right mouse click and select “Properties”.

### 9.21.1 GPI Out “General” tab

The name and type of GPI Output are entered in the “General” tab.

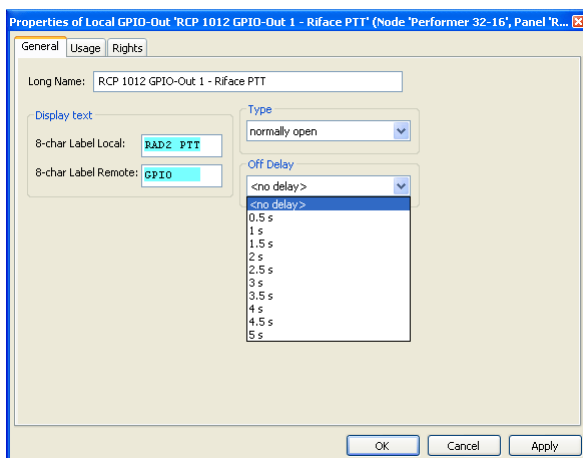


Figure 492: GPI Out Properties - General tab

<b>Long Name</b>	Unique name used in Director (up to 32 characters)
<b>8-char Label Local</b>	8 character name for the GPI out used on key displays
<b>8-char Label Remote</b>	8 character name for the GPI out for use in trunked system (not supported at this time)
<b>Type</b>	Type of GPI output (when not activated). You can choose between normally open and normally closed
<b>Off Delay</b>	The relay can be assigned a release delay time. Enter the amount of time the output should remain active after the GPIO function is turned off

Figure 493: Table - GPI Out Properties - General functions

### 9.21.2 GPI Out “Usage” tab

The “Usage” tab lists all ports, groups and conferences that can activate this GPI.

Double click on an entry to edit the function directly.

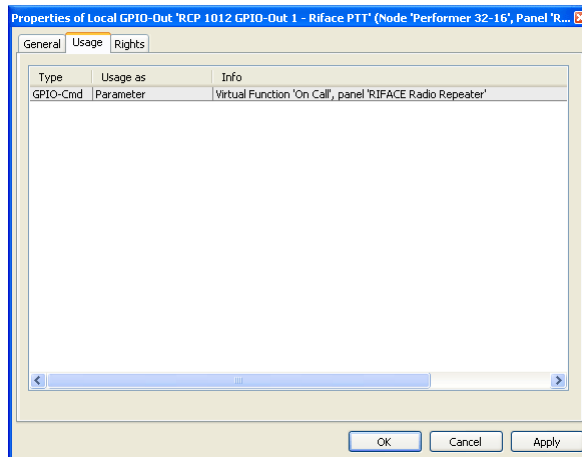


Figure 494: GPI Out Properties - Usage tab

### 9.21.3 GPI Out “Rights” tab

Corresponding user rights can be managed in the “Rights” tab. A “Rights” tab is found in all “Properties” windows. See: [9.22 User Rights](#)

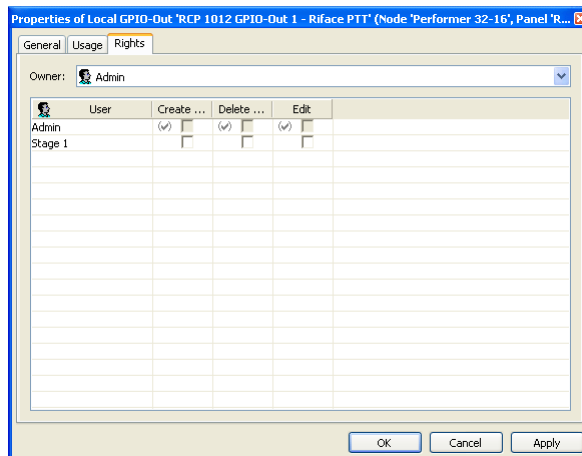


Figure 495: GPI Out Properties - Rights tab

## 9.22 User Rights

The “Users” tab, found on the Navigation Bar, allows Director Users to be created and managed.

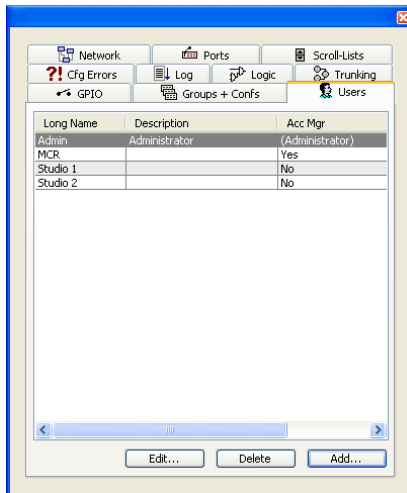


Figure 496: Users tab

New users can be added using the  button. However, this is only possible if the current user is the administrator or has “Account Manager” rights. Double click on a user or press the  button to open the properties of the user.

### 9.22.1 User “General” tab

The “General” tab of the User Properties manages the name, password and basic rights for the user.

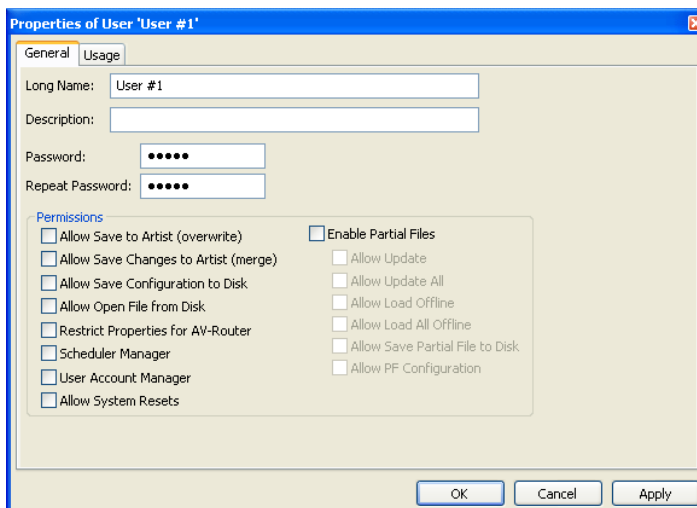


Figure 497: User - General tab

<b>Long Name</b>	Unique name used in Director
<b>Description</b>	Additional field to enter a user description
<b>Password</b>	Enter a password for the user
<b>Repeat Password</b>	Re-enter the password

Users can be assigned the following general rights:

<b>Allow Save to ARTIST (overwrite)</b>	Allows the use of the "Save to Artist" button
<b>Allow Save Changes to ARTIST (merge)</b>	Allows changes to be sent to the Artist system
<b>Allow Save Configuration to Disk</b>	Allows the configuration in Director to be saved to the PC
<b>Allow Open File from Disk</b>	Permits configuration files to be opened from the hard disk
<b>Restrict Properties for AV-Router</b>	Restricts access to the AV-Router properties (if the AV-Router has been added)
<b>Scheduler Manager</b>	Allows the user to create and edit entries in Scheduler/Events (if available in Director)
<b>User Account Manager</b>	Allows this user to create new users. New users can have up to the same rights as the user that created them. The "Acc Mgr" field in the "Users" tab will display "Yes"
<b>Allow System Resets</b>	Allows the user, to reset the system
<b>Enable Partial Files</b>	Allows partial configuration to be loaded (if Partial Files has been added to Director)
<b>Allow Update</b>	Activates the "Update" button in the Partial Files Tools XY Matrix (if Partial Files has been added to Director)
<b>Allow Update All</b>	Activates the "Update All" button in the Partial Files Tools XY Matrix (if Partial Files has been added to Director)
<b>Allow Load Offline</b>	Activates the "Load Offline" button in the Partial Files Tools XY Matrix (if Partial Files has been added to Director)
<b>Allow Load All Offline</b>	Activates the "Load All Offline" button in the Partial Files Tools XY Matrix (if Partial Files has been added to Director)
<b>Allow Save Partial File to Disk</b>	Allows Partial Files to be saved to the PC
<b>Allow PF Configuration</b>	Allows the configuration of Partial File Event Triggers

Figure 498: Table – User restrictions

In addition, each "Properties" window in Director has a "Rights" tab where individual user rights can be assigned for that object.

User rights are organized hierarchically. This means that the user rights apply as well to all lower level objects on the system configuration tree. Individual objects in the configuration can of course have access rights to them later removed.

Normally, rights are only present that were previously given at a higher level unless they are manually added at the lower level.

The user rights hierarchy levels are:

- Web
- Net
- Node
- Port
- Key / Virtual Function

For example, you can give another user rights to a complete node, only certain panels or particular keys. This is dependent on which hierarchy level you assign rights to the user. Rights to levels below that level are automatically granted.

To change user rights, open the *Properties* window at the desired hierarchy level. Rights can be managed in the **Rights** tab.

Only the administrator cannot have rights taken away. The administrator always has unlimited access to all functions and objects in the configuration.

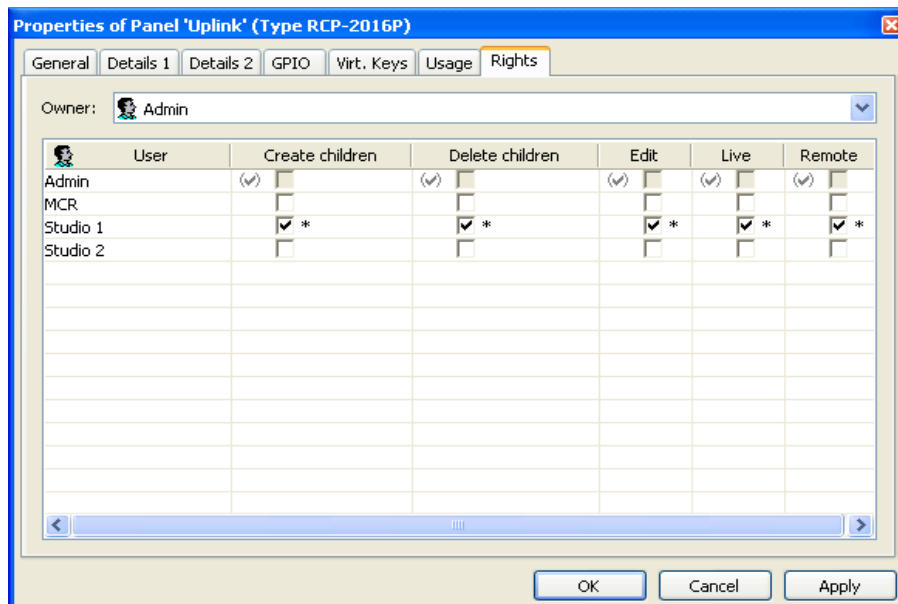


Figure 499: Panel Properties - Rights



The following columns are available in the *Rights* window

<b>Owner</b>	Displays the user who “owns” or created the object. The current user can change the owner of an object if he/she has the necessary rights. The new owner is automatically granted the same rights in regards to the object
<b>USER</b>	List of available users
<b>Create children *</b>	Allows the current user to assign user rights to the marked users up to the amount of rights that he/she possesses
<b>Delete children *</b>	Allows the current user to remove rights from the marked users
<b>Edit</b>	Allows the marked users to edit the function (including all lower objects in the rights hierarchy)
<b>Live</b>	Allows the marked users to open the Live States tab (including for all lower objects in the rights hierarchy. For example, all ports on Node 2)
<b>Remote</b>	Allows the marked users to open the Remote Control tab (including for all lower objects in the rights hierarchy. For example, all ports on Node 2)

\* These options are not available in the lowest hierarchy levels, for example at the key level

Figure 500: Table - Panel Properties - Rights functions

If rights are changed then the changes will be marked with a “\*”. This shows that the changes have not yet taken effect. As soon as either the  or the  button is pressed the “\*” disappears.

Previously assigned rights are marked with a (✓).

If users attempt to configure objects without the necessary user rights they will see the following error message:

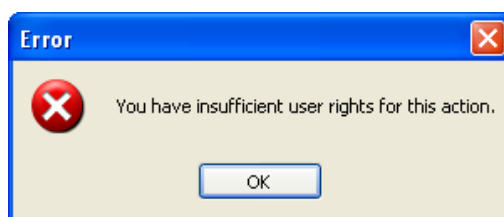


Figure 501: User rights error message

### 9.22.2 User “Usage” tab

The “Usage” tab on a user shows which special functions, such as “Master Control Room”, the user can use.

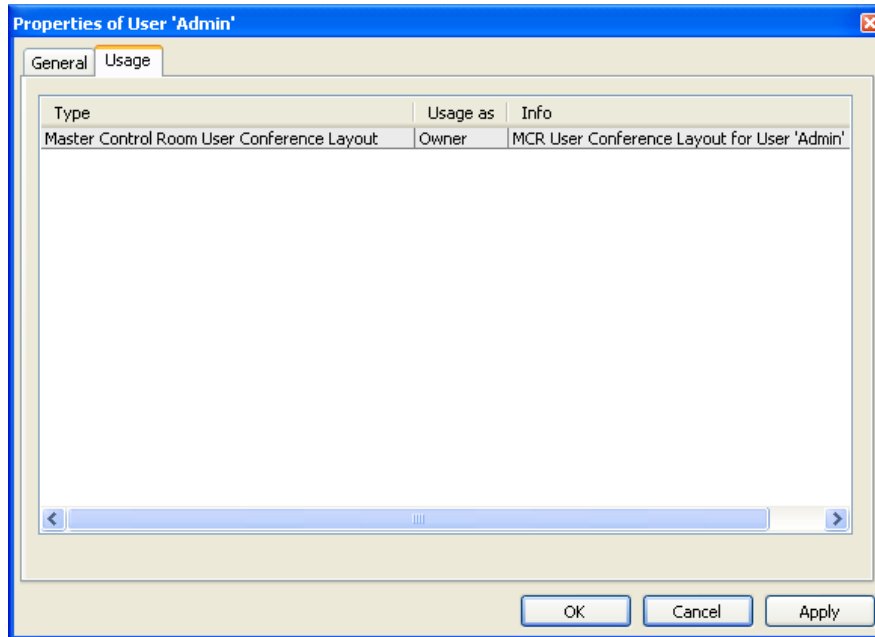


Figure 502: User Properties - Usage

## 9.23 Setting up CONNECT Codecs and Remote Panels

The Artist product range currently offers 4 types of codec interfaces:

- CONNECT DUO
- CONNECT SOLO
- CONNECT IP
- CONNECT IPx2 / CONNECT IPx8

All codec's are delivered with their own configuration software for basic setup and stand alone use. The individual software packages are not described in this manual. Further information can be found on the installation CD that was delivered with the codec.

The use of the CONNECT IP codec is completely transparent. This means that no configuration in Director is required.

**Attention: Do not mix up the Connect IP with the new Riedel CONNECT IPx2 and x8. This Interfaces need to be configured via the Director. For details see the corresponding manual for this product.**

The configuration procedure for CONNECT DUO and CONNECT SOLO is identical. The only difference is that CONNECT DUO offers the possibility to remote a control panel over ISDN. In the configuration instructions below, CONNECT DUO is used as an example since the operation of CONNECT DUO and CONNECT SOLO from a panel is identical.

The following instructions apply only to when a codec is connected digitally to a CAT5 or an AES card. This type of connection allows the codec's to be used and configured by Artist.

If a codec is connected analog to an AIO card, the codec functions like a normal 4-wire port. An intelligent connection to the matrix is not possible in this case. The codec must be controlled directly on the device itself.

## 9.23.1 Adding a codec to the configuration

To add a new codec to a configuration, open the configuration view of a node. To do so, double click on the node or select the node in the “Network” tab of the [Navigation Bar](#).

Select the CAT5 or AES card that the codec will be connected to.

Click on a port and choose the device type “Telephone codec” from the list.

If possible, you should connect the codec to an odd numbered port. If the next port is unassigned, it will be automatically reserved for the codec's 2<sup>nd</sup> audio channel. This allows both of the available telephone lines on the codec to be used at the same time.

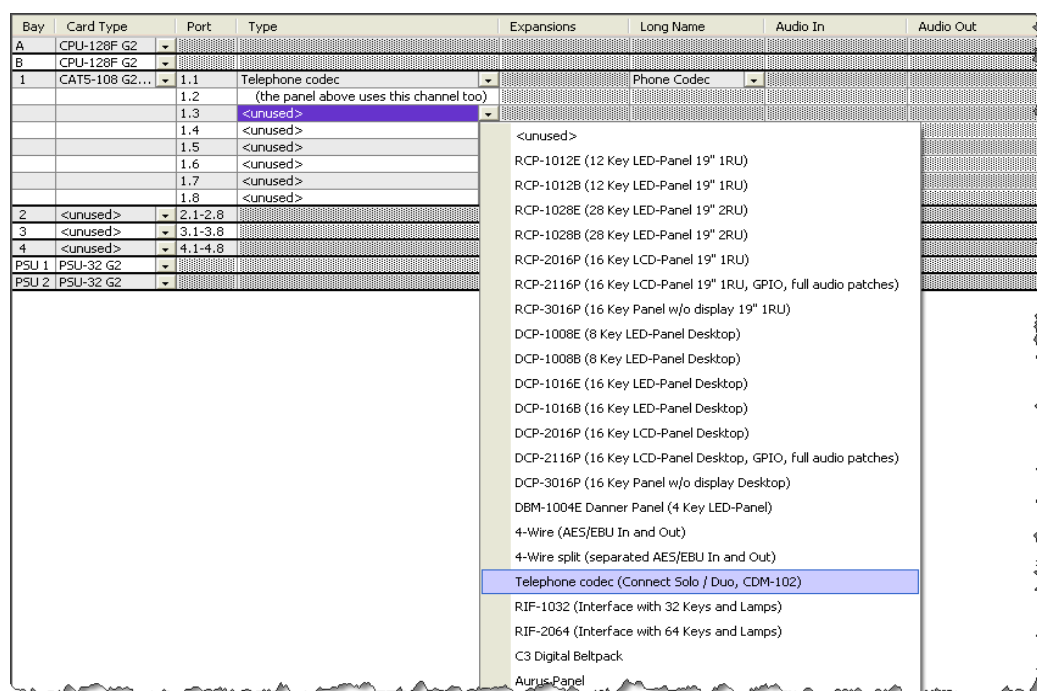


Figure 503: CONNECT Solo/Duo - Adding a codec

For details on setting up the codec for connection to an Artist system please refer to the codec's instruction manual.

After the codec has been added to the node configuration, it appears in the network list with a [ISDN](#) symbol. It also appears in the port list.

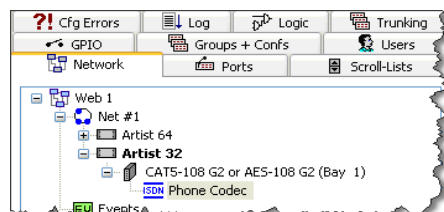


Figure 504: CONNECT Solo/Duo - Codec in the node configuration

9.23.2 General tab

To adjust the codec’s properties, right click on the codec in the port list or network list and select “*Properties*”.

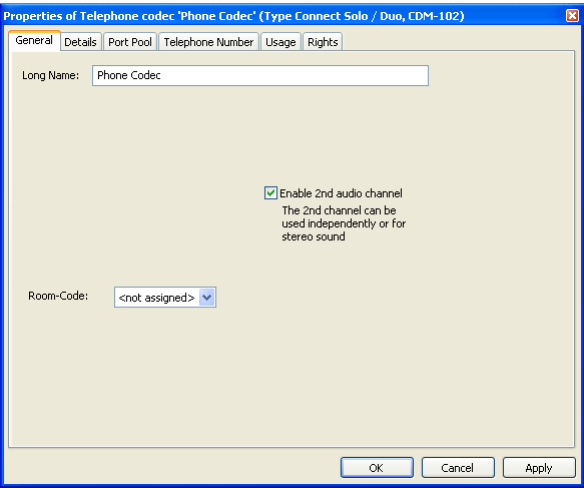


Figure 505: CONNECT Solo/Duo - Properties of Telephone Codec – General tab

Long Name	Unique name used in Director (up to 32 characters)
Room-Code	Allows a Room Code to be assigned to avoid feedback when using conferences on ports that are physically near each other
Enable 2nd audio channel	Activates the 2nd audio channel (This function is only available, if an odd numbered port is used and the next port is free. As of Director 5.90, this option is automatically selected when possible)

Figure 506: Table - CONNECT Solo/Duo - Properties of Telephone Codec - General functions

### 9.23.3 Details tab

The “*Details*” tab allows the basic setup of the port. Normally, no changes need to be made here.

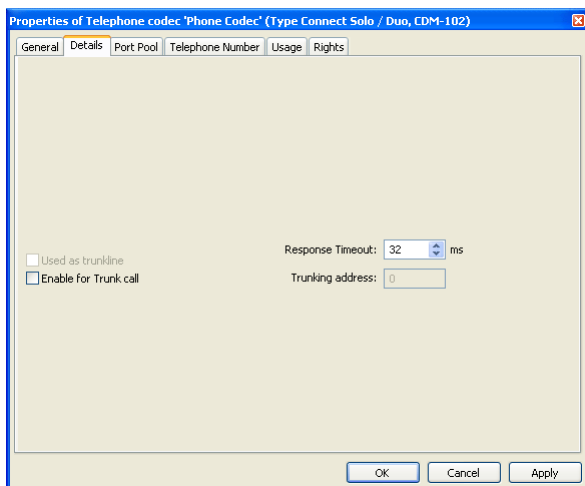


Figure 507: CONNECT Solo/Duo - Properties of Telephone Codec - Details tab

<b>Response Timeout</b>	Internal system timeout for panel response
<b>Enable for Trunk call</b>	Enables this port for trunking calls; see <a href="#">Trunking</a>
<b>Trunking address</b>	Unique trunking address for the port; see <a href="#">Trunking</a>

Figure 508: Table - CONNECT Solo/Duo - Properties of Telephone Codec - Details functions

### 9.23.4 Port Pool tab

This tab sets up the codec destinations. Each telephone destination, whether it is a control panel or a 4-wire, becomes a so called “*PoolPort*”. There is no limit to the number of pool ports that can be added. However, a maximum of 2 members can be connected to a single codec at the same time. Each pool port could, for example, be a predefined telephone destination with a fixed telephone number.

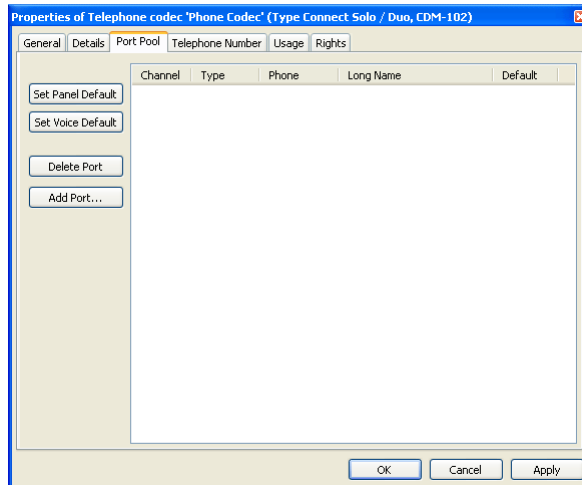


Figure 509: CONNECT Solo/Duo - Properties of Telephone Codec - Port Pool tab

Click the **Add Port...** button to add a new pool port.

Choose the destination type in the pop up window. If a CONNECT SOLO is being used, only “4-Wire” should be selected because CONNECT SOLO does not support remote panels.

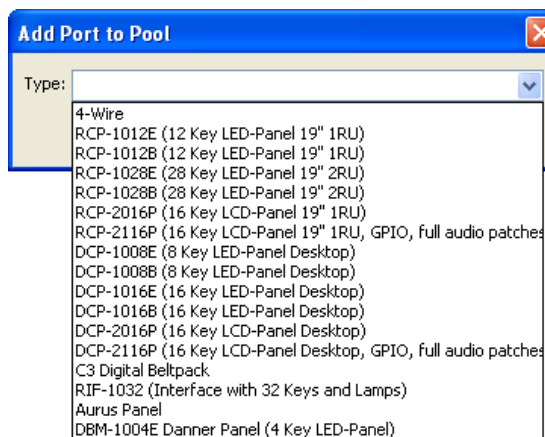


Figure 510: CONNECT Solo/Duo - Add Port to Pool

To create a connection to a telephone or a simple audio connection to another codec, select “4-wire”. Repeat these steps until you have created all of your virtual pool members.

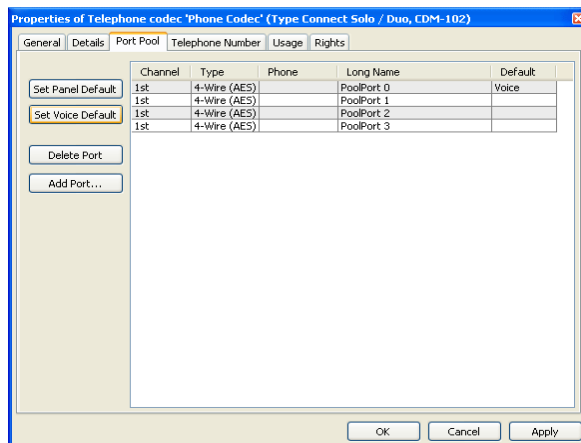


Figure 511: CONNECT Solo/Duo - 4Wires in Port Pool

Select a 4-wire port and click the **Set Voice Default** button. All incoming calls without **CLIP** (Calling Line Identification Presentation) or with **CLIR** (Calling Line Identification Restriction) will be switched to this port. If you only have a single 4-wire pool port, it must be set as the "Voice Default".

If no "Voice Default" is defined, audio from incoming calls will not be routed into the system.

Both CONNECT SOLO and CONNECT DUO support the CLIP function. However, it is only used by CONNECT DUO in ISDN mode.

To add a control panel as a pool port, click the **Add Port...** button and select the panel type that is to be connected to the remote CONNECT DUO.

**Note:** Remote panels only work with a connection between 2 CONNECT DUOs

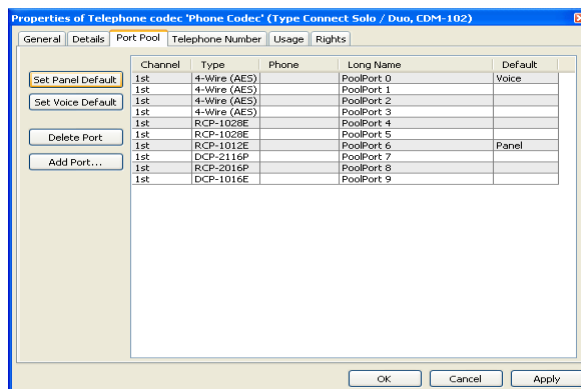


Figure 512: CONNECT Solo/Duo - 4Wires and panels in a port pool

It is also imperative to define a panel as the "Panel Default" for the port pool. Select a panel and click the **Set Panel Default** button. In the "Default" column the word "Panel" will appear. This signals that incoming panel calls without a recognizable telephone number will be routed to this panel. Even if there is only 1 panel in the port pool, it must be defined as the "Panel Default".



All virtual 4-wire and panel ports appear in the network list and the port list.

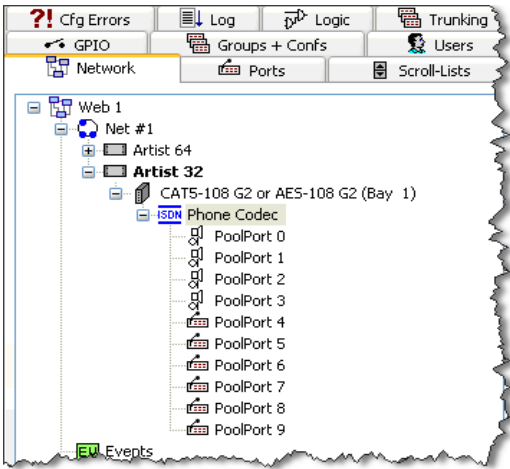


Figure 513: CONNECT Solo/Duo - Pool Panels in the network view

9.23.5 Telephone Number tab

The “Telephone Number” tab is used for entering the MSN telephone number of your own telephone connection. If you are using an ISDN connection, it is very important to enter these numbers. The MSN numbers will then be transferred to the codec.

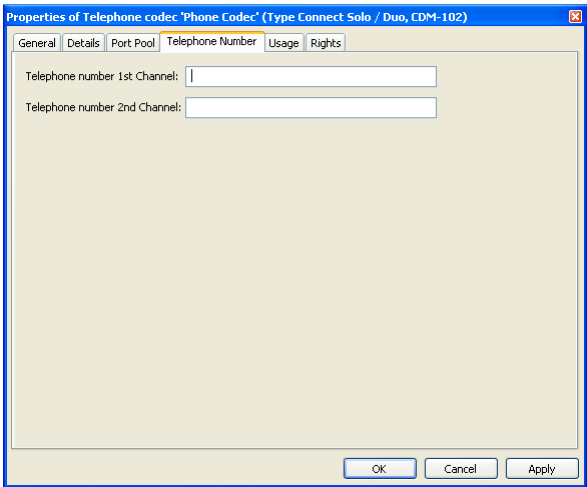


Figure 514: CONNECT Solo/Duo - Properties of a telephone codec - Telephone number tab

Telephone number 1st Channel	MSN number for the 1st channel, or Pots Line 1
Telephone number 2nd Channel	MSN number for the 2nd channel, or Pots Line 2

Figure 515: Table - CONNECT Solo/Duo - Properties of a telephone codec - Telephone number functions

### 9.23.6 Rights tab

Corresponding user rights can be managed in the “Rights” tab. A “Rights” tab is found in all “Properties” windows. See: [9.22 User Rights](#)

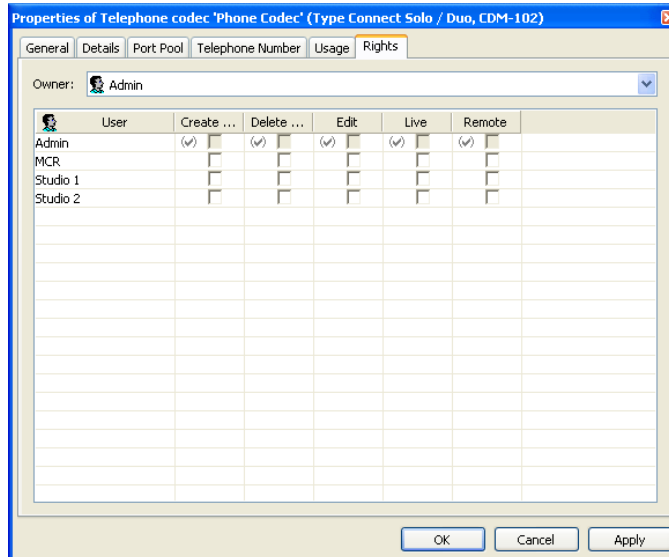


Figure 516: CONNECT Solo/Duo - Properties of Telephone Codec - Rights Tab

9.23.7 Pool Panel – 4-wire properties

Right mouse click on a pool port and select “*Properties*” to open the properties of the pool port.

All of the tabs and settings of a pool port are identical to a normal 4-wire port. The only difference is that a pool port also has an additional “*Telephone Codec*” tab where the number to be dialled by the pool port can be entered.

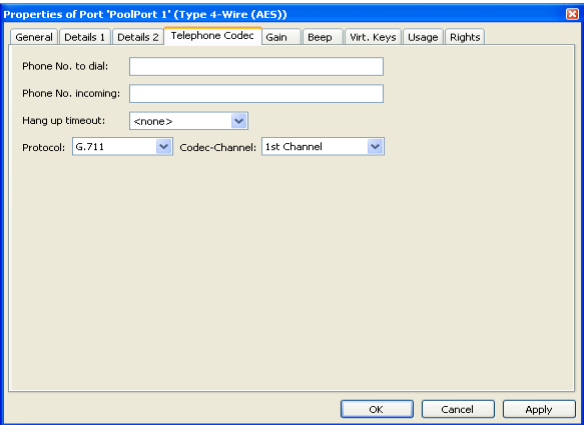


Figure 517: CONNECT Solo/Duo - Properties of Pool Port - 4Wire Telephone Codec tab

Phone No. to dial	Enter the telephone number to be dialled. If no number is entered, it is also possible to manually dial a number later from a control panel
Phone No. incoming	Enter the incoming telephone number. This is normally identical to the telephone number to be dialled. It enables the caller to be assigned to the correct panel keys. If no telephone number is entered, the Voice Default port will be used for incoming calls
Hang up timeout	Automatic hang up after a certain time has passed (10s – 4h)
Protocol	Select the type used by the destination codec. For 4-wire connections with a CONNECT DUO using an ISDN connection either the G.711 codec (normal telephone codec, 3,5kHz) or G.722 codec (digital codec for connection to another codec, 7kHz) can be used. The G722/Artist Code is only used for the connection of panels over ISDN. CONNECT SOLO only supports the G.711 codec.
Codec-Channel	Select the channel that the port should use to dial

Figure 518: Table - CONNECT Solo/Duo - Properties of Pool Port - 4Wire Telephone Codec functions

### 9.23.8 Pool Panel – Panel properties

Right mouse click on a pool port and select “*Properties*” to open the properties of the pool panel.

All of the tabs and settings of a pool panel are identical to a normal panel port. The only difference is that a pool panel also has an additional “*Telephone Codec*” tab where the number to be dialled by the pool panel can be entered.

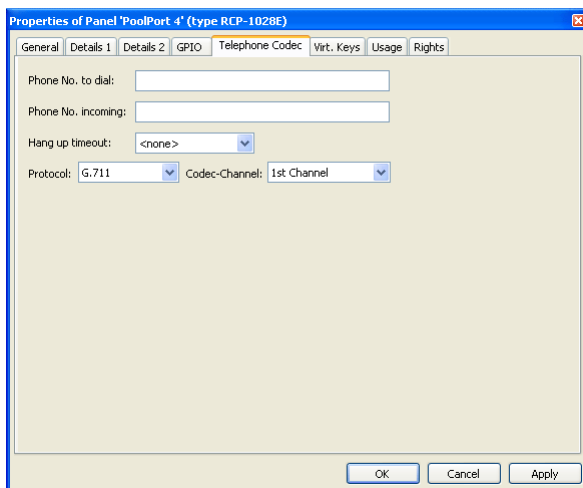


Figure 519: CONNECT Solo/Duo - Properties of Pool Port - Panel Telephone Codec tab

<b>Phone No. to dial</b>	Enter the telephone number to be dialled. If no number is entered, it is also possible to manually dial number later from a control panel
<b>Phone No. Incoming</b>	Enter the incoming telephone number. This is normally identical to the telephone number to be dialled. It enables the caller to be assigned to the correct panel keys. If no telephone number is entered, the <i>Panel Default</i> panel will be used for incoming calls
<b>Hang up timeout</b>	Automatic hang up after a certain time has passed (10s – 4h)
<b>Protocol</b>	To remote a panel over ISDN select the G722/Artist Codec
<b>Codec-Channel</b>	Select the channel that the port should use to dial

Figure 520: Table - CONNECT Solo/Duo - Properties of Pool Port - Panel Telephone Codec functions

### 9.23.9 Setting up a panel to use a CONNECT/SIP codec

The following examples show the various ways to operate a codec from a control panel.

#### 9.23.9.1 Dialling a connection with a fixed number

This is the easiest way to dial a number from a control panel. It requires that all pool ports have a fixed telephone number assigned to them in their "[Properties](#)".

Choose a key to handle dialling functions. Right mouse click on the key and select the "[Dial/HangUp](#)" function under "Add Function" -> "Telephone Dial/HangUp". Set the [key mode](#) to *latching* with a short timeout and without a dim function. If this is not done, the dial and destination keys must always be pressed together.

Pull pool ports to panel keys using Drag & Drop. They will automatically be added with the standard "[Call to port](#)" function.

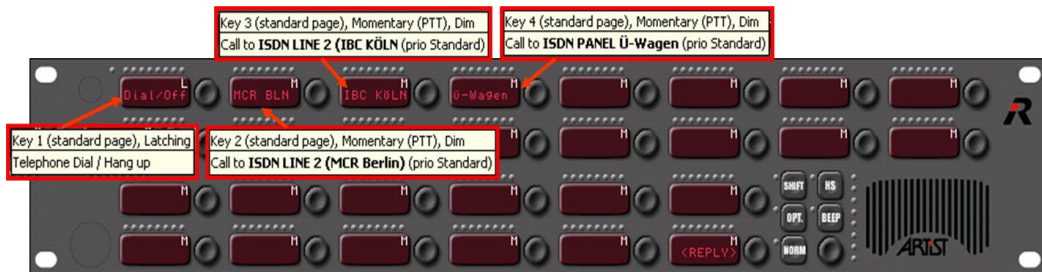


Figure 521: Dialling - Assigning a dial function

To create a connection, press the "Dial/Off" key. The markers above all available telephone destinations (pool ports) will begin to flash.



Figure 522: Connect - Panel - Dialling with a PoolPanel

While the "Dial/Off" key is still active, press the key of the pool port that you would like to call. The marker above the pool port indicates that it is dialling. As soon as a connection has been established, the marker changes to the normal "Call to Port" marker. As long as the connection is active the key functions like a normal "Call to Port" key. You can adjust the incoming volume level and talk to the destination by pressing the key. If you call a voice port pool, make sure that the 4-wire has a Vox connection back to your control panel.



Figure 523: Connect - Panel - Number is dialled

To break the connection, press the "Dial/Off" key and key of connection you would like to end. The pool port will then revert to displaying the standard "Pool Port Offline" marker. See: "[9.8.7 Marker Definitions](#)"

### 9.23.9.2 Manually dialing a telephone number without a built-in keypad

With the help of the “*Telephone Dial Keypad*” function it is possible to create a keypad on any panel. Add a function to a key by selecting “*Add function*” -> “*Telephone Dial Keypad*”. In the properties of the function you can select the exact digit or function to add to the key.

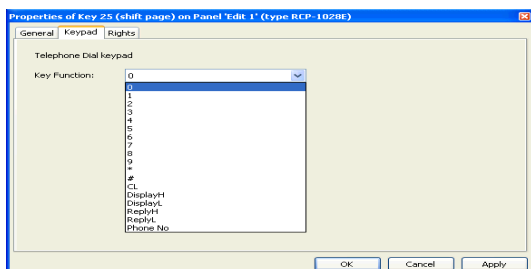


Figure 524: Connect - Telephone Dial Keypad - Keypad tab

The key functions can be selected from the drop down menu.

<b>0 – #</b>	Selects a keypad digit to assign. Only one number can be assigned per key
<b>CL</b>	Clear - each key press deletes the previous digit
<b>DisplayH</b>	Displays the telephone number entered. The digits “scroll” on to the key as they are dialed. If the telephone number has more than 8 digits, they “scroll” on to the <i>Display H</i> key
<b>DisplayL</b>	<p>Displays the telephone number entered. The digits “scroll” on to the key as they are dialed. The <i>Display L</i> key shows the last 8 digits of the number dialed</p> <p>Numbers can also be entered manually by pressing the corresponding level control and scrolling</p> <p>Pressing the display key dials the number entered (comparable to Dial/Off). Any preset telephone numbers will be temporarily ignored and the manually entered telephone number will be dialed</p>
<b>ReplyH</b>	Shows the first 8 digits of an incoming telephone number (if available)
<b>ReplyL</b>	<p>Shows the last 8 digits of an incoming telephone number (if available). The number of the last caller will always be displayed.</p> <p>Pressing the key dials the last incoming telephone number (Dial/Off)</p>
<b>Phone No</b>	Allows the entry of a telephone number that is dialed when the key is pressed. (This function is perfect for multiple use in scroll lists to create a telephone book)

Figure 525: Table - Connect - Telephone Dial Keypad - Keypad functions

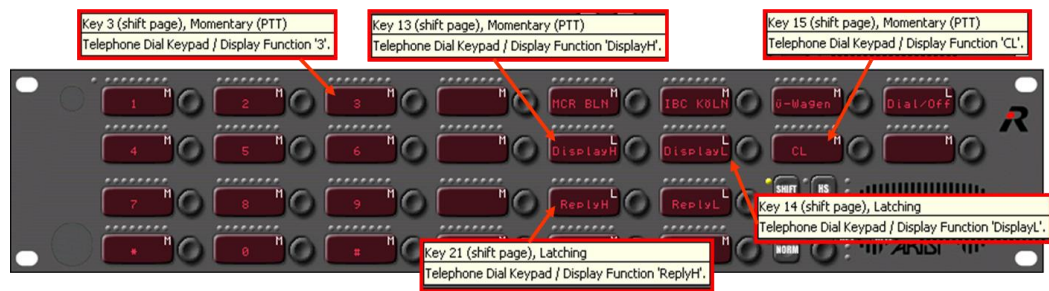


Figure 526: Connect - Panel - Example of a keypad configuration

Press the digits to enter the telephone number. The number dialled will be displayed in the “DisplayL” (digits 1-8) and the “DisplayH” (digits 9-16) keys. The normal display text in the keys may be temporarily overwritten.

Pressing the “CL” key will delete the previous digit.

To dial a number that was entered manually, press the number in the “DisplayH”- or “DisplayL”- keys. The markers of all available pool ports on the panel will start to flash. Press the pool port that you wish to dial the number. This will temporarily override any pre-assigned number on the port. From this point on the panel functions just like it did when using the “Dial/Off” key.



Figure 527: Connect - Panel - Dialling of a manually entered number

To break the connection, press either the “DisplayL” or “DisplayH” key and the key of the connection you would like to end.

If the panel receives an external call from someone who transmits their telephone number, it will appear in the “DisplayL” or “DisplayH” keys. In any case, these keys will display the number of the last caller. Press the “ReplyL” key + an available pool panel to call the number back.

The “DisplayL” key offers another way to dial a telephone number without a built-in keypad. Telephone numbers can be entered by pressing and turning the encoder next to the key.

Press the encoder once. The digit “0” will appear in the display. Turn the encoder until it displays the number you wish to enter. The next number can now be entered by pressing the encoder again.



Figure 528: Connect - Panel - Entering a number by using the volume encoder

The number entered in this way is dialled exactly like a number entered on a keypad.

You can also use the “Telephone Keypad” function to assign a phone number to a key. In this case the “Phone No.” key behaves exactly like a “DisplayL” key. This means that pressing the key along with a pool port will dial the number. This will temporarily override any previously assigned number the pool port was assigned. It is recommended to manually define the key's display.

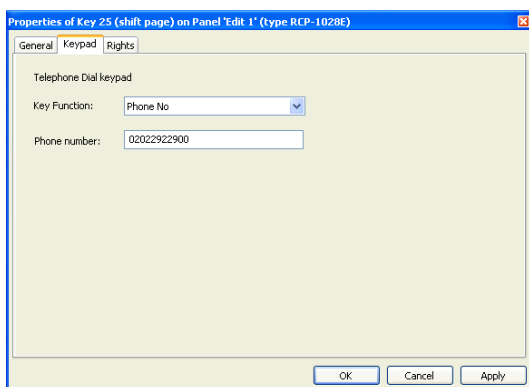


Figure 529: Connect - Telephone Keypad - Phone No. function

To dial, press the telephone number key + the pool port to be used.

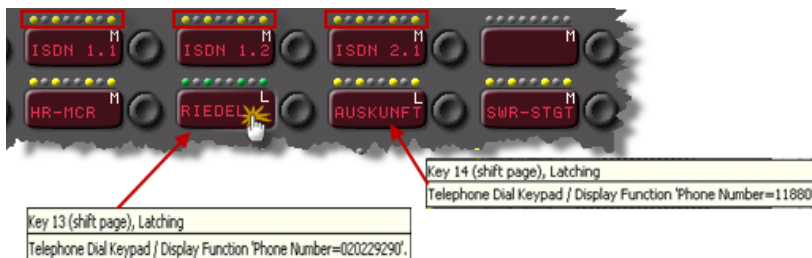


Figure 530: Connect - Panel - Dialling of a preset number



### 9.23.9.3 Manually dialling a telephone number with a built-in keypad

Expansion panels with built-in keypads are available for 1000 and 2000 series control panels. These expansion panels allow telephone numbers to be dialled quickly. Some of the keys on the expansion panel keypad do not currently have functions assigned (“M” keys, plus “P”, “R” and “S” keys)

The “C” key deletes the last digit entered. It works just like the “Clear” command from the keypad function.

To use the keypad, you must still program the “DisplayL” and “DisplayH” keys to the panel, as well as the pool ports to be used.



Figure 531: Connect - Keypad panel setup

The number entered on the keypad will appear in the “DisplayL/H” keys. To dial the number press the “DisplayL” + a pool port key. The rest of the [procedure](#) is the same as that for a panel without a built-in keypad.

### 9.23.10 Setting up a Remote Panel using CONNECT DUO

To remote a control panel with CONNECT DUO, create at least one pool port panel in the properties of the codec. The control panel will appear in the network list and the port list as a normal panel. Open the panel's *properties* to enter the telephone settings.

In the **"Telephone Codec"** tab of the pool panel select the G.722/Artist protocol. You can also optionally assign the ISDN channel to be used, a hang up timeout and a fixed telephone number for the panel.

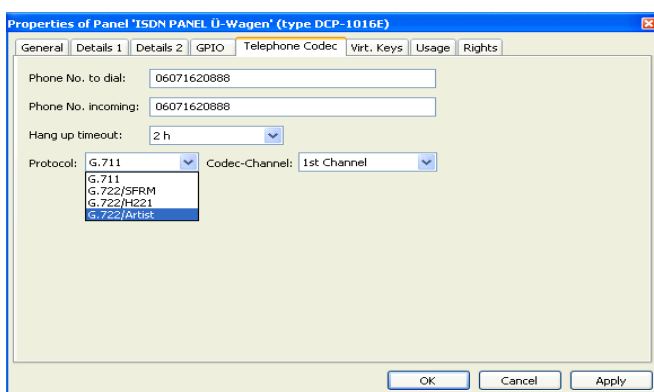


Figure 532: CONNECT Solo/Duo - Properties of an ISDN panel - Telephone Codec tab

Make sure that the **"Response Timeout"** for the ISDN panel is at least 200ms (**"Details 2"** tab of the **panel properties**). This increases the stability of the data connection between the matrix and the control panel, which can be disrupted by the longer delays on ISDN lines.

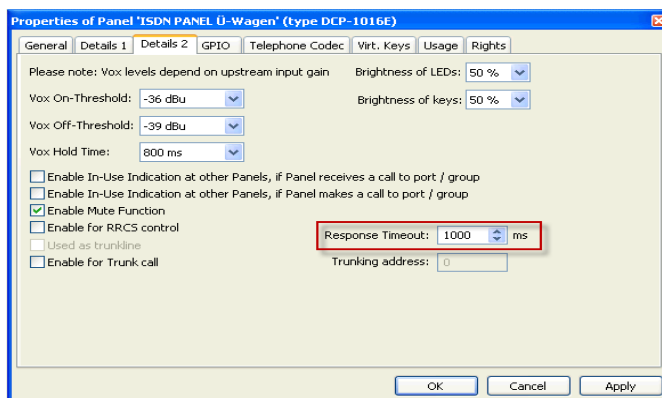


Figure 533: CONNECT Solo/Duo - Properties of an ISDN panel - Details 2 - Response Timeout

You can now configure the ISDN panel just like any other control panel. All of the functions are available that are available for panels connected directly to the matrix.

However, the panel requires a special key to terminate a standing ISDN connection from the remote panel.

Select the option “Stop Connection” from the “Telephone Dial/Hang up” function and add it to a key.

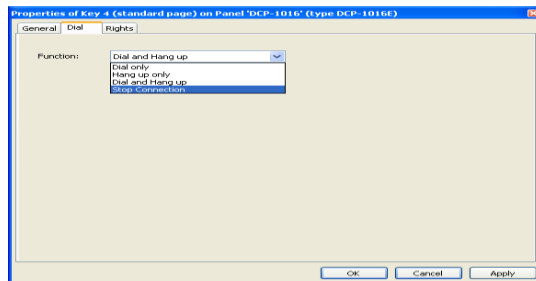


Figure 534: Connect - Dial Function - Stop Connection



Figure 535: CONNECT Duo - ISDN panel

To establish a connection to the matrix from an ISDN panel, you must dial the telephone number directly on the CONNECT DUO.

As long as there is not an active ISDN connection, the remote panel will remain in “waiting mode”. The display will show “Wait for CAT5/Coax”. As soon as a connection is established, the panel will boot and receive its configuration from the Artist matrix. When the keys show their function the system is connected and ready for use.

**Director does not currently support the 2 channel mode for remote panels. However, experienced users can configure a work around:**

**It is possible to create an additional 4-wire connection to the 2nd ISDN channel of the remote panel. If the audio patch in the ISDN panel is configured properly, and the extra 4-wire connection is active, the 2nd audio channel on the control panel can be used.**

## 10 SYSTEM PARAMETERS

### 10.1 Default Settings

Parameter	Minimum	Maximum	Default
Min. Speaker Vol.	-45dB	0dB	-45dB
Min. Headset Vol.	-45dB	0dB	-45dB
Beep Volume	mute	0dB	-30dB
Beep On Call Duration	0ms	1000ms	250ms
Speaker Dim Level	mute	0dB	-18dB
Initial single volume	mute	+6dB	0dB
Initial conference volume	mute	+6dB	0dB
Vox On Threshold	permanent	+12dBu	-24dBu
Vox Off Threshold	-69dBu	+9dBu	-27dBu
Vox Hold Time	no delay	6400ms	800ms
Brightness of LEDs / LCD Keys	10%	100%	50%
Brightness of LED Keys / LCD	10%	100%	30%
Response Timeout	0ms	1000ms	32ms
Response Timeout ISDN	0ms	1000ms	200ms
Dim lower Prios for "Standard"	mute	0dB	-12dB
Dim lower Prios for "High"	mute	0dB	-18dB
Dim lower Prios for "Paging"	mute	0dB	-24dB
Dim lower Prios for "Emergency"	mute	0dB	mute
Reply Key Timeout	0s	24hrs	3s
Minimum XP Volume	mute	0dB	mute
Input Gain *)	-18dB	+18dB	0dB
Output Gain *)	-18dB	+18dB	0dB
GPIO Out Off Delay	no delay	5s	no delay

Figure 536: Table - System parameters

\*) When controlling the I/O gain of a port using a panel, the gain can also be muted.

Parameter	Minimum	Maximum	Default
Audiopatch Input Mic Pre-Amplifier Gain	0dB	+20dB	0dB
Audiopatch Input Amplifier Gain	mute, 0dB	+18,5dB	+3dB
Audiopatch Input High Pass Filter Cut-Off	off, 40Hz	640Hz	off
Audiopatch Input Low Pass Filter Cut-Off	off, 1kHz	16kHz	off
Audiopatch Input Compressor Threshold	-48dB	+12dB	-15dB
Audiopatch Input Compressor Ratio	1:1	8:1	2.5:1
Audiopatch Input Compressor Attack	100µs	100ms	20ms
Audiopatch Input Compressor Release	10ms	1s	500ms
Audiopatch Input Limiter Out-Level	-33dBu	+12dBu	+9dBu
Audiopatch Input Limiter Threshold	-6dB	+6dB	-3dB
Audiopatch Input Limiter Attack	100µs	100ms	200µs
Audiopatch Input Limiter Release	10ms	1s	200ms
Audiopatch Crosspoint Level	-60dB	+12dB	0dB
Audiopatch Output High Pass Filter Cut-Off	off, 40Hz	640Hz	off
Audiopatch Output Low Pass Filter Cut-Off	off, 1kHz	16kHz	off
Audiopatch Output Compressor Threshold	-48dB	+12dB	+12dB
Audiopatch Output Compressor Ratio	1:1	8:1	1:1
Audiopatch Output Compressor Attack	100µs	100ms	50ms
Audiopatch Output Compressor Release	10ms	1s	500ms
Audiopatch Output Limiter Out-Level	-33dBu	+12dBu	+6dBu
Audiopatch Output Limiter Threshold	-6dB	+6dB	+6dB
Audiopatch Output Limiter Attack	100µs	100ms	100µs
Audiopatch Output Limiter Release	10ms	1s	100ms
Audiopatch Output Amplifier Gain	-27,6dB	0dB	0dB

Figure 537: Table - System parameters

## 10.2 Specifications / System Limits

Parameter	Node	Net	Notes
<b>Nodes</b>	-	128	
<b>Ports</b>	128	1024	Any combination of 4-wires and panels is possible
<b>Groups</b>	350		
<b>Group members</b>	64		
<b>Conferences</b>	350		
<b>Conference members</b>	64		
<b>Keys per control panel</b>	124		RCP-1028 with 6 x ECP-1016
<b>Functions per key or Virtual Function</b>	32		
<b>Reply key entries</b>	20		Lists the last incoming calls to the panel
<b>GPI Inputs</b>	1000		
<b>GPI output</b>	1000		
<b>Logic functions</b>	64	8192	
<b>Logic inputs</b>	no limit		
<b>Logic inputs per function</b>	8		
<b>Scroll lists</b>	100		
<b>Entries per scroll list</b>	1000		
<b>Scroll Lists per panel</b>	1		
<b>Users per configuration</b>	50		
<b>Available user rights per user</b>	255		
<b>Maximum volume level</b>	+18dB		

Figure 538: Table - Specifications / System Limits

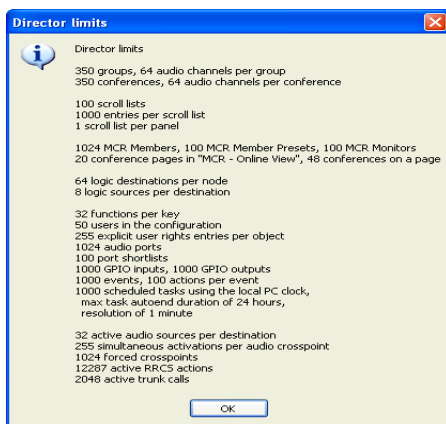


Figure 539: Director limits



## 11 SPECIAL FEATURES (SOFTWARE ADD-ONS)

### 11.1 Unlocking Software Add-ons

This part of the manual describes the four optional software add-ons that are currently available in Director. Generally, all functions and add-ons are implemented in Director. However, in order to use the add-ons they must be first unlocked. The unlocking process always takes place only on the local PC. If several configuration PCs are used on an Artist system, each PC must be unlocked separately in order to use the add-ons.

There are two ways to unlock special features:

- Manual activation key
- USB dongle

**You must be logged in as the Administrator in order to activate special features.**

#### 11.1.1 Manual activation key

On the basis of various PC components, such as the hard drive ID and MAC address, Director generates a unique code for each software add-on. To unlock one of the special features, the code must be given to a Riedel dealer who will then be able to give you the corresponding activation key.

**Note: This code is only valid for a particular software add-on used on a particular PC. If you change PCs or replace your hard drive the code will no longer be valid. In that case, you must request a new code from your Riedel dealer.**

To unlock a special feature select “Register special features from the “**Extras**” menu”.




Figure 540: Registration - Extras - Register special features ...



Figure 541: Registration - Register Special Features



Click on the  button of the feature you would like to add. A pop up window opens where the registration key is given.

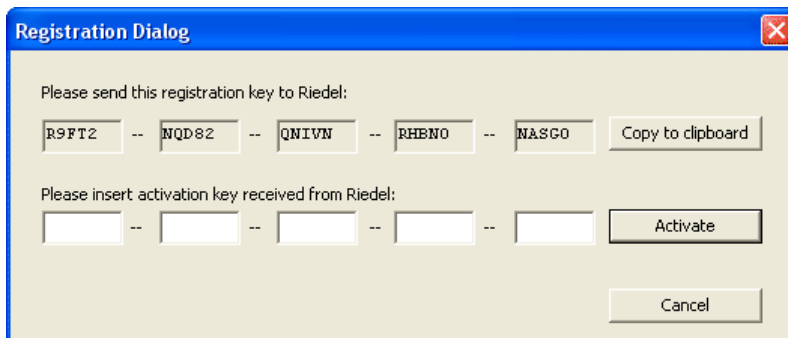
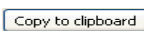
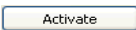


Figure 542: Registration - Registration dialog

Using the  button, you can copy the code to the Windows clipboard in order to paste it into a Word document or an email. Send the code to [Riedel Communications GmbH & Co. KG](#) or your local dealer.

As soon as you have received the activation key, repeat the steps above and enter the key in the registration dialog window. Click the  button to activate the special feature.

You only have to activate a special feature on a PC once because the code is saved in the Windows registry. Upgrading to a new version of Director does not require a new registration.

### 11.1.2 USB DONGLE

As an alternative to manually entering an activation code, you can activate special features using a USB dongle. The dongle automatically activates all special features that you have ordered as long as it is connected to the PC. This activation method has the advantage that you can quickly change the configuration PC without causing any problems with the software registration, for example in an emergency situation.

Depending on your operating system, you may have to first install the corresponding USB driver. The driver is delivered along with the USB dongle. After the installation, restart Director.

It is not necessary to activate the dongle in Director. Director automatically recognizes whether the dongle is installed or not. All special features that you have ordered will be immediately available for use. Registration using the "[Extras](#)"... menu is not necessary.

If features in Director were already manually unlocked this does not present any problem. The dongle has priority. If the dongle is removed the manual registration remains active.

## 12 PARTIAL FILES

### 12.1 Purpose

The special feature “*Partial Files*” enables you to save and load only a certain part of a configuration. For example, you can switch back and forth between different assignments for specific keys or complete configurations for panels. When needed, these partial configurations can be sent to the system to change the functionality of one or more control panels. These partial configurations only affect certain objects, such as particular panels, and can be loaded to the system without changing the entire configuration. The partial configuration files are saved on a hard disk and called up as needed. The use of a base configuration in conjunction with partial files, that are either manually or automatically loaded, offers maximum flexibility in the use of the system.

Partial files can be loaded in various ways. They can be manually opened from a hard disk and sent to the system. Partial files can also be loaded using a *XY-Matrix* in Director. Activating a crosspoint in this matrix automatically loads a corresponding partial file into the system. The easiest way to load a partial file is with the “*Partial File Trigger*”. Using this tool a partial file can be loaded via a logic function placed on a panel key or GPI. In this case, it is necessary that the PC where the saved partial files are located is permanently online and connected to the system.

### 12.2 Creating Partial Files

When using partial files, you should always create a pair of files - an “*ON*” file and an “*OFF*” file. This means that before you begin to make changes on a panel to save as a partial file, you should first save the current status of the panel as its own partial file. This allows a return to the original configuration state. The “*ON*” file represents the temporary configuration change, and the “*OFF*” file allows the return to the basic configuration.

A partial file may be assigned any element or function that is available in Director, from a complete node to individual keys, conferences, groups, logics users, scroll lists, etc.

In the *File* menu, select “*Save Partial Configuration as ...*” to save a certain part of the base configuration as a partial file.

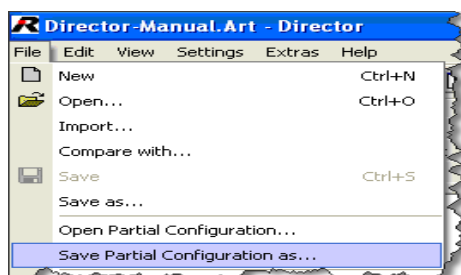


Figure 543: Partial Files - File - Save Partial Configuration as ...

A window opens in which all nodes, users and functions in the base configuration are displayed in a tree structure.

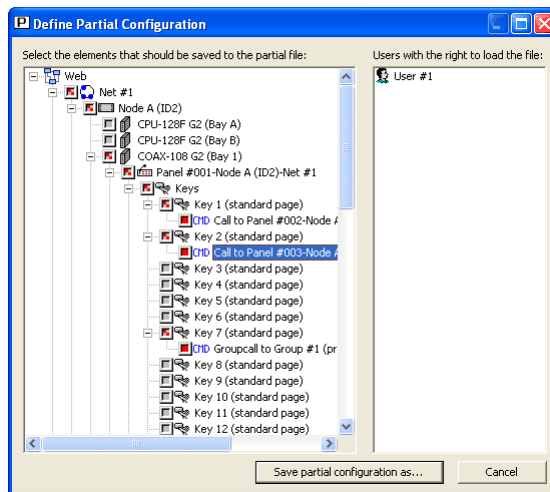






Figure 544: Partial Files - Define Partial Configuration selection

Director automatically marks items that were changed since the configuration was last saved.

A box filled red  indicates something that was changed. A box that only has a red dash  means that the change took place in a level below that point. Click the  symbol to expand.

To select an item manually, click on the box next to it. If the box is filled in red, the item will be included in the partial file.

All of the items marked with the red box can then be saved as a partial file. Click  to save.

If you are working with a system that already has existing partial files, it is imperative to create any partial files from the base configuration. If you were to simply load the current configuration from the matrix to create a new partial file, it could be that an existing partial file was already active within the Artlist system. This would result in it no longer being possible to remove all of the partial files to return to the original configuration.

Before creating a new partial file it is therefore necessary to deactivate all existing partial files by loading their corresponding "Off Files" to the system. Afterwards, the configuration can be read out of the system or you can load the base configuration from a hard disk to create a new partial file.

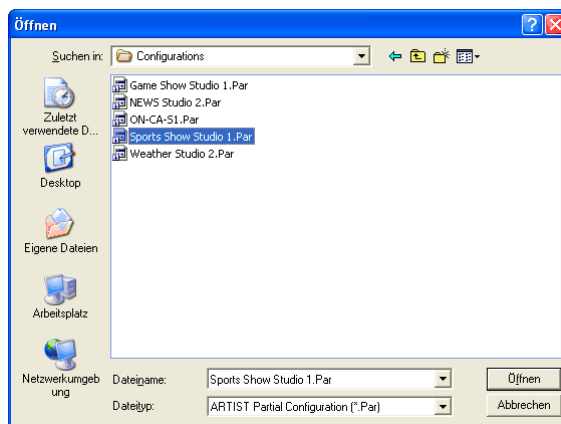
Please take note that when you load a configuration from the system to the PC in order to save it, it may contain an active partial file. If this configuration were then to be saved as a complete configuration file, any active partial files would also become part of the configuration. The base configuration would then be unusable. Before saving the configuration make sure that all partial files have been deactivated.

## 12.3 Downloading a Partial Configuration file

“Partial” configuration files only include a part of a complete configuration. These partial files only affect, for example, a single panel and can be loaded into the system without changing the rest of the configuration. The partial files are saved to a hard disk and opened as needed. The use of a base configuration in conjunction with partial files, that are either manually or automatically loaded, offers maximum flexibility in the use of the system.

A partial file may be assigned any element or function that is available in Director, from a complete node to individual keys, conferences, groups, logics users, scroll lists, etc. See: [12.2 Creating Partial Files](#)

To manually load a partial file, select ‘Open Partial Configuration...’ in the **File** menu. A window opens where you can open previously saved partial files ending with “\*.Par”.



Select the partial file you wish to load and click “Open”, or simply double click on the file. The file will be opened and added to the base configuration.

Figure 545: Partial Files - Opening a partial configuration file

Using the  button, the partial file can now be loaded into the system.

**Note:** Director does not ask for confirmation before loading the file. Make sure that the corresponding base configuration is already open in Director.

**Warning:** Partial Files do not support the “Auto Reverse Talk for 4-wire” function which automatically programs a return audio path from a 4-wire to a control panel. If you add a call from a panel to a 4-wire in a partial file, you must manually configure the return audio route to the panel as a part of the partial file.

## 12.4 Opening Partial Files

There are three different ways to open partial files. The easiest way is to load the partial file via the “**File**” menu, as described above. To open complex combinations of partial files, for example to automatically load files for particular studio assignments, the “**Partial XY-Matrix**” can be used. It allows pre-defined partial files to be loaded or deactivated by setting a crosspoint in the matrix. Another possibility to open partial files is with the “**Partial File Trigger**” function. This function allows partial files to be connected to a logic source. When the source is activated, for example by a key press or GPI input, the partial file is loaded automatically.

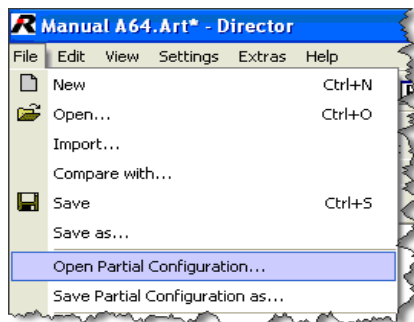


Figure 546: Partial Files - File - Open Partial Configuration ...

The “**XY-Matrix**” and the “**Partial File Trigger**” require Director to be permanently connected to the system. Director must be open and the files required should be saved locally on the hard drive of the PC. Only one Director PC in a network can have this option active.

These options can be set in the “*Partial Files*” tab found under “*Settings*” > “*Options*”. With the *XY matrix* it is possible to only use the local Director as a server while the setting of the actual crosspoints in the XY-matrix takes place on another “*Client*” PC. This has the advantage that the PC with the partial files can be located in a machine room while the control of the partial files can be carried out at a regular workspace. In this case, the partial files remain on the server.

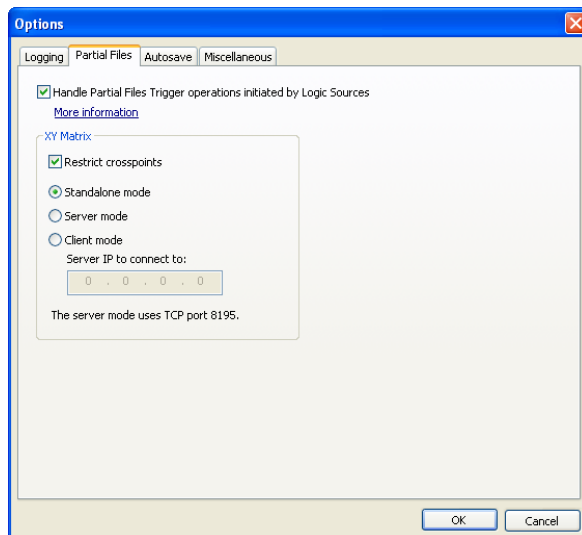



Figure 547: *Partial Files - Settings / Options / Partial Files*

<b>Handle Partial File Trigger...</b>	Selects whether Director will load partial files that were triggered by a logic source. <b>WARNING!</b> The partial files must be saved on the local PC. Only one Director PC in the system can have this option active at a time
<b>Restrict crosspoints</b>	When this is selected only one crosspoint is allowed to be active in each row or column. In order to set a new crosspoint, previous crosspoints must first be removed. If this option is not activated, only one crosspoint may be set in each row, but multiple crosspoints can be set in a column
<b>Standalone mode</b>	The XY-Matrix is controlled from the local PC
<b>Server mode</b>	This PC acts as a server. The partial files are controlled by the client PC Note: All partial files must be saved locally on the hard drive of the sever PC
<b>Client mode</b>	This PC acts as a client and controls the server PC. The individual partial files should not be located on this client PC
<b>Server IP to connect to</b>	If your PC is set to be a client, you must enter the IP address of the server PC where the partial files are located

Figure 548: *Table - Partial Files - Settings / Options / Partial Files functions*

### 12.4.1 XY-Matrix

The “XY-Matrix” is a convenient tool for handling partial files in a variety of production settings. Each row and column of the matrix can be customized. This is useful, for example when a number of control rooms must be dynamically assigned to several different studios. Depending on the situation, crosspoints in the XY-Matrix are set and the necessary configuration is automatically loaded into the system.

You can open the XY-Matrix by selecting “**View**” > “**Partial Files XY-Matrix**” or by clicking on the  button in the toolbar.

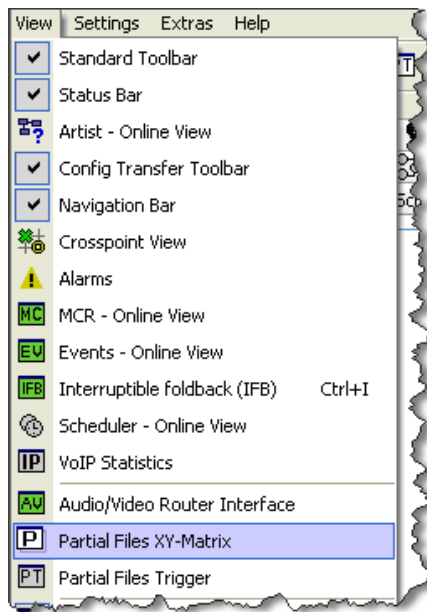


Figure 549: Partial Files - XY Matrix - “View” > “Partial Files XY-Matrix”

The XY-Matrix window will be empty the first time you open it.

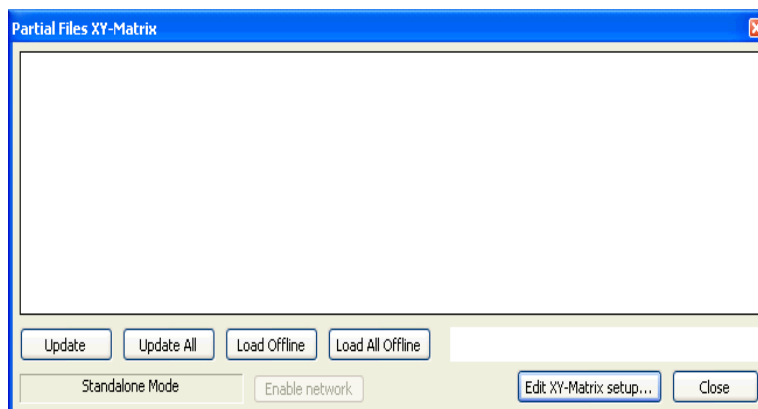



Figure 550: Partial Files - XY-Matrix (not yet configured)

<b>Update</b>	Loads the required partial files and sends them to the Artist system
<b>Update All</b>	First loads all of the “Off Files” and the required “On Files” from the hard disk and sends them to the Artist system
<b>Load Offline</b>	Loads the required partial files locally in the configuration without sending the changes to Artist
<b>Load All Offline</b>	Loads all of the “Off Files” and the required “On Files” from the hard disk without sending the changes to Artist. This option can be used to test whether the partial files load correctly
<b>Edit XY-Matrix setup...</b>	Opens the edit window for editing the XY-Matrix
<b>Close</b>	Closes the XY window

Figure 551: Table - Partial Files - XY-Matrix functions

Click the  button to customize the XY-Matrix according to your requirements. It is only necessary to set up the XY-Matrix on the server if running in client-server mode. The view from the server will be shown in the XY-Matrix on the clients as soon as there is a connection.

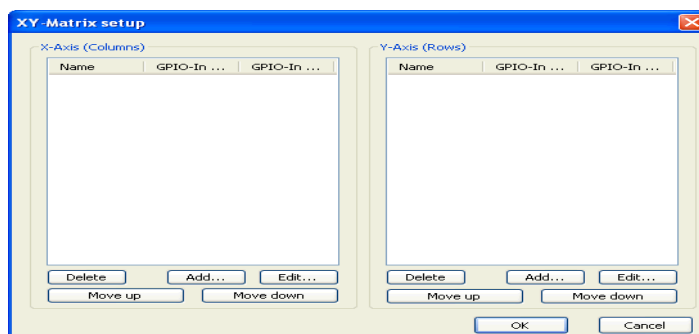



Figure 552: Partial Files - XY Matrix - XY-Matrix setup

You can create entries on both the X and Y axes by clicking the corresponding  button.

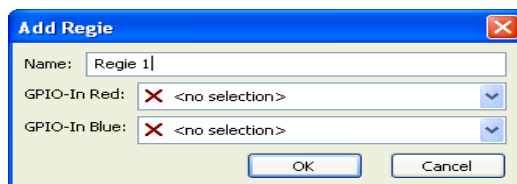
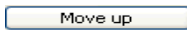
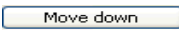


Figure 553: Partial Files - XY Matrix - Adding an entry in XY matrix

Assign the row or column a name. For each entry you can assign 2 GPI inputs that will trigger a signal next to its name in Director. These signals can be used to indicate “On Air” or rehearsal status in a studio. This way you can see in the XY-Matrix if certain studios are being used, and thus avoid changing their configuration. Create all of the entries necessary on the X and Y axes.



You can change the order of items by selecting them and using the  and  buttons.

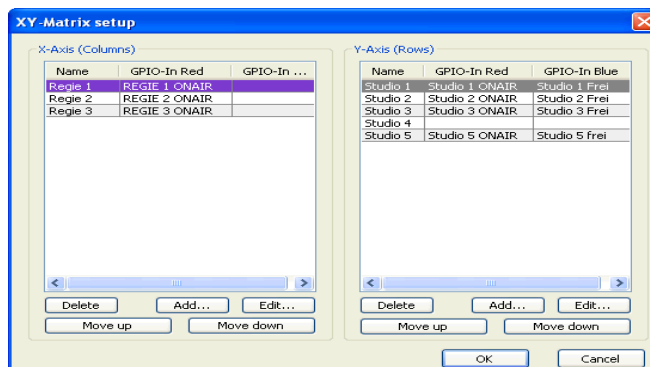


Figure 554: Partial Files - XY Matrix - Example XY-Matrix setup

Close the configuration window by clicking “OK” to see the updated XY view.

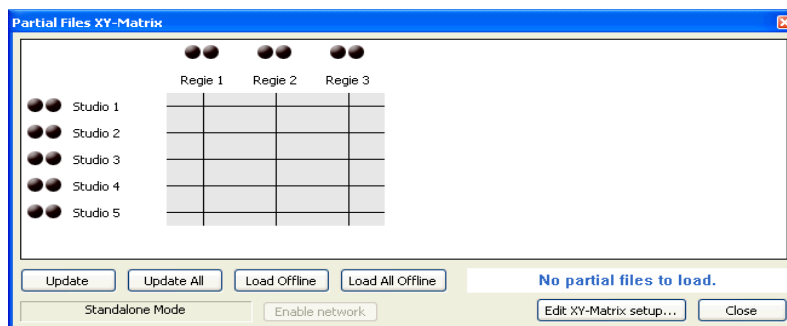


Figure 555: Partial Files - XY-Matrix

After the basic matrix layout has been created, you must assign partial files to the individual crosspoints. Right mouse click on a crosspoint and select the corresponding partial file. The files should have already been created.

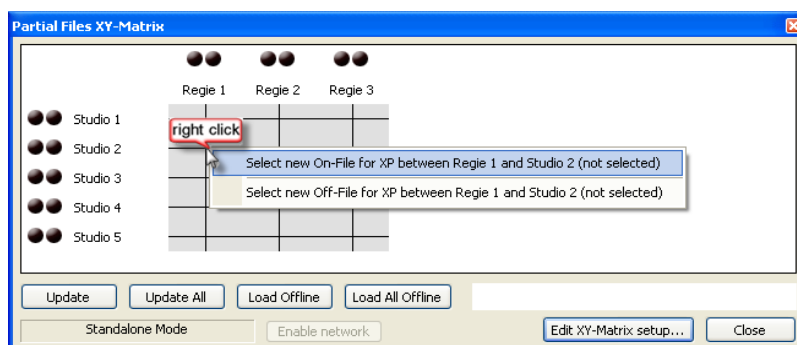


Figure 556: Partial Files - XY Matrix - Selecting Partial Files in XY matrix

Select “Select new On-File for...” the crosspoint. A window opens where you can select the corresponding “.Par” file. Repeat for the respective off file and all other crosspoints in the XY-Matrix.

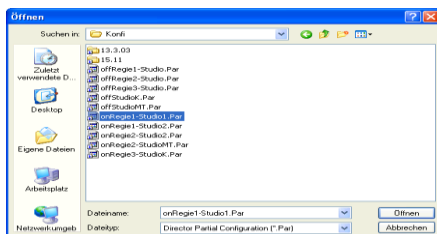


Figure 557: Partial Files - XY Matrix - Selecting the Partial Files

All XY-Matrix settings, including the assignment of partial files to crosspoints, is saved in the same directory that Director is located in. A file called “Director\_RPS.xml” is automatically created which contains this information. The XY-Matrix setup is not a part of the standard configuration file. If you move Director to another directory or to another PC, you must also move the “Director\_RPS” file.

To make an assignment in the XY-Matrix, click on the corresponding crosspoint. The crosspoint will be highlighted yellow. (If you are running the XY-Matrix in server-client mode, you must first click the **Enable network** button to connect to the server. The XY-Matrix settings will then be directly displayed on the client PCs).

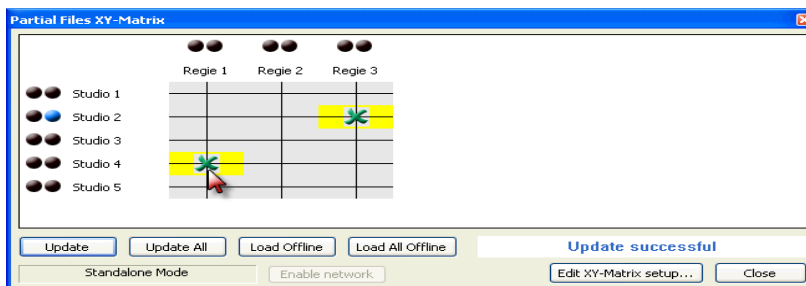


Figure 558: Partial Files - XY Matrix - Switching Crosspoints

The corresponding partial files will be loaded to the Artist system by clicking on the **Update** or **Update All** buttons. The yellow highlighting will then disappear. This indicates that the crosspoints are currently active in the system.

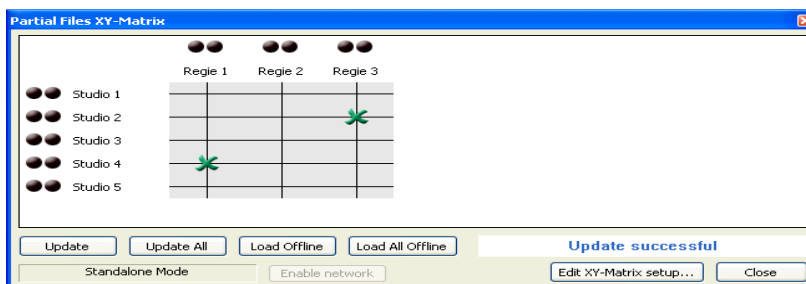


Figure 559: Partial Files - XY Matrix - active crosspoints

## 12.4.2 Partial Files Trigger

The “*Partial File Trigger*” offers a completely different approach to handling partial files. This tool allows partial files to be assigned a logic source. As soon as this logic source is activated anywhere in the system, for example by a key press or GPI input, the corresponding partial file is loaded to the matrix. This allows configuration changes to be made quickly from any point in the system.

To use this option, first activate it under “Settings” > “Options” > “Partial Files”.

**Attention:** Only 1 PC in an Artist system should have this option activated. This PC must permanently have Director open and always be connected to the system. All partial files required must also be located on this PC.

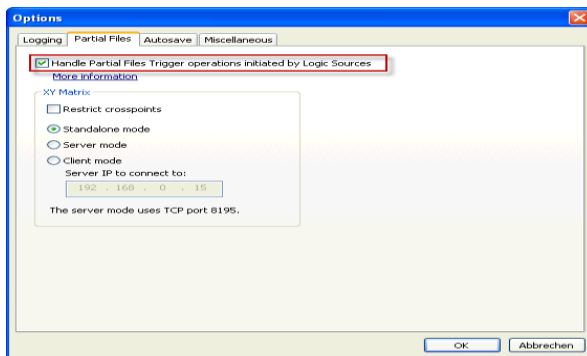


Figure 560: Partial Files - Partial File Trigger - Settings > Options > Partial Files

First, create the necessary logic functions. A logic source will be needed for each partial file. In the “Logic” tab of the [Navigation Bar](#), click the [Add Src...](#) button to create a new logic source. Give the source a distinct name.

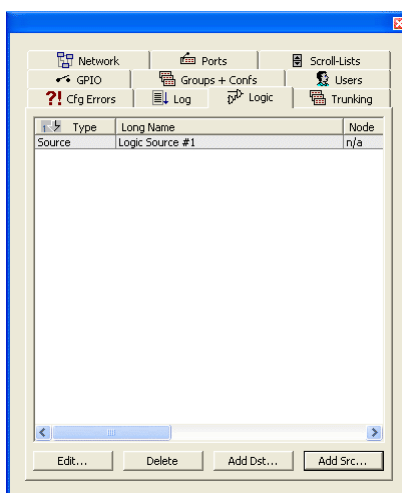


Figure 561: Partial Files - Partial File Trigger - Logic Sources

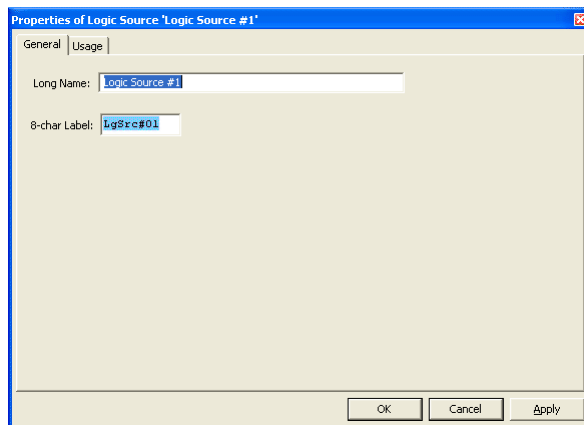



Figure 562: Partial Files - Partial File Trigger - Properties of a Logic Source

Next, open the “*Partial File Trigger*” via “*View*” > “*Partial File Trigger*” or click the  button in the toolbar.

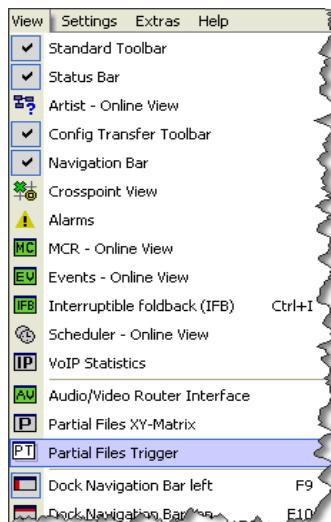
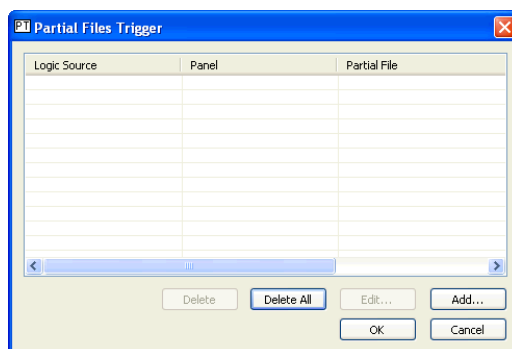



Figure 563: Partial Files - View - Recall Partial Files - Partial File Trigger

The ***“Partial File Trigger”*** window will open.



*Figure 564: Partial Files - Partial File Trigger*

To create a new connection between a logic source and a partial file, click the  button. The **"Add/ Change Partial File Trigger"** window will open.

In the field **"Logic Source"**, select the logic source that should trigger the partial file.

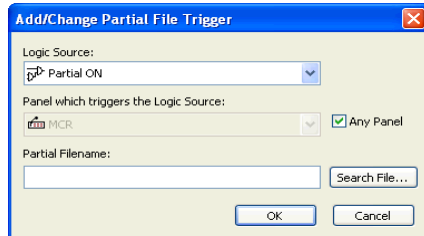




Figure 565: Partial Files - Partial File Trigger - Add or Change Partial File Trigger

In the field **"Panel which triggers the Logic Source"** you can define which panels are allowed to trigger the partial file. You can assign this privilege to a certain port by selecting it from the drop down menu. If multiple ports should be able to load the file, check the  **Any Panel** box.

Select the partial file that should be loaded when the logic source is activated. Click the  button.

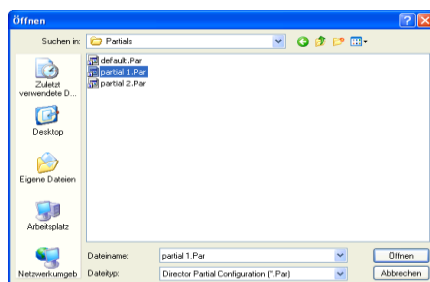



Figure 566: Partial Files - Partial File Trigger - Selecting the Partial Files

Choose the corresponding **".Par"** file and click the open button.

The **"Add/Change Partial File Trigger"** window will now display the logic source and partial file assignment. Click  to close the window and confirm the changes.

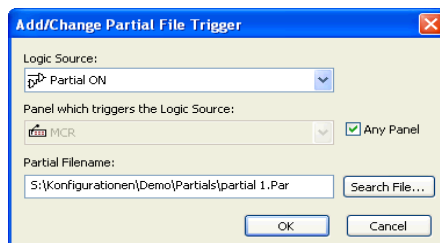


Figure 567: Partial Files - Partial File Trigger - Add or Change Partial File Trigger

An entry will now be displayed in the “Partial File Trigger” window. Repeat the steps above to make further assignments.

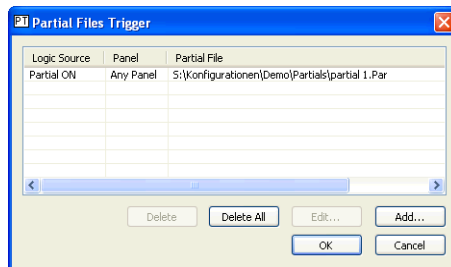
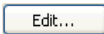




Figure 568: Partial Files - Partial File Trigger

To edit an assignment, double click on the entry or select it and click the  button. To delete a selected entry, click . All assignments can be deleted by clicking the  button. **Note: the entries will be deleted without asking for confirmation.**

These logic source / partial file assignments will be automatically saved in the “Director ERT.xml” file located in the same directory as Director. The assignments are not a part of the standard configuration file. If you change the location of Director on your PC, you must also manually move this file to the same directory.

You can now assign the logic sources as usual to keys, Vox, GPI inputs, etc. When the logic source is activated, the corresponding partial file will be automatically loaded to the system.

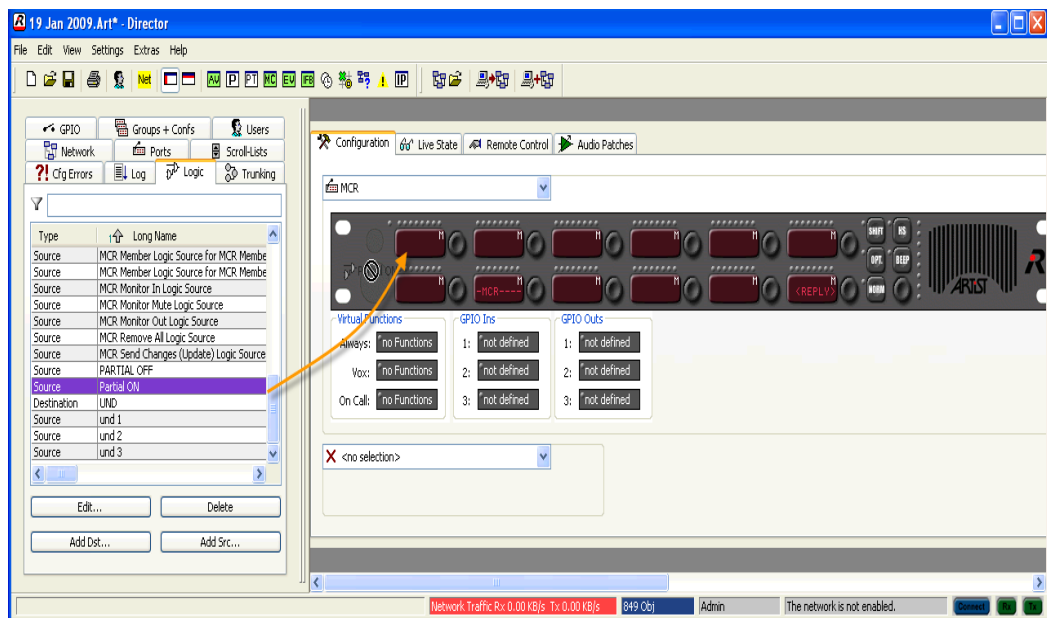


Figure 569: Partial Files - Partial File Trigger - Assigning a Logic Source

## 13 MASTER CONTROL ROOM (MCR)

### Overview

The “MCR” software add-on provides a convenient way to manage conferences and their members. It is normally used in a master control room to dynamically assign various members to individual conferences. The “MCR” offers an overview window where conferences can be easily monitored and changed. Individual members can be added to conferences using Drag & Drop. The interface also shows which members are currently speaking into a conference and what conferences are being spoken into. It can directly adjust 4-wire gain levels and use presets to manage member assignments. The “MCR” can also be used by multiple users on different PCs and changes will be synchronized between the PCs. The activation of “MCR” features from multiple control panels is also possible.

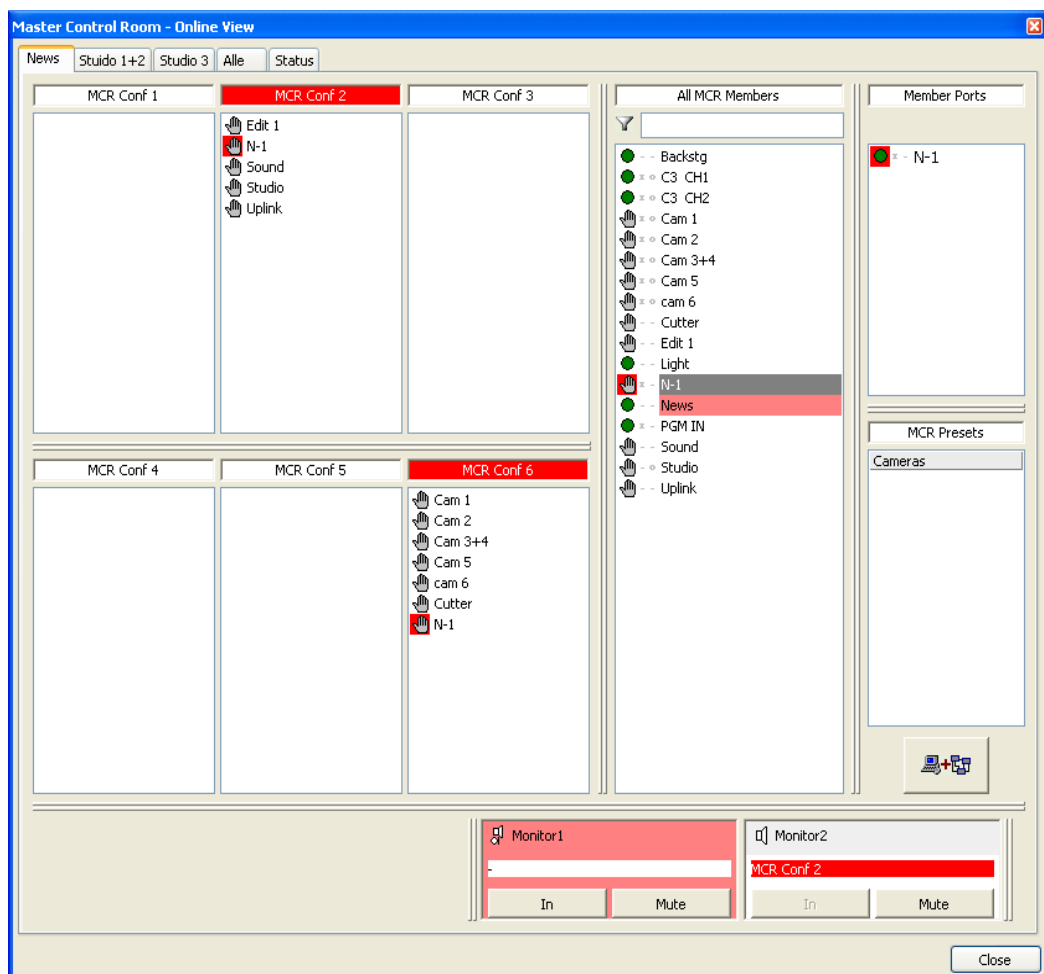


Figure 570: MCR - Typical MCR view

A comprehensive system of user rights allows different parts of the “MCR” to be accessible to different users, as well as the creation of multiple user specific views. All settings and user rights are a part of the standard configuration and are therefore independent of any specific PCs.

## 13.1 Adding the MCR

To use the MCR, the special feature must first be unlocked on all of the Director PCs. (See: [“11.1 Unlocking Software Add-ons”](#)). Afterwards, the MCR must be added to the current configuration. Select **“Edit” > “Special Interfaces” > “Add” > “Master Control Room”**.

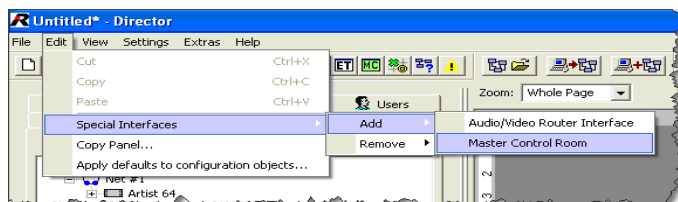


Figure 571: MCR - Adding the MCR

The **MC** symbol will appear in the network view. The MCR can now be configured and used.



Figure 572: MCR - MCR in the Network View

## 13.2 Creating MCR Conferences

When setting up the MCR, there are a few prerequisites that must be taken care of first. It is necessary to create new **conferences** that are to be used in the MCR. Open the **Groups + Confs** tab in the Navigation Bar.

Click on the **Add Conf...** button to create a new conference. Give the conference a unique name. In order to use the conference in the MCR, you must select the option **“Enable for Master Control Room use”**.

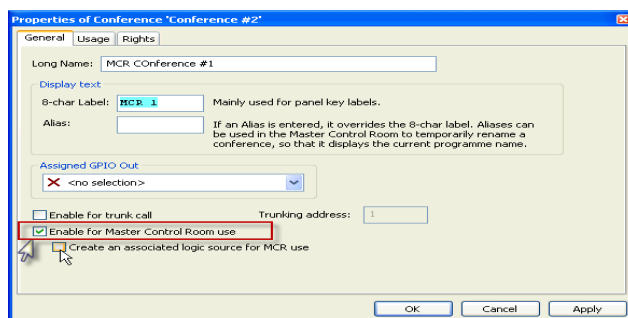


Figure 573: MCR - Creating a MCR conference

If you also intend to control the MCR interface using a control panel, you must select the option **“Create an associated logic source for MCR use”**. This will automatically create a



logic source for this conference, which is necessary for controlling the interface from a control panel. If you only intend to use the MCR interface on the PC, this option is not required.

Repeat the steps above for all the conferences that should be used in the MCR.

### 13.3 Configuring the MCR

The MCR must be set up in advance before you use it. Right mouse click on the MCR in the Network View and select **"Properties"**.

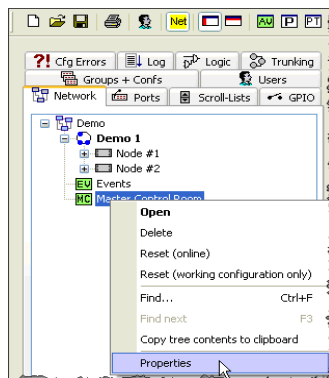



Figure 574: MCR - MCR Properties

You can also open the MCR by clicking on the  button in the toolbar and right clicking on the MCR window and selecting **"MCR Properties"**. Since the MCR is an online tool, the user interface will only be shown when there is an active connection to an Artist system.

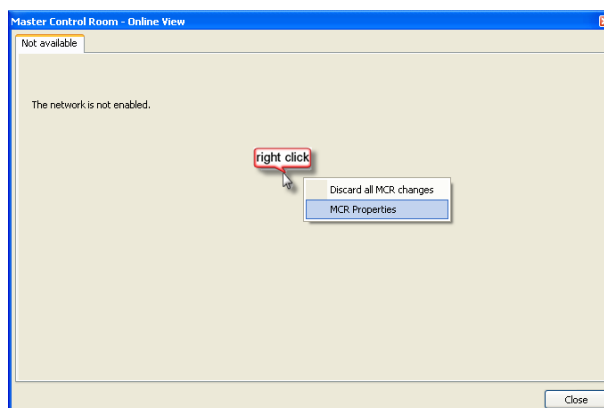


Figure 575: MCR - Properties of the MCR

A properties window will open where all of the basic settings can be made.

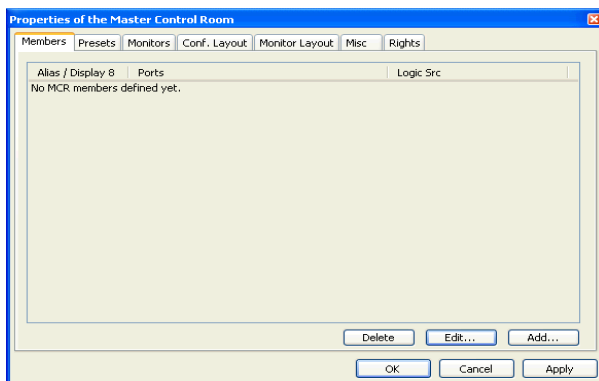



Figure 576: MCR - MCR Properties window

### 13.3.1 Creating MCR members

All members to be used in the MCR tool must be added and defined in advance. On control panels, this reserves an empty key for MCR use. Each element of an MCR member corresponds to a fixed key. Each MCR member can consist of several elements spanning multiple ports. For example, an MCR member could include different ports or just two identical MCR keys located on the main page and shift page of a particular control panel. Because an MCR member element corresponds to a specific key, it provides a way for a panel to be assigned to different conferences on different keys at the same time. In this case, each key would be a separate element for the MCR member. In the members tab, click on the  button.

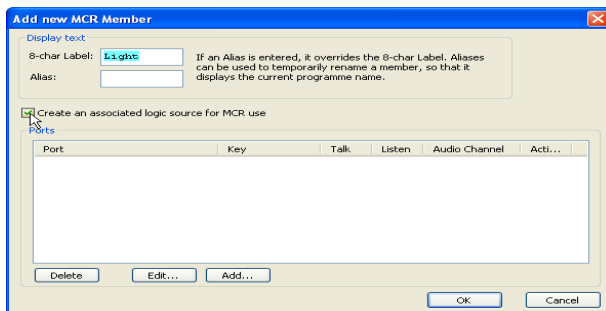



Figure 577: MCR - Edit MCR Member

In the field “8-char Label”, give each member a unique name. Using the “Alias” field, you can later assign each member a temporary name. If you want to later remote control the MCR from a control panel, you must also activate the “Create an associated logic source for MCR use” option. This will automatically create a new logic source for this member in Director.

You can now add elements to this member. Press the  button. Select a port from the “Destination” list.

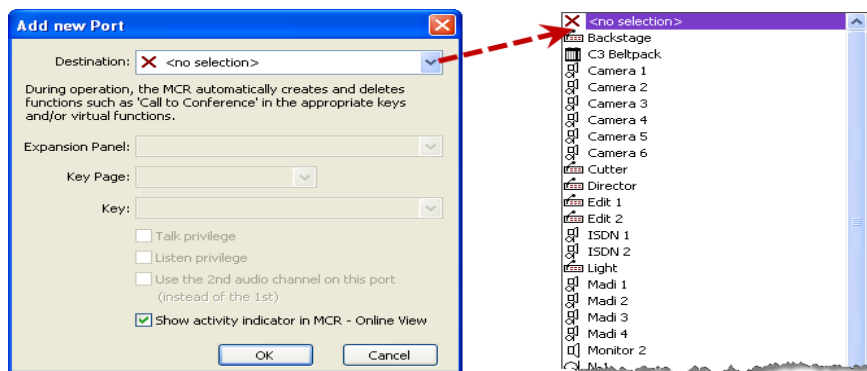


Figure 578: MCR - Add new element

If you select a control panel as a port, you must specify the exact position of the key that should later serve as a place holder for conferences. To do so, the physical location of the key has to be defined. Under “*Expansion Panel*” select whether the key is located on the main control panel or on an expansion panel. Under “*Key Page*”, select the page where the key is located. Under “*Key*”, the actual key is selected. All of the key labels are shown in the drop down list. This allows an empty key to be selected easily. If you are adding a 4-wire or 2-wire port, you do not need to specify a key. In that case, the conferences will be programmed on the VOX function of the port.

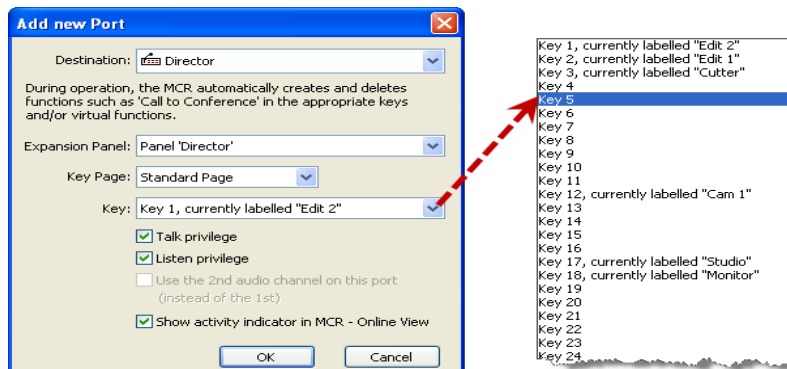


Figure 579: MCR - Choosing the MCR key

Assign whether the member element should be able to listen and/or talk into the conference. To do so, select the corresponding options ☒ Talk privilege and ☒ Listen privilege.

If you want to use the 2<sup>nd</sup> audio channel of a panel in the MCR, select this option on ☐ Use the 2nd audio channel on this port. This is only available if the panel was previously configured for 2 channel use.

Using the ☒ Show activity indicator in MCR - Online View option, you can select whether the MCR user interface should indicate when audio from this panel is active.

You can edit a selected entry using the  button. Using the  button deletes the selected entry.

Repeat the steps above for each member and for each member element required in the MCR tool.

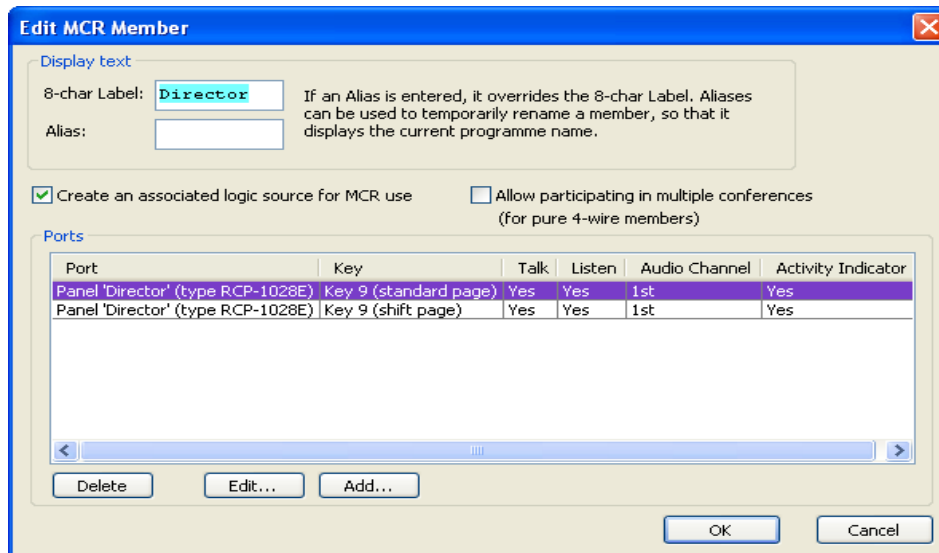


Figure 580: MCR - Add new MCR Member – example

### 13.3.1.1 Using 4-wires in multiple conferences

Up from Director Version 6.0 you can choose, if you want to use a 4-wire (or 4-wire split) member in different conferences at the same time or not.

**Up to Version 5.91 all MCR 4-wire members always could be used simultaneously in different conferences. If you now open an older configuration with Director 6.x this function is now deactivated for all 4-wires. If you want to use a 4-wire simultaneously in different conferences, you have to enable this function for every member individually.**

If you want to allow using a 4-wire simultaneous in different conference, you have to enable

☒ Allow participating in multiple conferences (for pure 4-wire members) in the „Edit MCR Member“ window.

A panel-port is always used in max. one conference at the time. If you are trying to enable the panel to be used in multiple conferences, you get an error-window.

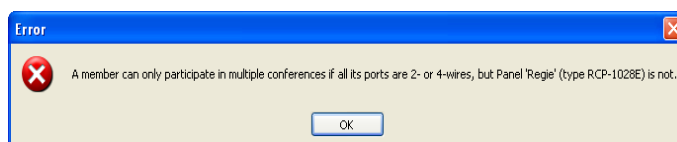


Figure 581: MCR - Error message when trying to use a panel in multiple conferences

If you want to have the possibility to use all new 4-wires as default in multiple conferences, you can enable this functionality in the **Misc** tab for all 4-wires.

**This setting has only an effect, when you add new 4-wire members to the MCR. Already existing members you have to modify manually.**

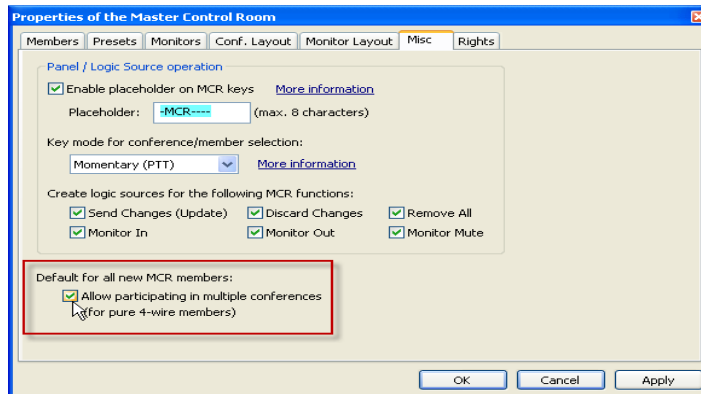


Figure 582: MCR - Misc - Default settings for new 4-wires

All 4-wire/4-wire split, that are enabled to be used in multiple conferences are shown with „yes“ in the column „MultiConf“ of the Member list.

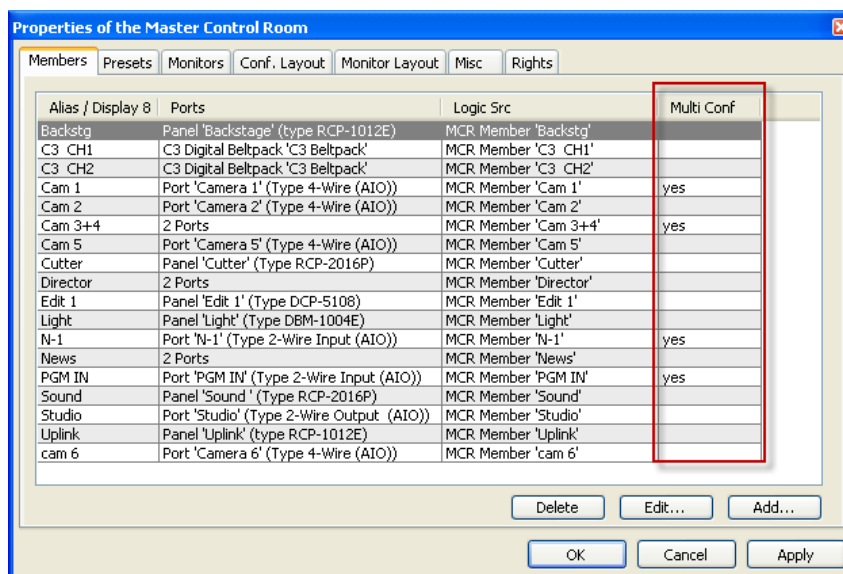


Figure 583: MCR - Members-table - Multiconf

### 13.3.2 MCR setup – layouts

Open the “*Conf. Layout*” tab in the MCR properties to setup the MCR layout for each user.

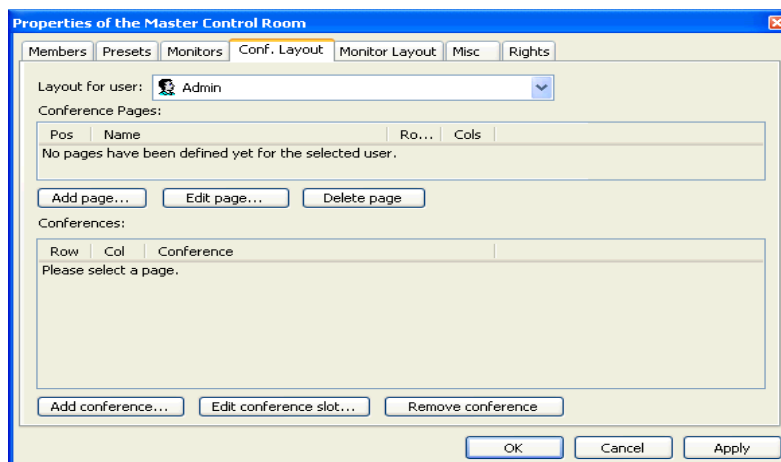


Figure 584: MCR - Layout - Add new Port

Select the user whose view you would like to define in the “*Layout for user*” drop down list.  
Note: you must be logged in as the Administrator.

Create pages for conferences that should appear in the MCR user interface in the “*Conference Pages*” field.

Up to **20 pages** of conferences can be added per user with a maximum of **48 conferences** per page. However, each conference can be assigned its own page.

Click on the  button to add a new page.

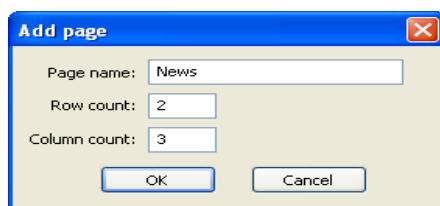
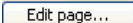
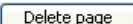


Figure 585: MCR - Layout - Add page

Enter a unique name for the page (max. 32 characters). Define the number of rows (“*Row count*”) and the number of columns (“*Column count*”) for the page. There can be a maximum of **4 rows and 12 columns per page**.

You can edit a previously created page by selecting it and pressing the  button.  
A page can be deleted by selecting it and clicking .

Repeat these steps until all of the pages you need have been created for each user.

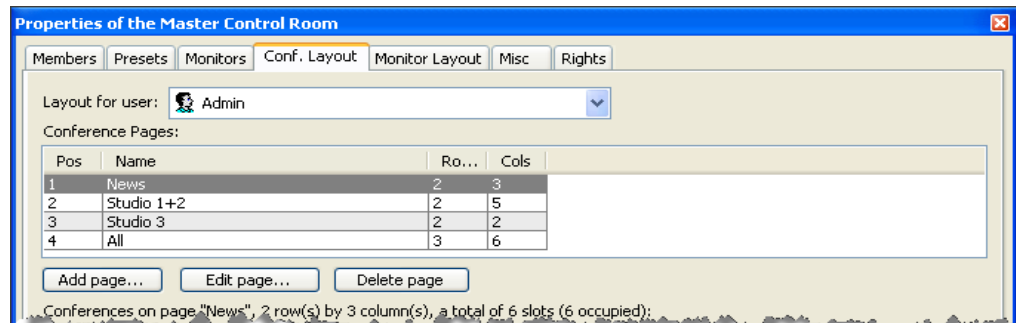


Figure 586: MCR - Layout - Create MCR pages

Conferences must now be assigned to the pages. Click the **Add conference...** button. Select a conference from the drop down list. The list only shows conferences that are setup for use with the MCR interface. (See: "[13.2 Creating MCR Conferences](#)") You can also change the position of the conference on the page, if needed. To do so, manually change the "Row" and "Column" number. Otherwise, Director will automatically choose the next free cell for the conference.

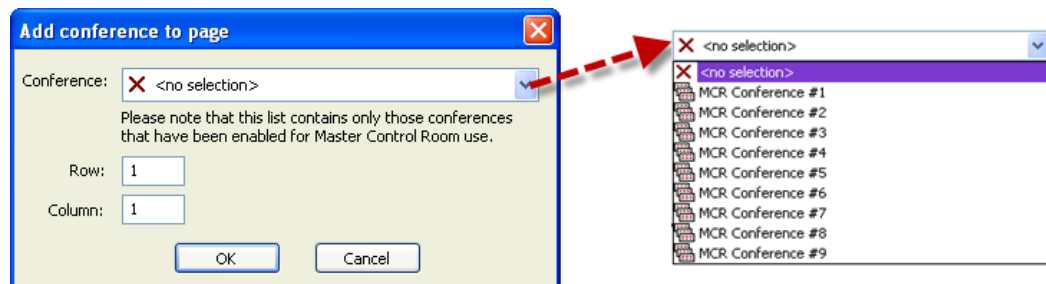


Figure 587: MCR - Layout - Assign a conference to a page

Distribute the available conferences as you like by repeating the steps above.

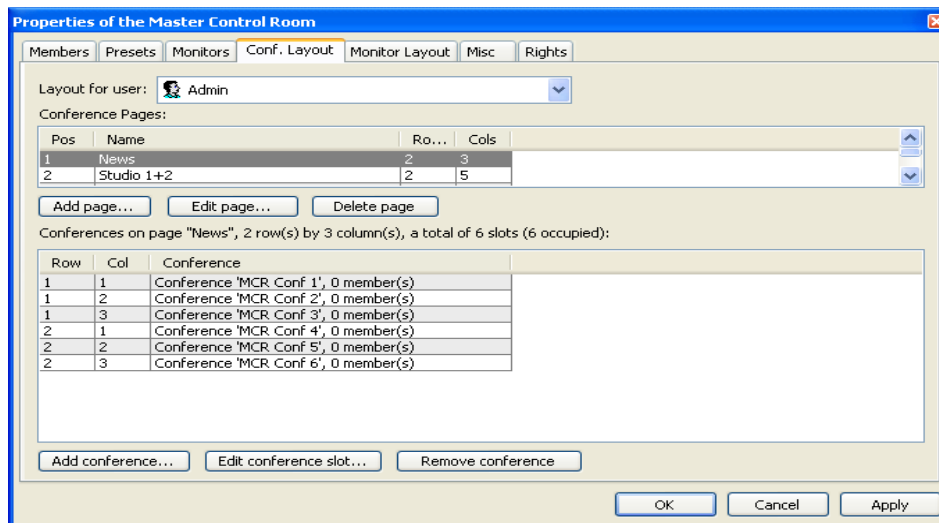



Figure 588: MCR - MCR Properties - Layout

You can also add conferences to this window by dragging them from the “Groups+Confs” tab directly using Drag & Drop.

Selected conferences can be edited or deleted by using the **Edit conference slot...** and **Remove conference** buttons.

Close the properties window by clicking **OK**. If you are online with Artist, press <F5> or the  button to send the changes to the system. Since MCR is an online tool, the user interface will only be shown when you are online with the system. After sending the changes to Artist, the new MCR interface setup is available to all PCs connected to the system.



### 13.3.3 Monitoring set up

The MCR allows certain ports in the system to be used as monitor ports. This enables you to monitor individual MCR members or conferences and to speak to them directly, if necessary.

The monitor view can also be configured separately for each user. The monitor ports are always available for their users independent of which MCR page is being viewed.

First, the monitor ports must be defined. Open the MCR properties by right mouse clicking anywhere on the [MCR window](#) and selecting “Properties”.

Select the “Monitors” tab in the properties window.

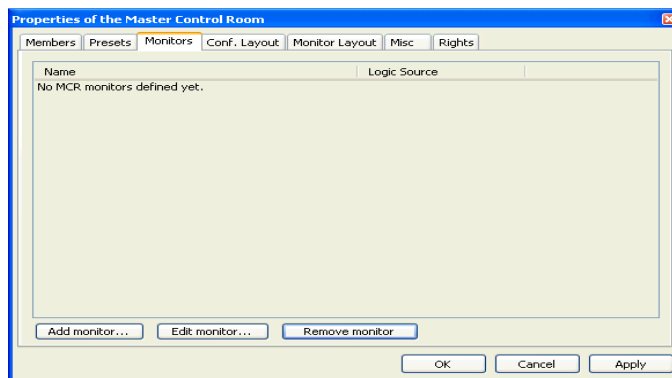


Figure 589: MCR - MCR Monitor - MCR Properties > Monitors

Click on the [Add monitor...](#) button to add a new monitor port.

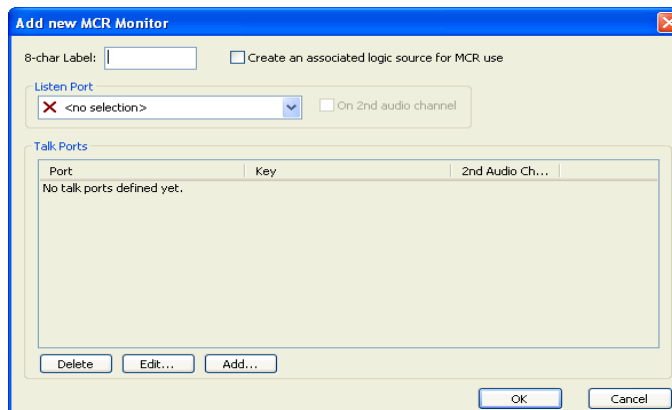


Figure 590: MCR - MCR Monitor - Adding a new monitor port

Next, the monitor port must be given a unique display name. Enter a name up to 8 characters long.

If you later want to access the monitor ports from a control panel, select the ☐ Create an associated logic source for MCR use option.

A port can now be defined as a listen port. The individual members and conferences can be monitored from this port.

Select the port from the drop down list. It can be a 4-wire, 2-wire or panel port. If the monitor port should be the 2<sup>nd</sup> channel of a port, select the option ☐ On 2nd audio channel (if the port has a 2<sup>nd</sup> channel available).

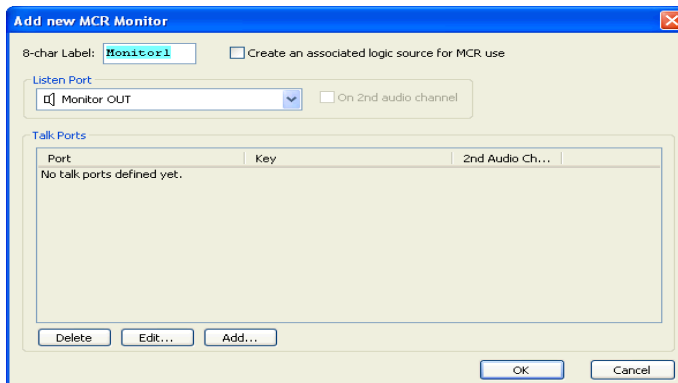


Figure 591: MCR - MCR Monitor - Add new MCR Monitor - Listen Port

If you talk to a monitor destination via a monitor port, you can add an additional **“Talk Port”**. This port does not have to be the same as the **“Listen Port”** and can be any port in the system. To add a new **“Talk Port”**, press the  button.

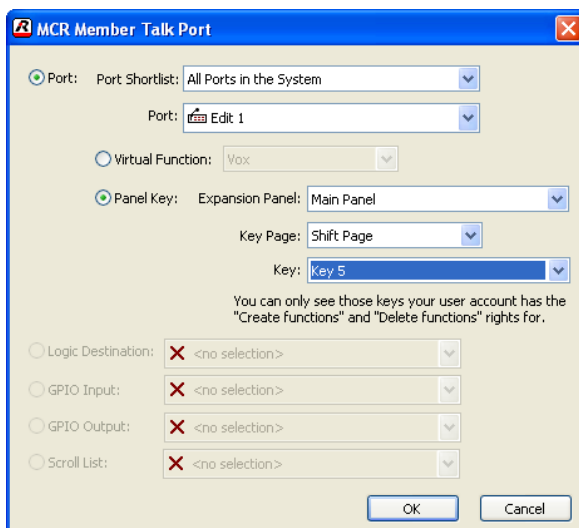


Figure 592: MCR - MCR Monitor - Adding a Talk Port

Select the desired port from the **“Port”** list. Depending on whether the port is a 4-wire, 2-wire input or a control panel, you can define how the talk command is triggered. On a panel the exact position of the talk key must be defined. On a 4-wire port the function will be automatically programmed on the VOX function of the port.

Confirm your selections with the  button. You can add further members to this monitor setup, if needed. Otherwise, you can return to the properties window by clicking  and add further monitor setups, if required.

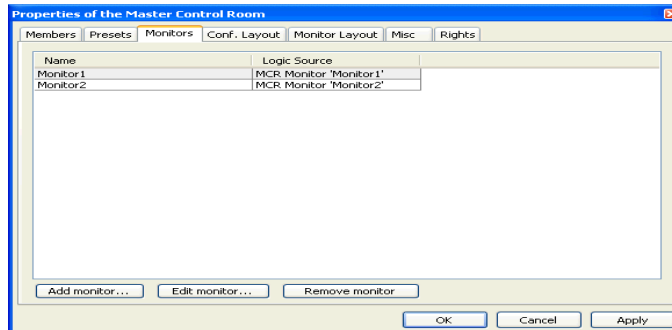


Figure 593: MCR - Monitor example

Now these newly created monitors must be added to the MCR layout. Open the tab **"Monitor Layout"**.

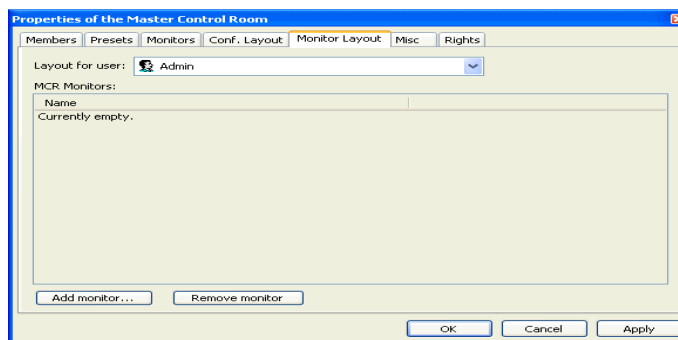


Figure 594: MCR - Monitor Layout

Choose the user who should use the monitor functions. Click the button  to assign the monitor ports.

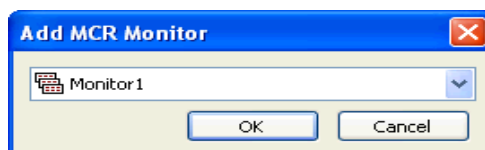



Figure 595: MCR - MCR Monitor - Add a monitor

Repeat these steps for all monitor ports that the selected user should have access to.

Afterwards, send the changes to the matrix with the **<F5>** key or the  button. When Director is connected to the system, the configured monitor ports will be displayed, depending on which user is logged on.

## 13.3.4 Creating MCR presets

The MCR feature lets you to create presets. This provides a way to pull a group of members into a conference at the same time.

Select the “Presets” tab from the MCR “*Properties*” window.

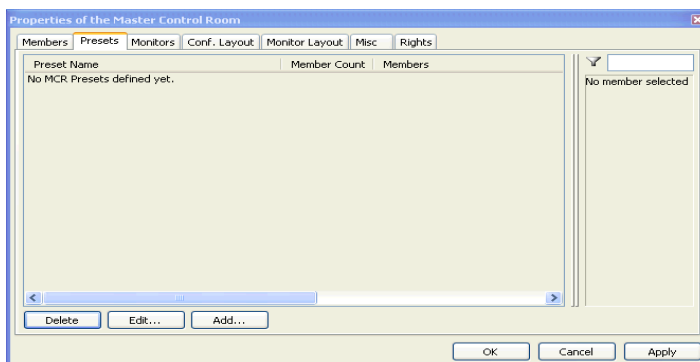


Figure 596: MCR - MCR Presets - Properties of the MCR > Presets

Press the  button to create a new preset. Give the preset a unique name.

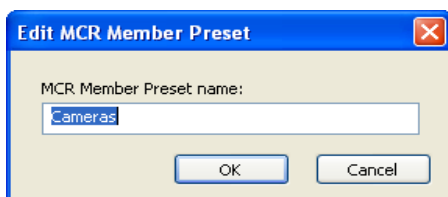


Figure 597: MCR - MCR Presets - Creating a new preset

Choose the members for this preset group by selecting them in the member list. Members who are not currently online will be marked red. They can still be added to the preset.

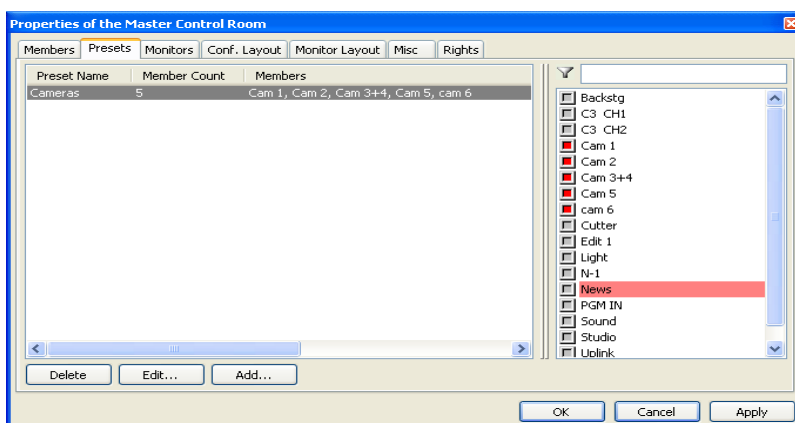


Figure 598: MCR - MCR Presets - Selecting the preset members

As soon as the changes are sent to Artist, the preset is available for all PCs connected to the system.

### 13.3.5 Other settings (Misc)

Other general settings can be defined in the “Misc” tab of the MCR “Properties”.

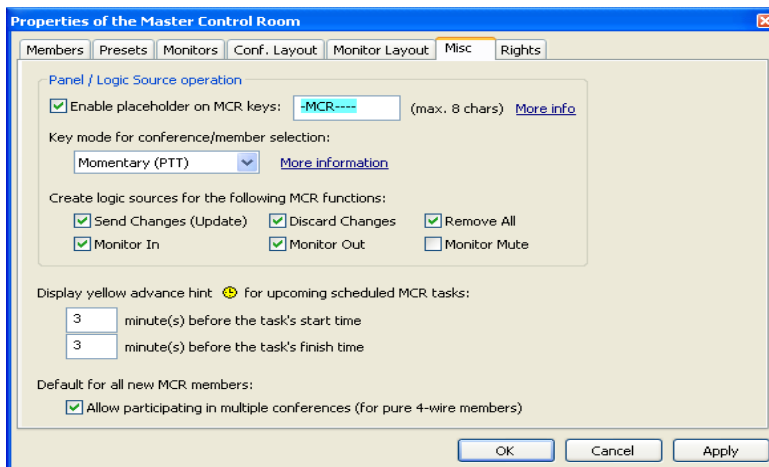


Figure 599: MCR - MCR Properties > Misc

With the option ☒ **Enable placeholder on MCR keys** you can activate a place holder that appears on MCR keys in the system when they are not assigned to a conference. This lets the MCR keys be identified quickly and helps prevent accidentally adding additional functions to these keys.

You can choose the place holder. Enter up to 8 characters. As a default the name “MCR- -” is used.

If you want to later use the MCR interface from a control panel, you can have the necessary logic sources created automatically by making the appropriate selections under “Create logic sources for...”. This would allow, for example, a panel to send MCR changes to the system directly via an “Update” key. It is also possible to control the monitor functions entirely from a control panel. The corresponding logic sources are simply pulled to keys to make their functions available on the panel.

You can also change the standard key mode for these keys on the panels to operate the MCR. You can choose between “Latching” and “Momentary”. Depending if you first press a conference- or a member key on the panel, the key mode is using the setting made here. (see [13.5.2 Using the MCR from a control panel](#) for Details)

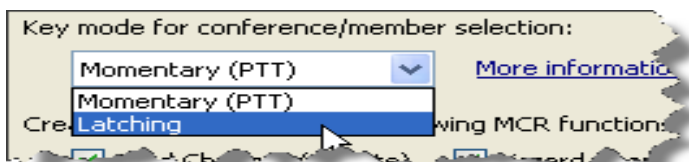
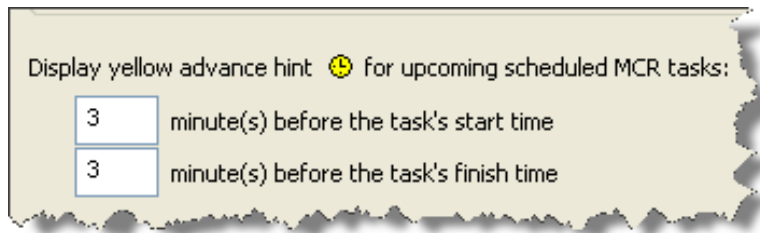


Figure 600: MCR - MCR Misc - Keymode

If you choose „*Momentary*“ a two hand operation is necessary. You have to press the selected conference- or member button as long you select the corresponding members / conferences. The key mode configured in the single “*Properties of Key*” will be ignored.



Display yellow advance hint ☺ for upcoming scheduled MCR tasks:

minute(s) before the task's start time

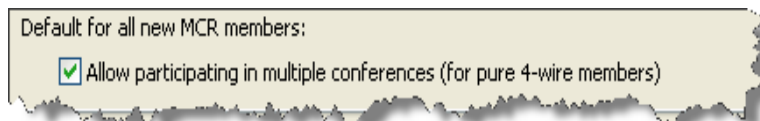
minute(s) before the task's finish time

Figure 601: MCR - MCR Misc - Scheduled Tasks

If you also using the „*Scheduler*“ to activate conferences controlled by a timer, you can set time periods when to show a special clock symbol.

You can set the time in minutes to show a ☺-symbol on the affected conferences and members before an automatic conference activation starts and before the event will be deactivated automatically.

Prerequisite for using this functionality is the activated “*Events/Scheduler*” tool of the Director and an existing event “*MCR Conference*”. For Details see [13.4.9 Display of time controlled conferences](#) and [14.2.2 Event: MCR Conference](#)



Default for all new MCR members:




☒ Allow participating in multiple conferences (for pure 4-wire members)

Figure 602: MCR - MCR Misc - Multiple usage of 4-wires

With the option „*Default for all new MCR members*“ you can set the behaviour for new added 4-wires, if you want to use 4-wires in multiple conferences simultaneous. See Details [13.3.1.1 Using 4-wires in multiple conferences](#)

## 13.4 Using the MCR

After all of the settings are configured and sent to the system, the MCR interface can be used in Director from all of the PCs that are connected to Artist. Because the MCR is an online tool, its user interface is only available when Director is connected online with an Artist system.

As soon as you have connected to the system using the  button and obtained the online configuration using the  button, you must log on with your username and password. To open the MCR interface, click the  button in the toolbar. The MCR window corresponding to the current user will appear.

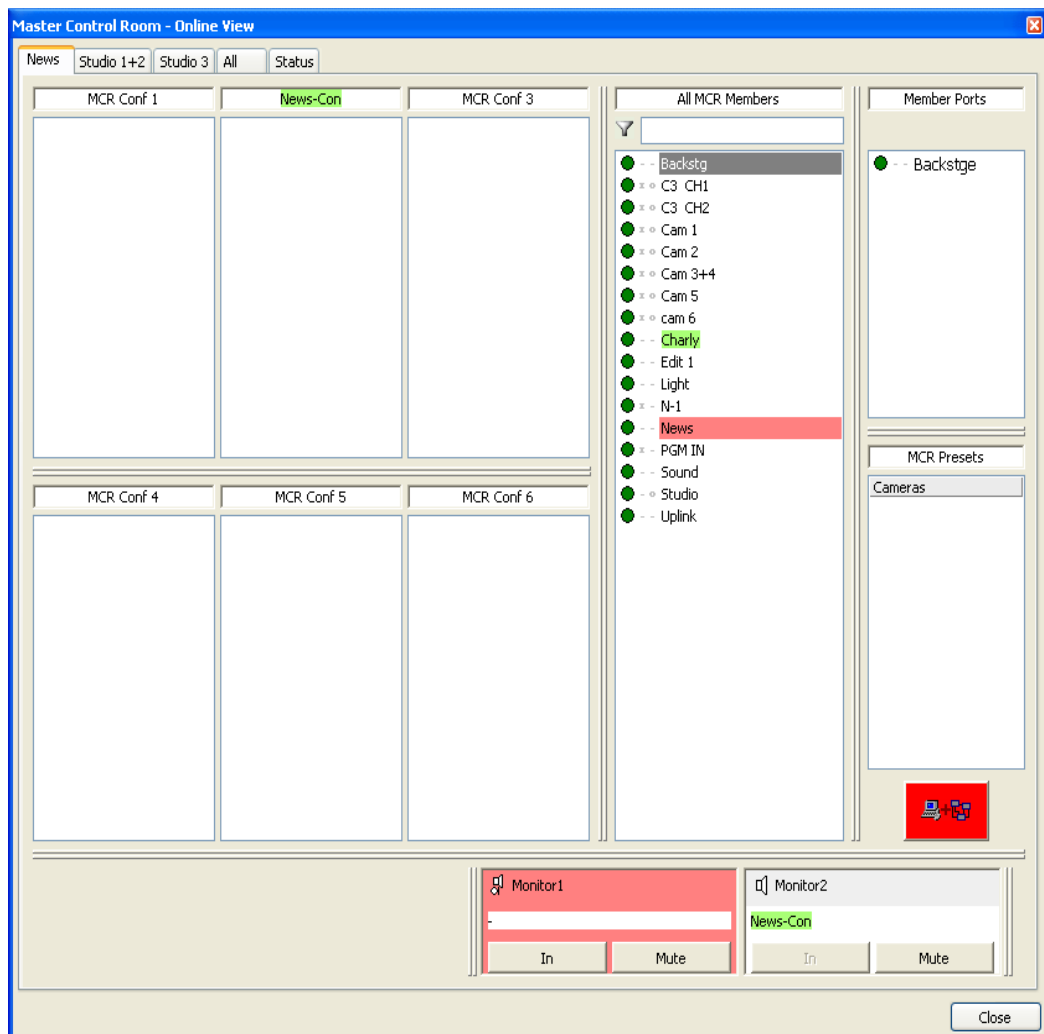


Figure 603: MCR handling - Active MCR tool (example)

## 13.4.1 MCR – overview

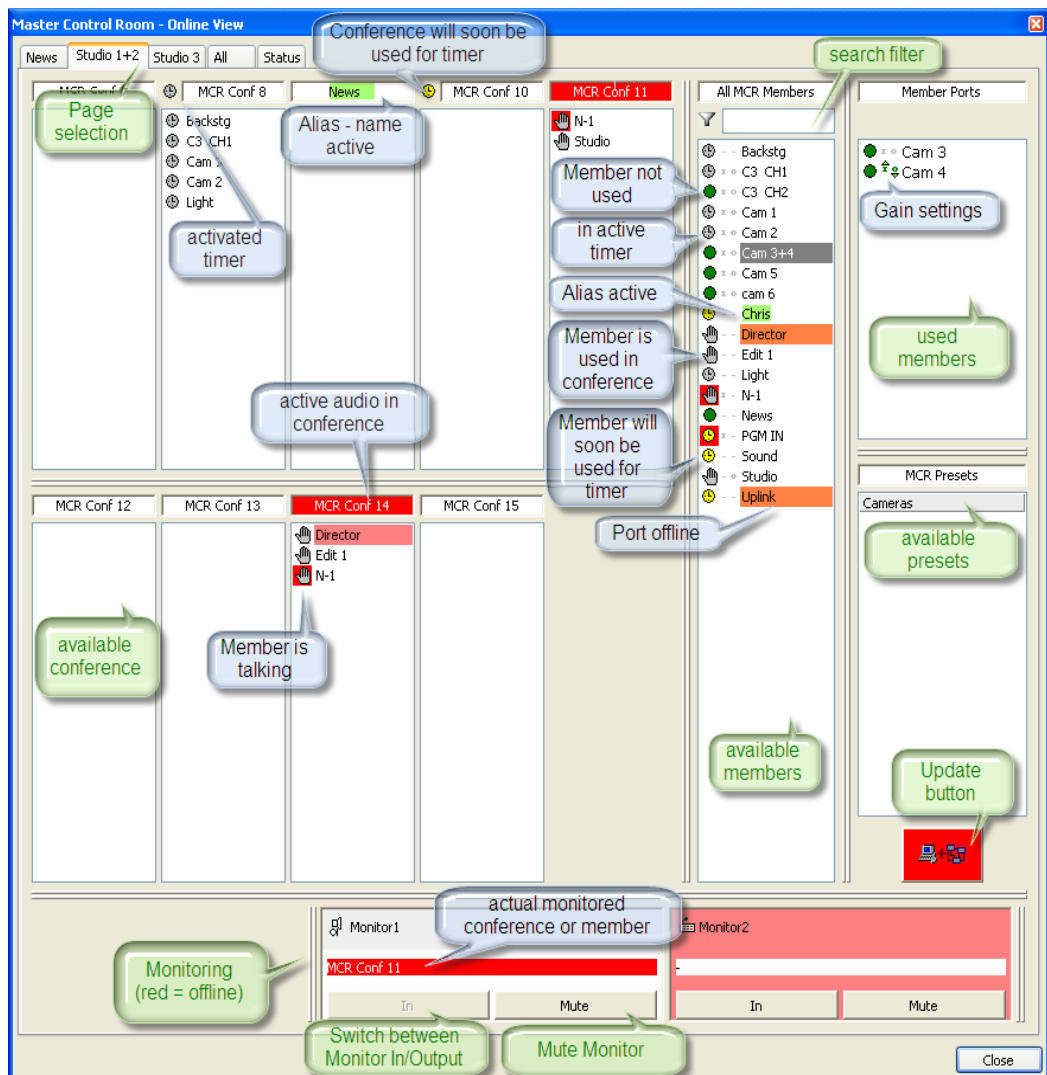


Figure 604: MCR handling - function overview (example)



## 13.4.2 Assigning members to a conference

To add a MCR member to a conference, simply pull the member into the conference using Drag & Drop. Select the *MCR* page with the conference you want to use and pull the member into it.

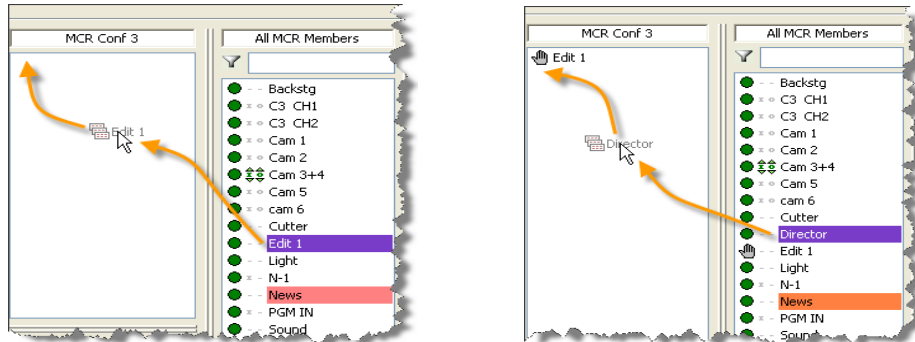


Figure 605: MCR handling - Members Drag & Drop

Control panel members are only allowed to be in one conference at a time. If the member is currently available, it will be marked by a ● in the member list. As soon as the member has been assigned to a conference the symbol will change to a 🖱️. If you attempt to pull the panel into another conference, an error message will appear.

4-wires and 2-wire splits work slightly differently. These port types can be in multiple conferences at the same time.

Since an “MCR Member” can consist of several member elements, the elements that make up a member are listed in the “Member Ports” field when you click on a member. The “Member Ports” cannot be dragged directly into a conference.

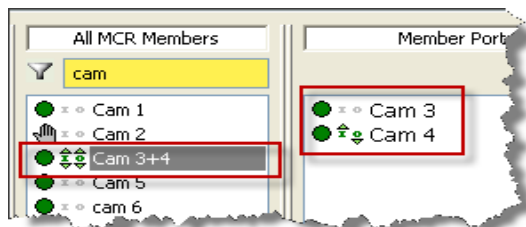


Figure 606: MCR handling - Members with corresponding Member Ports


As soon as any changes have been made, the update button  turns red and flashes. This means that the changes have not yet been sent to the system. If you press this button, the changes will be sent to Artist and reflected on all of the other MCR interfaces connected over other copies of Director.



Figure 607: MCR handling - Sending changes

If a member is assigned to one or more conferences (4-wires only) you can see an overview of the assignments in a small pop-up window. Place the mouse pointer over a member in the MCR member list. After a short delay, an info window will automatically appear showing the conferences that the port is a member of and how many members are in each conference.

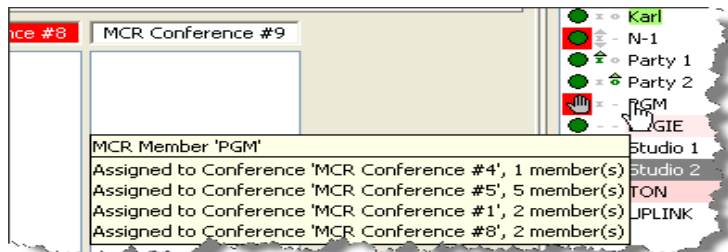


Figure 608: MCR handling - Assignment information. Example 4-wire port

You can also drag individual members from one conference directly into another conference. Click on a member in a conference and pull the member to another conference. Send the changes to the system with the  button.

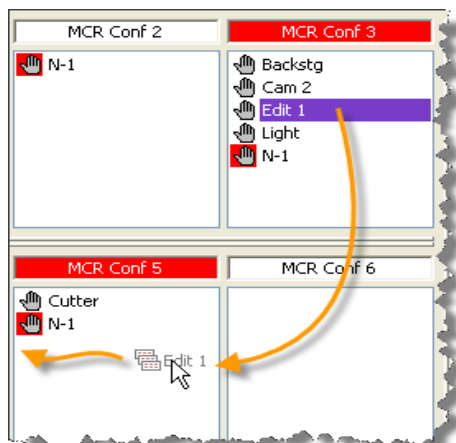


Figure 609: MCR handling - Moving a member



As soon as a member sends any active audio, this will be indicated either by a red  or  in the port list and in the conference. If someone is actively speaking into a conference, the name of the conference will be highlighted red.



Figure 610: MCR handling - Active audio in a conference. Source is "N-1"

### 13.4.3 Using presets

A preset is a predefined group of members. A preset allows the group to be assigned to a conference together using Drag & Drop. If you hold the mouse pointer on a preset all of the members in the preset will be displayed.

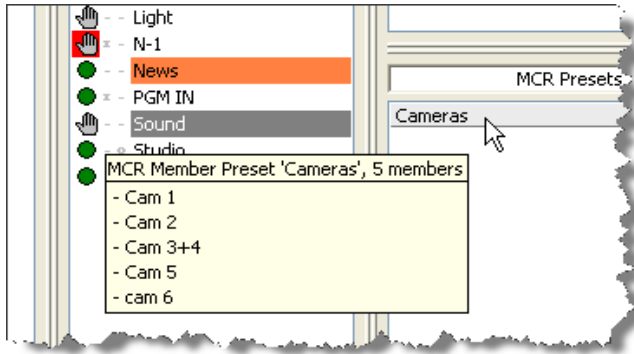



Figure 611: MCR handling - Presets- Member Info

Pull a preset from the “MCR Presets” list into a conference. Send the changes to the system using the  button.

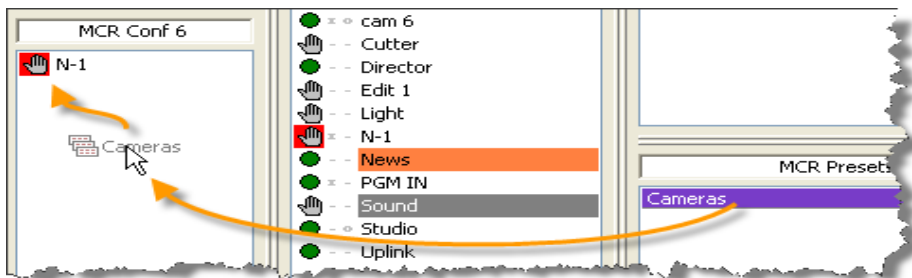


Figure 612: MCR handling - Drag & Drop- presets

The individual members will now be listed in the conference.

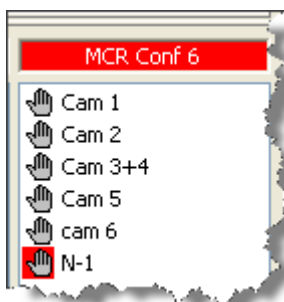



Figure 613: MCR handling - Preset members in a conference

**Note:** If you want to remove the members of a preset from a conference, you must remove the individual members separately.

## 13.4.4 Removing a member from a conference

There are two ways to remove a member from a conference.

### Method 1:

Pull the member from the conference back into the “MCR Member” list. The hand symbol changes back to a green dot (for 4-wires, it only changes if the member has been removed from all conferences). Send the changes to the system using the .

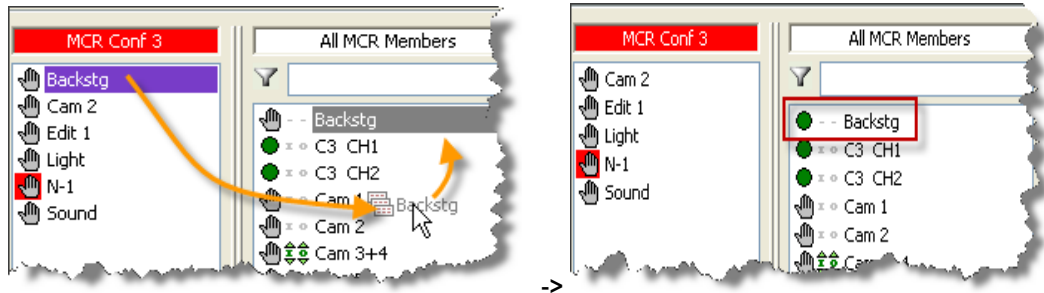


Figure 614: MCR handling - Removing a member from a conference

### Method 2

Right mouse click on a member to remove the member from one or more conferences. You have different options depending on whether you right click in the active conference or in the “Member List”. If you right click on a member in a conference, you can select the entry “Remove from conference”. You can also select “Remove all members” to remove all members from the conference with a single click.

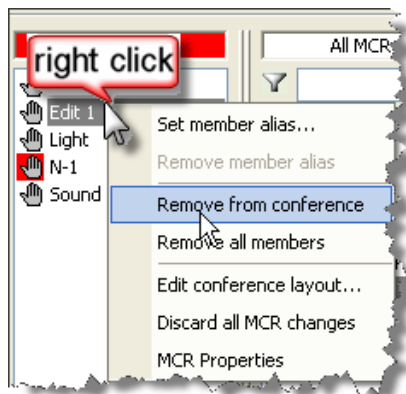



Figure 615: MCR handling - Remove a member with a right click in the conference

If you right mouse click on a member in the “MCR- Members” list you can automatically remove the member from all conferences by selecting “Remove from all Conferences”. For control panel members method 1 and 2 are identical. However, 4-wire ports can be in more than one conference at a time, and method 2 can remove them from all conferences at once. Transfer the changes to the system using the  button.

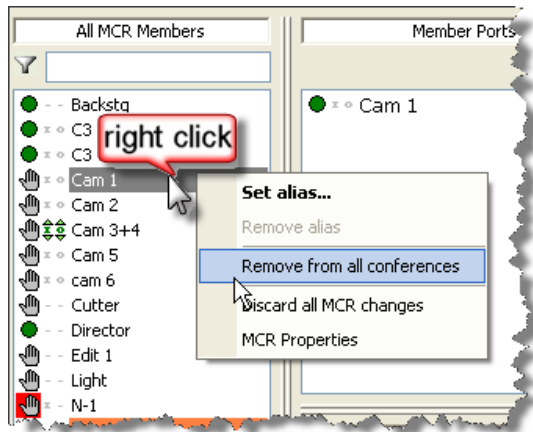


Figure 616: MCR handling - Remove from all conferences

### 13.4.5 Using an alias name

All conferences and members normally have a fixed name. However, in many situations it is useful to assign a temporary name to a member or conference to provide a better overview and your workflow easier. For these applications a so-called “alias” name can be used. The alias temporarily overrides the normal name of the port or conference without having to change the basic configuration of the MCR. As soon as the alias is deleted, the original name is used again.

To assign an alias, right mouse click on a conference or member in the “MCR Members” list. Select “Set Alias” in the popup menu that appears. Enter an alias name with up to 8 characters.

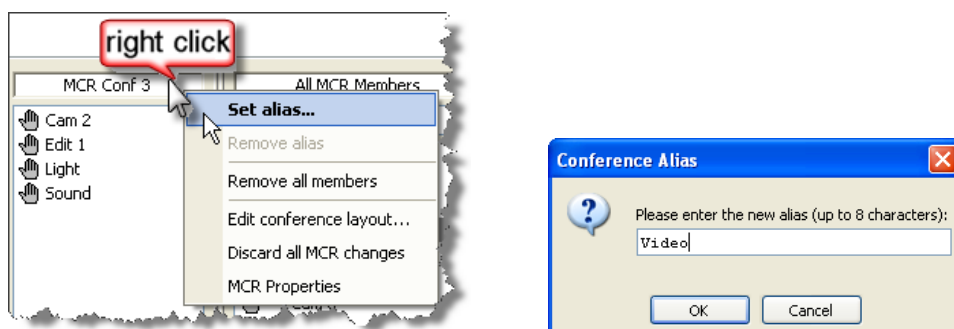


Figure 617: MCR handling - Select and enter an alias for a conference

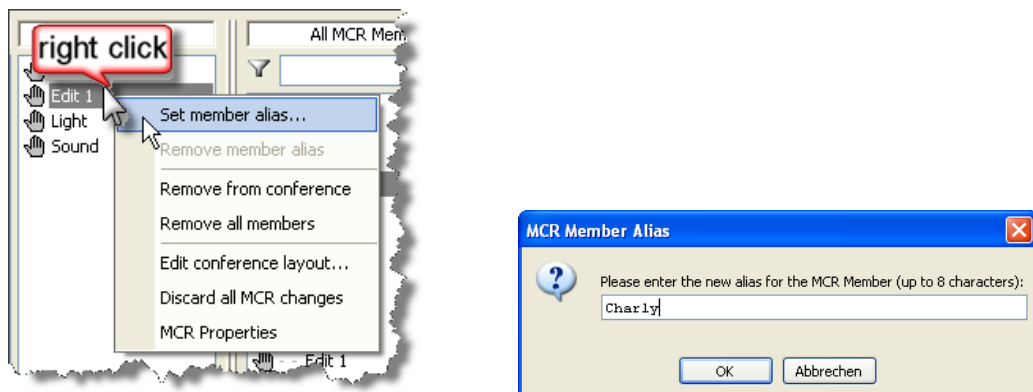



Figure 618: MCR handling - Select and enter an alias for a MCR member

As soon as you click the  button, the alias name will be applied and also immediately sent to the system. The new alias will also appear on all other MCR interfaces running on other copies of Director. It is not necessary to manually press the update  button.

All conferences and members in the MCR interface with an active alias will be highlighted green. This indicates that the normal name has been changed.

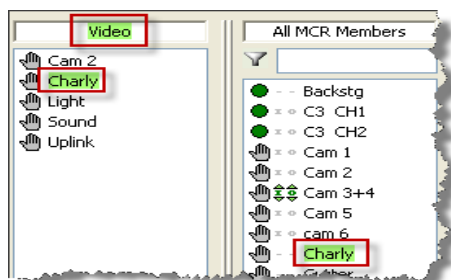


Figure 619: MCR handling - Display of alias names

If you wish to change an assigned alias, right mouse click on a member or conference. Select "Rename alias" to change the name. The change will be automatically sent to the system.

To delete an alias and return to the original name, right mouse click on a conference or member. Select "Remove alias". The name will change back to the original name and will be automatically sent to the system. The green highlighting will disappear.

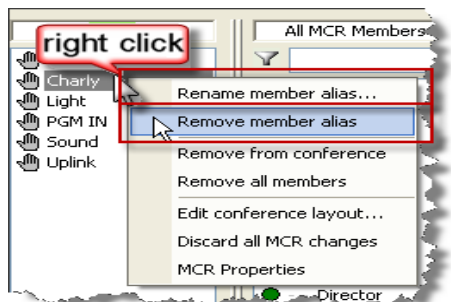



Figure 620: MCR handling - Rename or remove an alias

### 13.4.6 Changing a 4-wire I/O gain level

The MCR interface offers a way to graphically display the input and output gain of a 4-wire port and change the gain, if necessary. A small arrow symbol  is displayed next to 4-wire members in the “MCR Members” list and in the “Member Ports”. This indicates that the input and output gains can be manually changed.

To change the gain settings of a 4-wire port in the MCR interface, first select the port in the “MCR Members” list. The “Members Port” list will display that member’s corresponding ports. Right mouse click on a member port and select “Set Input/Output Gain...”

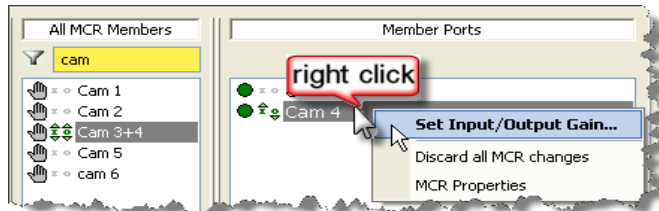
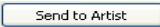


Figure 621: MCR handling - Opening the I/O gain function

The gain control must be assigned to Director. Set the desired input and output levels for the port. Afterwards, press the  button. The changes will be sent to the system.

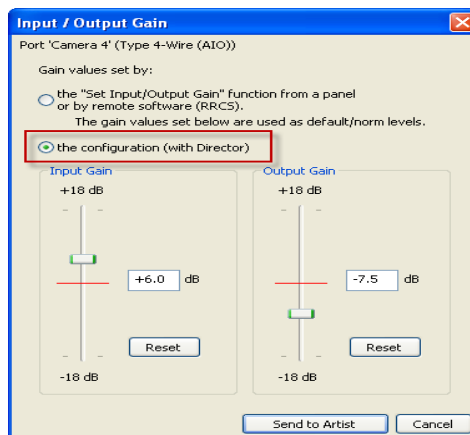


Figure 622: MCR handling - Setting the input and output gain levels

The changed gain settings will be indicated by the green arrow in the “Member Ports” and “MCR Members” lists.

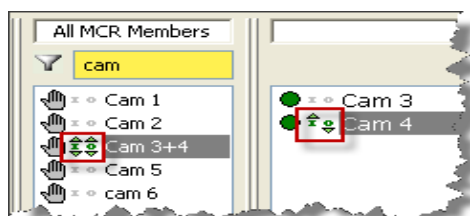



Figure 623: MCR handling - display of changed input and output gain levels

## 13.4.7 Using the Monitor function

The MCR offers a way to monitor selected conferences or members using ports assigned as monitoring ports (see: “[13.3.3 Monitoring set up](#)”). It is also possible to talk to the conference or port being monitored from a monitor port.

To monitor a conference, simply pull the conference to the monitor port. To monitor a port, drag it from either from a conference or from the “MCR Members” list to the monitor port. This change will be immediately sent to the system. You do not have to press the update  button.

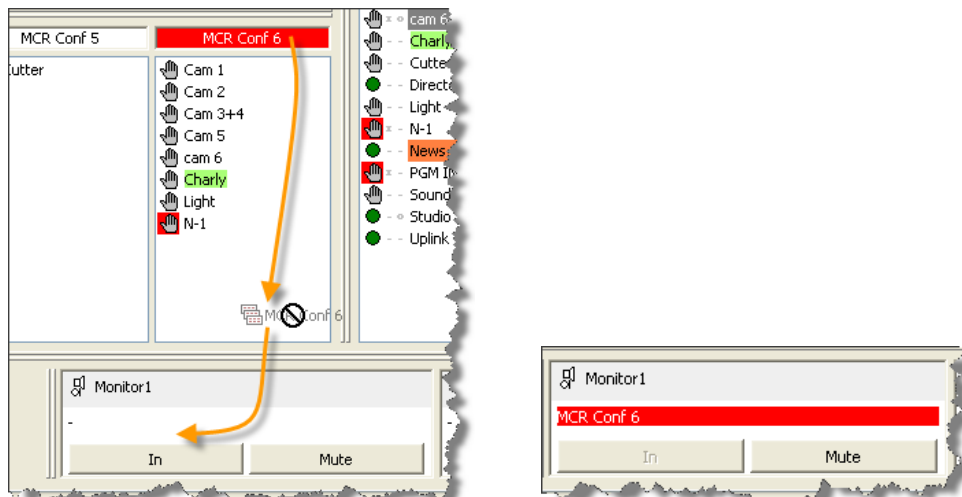


Figure 624: MCR handling - Monitoring a conference (red= audio currently active in the conference)

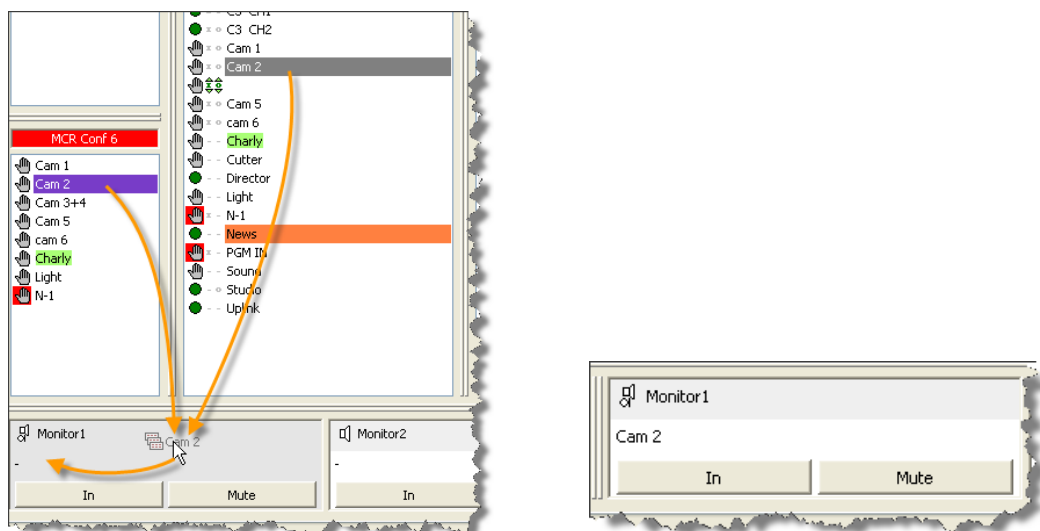
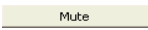



Figure 625: MCR handling - Monitoring a member

Pressing the  button temporarily mutes the monitor audio to the port. The changes are immediately sent to the system. If “Mute” is active, it will be indicated by a red mute button .



The **In** button indicates that the monitor is currently listening to a port. This means that the input of the port is routed to the monitor output. As soon as the button is pressed, it changes to **Out**. The change will be immediately sent to the system. Now the audio that is routed from an MCR conference to the output of the port can be heard at the monitor output. This button is only available if a single port with an input and output is being monitored. This function is not available for conferences or 4-wire splits.

To stop monitoring, right click on the monitor and select “Cancel monitoring”. The change will be immediately sent to the system.

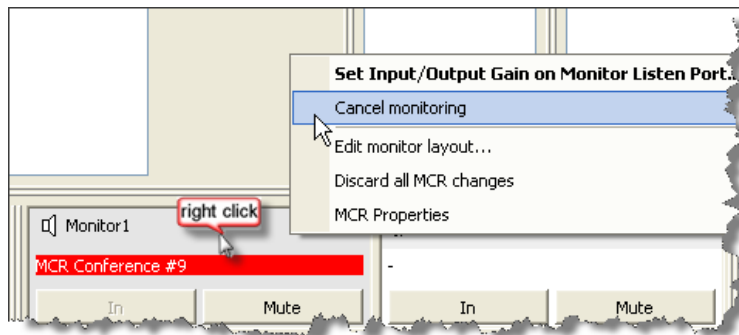


Figure 626: MCR handling - Ending the monitoring function

You can also set the input and output gain level of the monitoring port in this menu.

### 13.4.8 Undo changes

Changes to the conference or port assignments in the user interface are only visible locally until the **Undo** is pressed. The MCR interface documents all changes since the last update was sent.

Open the “Status” tab from the MCR interface.

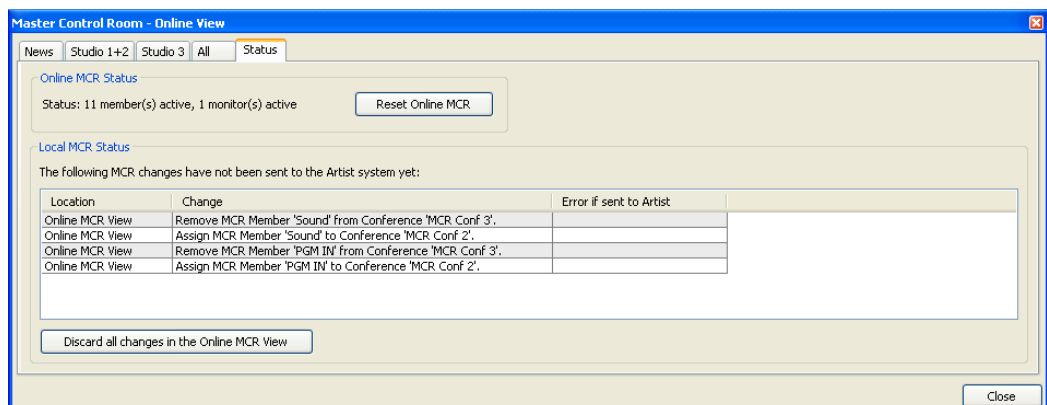


Figure 627: MCR handling - Master Control Room - Status

The “Local MCR Status” list shows all changes that have been made since the last transfer of changes to the Artist system (with the exception of gain changes and the monitor function). Click the  button to undo all of these changes. You will be asked to confirm your choice. This option can also be reached from a MCR page with a right mouse click.

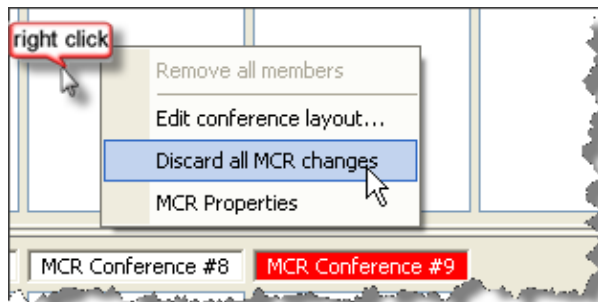



Figure 628: MCR handling - Discarding changes

If you wish to reset all MCR assignments and end any monitoring, press the  button in the “Status” tab. After being asked to confirm, the MCR will be reset.

**Note: the reset also affects all other online MCR interfaces.**

This option is also available in the network view of Director. Right mouse click on the  symbol.

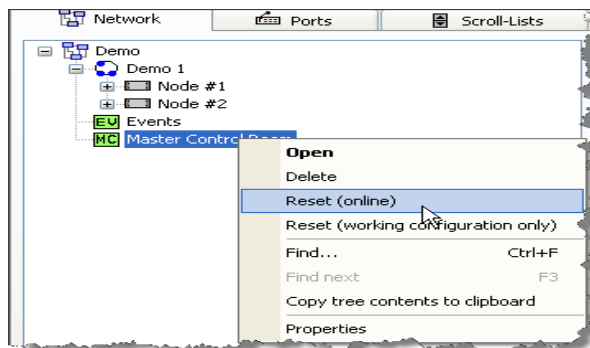


Figure 629: MCR handling - Network tab - Reset MCR


The “Reset (Online)” function will reset the complete MCR system. That means that all currently active conferences and monitor functions will be emptied.


If you save a configuration with an MCR interface to a hard disk, a snapshot of the current MCR assignments will also be saved. If this configuration is read out from a system or opened from a hard drive, you can locally reset these saved assignments with the command “Reset (working configuration only)”. The online system will not be affected.


### 13.4.9 Display of time controlled conferences

Starting in version 6.10 it is possible to highlight timer controlled Conferences and Members in the MCR which will be switched by the “Scheduler”.

To use this functionality „Events/Scheduler“ must be registered and enabled in the Director.

First create a new Event „MCR Conference“ in the properties of Events  . See [14.2.2 Event: MCR Conference for Details](#)

Now open the „Scheduler“  and select the new „MCR Conference“-Event created before. Select the time and dates when this Event should be activated/deactivated automatically. See [14.4.2 Configuring the Scheduler](#) for Details.

Open the „Properties“ of the „MCR“ by a right click in the MCR-window and select  to adjust the display settings for timer controlled conferences.

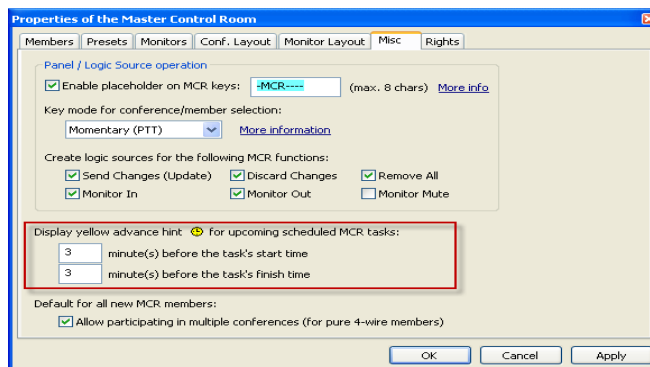



Figure 630: MCR Scheduler - Properties des MCR > Misc

Here you can set up the time to see a  - symbol on affected conferences and members before a timer controlled conference will start.

The same symbol will show up, before an activated timer will be deactivated. You can set up both settings individually

Following symbols are used for timer controlled conferences. These symbols show up on affected conferences and also on the affected members:





	Member / Conference will soon be used for Scheduler controlled conference. If the timer is already running, the symbol shows up before the scheduled conference will be stopped automatically. (Depending of the settings in “Misc”).
	Member / Conference is used in a running scheduled conference
	Member / Conference should now be used in a scheduled conference, but it is not. Causes: - The start time of a new generated timer was in the past - The event was stopped manually in the Events - tool 

Figure 631: Table - MCR Scheduler Icons

View [13.4.1 MCR – Overview](#) to get an overview of the displays for scheduled conferences

A short tool-tip window will show up, when you show with the mouse over a conference or a member with a clock-symbol. It will show the actual status and which timer is or will be used:

Member will soon be used for a scheduled event.

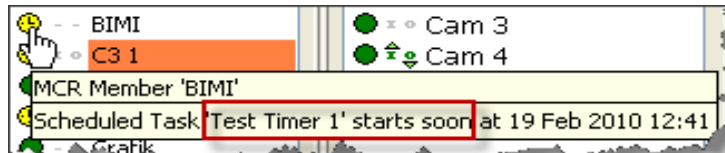


Figure 632: MCR Scheduler - Member will be used soon

Member is part of an actual running scheduled conference.



Figure 633: MCR Scheduler - Member is used in a scheduled conference

The running scheduled conference will be stopped soon

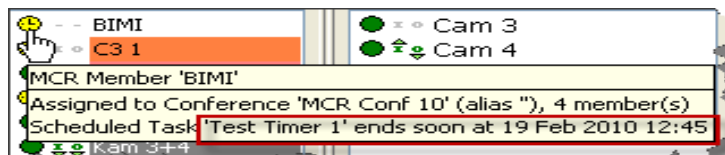


Figure 634: MCR Scheduler - Scheduled conference ends soon

Scheduled timer could not be started

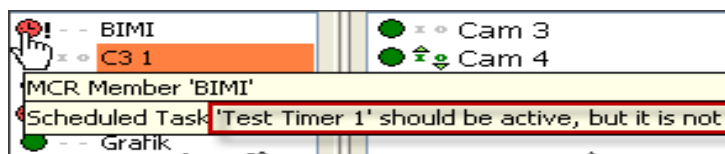


Figure 635: MCR Scheduler - Scheduled task could not be started

## 13.5 Setting Up and Using the MCR Interface from a Control Panel

The MCR tool can be controlled from multiple PCs as well as from control panels. Any control panel type can be used.

### 13.5.1 Setting up the MCR and panels

You must assign an online Director PC to handle MCR requests in order to use the MCR interface from one or more control panels.

Go to **“Settings”** > **“Options”** and then select the tab **“Miscellaneous”**. Activate the option **“Handle MCR operations triggered by Panels / Logic Sources”**.

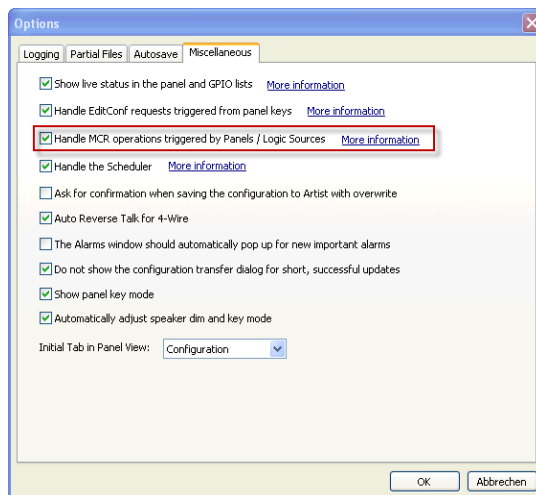



Figure 636: MCR - Panel control - Settings > Options

**Warning:** only 1 Director PC in the network should have this option activated. The control of the MCR interface by control panels only works when this copy of Director is online with the system.

To enable the MCR interface to be controlled from a panel, every function, member, monitor and conference is assigned a logic source. This means that control panels are only sending logic commands to the Director PC which then converts these to MCR commands.

It is therefore necessary when creating conferences and MCR members that the ☒ Create an associated logic source for MCR use option has been set in the **“MCR Properties”**. (See: **“13.2 Creating MCR Conferences”**, **“13.3 Configuring the MCR”** and **“13.3.5 Other settings (Misc)”**).

Open the  Logic tab in Director. The MCR sources generated automatically will be listed with their automatically generated names "MCR...".

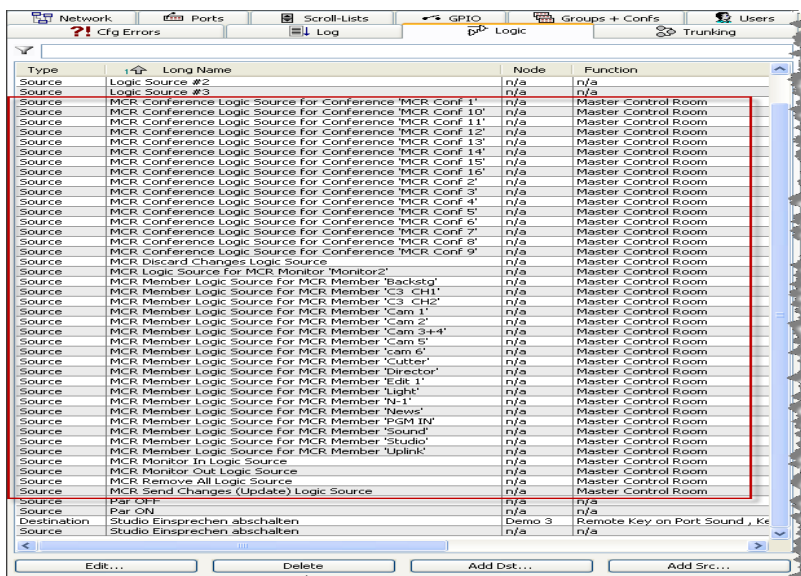


Figure 637: MCR - Panel control - Logic Sources

Double click on a port in the port list or network list to open a control panel that should be used to control the MCR interface. Pull the logic sources onto unused keys. Repeat for each panel that should control the MCR.

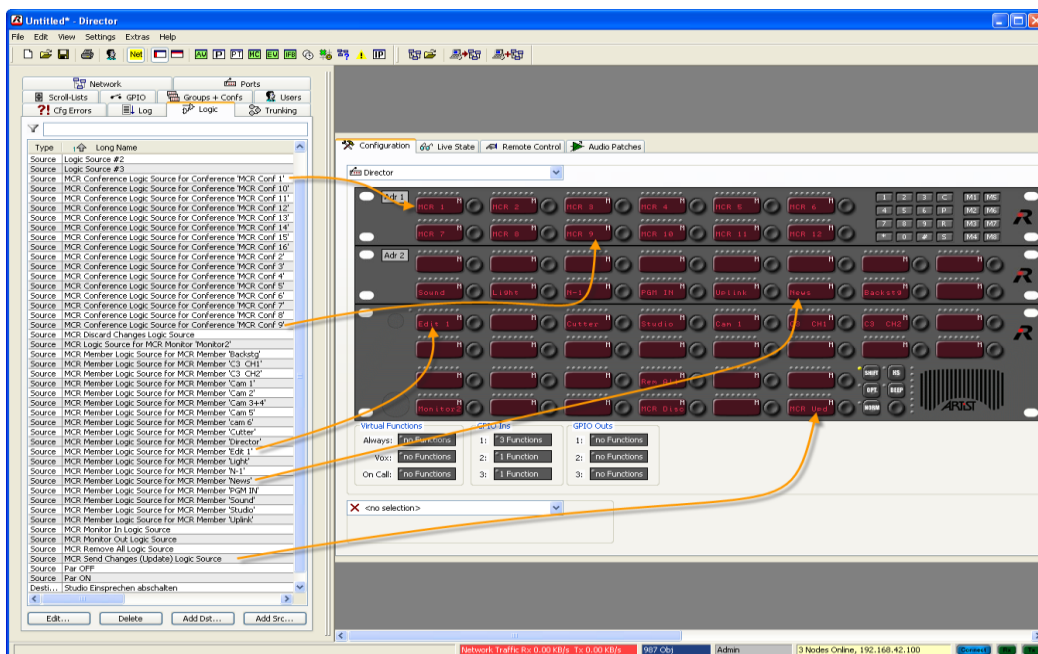


Figure 638: MCR - Panel control - Adding MCR logic sources to a control panel

After you have sent these changes to the system the MCR can be controlled from both the software interface and control panels.

### 13.5.2 Using the MCR from a control panel

To assign a member to a conference, first press the conference key. All available members will be indicated by a red marker.

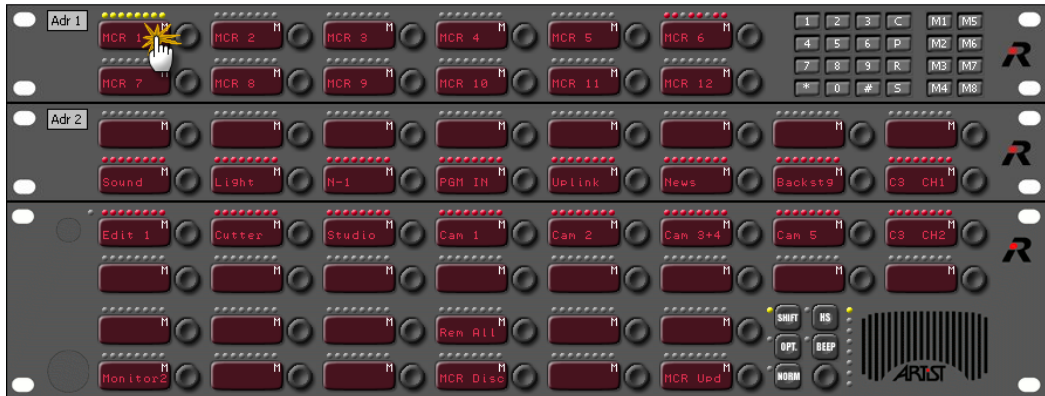


Figure 639: MCR - Panel control - Selecting the conference

Select the members to add. Newly selected or already existing members will be indicated by a green marker. Press the “MCR Upd” key. The changes will be sent to the system and also reflected in all MCR software interfaces.

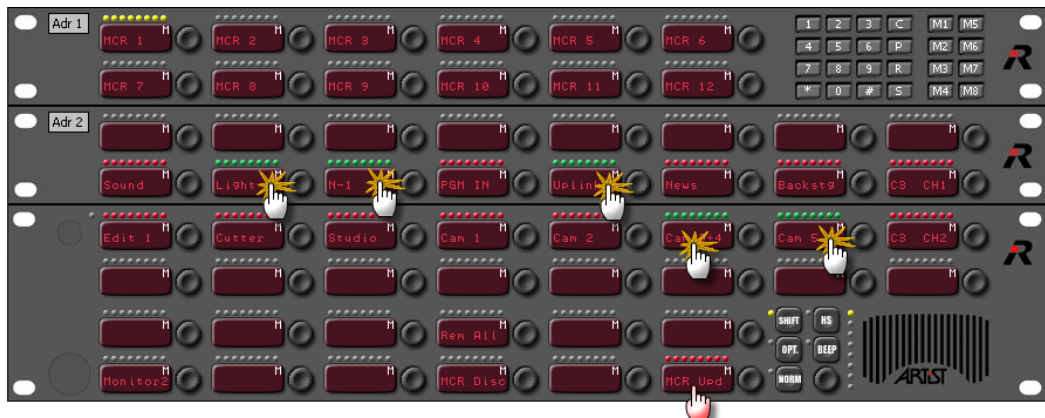


Figure 640: MCR - Panel control - Selecting members

If you press a conference key again, the panel returns to the display mode. Conferences that are being spoken into are highlighted with several red LEDs.



Figure 641: MCR - Panel control - Marker signalisation of an active conference

You can also press a conference key to display all of the members assigned to the conference. Members that have green markers are assigned to the conference, members with red markers are not assigned to the conference.



You can also first select the member to assign it to a conference. Press the member and then press the conference that the member should be added to.



Figure 642: MCR - Panel control - Selecting a member

Assign the member to conferences by pressing conference keys (**Note: only 4-wire ports can be assigned to more than one conference**). Confirm your changes by pressing the “MCR Upd” button.

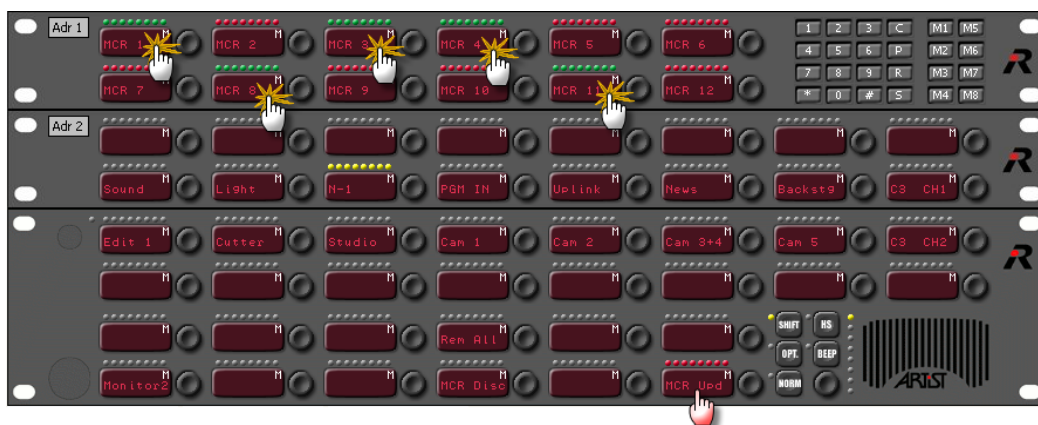


Figure 643: MCR - Panel control - Assigning members to conferences

You can also press a member key to display all of the conferences that the member is a part of (displayed with a green marker).

The monitor function is operated in the same way. Select the monitor and then the member or conference to monitor. The assignment will be immediately sent to the system. It is not necessary to press the “MCR Upd” key.

If several control panels are controlling the MCR, each key press will be simultaneously shown on the other control panels. All panel users have the same user rights.



## 14 EVENTS / SCHEDULER

The software add-on “Events/Scheduler” is a versatile tool that can trigger pre-defined events or configuration changes automatically according to a schedule or with a simple mouse click. For example, functions on a key can be easily changed or MCR conferences can be automatically activated at certain times.

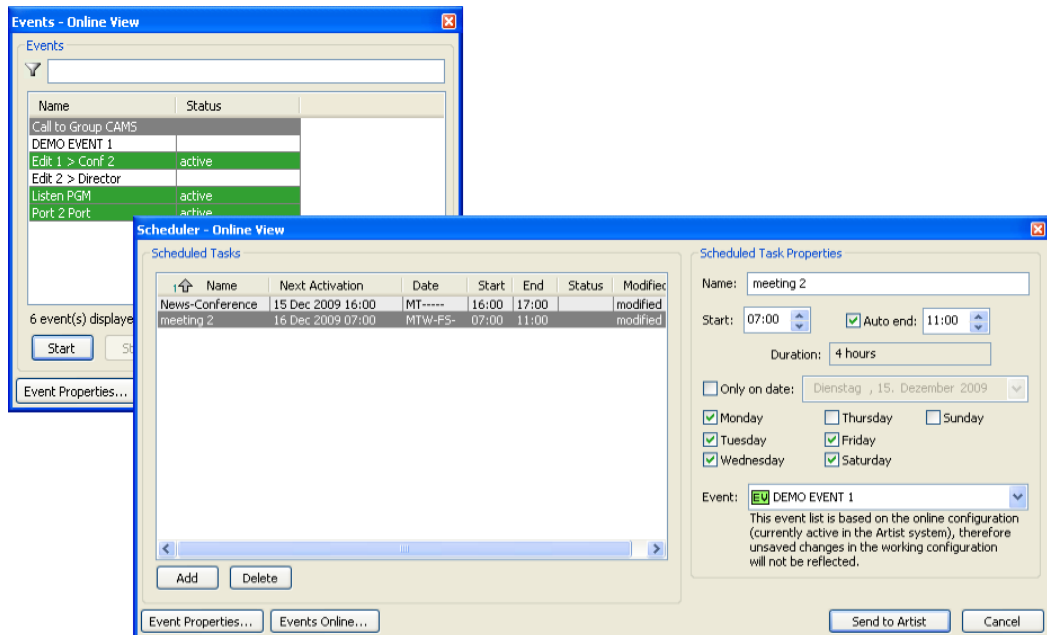


Figure 644: Scheduler / Events - example

### 14.1 Adding the Events / Scheduler add-On

The Events/Scheduler software add-on is already present when a new configuration is created. It appears as the **EV** symbol in the network view of the **Navigation Bar**.

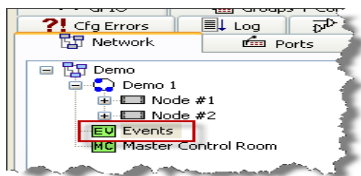




Figure 645: Scheduler / Events - Events in the network view

However, the feature must be unlocked before it can be used. Follow the directions in chapter “[11.1 Unlocking the Software Add-ons](#)”.

## 14.2 Creating events

You must open the “Events-Online View” in order to create events. Click the  button in the tool bar or double click on the  symbol in the network view of the Navigation Bar. The window can also be opened via “View” > “Events – Online View”. The “Events-Online View” window is also used to start and stop individual events.

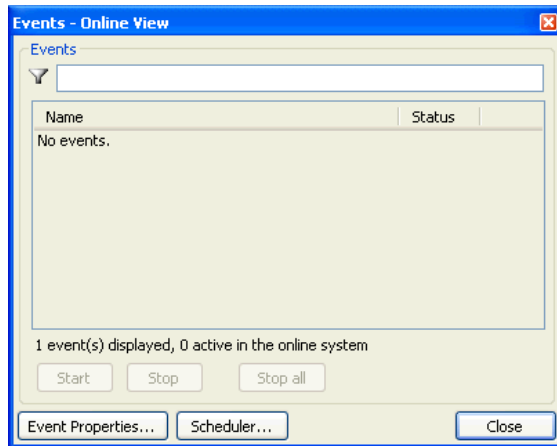



Figure 646: Events - Online View window

### 14.2.1 Event Properties

To create a new event or to edit an existing event, click the  button. The “Event Management” window will open.

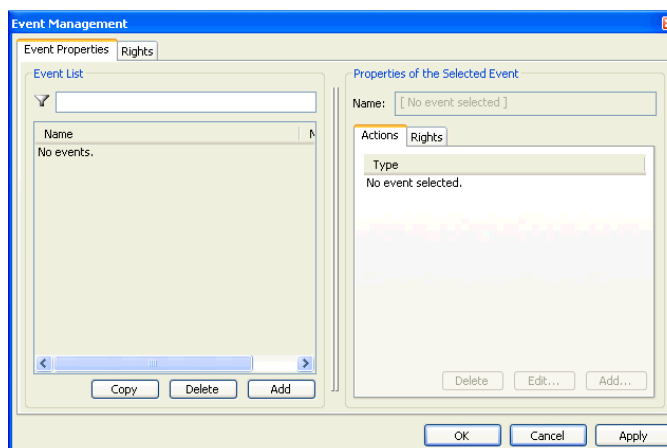


Figure 647: Events - Event Management window

Next, create a new event using the **Add** button found in the “Event List” area on the left side of the window. The event list will display the new event and assign an automatically generated name “Event #001”. Enter a new name for the event in the “Name” field found on the right side of the window under “Properties of the selected Event”. The name can be as long as you like.

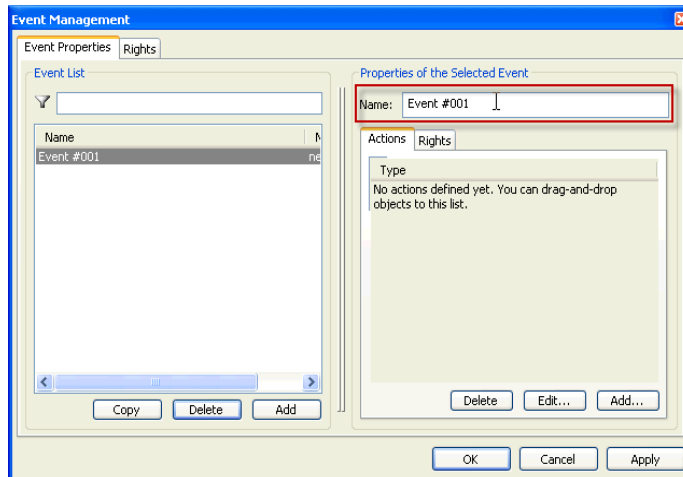


Figure 648: Events - Enter a name for the event

Now you can begin to set up what the event will actually do. On the right hand side of the window, click the **Add...** button and select the type of function that should later be triggered by the event.

**The maximum number of functions that can be carried out at the same time in an event is 100.**

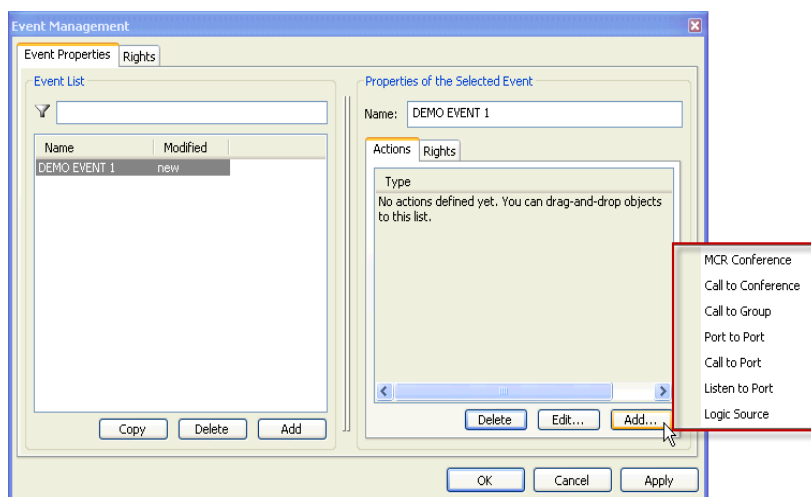


Figure 649: Events - Adding a new event

## 14.2.2 Event: MCR Conference

If you also use the “Master Control Room” add-on and have already configured it, you can create an event that will automatically add members to a conference. The event can then be later triggered by a key press or set to be automatically activated at a certain time.

Select the function “MCR Conference”. The “Event Action: MCR Conference” window will open.

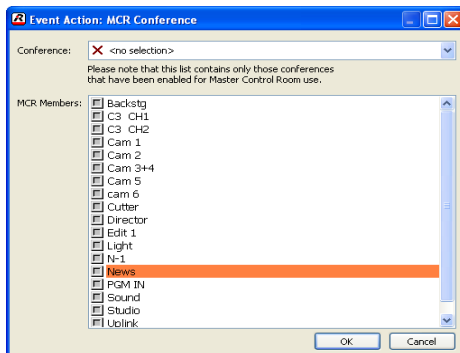


Figure 650: Events - Event Action: MCR Conference

All MCR members will be displayed in this window along with their online status and any current aliases being used.

Select a conference from the “Conference” drop down menu. Then select the members that should be placed into the conference when the event is activated.

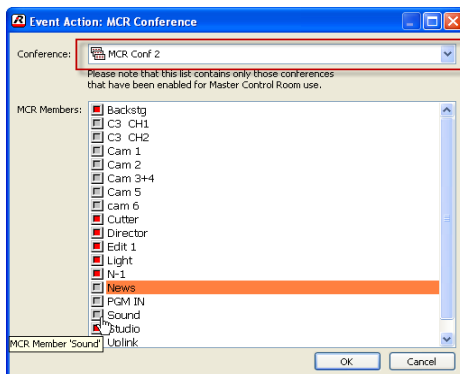


Figure 651: Events - Selecting a conference and its members


Confirm your choices with the  button. The new event now appears as “Modified: new” in the “Event Management” window. As soon as the change you made to the configuration has been sent to the system using the  button, the word “new” disappears from the list and the event is available for use.



Figure 652: Events - New MCR Conference - event

### 14.2.3 Event: Call to Conference

This function places a **“Call to Conference”** command on the keys of selected ports when the event is active. Create a new event in the **“Event Management”** window, as described above, or add this function to an existing event.

Click the **Add** button on the right-hand side of the window and select the function **“Call to Conference”**. A new window will open where you can specify the details of the function.

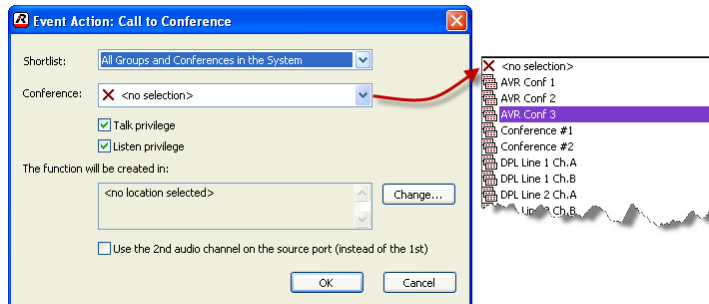


Figure 653: Events - Event Action: Call to Conference

First, choose the conference that should be used by the event. You can also select a conference from a shortlist, if any are defined. Select the conference privileges for the member.



Next, choose the conference member. Click on the **Change...** button.

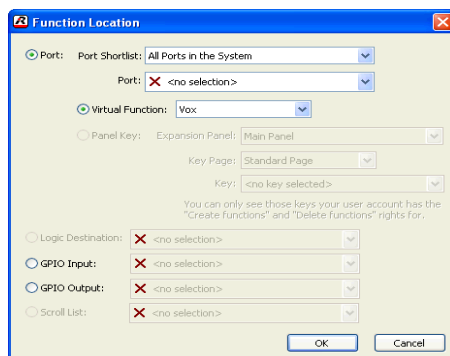


Figure 654: Events - Call2Conf - Function location

Decide who can trigger this **“Call to Conference”** function and whether it should be activated from a port or a GPI.

If you choose **Port**, select the port and the exact location where the function should appear. If you selected a control panel, you can choose between placing the call on the **Virtual Function** or on a **Panel Key**. If you selected a 4-wire port, only the **Virtual Function** will be available.

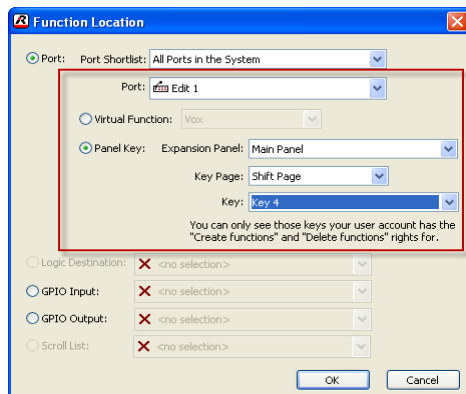


Figure 655: Events - Call2Conf - Choosing a panel key

**Note:** If you selected **“Panel Key”**, you must specify the exact key where the function will appear. If the key that you chose already has a function assigned, this other function will not be removed. The command triggered by the event will be added as an additional function to the key.

After you confirm your selection with the **OK** button, the key or Virtual Function will appear in the **“Event Action”** window.

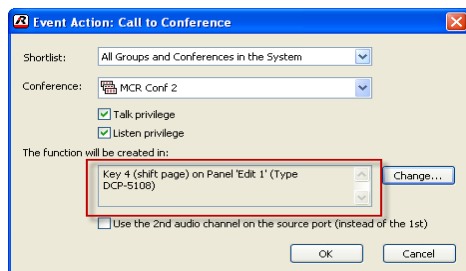


Figure 656: Events - Call2Conf - Event Action

You can use the 2nd audio channel of a port as the source of the call, if available, by selecting the ☐ **Use the 2nd audio channel on the source port (instead of the 1st)** option.

After closing the window with the **OK** button, the new function will be listed in the **“Event Management”** window.

Repeat the steps above if you want to add additional functions to the event.

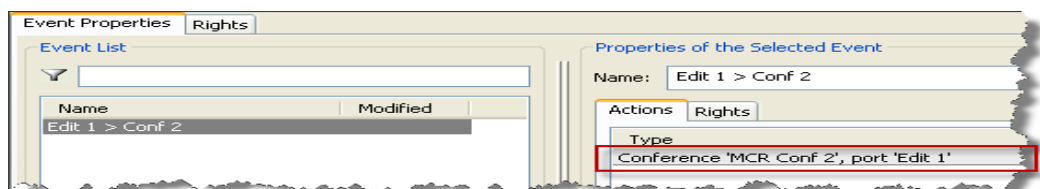


Figure 657: Events - Event Management window - Call to Conference Event

Send the changes to the matrix with the **<F5>** key or the button in Director.

#### 14.2.4 Event: Call to Group

This function places a ***“Call to Group”*** command on the keys of selected ports when the event is active. Create a new event in the ***“Event Management”*** window, as described above, or add this function to an existing event.

Click the **Add** button on the right-hand side of the window and select the function ***“Call to Group”***. A new window will open where you can specify the details of the function.

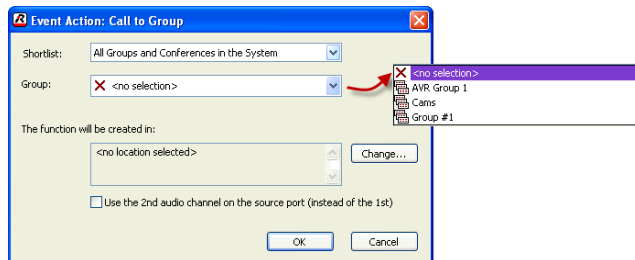


Figure 658: Events - Event Action - Call to Group

Select the group and then specify the exact location where the ***“Call to Group”*** command should appear with the **Change...** button.

For a description of how to select a panel key or Virtual Function please see: ***“14.2.3 Event: Call to Conference”***.

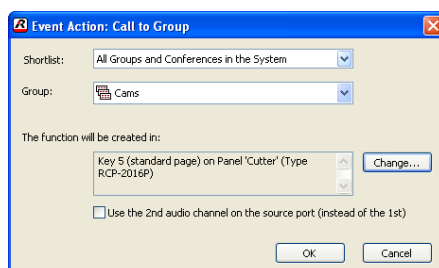


Figure 659: Events - Event Action - Call to Group

The new function is now available in the event list.

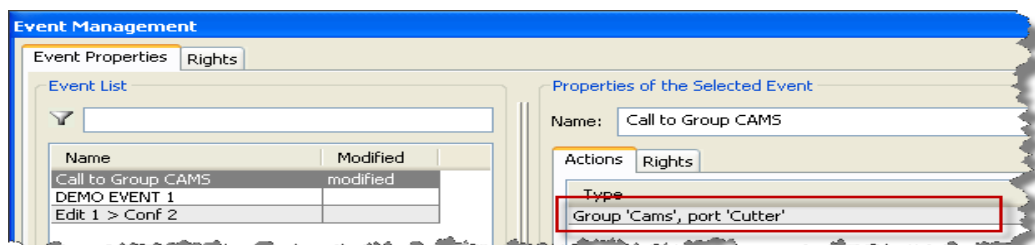



Figure 660: Events - Event Management window - Call to Group Event

Send the changes to the matrix with the **<F5>** key or the  button in Director.

## 14.2.5 Event: Port to Port

When this function is activated it places a **“Call to Port”** command on the keys of two control panels. Create a new event in the **“Event Management”** window, as described above, or add this function to an existing event.

Click the **Add** button on the right-hand side of the window and select the function **“Port to Port”**. A new window will open where you can specify the details of the function.

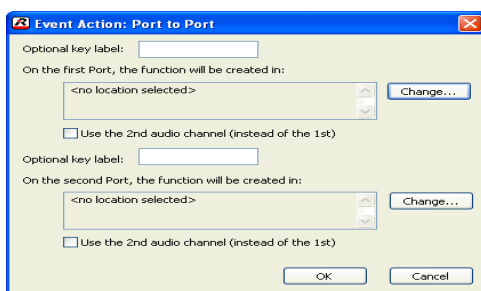


Figure 661: Events - Event Action: Port to Port

You can manually enter a display name for the ports that will appear on the panels after the event has been activated. If you leave this field empty, the default name for the ports will be used.

Press the **Change...** button to set up which ports will be used for the event and the exact position of the key or Virtual Function where the command will appear.

For a description of how to select a panel key or Virtual Function please see: **“14.2.3 Event: Call to Conference”**.

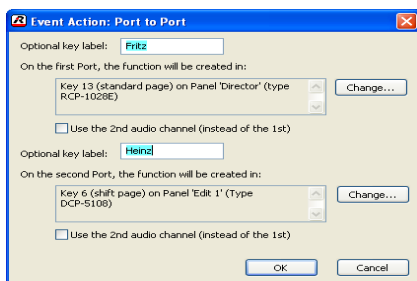


Figure 662: Events - Event Action: Port to Port

The new function is now available in the event list.

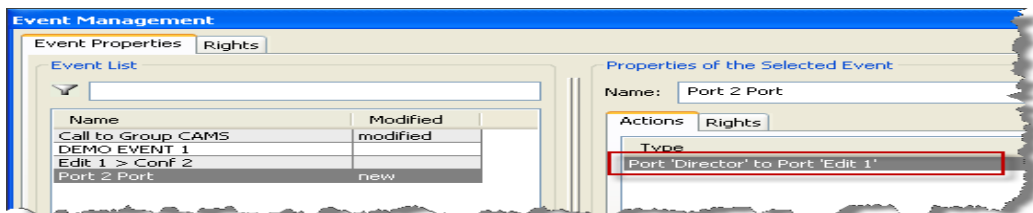



Figure 663: Events - Event Management window - Port to Port Event

Send the changes to the matrix with the **<F5>** key or the  button in Director.



## 14.2.6 Event: Call to Port

This function places a **“Call to Port”** command on the key of a selected port when the event is active. Create a new event in the **“Event Management”** window, as described above, or add this function to an existing event.

In contrast to the **“Port to Port”** function, this command only sets up communication in one direction.

Click the **Add** button on the right-hand side of the window and select the function **“Call to Port”**. A new window will open where you can specify the details of the function.

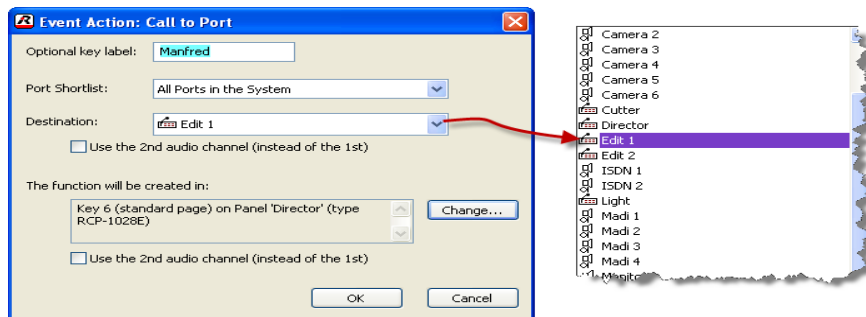


Figure 664: Events - Event Action: Call to Port

You can manually enter a display name for the port that will appear on the panel after the event has been activated. If you leave this field empty, the default name for the port will be used.

Select the port to be called from the **“Destination”** list.

Press the **Change...** button to set up which port will be used for the event and the exact position of the key or Virtual Function where the command will appear.

For a description of how to select a panel key or Virtual Function please see: **“14.2.3 Event: Call to Conference”**.

The new function is now available in the event list.

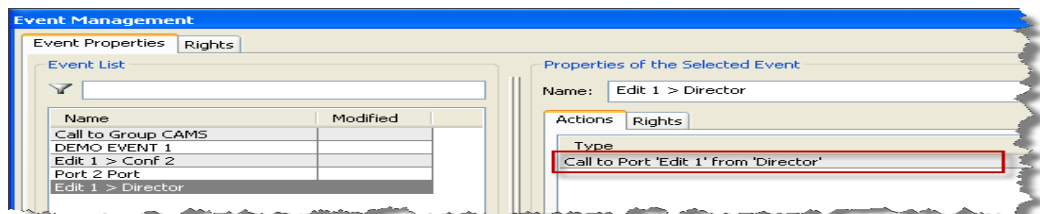



Figure 665: Events - Event Management window - Call to Port Event

Send the changes to the matrix with the **<F5>** key or the  button in Director.

## 14.2.7 Event: Listen to Port

This function places a **“Listen to Port”** command on a key of a selected port when the event is active. Create a new event in the **“Event Management”** window, as described above, or add this function to an existing event.

Click the **Add** button on the right-hand side of the window and select the function **“Listen to Port”**. A new window will open where you can specify the details of the function.

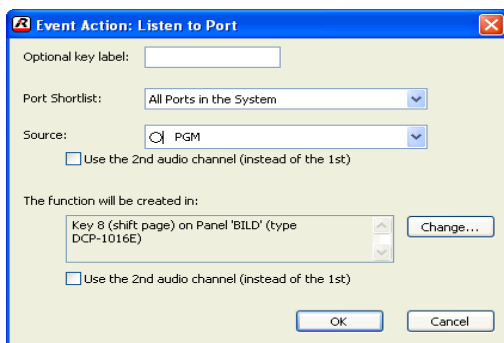


Figure 666: Events - Event Action - Listen to Port

Select under **“Source”** the port that you would like to listen to.

Press the **Change...** button to set up which port will be used for the event and the exact position of the key or Virtual Function where the **“Listen to Port”** command will appear.

For a description of how to select a panel key or Virtual Function please see: **“14.2.3 Event: Call to Conference”**.

**Note:** When using the event function **“Listen to Port”** on a panel, it is recommended to set the properties of the key you select to **“Latching”** and deactivate the **“Speaker Dim”** function.

The new function is now available in the event list.

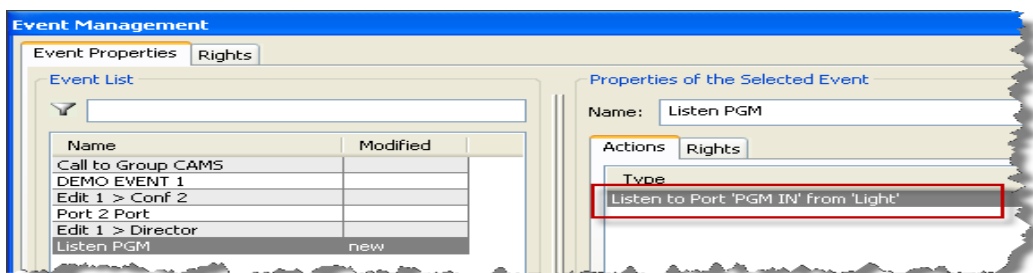



Figure 667: Events - Event Management window - Listen to Port Event

Send the changes to the matrix with the **<F5>** key or the  button in Director.

## 14.2.8 Event: Logic Source

This function places a “Logic Source” on a key of a selected port when the event is active. Create a new event in the “Event Management” window, as described above, or add this function to an existing event.

To allow a logic source to be used in events, open the properties of the logic source in the  Logic tab with a double click. Check the box for the “Enable for Event use” option.

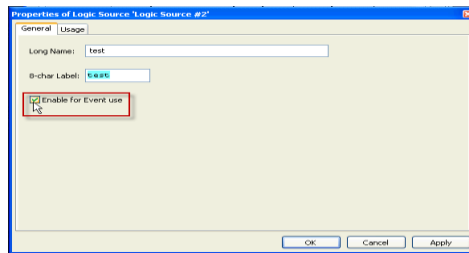



Figure 668: Events - Properties of a Logic Source

Click the  Add button on the right-hand side of the “Event Management” window and select the function “Logic Source”. new window will open where you can specify the details of the function.

Select the logic source you would like to use. Only the logic sources that were unlocked for use with the event add-on will be shown.

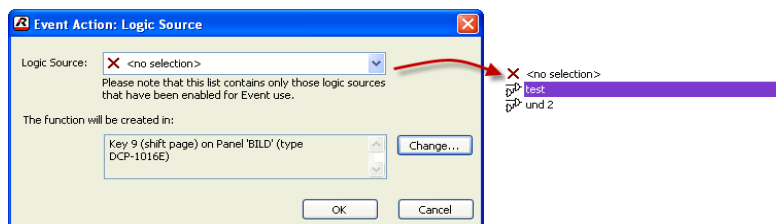



Figure 669: Events - Event Action - Logic Source

Press the  Change... button to set up which port will be used for the event and the exact position of the key or Virtual Function, where the “Logic Source” function will appear.

For a description of how to select a panel key or Virtual Function please see: “[14.2.3 Event: Call to Conference](#)”.

The new function is now available in the event list.

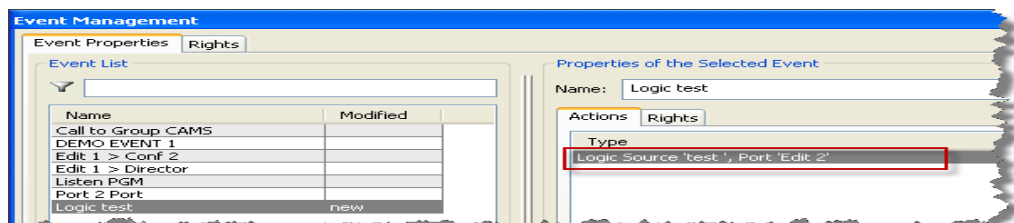


Figure 670: Events - Event Management window - Logic Source Event

Send the changes to the matrix with the **<F5>** key or the  button in Director.

## 14.2.9 Configuration using Drag & Drop

You can also set up most event functions using Drag & Drop. Create a new function, for example a “Port to Port”. Click on the **Add** button on the right-hand side of the window and select the “Port to Port” function. A new “Event Action” window will open where you can specify the details of the function. Close the window by clicking the **OK** button without finishing the function setup.

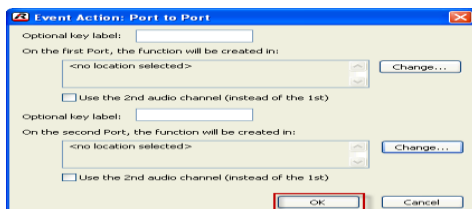


Figure 671: Events - Event Action

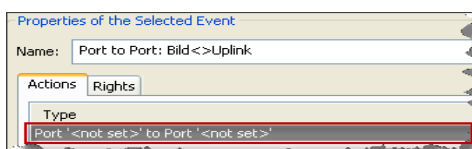


Figure 672: Events - Undefined function

Open the two ports in the Workspace that you wish to use and drag the command to keys directly from the “Event Management” window.

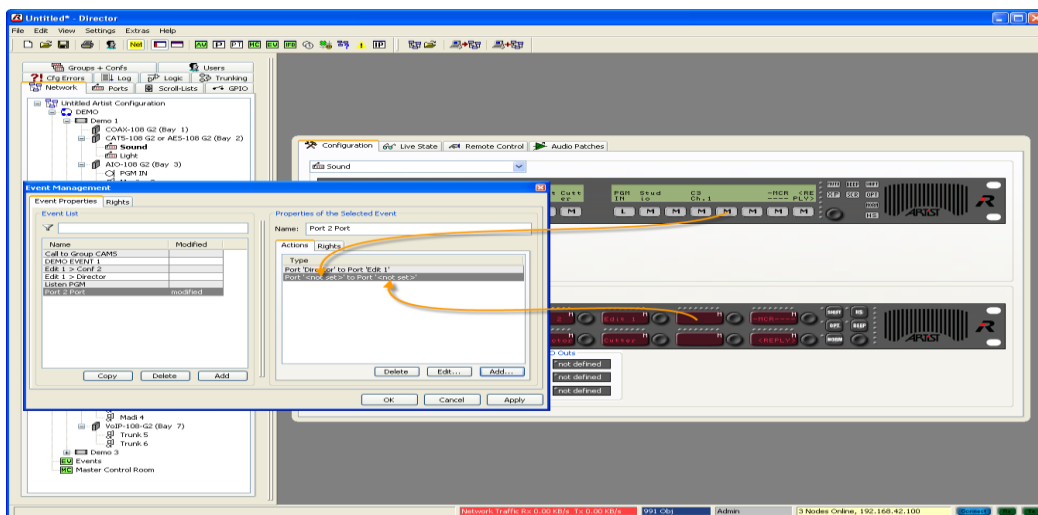


Figure 673: Events - Drag & Drop to keys

The keys will be added to the function.



Figure 674: Events - Configured function

You can also use the same process when setting up all of the other functions.

For example, when programming a **“Call to Conference”**, you can drag the conference directly from the **Groups + Confs** tab to the event window. Then you can drag the event command from the event window to a panel or 4-wire port.

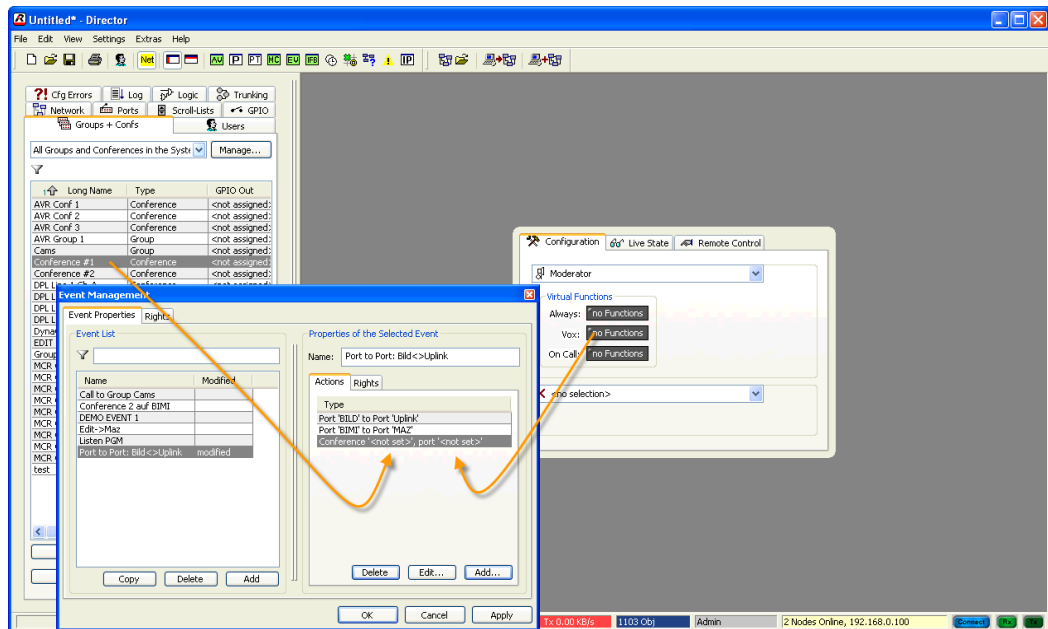


Figure 675: Events - Drag & Drop a conference to a port

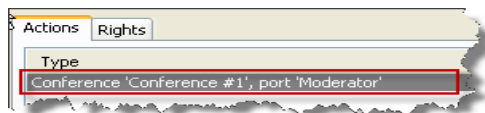


Figure 676: Events - Configured function

If you need to add a number of different events with the same source but with different destinations, we recommend using the copy function. Create an event with the source you want to use and then press the **Copy** button. Every time you press this button a new copy of the original event will be created. Simply drag these copies to the destinations you need. The original destination will be replaced with the new one you chose.

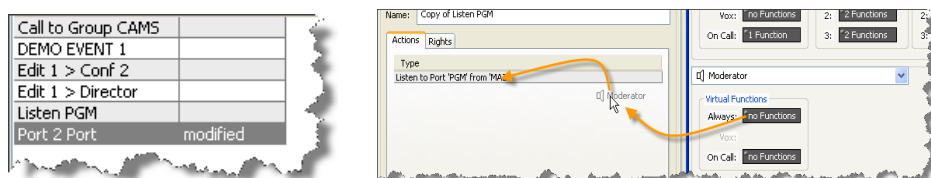



Figure 677: Events - Creating and modifying using the copy command

## 14.3 Starting and Stopping Events

After you have created and configured the events they can be started and stopped directly from Director.

Open the “Events – Online View” window by clicking on the  button in the **toolbar**.

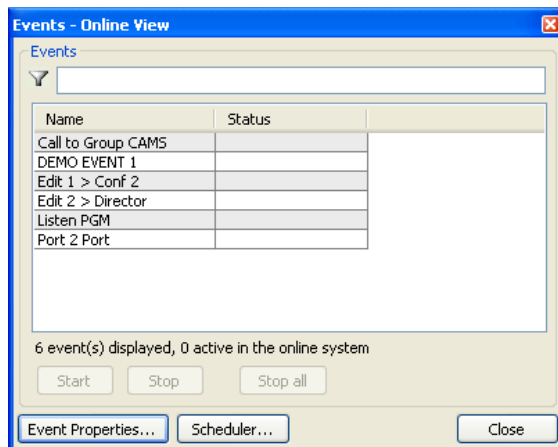


Figure 678: Events - Online View

All events that you have created will be listed in this window.

**Note:** Because the events function is an online tool, only the events that have been sent to the system with a configuration update will be shown. This requires an active connection to the matrix. If you are running Director in offline mode, no events will be shown in the “Events - Online View”.

If you have created a large number of events, you can use the filter function to search for specific events.

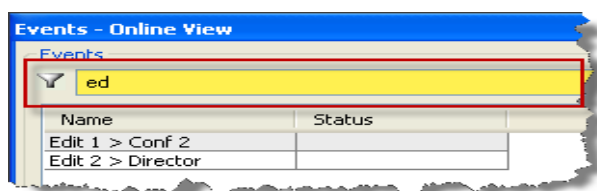



Figure 679: Events - Events with a filter active

To start an event, select the event and press the  button or simply double click on the event.

**You do not have to manually send the configuration to the system. As soon as an event is started or stopped, the configuration change is automatically sent directly to the system.**

Active events will be highlighted green and their status will be listed as “active”.

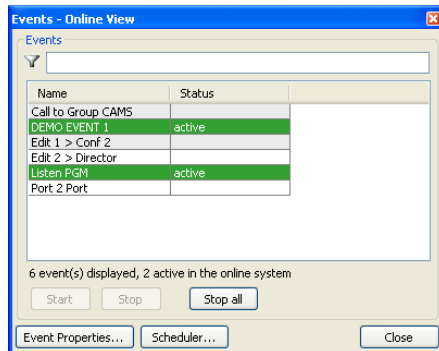


Figure 680: Events - Active events

The functions defined by the event will then appear on the corresponding panels and keys.

Events can be stopped by double clicking on an active event or by selecting the event and clicking the  button.

Pressing the  button will end all events that are currently active. A pop up window will ask you to confirm that you wish to end all events.

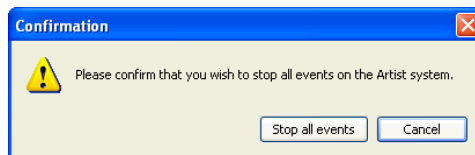


Figure 681: Events - “Stop all” confirmation

**Note:** Multiple PCs can be online with Director at the same time and still use the *Events / Scheduler*. Each PC shows the current status of all of the events. However, be sure to read the current configuration from the matrix before checking the event status.

## 14.4 Scheduler

The scheduler is an extension of the event function. It allows events to be automatically triggered at specific times.

**Scheduling events by time is controlled by the internal clock of a configuration PC. For this reason, a copy of Director needs to be running and connected to the system to control scheduled events.**

**To ensure that the clock in the PC is accurate, it is recommended to use an auxiliary DCF card or regularly synchronize the PC clock via the Internet.**

### 14.4.1 Activating Director for the Scheduler

Choose which PC running Director will control the scheduled events. This PC must always remain online with the system.

Open the Options window in Director. Select “Settings” > “Options”.

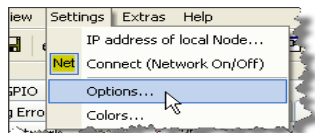


Figure 682: Scheduler - Opening the options window

In the “Options” window, select the **Miscellaneous** tab and activate the function ☒ Handle the Scheduler.

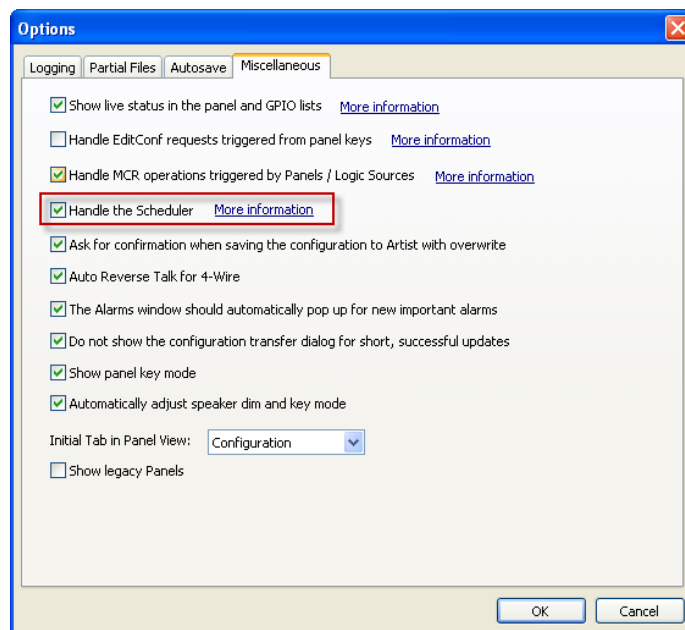



Figure 683: Scheduler - Activating the Scheduler function in Director



## 14.4.2 Configuring the Scheduler

To configure the Scheduler, click on the  button in the toolbar. This will open the “Scheduler - Online View” window.

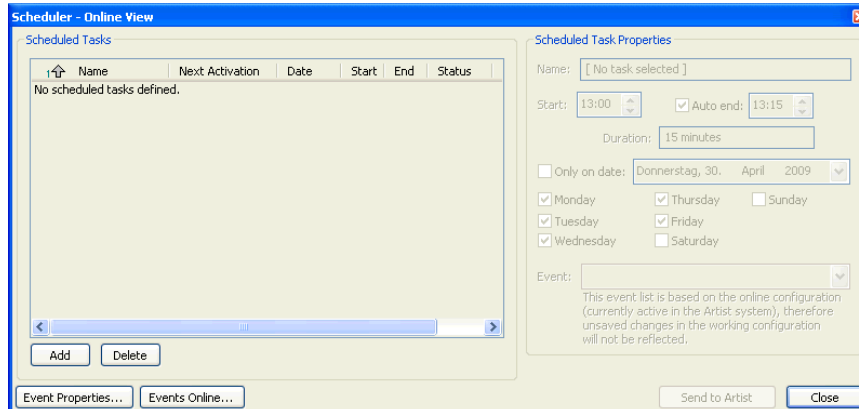



Figure 684: Scheduler - Scheduler Online View

Press the  button to add a new timer. A new entry will appear with a pre-assigned name. Enter a new unique name for the timer in the “Name” field.

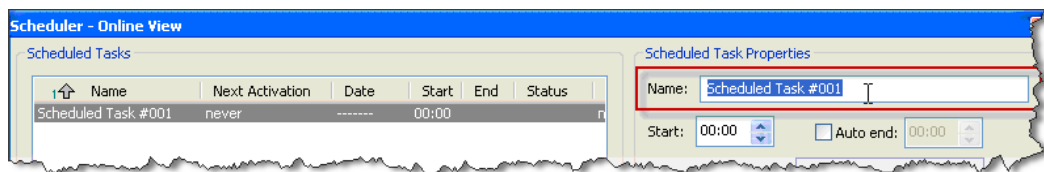


Figure 685: Scheduler - Naming a timer

Select the event in the “Event” field that should be activated by the timer. The event must have been previously configured.

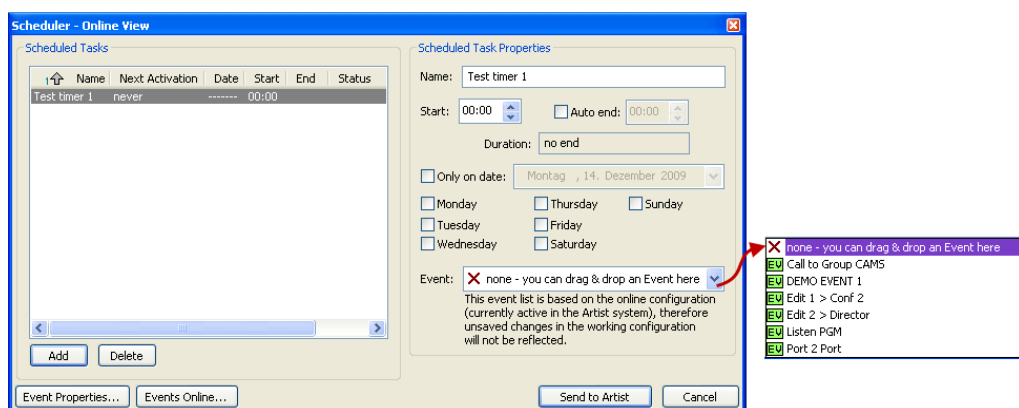



Figure 686: Scheduler - Selecting an event

If you would like to change the event, you can access the event’s configuration window directly by clicking the  button.

Enter the time when the event should start and how long it should last. If the event should end at a specific time, select ☒ **Auto end:** and enter the time when the event should end.

The scheduler automatically calculates how long the event will last.

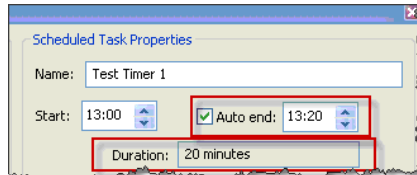


Figure 687: Scheduler - Enter the start time of the event

Select if and how often the timer should repeat this event. You can either select a single date for the event or set up a reoccurring event by selecting the days of the week when the event should be active.

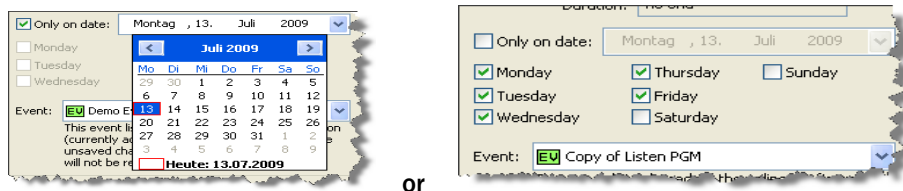


Figure 688: Scheduler - Entering a date

All timers and their details are listed in the “**Scheduled Tasks**” area of the “**Scheduler – Online View**” window.

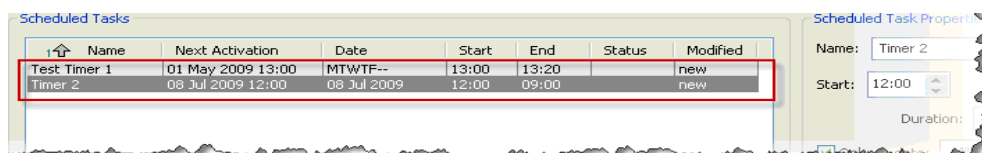


Figure 689: Scheduler - Timer

As soon as the PC's internal clock reaches the activation time for an event, the event will be automatically started. Active events will be indicated by the word “**active**” in the “**Status**” column.

You can also open the “**Events - Online View**” window to show all active events by pressing the **Events Online...** button.

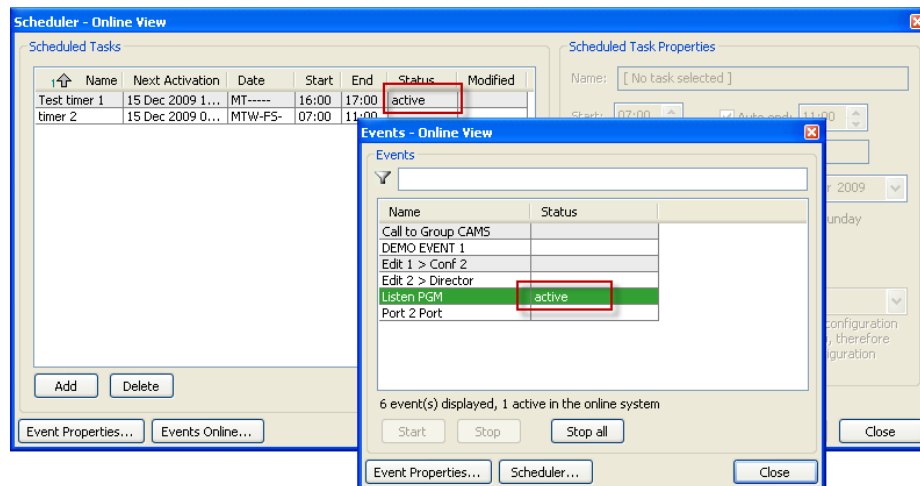


Figure 690: Scheduler - Active Timer

If the timer, for example, starts a timed conference in the “**Master Control Room**” interface, the members will be placed into the conference in the MCR window.

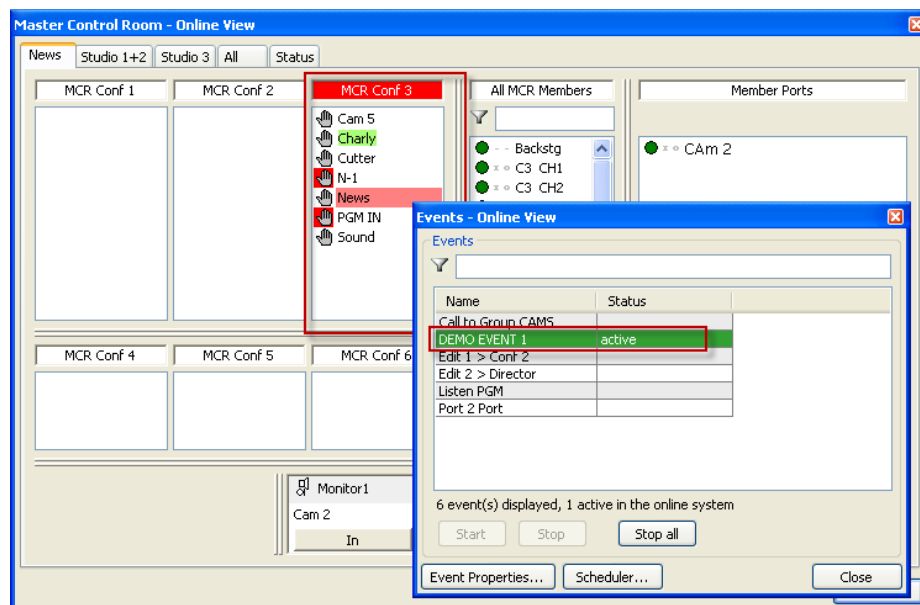


Figure 691: Scheduler - Automatic MCR conference

## 15 AUDIO VIDEO ROUTER

### 15.1 General

This special feature can monitor up to two external routing switchers and make changes to conferences in the Artist system based on the routers' status.

The monitoring of the external lines is handled by a specially developed software interface that can assign communication paths to the same locations as the routers send their audio and video.

The routers are connected over a serial COM port to a computer that runs the "DMX Driver" software. The software is supplied by Riedel Communications GmbH.

The Audio Video Router (AVR) feature requires a computer to be permanently connected to both systems.

### 15.2 DMX Driver

The "DMX Driver" software is used to interface between the router and the Artist system. The router is connected to a serial COM port of the computer.

To start the software, double click on the "dmxdrv\_com1.exe" file. The software will open and initialize COM 1 port on the computer, to which the router should be connected.

Alternatively, COM ports 1 – 4 can also be used.

Please note that if you use a different COM port, you must also open a different file on your PC.

The file "dmxdrv\_com1" is used for COM port 1.

The file "dmxdrv\_com2" is used for COM port 2. And so on...

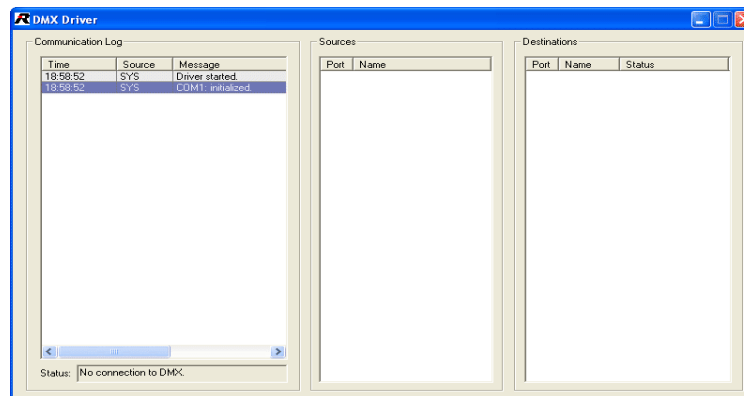


Figure 692: AV Router - DMX Driver

After starting the DMX Driver the software reads out all of the information required from your system. You do not need to do anything further at this point.

The DMX Driver will then display a list of all available sources and destinations.

## 15.3 Adding the Audio/Video Router (AVR) to Director

To add the AVR in Director, right mouse click on the Web in the network view and select “Add Audio/Video Router Interface”. You can also add the AVR to the configuration under “Edit” > “Special Features” > “Add”.

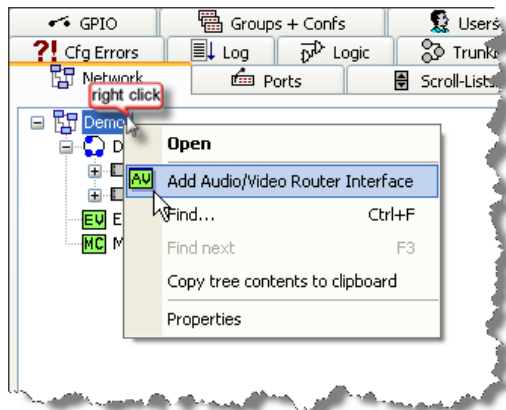


Figure 693: AV Router - Adding the AVR

The AVR appears in the network view as a green icon with the letters “AV”.

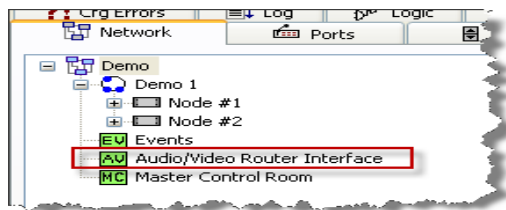


Figure 694: AV Router - AVR in the configuration

To configure the AVR, the current user must have the necessary user rights. Open the **Users** tab. Select a user and click the **Edit...** button.

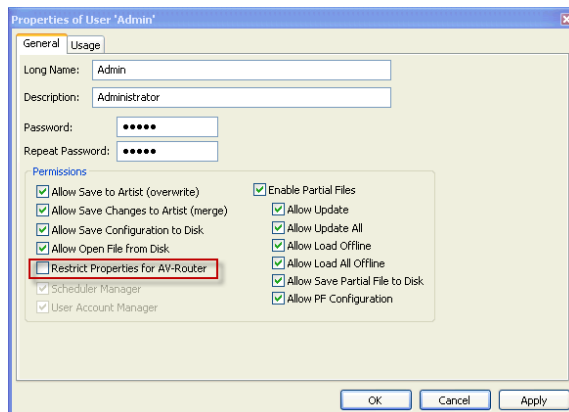



Figure 695: AV Router - Properties of a user

Deactivate the option “Restrict Properties for AV-Router”.

## 15.4 Connecting Director to the DMX Driver

The following steps will make the information from the “DMX Driver” available in Director:

Open the AVR interface in Director by double clicking on the AVR  icon. First, activate the option “Enable Audio/Video Router Interface”. Next, choose the option “Enable DMX Driver” to establish the connection to the “DMX Driver”.

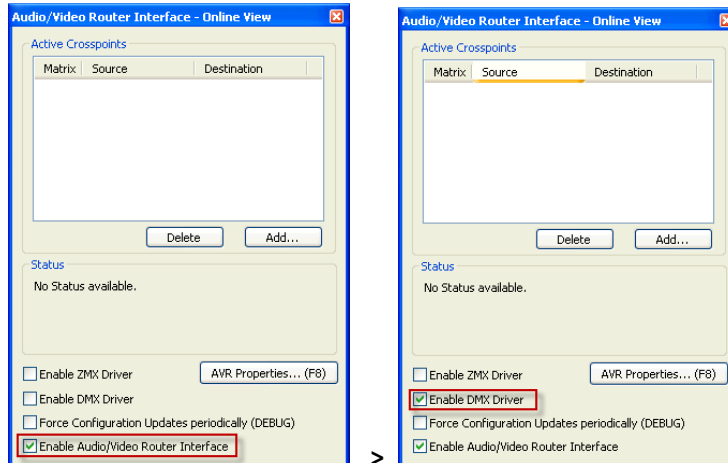



Figure 696: AV Router - AVR Online View

As long as there is an active connection between the “DMX Driver” and your router system, the individual sources and destinations will appear in the “Active Crosspoints” list.

The option “Enable ZMX” is for a special feature developed for a specific customer and is not normally used (it stands for *Zentrale [central] Video Matrix* and would be activated instead of the “DMX Driver”, which stands for *Dezentrale [decentralized] Video Matrix*).

The option “Force Configuration Updates periodically” is only used for debugging purposes.

## 15.5 AVR Configuration

To configure the AVR, press the <F8> key or click the  button in the AVR online view. This opens the AVR configuration window.

### 15.5.1 Router-IF objects

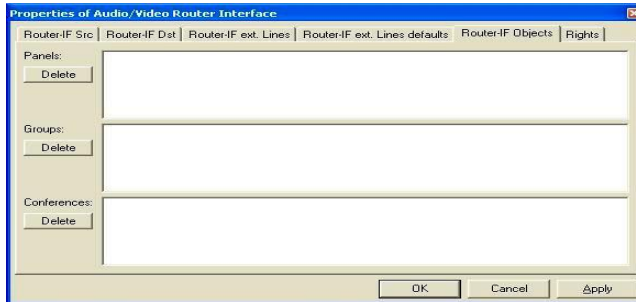


Figure 697: AV Router - Properties of the AVR

The AVR allows you to automatically add members to a conference depending on the status of the external router.

You will need at least one conference and one group that were previously created in the Director configuration. Create as many groups and conferences as you will need. (see: [8.17 Create and Manage Groups and Conferences](#)).

Add the panels that should later be added to a particular conference to the members list of a group.

Next, using Drag & Drop pull the conferences from the “Groups + Confs” tab to the AVR field “Router-IF Objects → Conferences”. Drag the groups to the “Router-IF Objects → Groups” field.

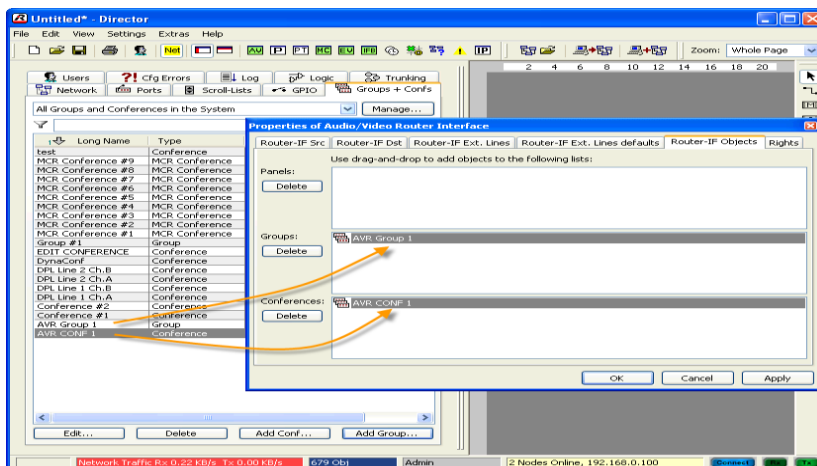


Figure 698: AV Router - Adding groups and conferences to the AVR

**WARNING:** After you have added the groups and conferences, you must confirm the additions with the  key. Failure to do so will result in the changes not being saved.

## 15.5.2 Router-IF source

You have now assigned a conference and a group of members to the AVR. The next step is to configure the “Router-IF Src” sources and the “Router-IF Dst” destinations.

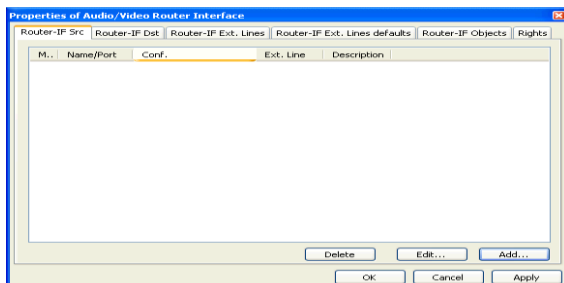


Figure 699: AV Router - Router-IF Src

If you make a change to the router, the conferences in the intercom system should also be changed to reflect the new status of the router. You must configure the AVR so that a router change assigns a certain group of members to a conference.

The tabs “Router-IF Src” and “Router-IF Dst” refer to the sources and destinations of the external router.

**Example:** If the router assigns Source 1 to Destination 2, the Artist system should automatically assign a group of panels to a predefined conference. To achieve this, the AVR needs to be configured accordingly.

Add a source by clicking the  button. This will open a new window where you can enter the source’s details.

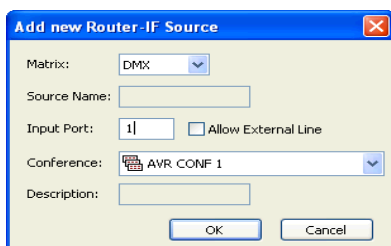


Figure 700: AV Router - Adding a new router source

In the “Matrix” drop down menu you can choose between “ZMX” and “DMX”. Always select “DMX”.

As in our example, we will configure the *Input Port 1*.

Now tell the AVR which conference should be activated by this action and confirm with the OK button.

**WARNING:** After you have finished making changes to a tab always confirm by clicking the  button in the AVR “Properties” window. Failure to do so will result in the changes not being saved.



### 15.5.3 Router-IF destination

After you have assigned the sources in the system you must also configure the destinations. Select the tab “Router-IF Dst”.

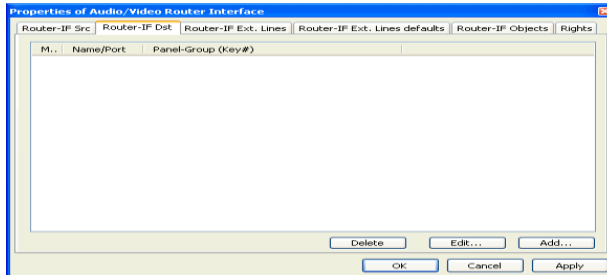


Figure 701: AV Router - Router- IF Dst

To add a new destination click the  button. A new window will open where the destination can be configured.

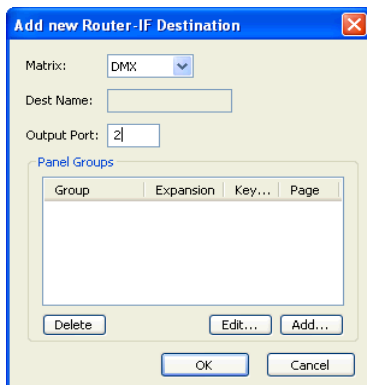



Figure 702: AV Router - Adding a new destination

In the “Matrix” drop down menu you can choose between “ZMX” and “DMX”. Always select “DMX”. As in our example, we will configure the *Output Port* to 2.

Assign a predefined group of members to the destination using the  button.

Select a group and assign which key will be reserved on all of the panels of the group, Enter the exact key number to be used on the panels in the group.

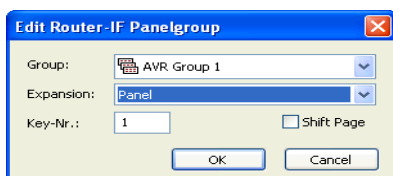


Figure 703: AV Router - Editing a panel group

“Key-Nr” designates the panel key to be used.

**NOTE:** Make sure that this key is unused on all of the panels in the group before assigning it to the AVR.

When the group is assigned to a conference, the conference will appear on the designated panel key.

“Shift Page” refers to the shift page of the panel. This option determines whether the key is on the first or second page.

In our example, all panels in the *AVR GRP* group will be assigned the conference key on the main panel, main page, Key # 1.

If a panel group is not assigned to a source, a place holder will appear on the keys.



Figure 704: AV Router – Placeholder panel key

Confirm the settings by clicking .

The new entry will be listed in the “Router-IF Dst” tab.

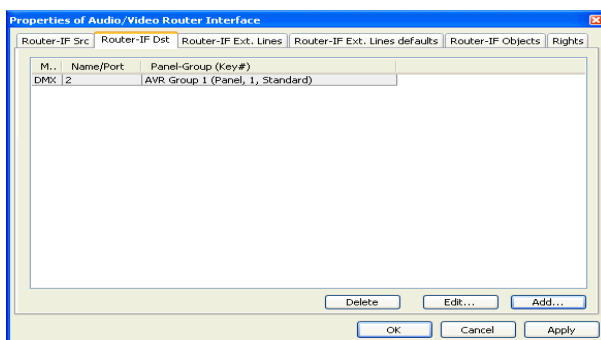


Figure 705: AV Router - Entry in the Router-IF Dst tab

**WARNING:** After you have finished making changes to a tab always confirm by clicking the  button in the AVR “Properties” window. Failure to do so will result in the changes not being saved.

To complete our example: If you now routed Source 1 to Destination 2 on the router, then all members of the group “*AAVR GRP 1*” would be assigned the conference “*AVR CONF 1*” on their main panel, standard page, Key # 1.

### 15.5.4 Router-IF ext. Lines

The tab “Router IF.ext.Lines” is not for assigning groups of panels to a conference, as described above, but rather for assigning a 4-wire.

Drag a 4-wire from the port list into the “Router-IF Objects > Panels” field in the AVR window.

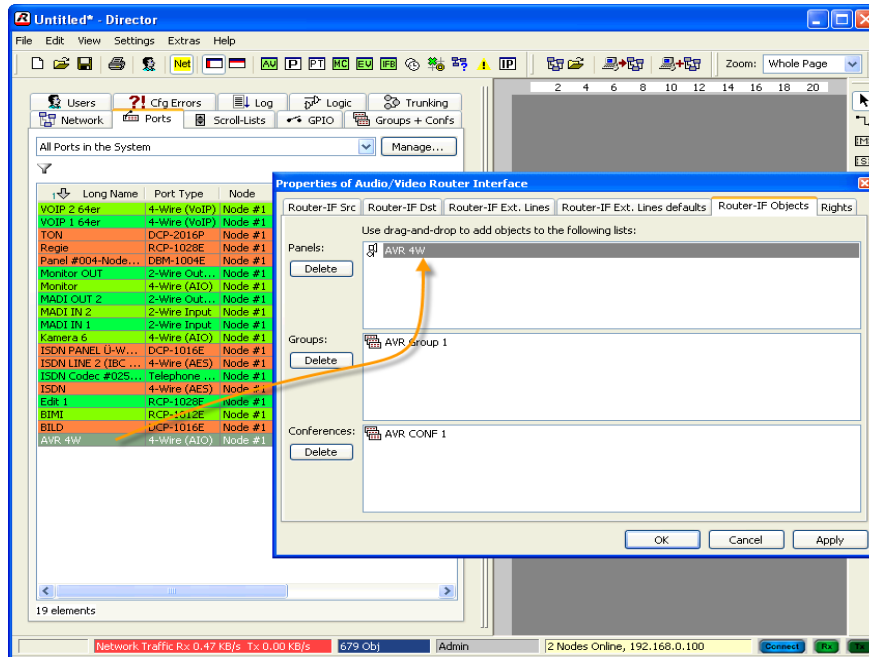


Figure 706: AV Router - Adding a 4-wire

This will assign a 4-wire to the AVR.

**WARNING:** After you have finished making changes to a tab always confirm by clicking the **Apply** button in the AVR “Properties” window. Failure to do so will result in the changes not being saved.

In the “AVR Properties” window open the “Router-IF Src” tab.

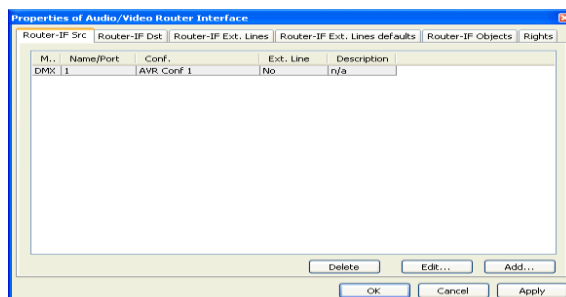
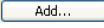


Figure 707: AV Router - Router-IF Src tab

Click the  button to assign a new 4-wire as an AVR source. Select “DMX” under matrix and enter the input port number of the router. Activate the option “Allow External Line”. Enter a name for the 4-wire in the “Description” field.

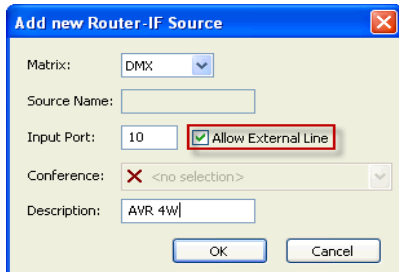



Figure 708: AV Router - Add new Router-IF Source

If you added a conference in “Router-IF Objects” and it was not assigned to a group of control panels, it will be available under “Router-IF ext Lines”.

Select which 4-wire should be used for the conference by double clicking on the conference or selecting the conference and clicking the  button. Confirm with OK.

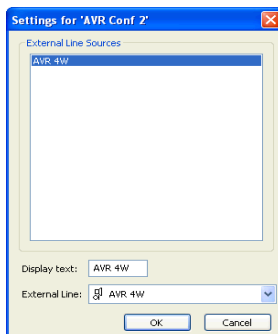



Figure 709: AV Router - Settings for the External Lines

The tab “Router-IF ext. Lines” lists the external 4-wire's conference with the corresponding port and display text. Send the configuration to the Artist by clicking the  button.

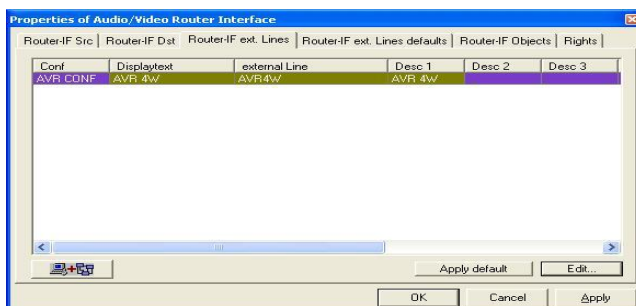



Figure 710: AV Router - Router-IF ext. Lines

The 4-wire can now be assigned a group of members. In our example, this is done by assigning router input port 10 a destination.

After this assignment there will be a command on the Vox function of the 4-wire.

### 15.5.5 Router-IF external Lines Defaults

In the “Router-IF ext. Lines defaults” tab you can create a default setting for each conference that is used for external lines. Double click on a conference or select the conference and press the  button. The “Def. Settings for ‘Conference Name’” window will open.

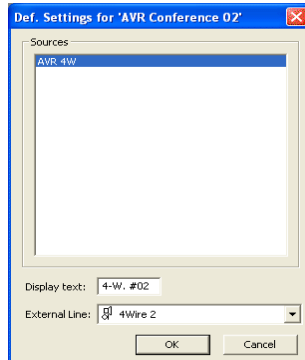


Figure 711: AV Router - Def. Settings for ‘AVR Conference’

In this window you can select the source responsible for the switching as well as the default 4-Wire for this conference. You can also edit the display text. When finished confirm with “OK”.

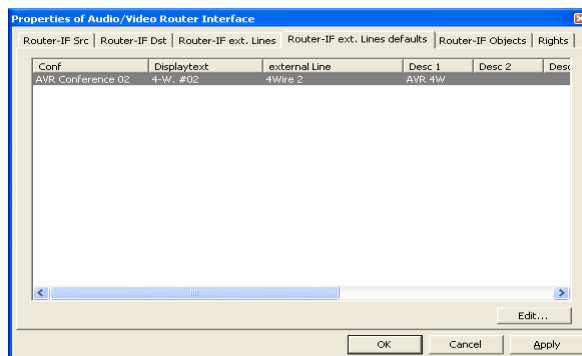




Figure 712: AV Router - Router-IF ext. Lines defaults

The defaults can be applied to selected conferences in the “Router-IF ext. Lines” tab by clicking the  button or pressing **<F6>** on the keyboard.

Repeat the steps above for all of the inputs and outputs on your router. Afterwards, send the configuration to the system using the  button.

## 15.5.6 Testing the AVR

The intercom system will be automatically reconfigured according to the AVR settings as soon as the AVR and DMX drivers are active and connected to the router.

All paths currently active in the router are listed in the “Audio/Video Router Interface – Online View” under “Active Crosspoints”.

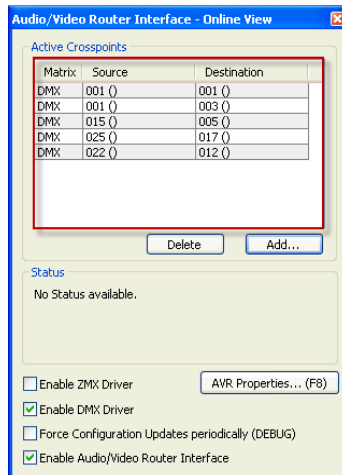


Figure 713: AV Router - Online View

It is possible to undo an active AVR connection in Artist. Select an item from the list and click the  button. All changes will be periodically sent to the system.

To test the AVR configuration or to manually force a connection, you can click the  button.

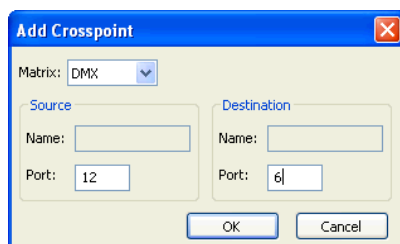



Figure 714: AV Router - Add Crosspoint

Enter a source and destination. “DMX” should always be selected under “Matrix”. As soon as you have made the changes, confirm with “OK” and this manually activated crosspoint will be listed in the AVR online view. Press the  to send the new crosspoint to the system. All of the corresponding control panels of the selected group should now display the conference name for that route on their pre-defined key.

In this way the AVR can be tested without having an active connection to an external router. Deactivate the option “Enable DMX Driver” and select the option “Force Configuration Updates periodically (DEBUG)”.

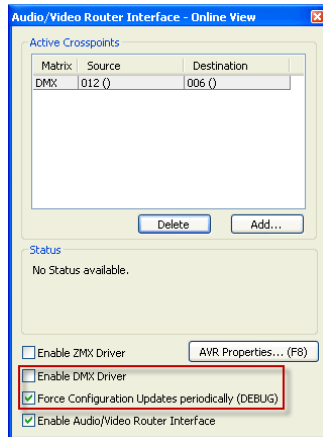


Figure 715: AV Router - Online View

Manually force a crosspoint, as described above. The new crosspoint will be periodically automatically sent to the system. This allows you to simulate any particular router crosspoint selection and test the Artist configuration.

**NOTE:** Do not forget to reactivate the option “Enable DMX Driver” as soon as the external router is reconnected.

## 16 TRUNKING

In certain applications it is not possible to connect individual Artist mainframes over fiber. For example, fiber connection is not an option when the distance between two frames is too far, or if the maximum number of ports within the fiber ring would exceed 1,024. In this case, two or more systems can be intelligently connected together via **trunking**. Up to 50 Artist systems can be trunked together. The control of the system and its dynamic routing is handled by the *Trunk Navigator* software.

**Note:** To start the Trunk Navigator, a RIEDEL USB dongle must be connected to the trunking PC to unlock the software.

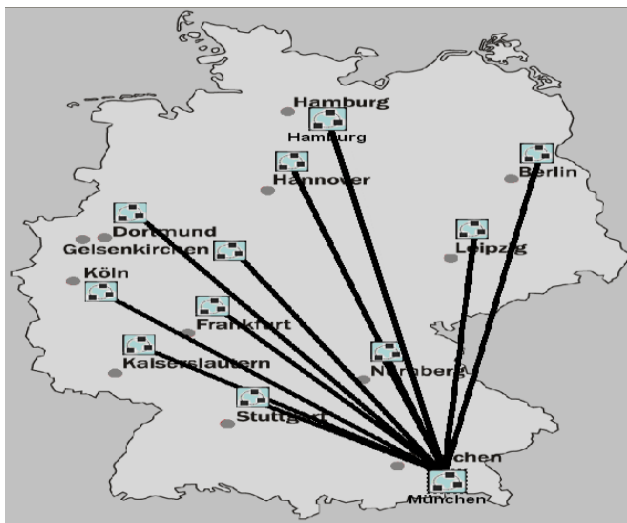


Figure 716: Trunking - Example trunking network (Soccer World Cup 2006)

### 16.1 Requirements

Trunking requires the Riedel **Trunk Navigator** software, a **RIEDEL USB-Dongle** and a few additional configuration changes in *Director* on systems to be trunked together. The Trunk Navigator can be installed parallel on two PCs for redundancy. The PCs should be connected to one another over an IP network. The Trunk Navigator can run without any problems on the same PC as the Director used for local configurations. However, please note that the Trunk Navigator must be permanently online with the system in order to manage the trunking feature.

**Always make sure that the software version of the Trunk Navigator is compatible with the firmware and Director versions used in the trunked system. The firmware in all of the systems to be trunked must be the same version.**

The Trunk Navigator normally has the same version number as Director.

For example: **Director 6.20Dxx** compatible with **Trunk Navigator 6.20TNxx**



In addition, there are a few hardware requirements for trunking. There must be at least one audio connection between the systems to be trunked. The number of audio connections later determines the possible number of simultaneous trunk calls. These connections may be analogue, AES, ISDN, VoIP or other audio formats.

The other requirement is an IP connection from the Trunk Navigator PC to each trunked system in order to dynamically manage the trunk line assignments. A bandwidth of at least **64kB/s** is adequate.

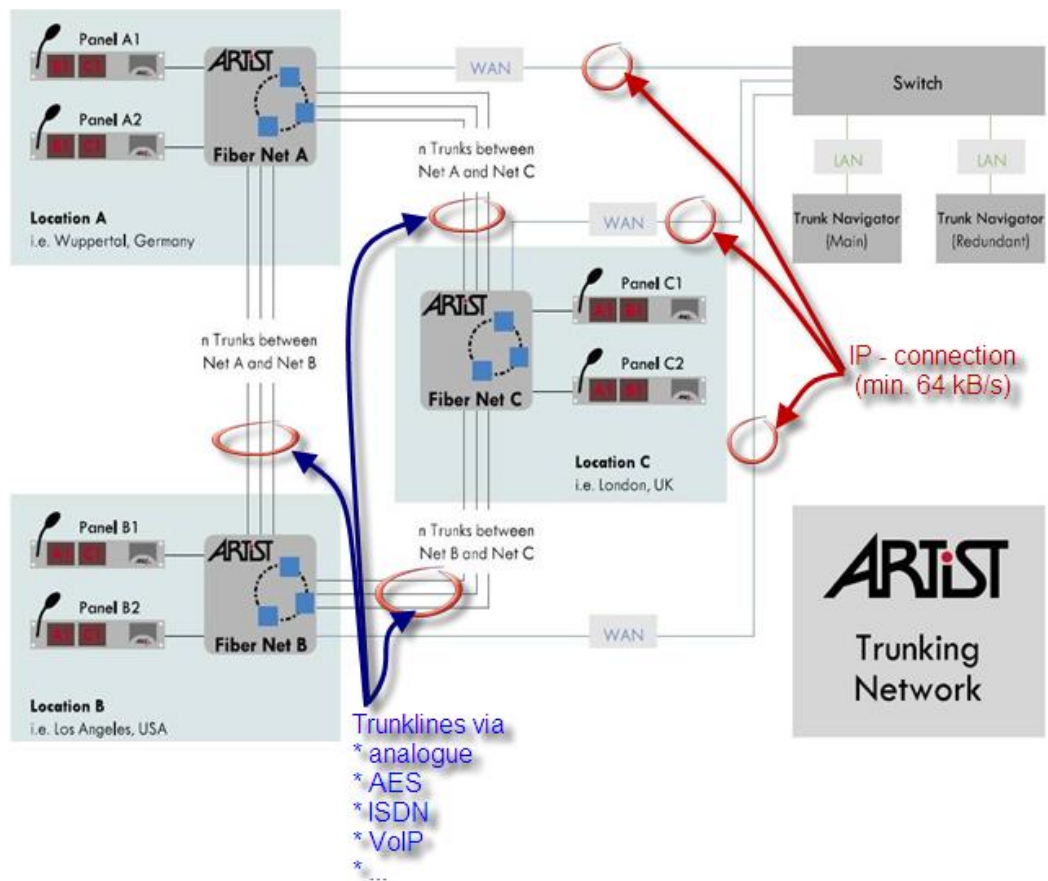


Figure 717: Trunking - Building a trunked network

## 16.2 Setup in Director


### 16.2.1 General

Before activating the Trunk Navigator software some preparations need to be made in each of the systems which are to be trunked together, otherwise the Trunk Navigator cannot dynamically assign trunk lines. In addition, all of the ports of each system (both panels and 4-Wires) which will be allowed to use trunking need to be set up for this feature.

### 16.2.2 Preparing the Artist systems

In each system one of the nodes must be defined as the “*Local Trunk Controller*”. This node carries out commands from the Trunk Navigator. The “*Local Trunk Controller*” capability is already integrated into CPUs’ firmware and must simply be activated. However, only one node on a fiber ring should be defined as the “*Local Trunk Controller*”. It does not matter whether or not this node is also defined as the *Ring Clock Master*.

The node that is set to be the “*Trunk Controller*” must be connected to an IP network, preferably over a switch or hub. The IP address must be reachable by the Trunk Navigator PC. Make a note of the IP addresses of the “*Trunk Controller*” node in each system for use in configuring the Trunk Navigator.

To define a node as the “*Trunk Controller*”, open the “*Online View*” by clicking the  button in the toolbar. Select the node you wish to define and open its “*Properties*”.

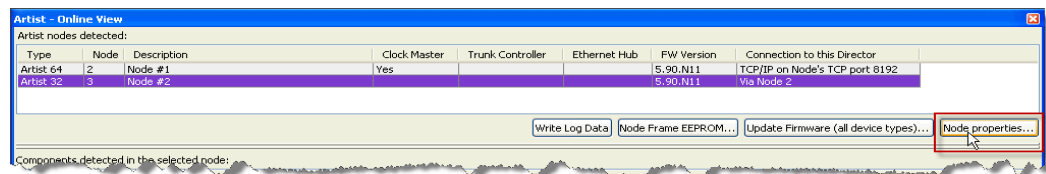


Figure 718: Trunking - Director - Artist Online View

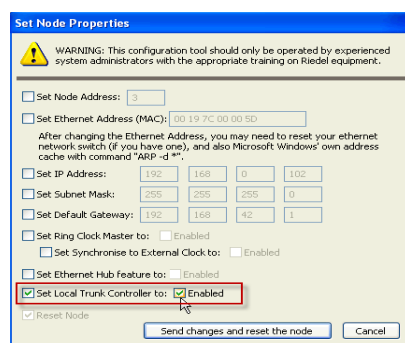
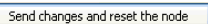


Figure 719: Trunking - Director - Online Bar - Set local trunk controller to enabled

Activate the option “*Set Local Trunk Controller to enabled*” and click the  button. The node will be defined as the “*local trunk controller*” as soon as the reset is complete.

The trunk controller will be indicated in the “Artist Online View” with the entry: “Trunk Controller” - “YES”. There may only be one trunk controller within an Artist fiber ring.

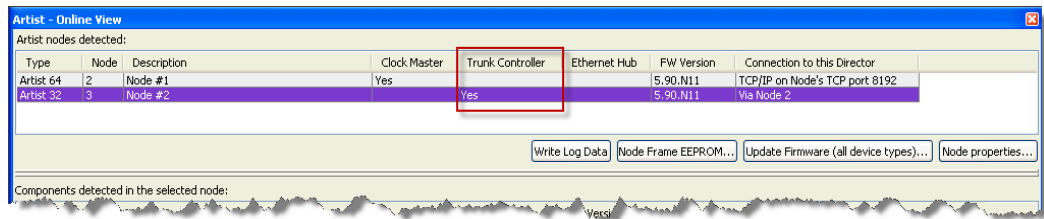




Figure 720: Trunking - Director - Artist Online View with active Trunk Controller

Repeat the steps above for each Artist network that should be enabled for trunking.

### 16.2.3 Preparing the configuration

In order to later identify the individual systems in the Trunk Navigator, a unique “Web” name should be given to each of their configurations.

Select the  Network tab, right mouse click on the  Web and select “Properties”. You can also change the name by selecting the Web and pressing <F2> on the keyboard.

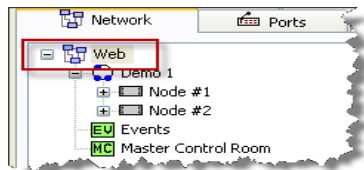


Figure 721: Trunking - Director - Web icon

In the properties of the “Web” you must also assign a unique Trunking Address. The **Trunking-Web-Address** must be different in each system to be trunked. The **Trunking-Web-Address** is similar to a postal code for the system.

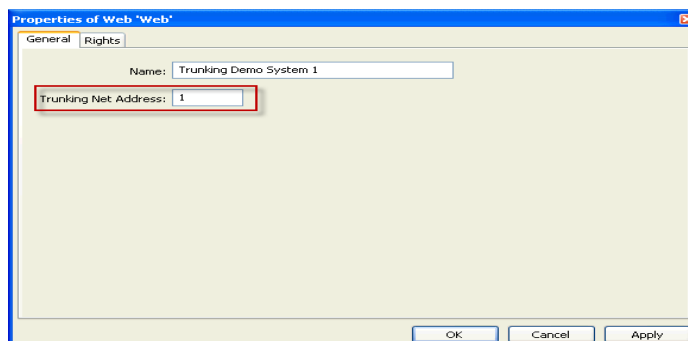


Figure 722: Trunking - Director - Properties of the Web

## 16.2.4 Defining trunklines

So called “*Trunklines*” are used for the audio connections between the trunked systems. A trunkline is always a 4-wire. Either an analogue or AES 4-wire (for example, ISDN, VoIP) can be used. The more trunklines there are per system the more simultaneous calls can be carried out between the systems at the same time.

Define at least one 4-wire in your system as a trunkline. Open the properties of the port by double clicking on it in the Workspace. Or select the port in the port list or network list, right mouse click and select “*Properties*”. It is also recommended to name the port as a trunkline.

**Note:** If you use an AES 4-wire as a trunkline, remember that 2 ports must be used in Director although the physical connection is only to the odd numbered port. Both ports are defined as mono ports. See: “[8.7.2.3 Configuring a 2 channel 4-wire port](#)”

2.7	4-Wire (AES)	▼	Trunkline 1	▼
2.8	4-Wire (AES) (uses 2nd channel on previous port)	▼	Trunkline 2	▼

Open the “*Properties*” of the individual trunk ports and select the option ☒ Used as trunkline, located in the *Details 2* tab. The rest of the parameters of the 4-wire will be greyed out. A unique trunking address will appear in the “*Trunking Address*” field. This address can only be used once in the local system. However, the address may be used in one of the other trunked systems, since the trunking address always corresponds to a particular Web-Trunk-Address.

The trunking address is normally assigned by Director and increases by 1 for each additional trunk port.

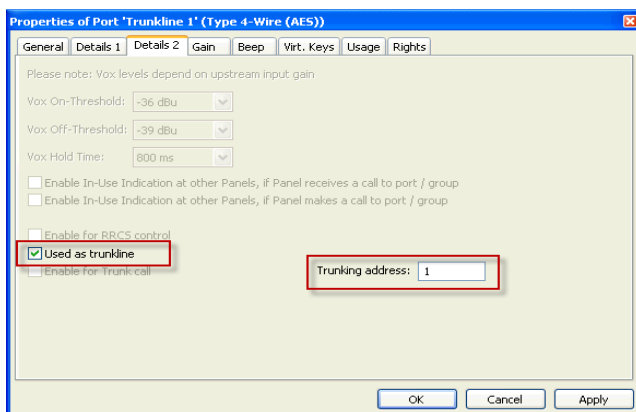


Figure 723: Trunking - Director - Properties of a trunkline

Repeat these steps for all ports that should be used as trunklines.

**Note:** Make sure that there are no audio functions programmed on the Virtual Functions of the trunklines. Delete all functions if necessary. The dynamic assignments for the port will be handled by the Trunk Navigator and the Local Trunk Controller.

### 16.2.5 Preparing individual ports for trunking

All ports (panels or 4-wires), that should be able to communicate to a trunked system must first be defined in the configuration. Only these ports will be listed in the Trunk Navigator and be available as destinations to the trunked systems.

Open the properties of the port by double clicking on it in the Workspace. Or select the port in the port list or network list, right mouse click and select **“Properties”**. Select the [Details 2](#) tab.

Activate the option ☒ **Enable for Trunk call**. A trunking address will automatically be assigned by Director and appear in the **“Trunking Address”** field.

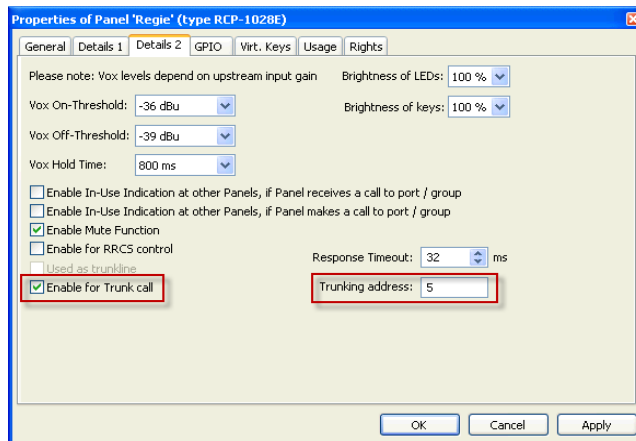


Figure 724: Trunking - Director - Enabling a port for a Trunk Call

Repeat the steps above for all of the ports that should later be allowed to use trunking. The procedure is identical for 4-wires and control panels. Remember to define ports for trunking in the other trunking systems as well.

## 16.2.6 Preparing groups and conferences for trunking

Groups and conferences can also be enabled for trunking and can be shared throughout the trunked systems. For example, if 3 Artist networks use the same conference each can speak into the conference and listen to the replies. This creates a large group or conference that spans all of the trunked systems and uses the same trunk address.

To use a group or a conference in a trunked system, open the “**Properties**” of the group/conference in the **Groups + Confs** tab by double clicking on an entry.

In the **General** tab, activate the option ☒ **Enable for trunk call**. The “**Trunking address**” will be assigned automatically.

**Note:** Groups and conferences must use the same trunking address in all trunked systems. It may be necessary to manually assign the trunk addresses for groups and conferences.

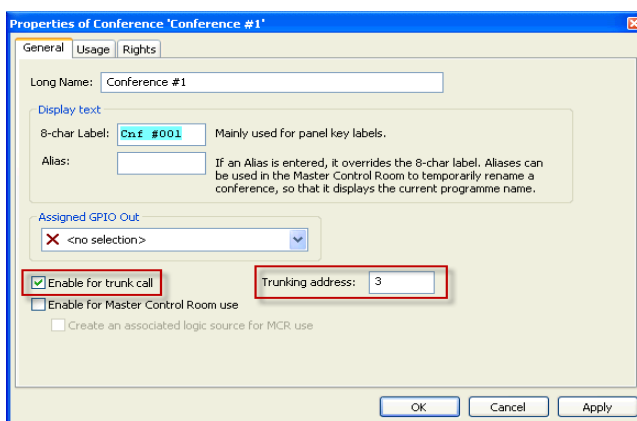


Figure 725: Trunking - Director - enabling conferences

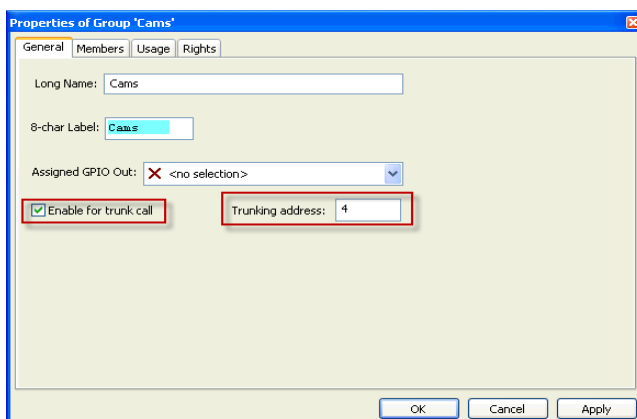



Figure 726: Trunking - Director - enabling groups

Repeat the steps above for all groups/conferences that should use trunking. Remember to enable the corresponding groups/conferences in the trunked systems and to match their trunking addresses.

## 16.3 Trunk Navigator Software

The Trunk Navigator software is required to network all of the predefined trunklines and trunk ports with each other and dynamically manage call requests. In order for trunking to function, the Trunk Navigator must be permanently online and connected to the individual trunked systems over an IP connection.

The Trunk Navigator does not need to be installed in Windows. It simply consists of an .exe file that should be copied to the directory of your choice. From there it can be started with a double click on the  icon or via a shortcut. A Riedel USB dongle is required to use the software.

After the software is started an empty Trunk Navigator window opens.

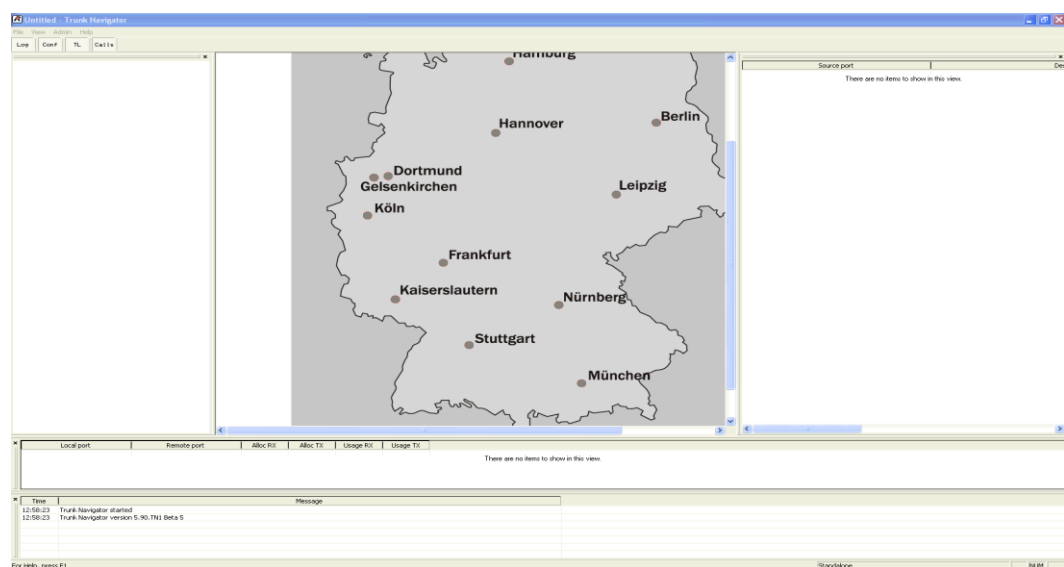


Figure 727: Trunk Navigator (not configured)

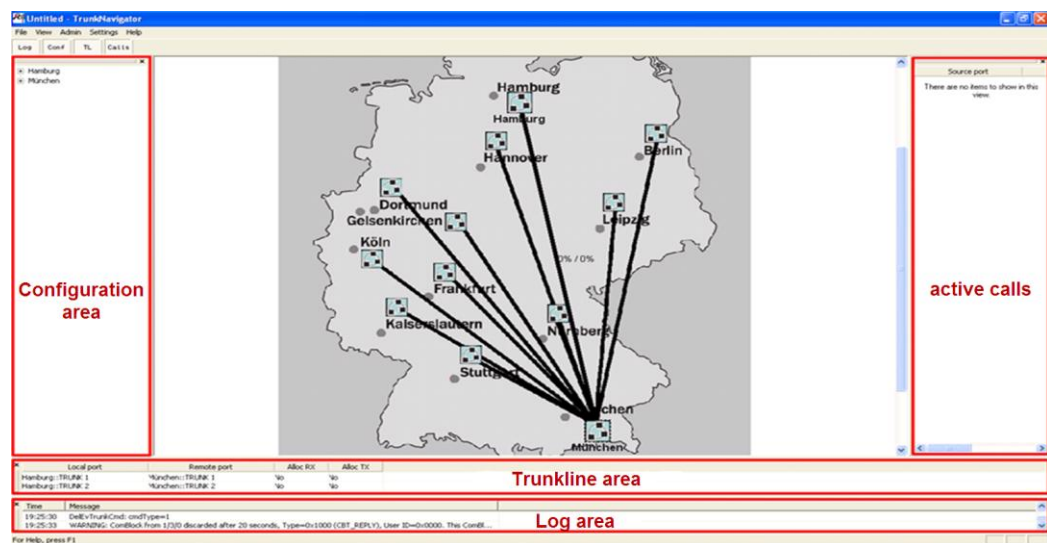


Figure 728: Trunk Navigator - example

## 16.3.1 Changing the background image

To better customize the Trunk Navigator to reflect where it is being used, the background image can be changed. For example, it could be set to display a map of your choice. Any \*.bmp, \*.jpg, or \*.gif file can be used. For optimal appearance, a resolution of 760 x 900 pixels is recommended.

To change the background image, select the function “*Select Background...*” in the “*Admin*” menu. Choose the directory where the file is saved and pick the file type in the “*Files of Type:*” drop down menu. Select the file and click the “*Open*” button.

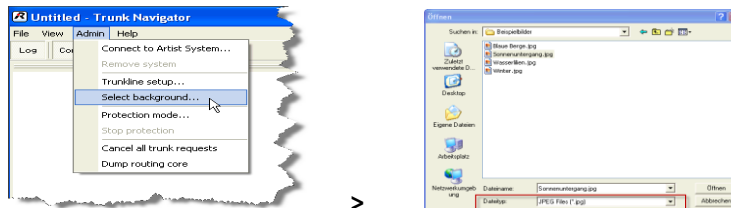


Figure 729: Trunk Navigator - Selecting a new background image

The new image is now linked to the Trunk Navigator background. It will be displayed each time the program is started.

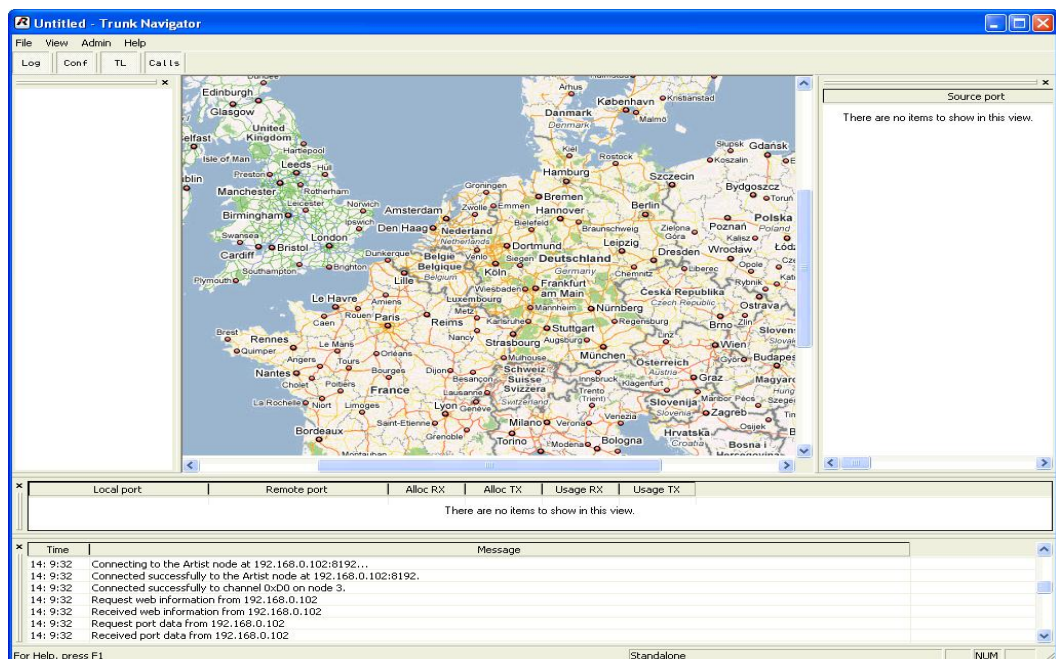


Figure 730: Trunk Navigator - with a custom background



### 16.3.2 Connecting Trunk Navigator to an Artist system

Once a network connection to all trunked Artist systems is established, you need to connect the Trunk Navigator to the systems.

**Note:** Make sure that you know the IP addresses of all nodes that are set as a “Trunk Controller” before proceeding.

In the Menu “Admin” select the function “Connect to Artist System...”. Enter the IP address of the first Artist system in the window and confirm by clicking .

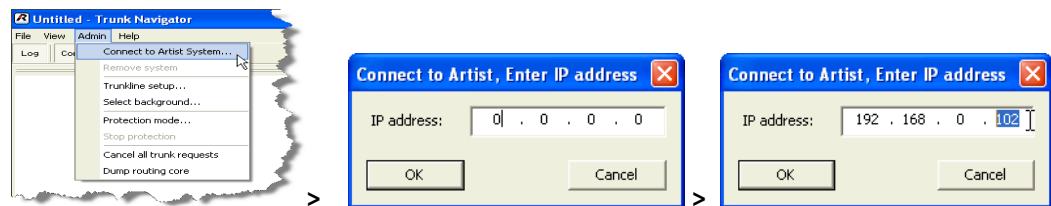



Figure 731: Trunk Navigator - Connect to Artist

The first trunked system will appear on the map as a green icon  labelled with its Web name. When newly added, systems normally appear first in the upper left corner of the background image. You may have to scroll in order to see the icon. However, you can move the icon to any location on the background image.

Successful connections will be logged in the log area of the software. The previously created trunk configuration will be displayed in the configuration area.

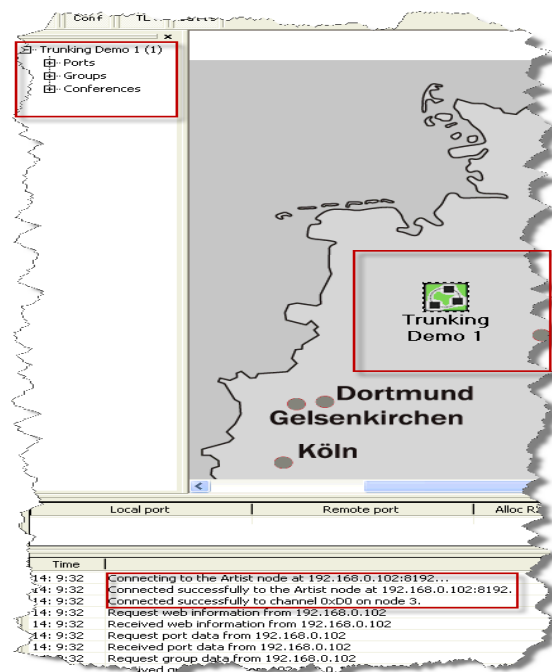



Figure 732: Trunk Navigator - Successful connection to a trunked system


Repeat these steps for all additional trunked systems.

If a red icon  is shown, this means that the Trunk Navigator cannot establish a connection to the IP address entered for this Web. Check the IP address and contact your network administrator to see whether or not the address is being routed correctly. The corresponding error messages will be shown in the log field.



Time	Message
15:18:39	Could not connect to the Artist node (IP address =192.168.0.11), the connection attempt timed out after 2000 ms
15:18:42	Connecting to the Artist node at 192.168.0.11:8192 (the 2nd, redundant controller)...
15:18:44	Could not connect to the Artist node (IP address =192.168.0.11), the connection attempt timed out after 2000 ms
15:18:47	Connecting to the Artist node at 192.168.0.10:8192...
15:18:50	Could not connect to the Artist node (IP address =192.168.0.11), the connection attempt timed out after 2000 ms
15:18:53	Connecting to the Artist node at 192.168.0.11:8192 (the 2nd, redundant controller)...

Figure 733: Trunk Navigator - No connection to the trunked system

If a connection icon is light yellow , this means that a connection was established to the system, but the node with that IP address is not defined as a *Trunk Controller*. Change the IP address to the address of the system's *Local Trunk Controller*. An error message will be displayed in the log area.



Time	Message
15:26:18	This node is not a local trunk controller, 192.168.0.100
15:26:24	This node is not a local trunk controller, 192.168.0.100
15:26:29	This node is not a local trunk controller, 192.168.0.100
15:26:35	This node is not a local trunk controller, 192.168.0.100
15:26:41	This node is not a local trunk controller, 192.168.0.100

Figure 734: Trunk Navigator - The connected node is not a Local Trunk Controller

Once all systems have been connected to the Trunk Navigator, all of their available ports will be displayed in the configuration area.

The trunk address will be displayed in parentheses ( ) after the Port/Group/Conference name.

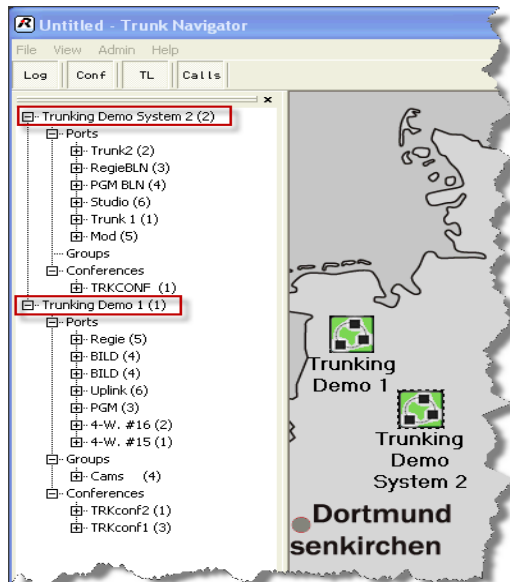


Figure 735: Trunk Navigator - Ports shown in the Trunk Navigator

### 16.3.3 Setting up trunklines

Once all of the systems have been connected to the Trunk Navigator, the trunklines between the individual systems must be assigned. In the “Admin” menu, select “Trunkline Setup”. The “Trunkline Setup” window will open.

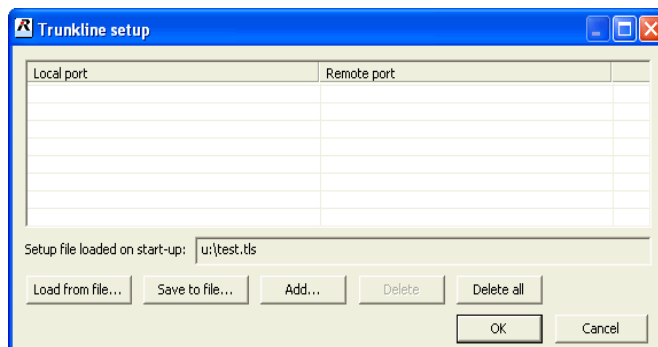


Figure 736: Trunk Navigator - Trunkline setup, no trunk lines available

To create a new trunkline, click the **Add...** button. A new window will open where all of the systems are listed.

Click on the **+** symbol to show all available trunklines in a system.

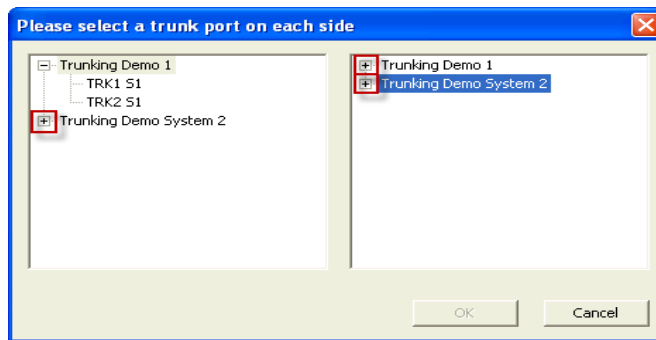



Figure 737: Trunk Navigator - Trunkline setup

Select a trunkline from both a system on the right and a system on the left to create a connection between them. Confirm your selections with .

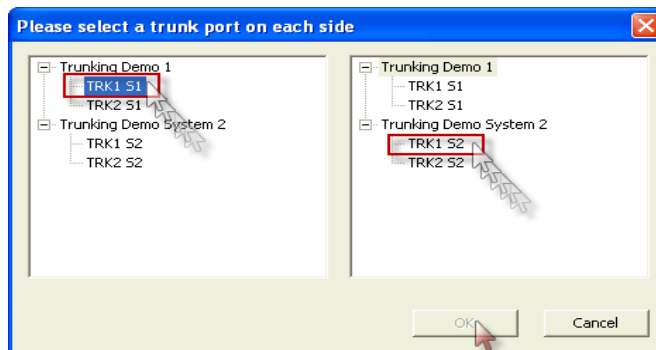



Figure 738: Trunk Navigator - Select trunk ports

The new trunkline will be listed in the “Trunkline Setup” window. Continue adding trunklines with the  button to connect the rest of the trunklines with each other. Trunklines that are already configured will no longer be available for selection.

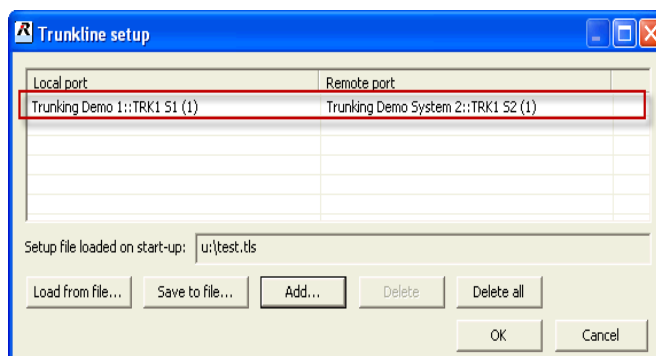


Figure 739: Trunk Navigator - Configured trunkline connection

After you have connected all of the trunklines with each other they will all be listed in the “Trunkline Setup” window.

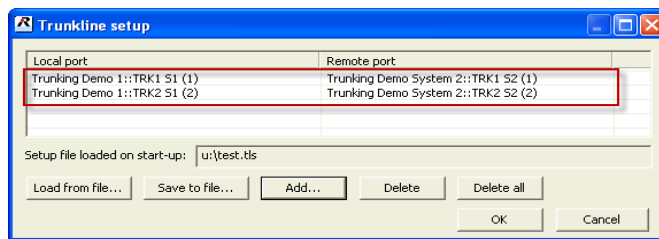




Figure 740: Trunk Navigator - Trunkline setup


The  and  buttons can be used to delete a single trunkline or all trunklines.

To save this trunkline setup, click the  button. The trunkline assignments can be saved to a file on the hard drive ending with “.tls” and opened later using the  button.

As soon as a setup has been saved, the last setup used will always be loaded when the Trunk Navigator is started. The name of the file that is being automatically loaded is shown in the “Setup file...” line.



Figure 741: Trunk Navigator - Load trunkline setup

As soon as the “Trunkline Setup” window is closed using the  button, all of its settings will be implemented and the configured trunkline will be displayed along with its capacity. All of the details of the trunklines are displayed in the trunkline area of the software. A green background to the line indicates that the trunk ports are online.

**Note:** Only the trunk ports of the systems are monitored. The correct physical connection between the trunk ports is not monitored.

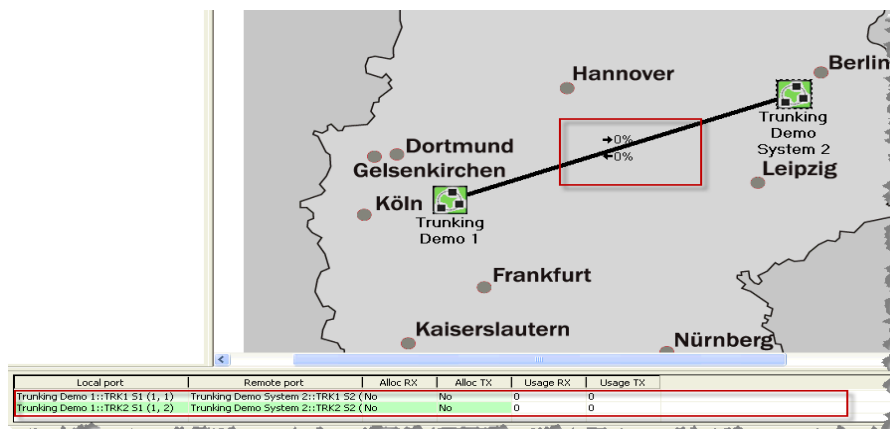


Figure 742: Trunk Navigator - Successful trunkline connection

The configuration of the Trunk Navigator is now completed.


### 16.3.4 Trunk Navigator details

The following buttons in Trunk Navigator can hide or show different areas in the software:

 **Log area**

 **Configuration area**

 **Trunkline area**

 **(Trunk) Calls area**

The software also features the following menus for configuring the software:

#### File

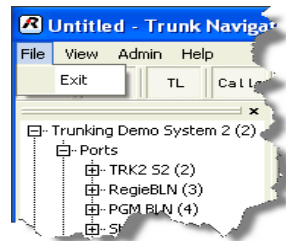


Figure 743: Trunk Navigator - drop-down menu "File"

<b>Exit</b>	Closes Trunk Navigator
-------------	------------------------

#### View

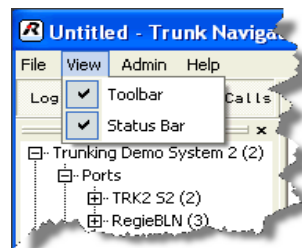


Figure 744: Trunk Navigator - drop-down menu "View"

<b>Toolbar</b>	Activates/ deactivates the toolbar in the Trunk Navigator window
<b>Status bar</b>	Activates/ deactivates the status bar in the Trunk Navigator window

Figure 745: Table - Trunk Navigator - "View" functions

Admin

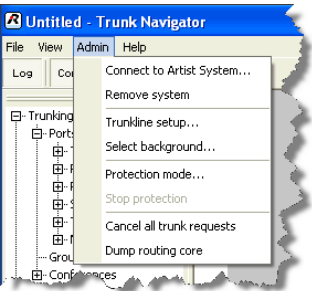


Figure 746: Trunk Navigator - drop-down menu “Admin”

Connect to Artist system ...	Allows a new Artist system to be connected
Remove system	Removes an existing Artist system
Trunkline setup...	Opens the trunkline setup window
Select Background...	Selects a different background image
Protection Mode...	Activates the redundancy mode
Stop Protection	Ends the redundancy mode
Cancel all trunk requests	Ends all active trunk calls
Dump routing core	Requests the internal trunkline information

Figure 747: Table - Trunk Navigator - “Admin” functions

Help

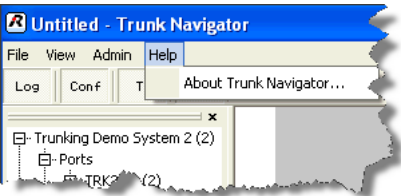


Figure 748: Trunk Navigator - drop-down menu “Help”

About Trunk Navigator ...	Displays the software version of Trunk Navigator
---------------------------	--

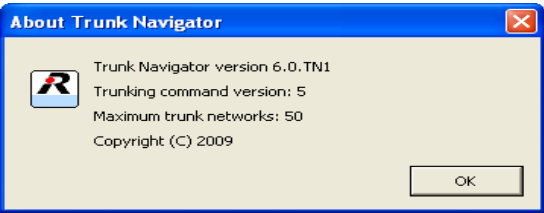


Figure 749: Trunk Navigator - About Trunk Navigator

## 16.3.5 Protection mode of the Trunk Navigator

Since Trunk Navigator requires a permanent connection for trunking to function, there is the option to start a second “standby” Trunk Navigator.

This means that another copy of Trunk Navigator that runs on a second PC seamlessly takes over the routing management if the primary PC is no longer online. The only requirement is that the second PC with Trunk Navigator must be in the same IP network as the Artist systems and the active Trunk Navigator.

Start Trunk Navigator on the second PC. In the “Admin” menu, select the function “Protection Mode...”. No further configuration is necessary for the back-up Trunk Navigator.

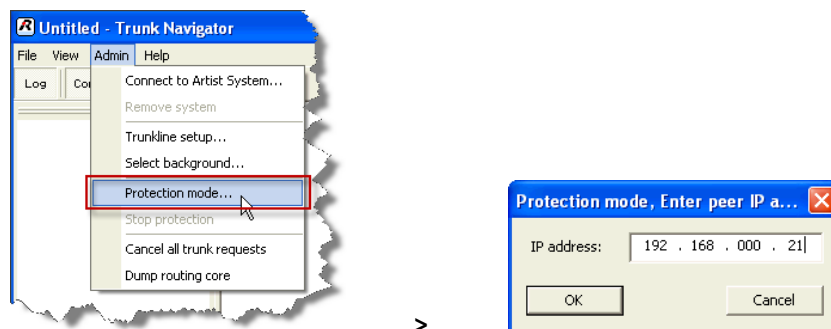


Figure 750: Trunk Navigator - Enter the IP address of the active Trunk Navigator

As soon as you confirm the IP address of the primary Trunk Navigator by clicking  , the second copy attempts to connect with the IP address. Once it is successful, it downloads all of the necessary information directly and goes into standby mode.

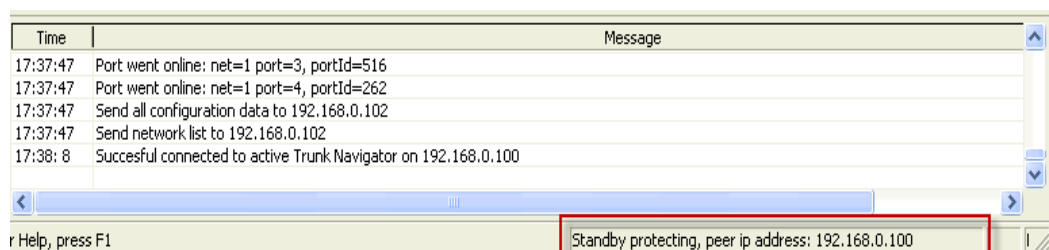


Figure 751: Trunk Navigator - in Standby mode

If the active Trunk Navigator located at the IP address entered does not answer (for example, because the program was closed or the PC crashed), the standby Trunk Navigator seamlessly takes over all routing functions.

This will be indicated in the status bar:



After a successful handover, turn off the “*Protection Mode*”. This will allow the originally active Trunk Navigator to start in “*Standby*” mode. Select “*Stop Protection*” in the “*Admin*” menu.

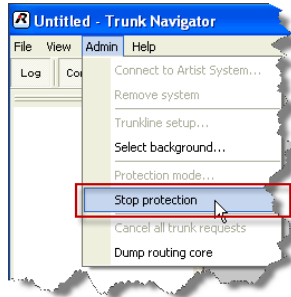


Figure 752: Trunk Navigator - Stop Protection

The status bar of the previous “*Standby*” Trunk Navigator will display “*Standalone*”.

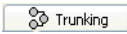


## 16.4 Configuring Trunking Calls in Director

As soon as the Trunk Navigator is set up and online with the system, the individual trunking calls in each system can be configured.


“**Call to Port**”, “**Call to Group**” and “**Call to Conference**” - commands can be configured to trunking destinations. Up from Director version 6.20 it is now possible also to create a “**Listen to**” command to a trunked port

Open the  **Trunking** tab in each Director configuration. All of the available destinations in the trunked systems will be listed.

**Note:** Normally Trunking calls are configured online. Both, Director and the Trunk Navigator must be connected. The  **Trunking** tab is empty in offline mode. If only the Trunk Navigator is inactive, the list will only show the local trunk ports.

Up from version 6.20, it is also possible to configure trunk calls offline, if you know the destination trunk addresses. For details see [16.4.5 Offline-Configuration of Trunkcalls](#)

### 16.4.1 Trunking: Call to Port

To create a “**Call to Port**” command to a trunking destination, the [Navigation Bar](#) in Director must be open to the  **Trunking** tab.

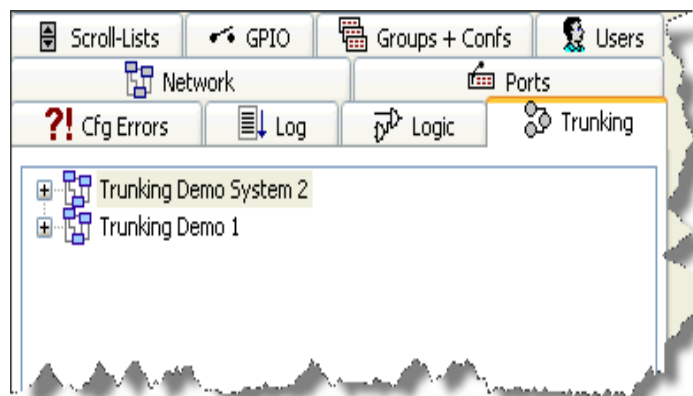


Figure 753: Trunking - Director

Clicking the **+** symbol shows all trunking destinations in all of the systems. The trunk addresses of all trunking objects are shown in ( ).

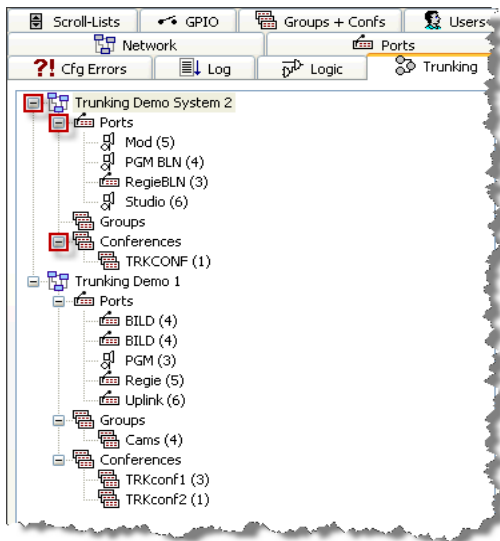


Figure 754: Trunking - Director - Viewing all trunk ports

Open a local port in the Workspace and drag the trunking destination to a key or Virtual Function using drag & drop.

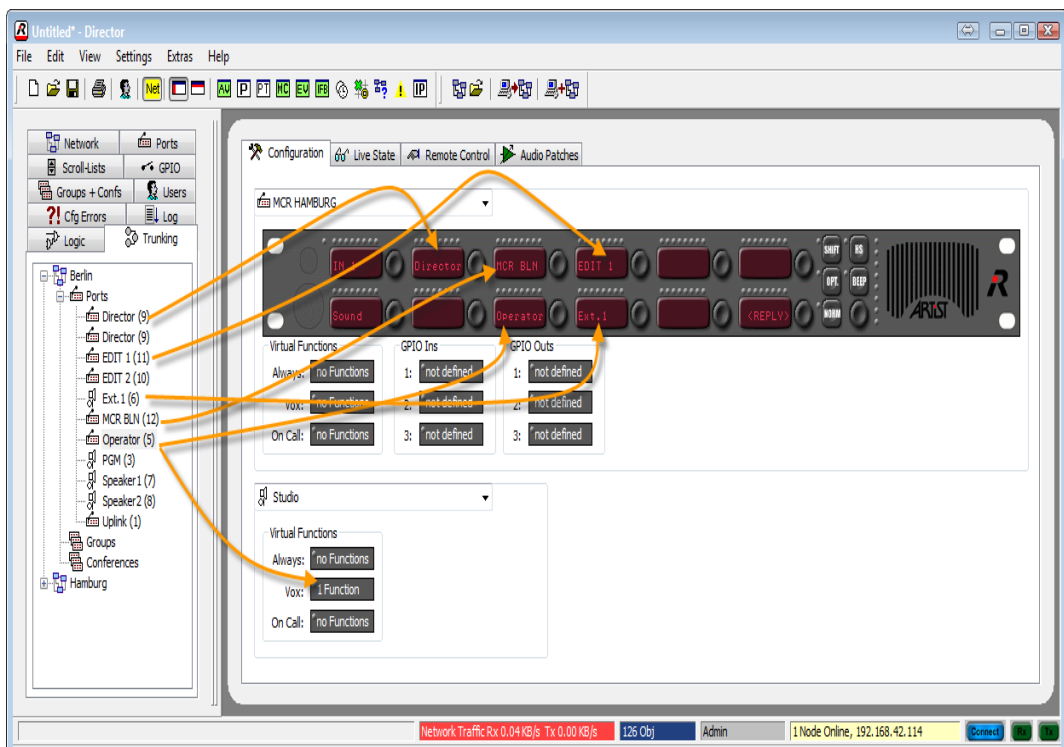



Figure 755: Trunking - Director - Drag & Drop “Call to Port” to trunking destinations

## 16.4.2 Trunking: Listen to Port

To configure a „Listen to“ to a trunkport it is not possible to use the drag&drop method. To use „listen to“ for a trunk member, you have to know the trunking address of the destination port you want to listen to.

Create a standard „listen to“ - function on a local key or virtual function. The „Properties“ window of this function will open automatically. Now select „Trunking address“ as „Source“. Enter the NET and Port-address of the trunkport you want to listen to.

You can find the trunking address of the trunked port in the  Trunking tab. The address is shown in ( ) behind the portname.

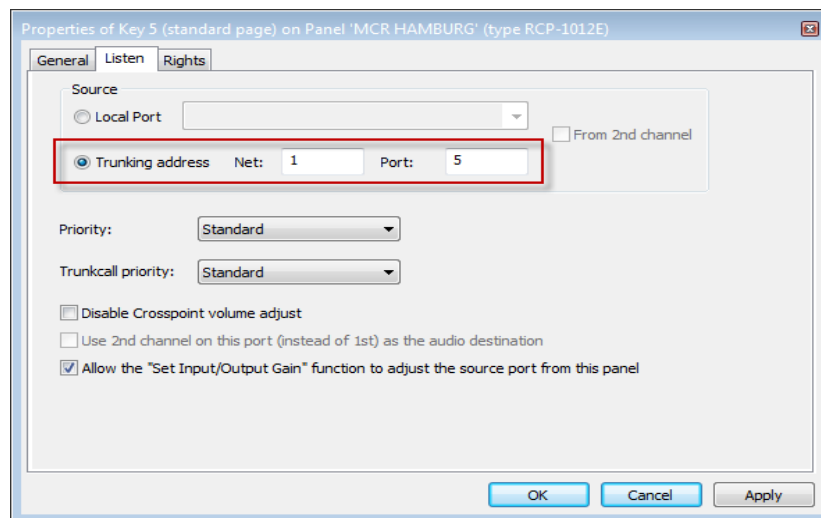



Figure 756: Trunking – Creating a „Listen to“ Trunkport function

This method is identically to the offline-configuration of trunkcalls. See [16.4.5 Offline-configuration of Trunkcalls \(new in Director 6.20\)](#).

Because an automatic takeover of the trunkport-labels is not yet working in this version, the key will show „LstnTR ?“ in the display.

To label the key, you can disable the function „define automatically“ in the  General tab of the key properties and enter a name manually. You can also use the function „Edit“ -> „Update Trunking key labels“ once when you finished all listen to configurations and when the Trunk Navigator and Director is online. Then the labels will be updated. (See [16.4.4 Trunking: Changing port names](#))

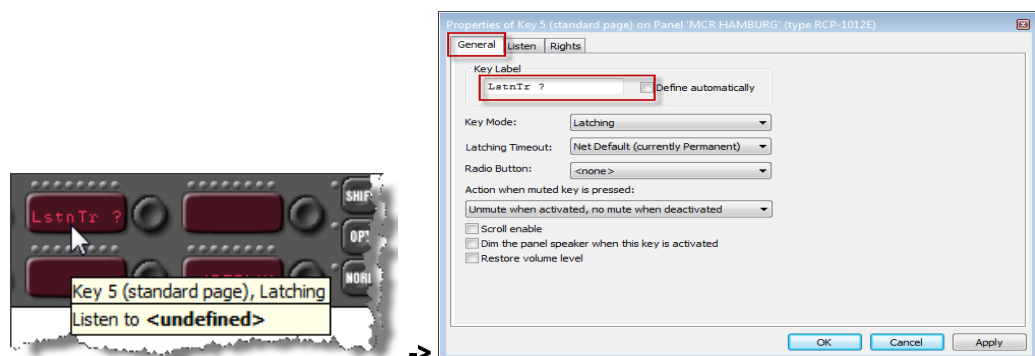


Figure 757: Trunking - „Listen to Port“ key text

### 16.4.3 Trunking: Call to Group / Call to Conference

To use groups or conferences via trunking, you need to configure a group resp. a conference in all trunked systems you want to use for this functionality. The group resp. conference in the different systems has to use the same trunking address. Then the Trunk Navigator knows, which groups/conferences are linked together.

Create a new group resp. conference in the local system (see [8.17 Create and manage Groups and Conferences](#)) and open the properties of the new group/conference. Enter any trunking address for this conference/group.

**Tip: The trunking address for groups and conferences is independent of the trunk addresses of single ports. So a trunk address of a group/conference can be the same then the address of a single port.**

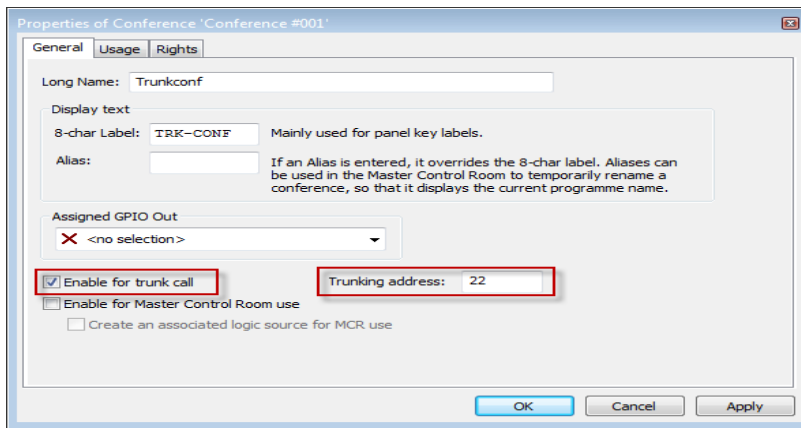




Figure 758: Trunking - Call to Group/Conference - Trunking address

Now create also a group resp. a conference in the configurations of the trunked systems and set the same trunking address for the group/conference like in your local system. The *long*-, and. *8-char labels* of the group/conference can be different in every system.

To now configure calls to a trunked groups resp. conferences to local ports, you have to drag&drop the needed groups/conferences from the  Trunking - list to local keys or virtual functions.

Therefore the  Trunking - tab and the local port needs to be opened.

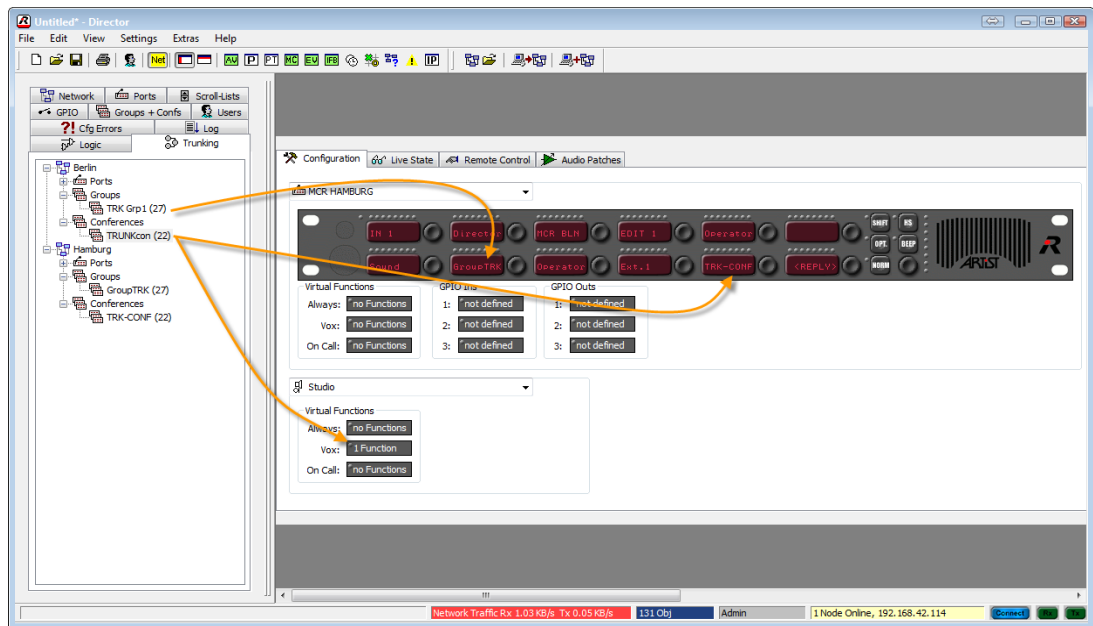


Figure 759: Trunking - Drag&Drop of groups and conferences

**Note:** Groups and conferences can only be programmed via Drag & Drop if the local configuration also contains a group or conference with the same trunk address. The groups and conferences of the various systems are connected to another via this trunk address.

## 16.4.4 Trunking: Changing portnames

If you change Net-, Port- or Display names of trunk enabled ports in your local configuration, send these changes with to the local system. The Trunk Navigator will take over these changes and forward them to all connected Directors. After a while, the Trunkinglist in the -tabs will be updated with all new names in all Directors. It can take up to 1 minute until all lists are up to date. To overtake all new labels to the other local configurations, activate the function “**Update Trunking key labels**” in the “**Edit**” menu in all other connected Directors. All local keylabels, configured with a trunking function that have been changed, will be updated to the latest. An Info-window will show the numbers of changed labels in the local configuration. Now send the configuration with to the local systems.

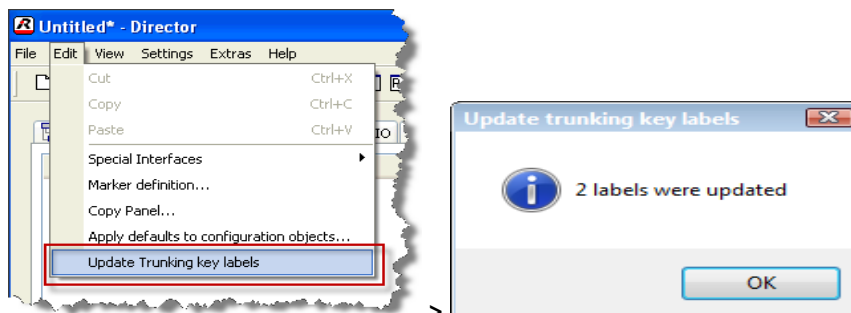



Figure 760: Trunking - Director - Update Trunking key labels

### 16.4.5 Offline configuration of Trunkcalls (new in Director 6.20)

Up from Director version 6.20 it is possible, to configure Trunkcalls also in offline mode.

That means, no Trunk Navigator or Artist needs to be connected. Therefore you need to know the trunk addresses of the called trunkport and also the trunk-address of the trunked system. You can figure out these addresses for example by opening the configuration of the trunked system in another Director instance (writing Log files need to be disabled in Director to open another instance on the same computer. See [9.1.4.2 Options - Logging](#)).

You can figure out the “Trunking Net address” in the properties of the web of the configuration. Open “Properties” of the „WEB“ in the  Network -tab

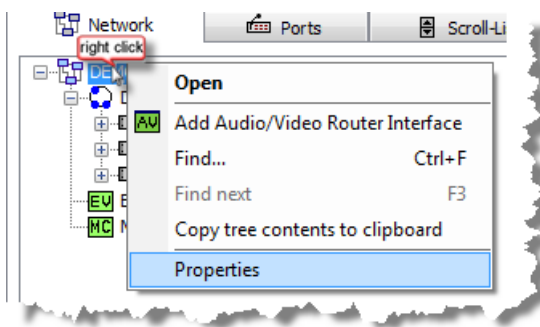


Figure 761: Trunking - Director - Properties of the NET

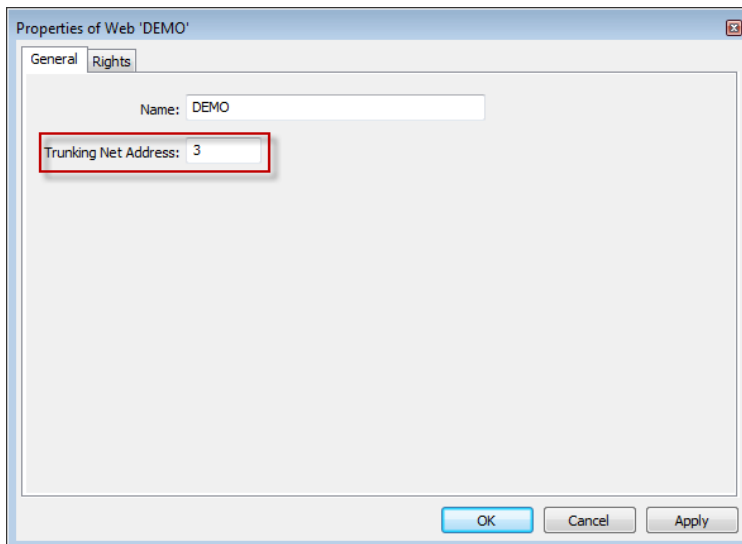


Figure 762: Trunking - Director - Trunking NET address

To find out the Trunk address of a single port, you have to open the „**Properties**“ of the port and go to the **Details 2** - tab. In „**Trunking address**“ you can figure out the Trunk address of the port.

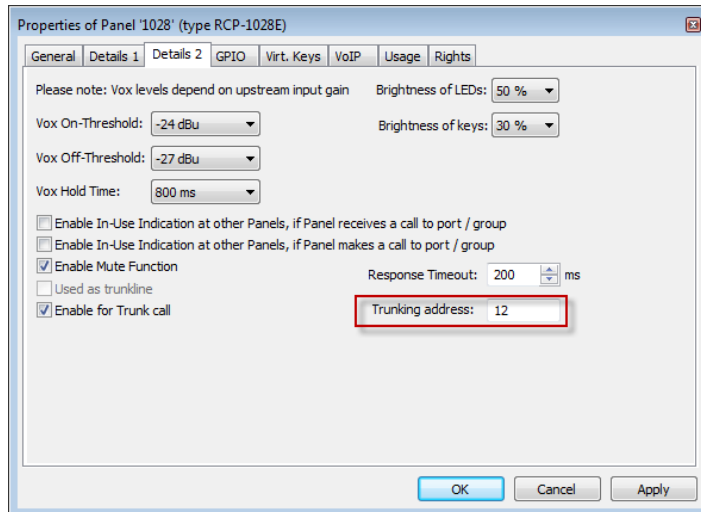


Figure 763: Trunking - Director - Trunk address of a Ports

To configure offline a trunkcall to a local port, just add with „**Add function**“ a new „**Call to Port**“ or „**Listen to Port**“ command on a key or a virtual function. Now open the „**Properties**“ of this function and select **Trunking address** instead of „**local Port**“ and enter the Net-, and Trunkaddress of the trunked destination port.

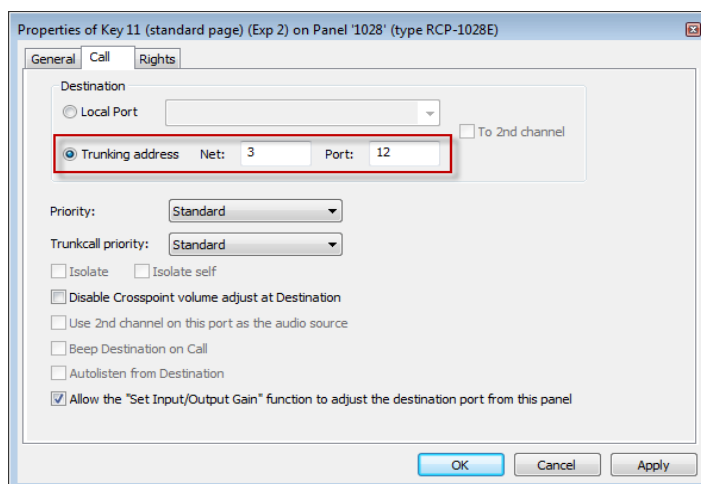


Figure 764: Trunking - Director - Call to Port - Trunking address

Use the same procedure also for a „**Listen to Port**“ command.



Because an automatic takeover of the trunkport-labels is not yet working in this version, the key will show „*LstnTR ?*“ resp. „*CalITR ?*“ in the display.

To label the key, you can disable the function „*define automatically*“ in the **General** tab of the key properties and enter a name manually. You can also use the function „*Edit*“ -> „*Update Trunking key labels*“ once when you finished all listen to configurations and when the Trunk Navigator and Director is online. Then the labels will be updated. (See [16.4.4 Trunking: Changing portnames](#))

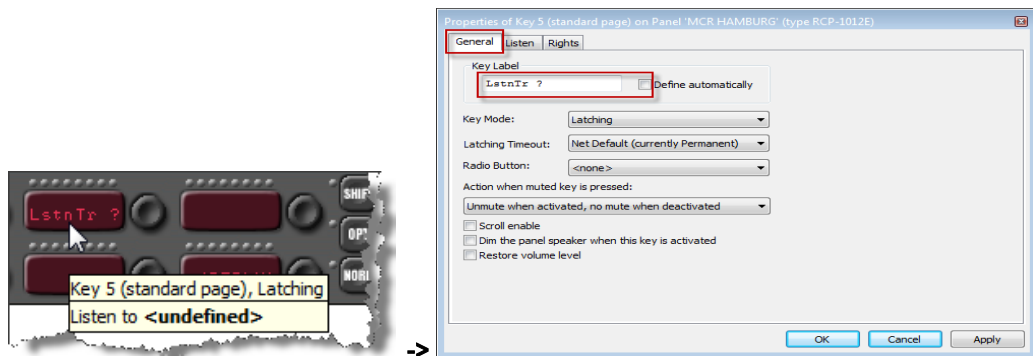


Figure 765: Trunking - Offline configuration - key display

## 16.4.6 Trunking priorities

Each trunking call can be assigned one of 3 different trunking priority levels. The priorities allow the most important calls to be given a higher priority in the face of limited trunkline capacity. The three priorities are: “Low”, “Standard”, and “High”.

All new trunk calls are first created with the priority “Standard” by default. To change the priority of a trunking call, open the properties of the trunking call and change the priority under “Trunkcall priority”.

Right mouse click on the key or Virtual Function and select the “Edit”. Select the desired trunking call.



Figure 766: Trunking - Director - Editing a trunking call

Change the priority of the call under “Trunkcall priority”.

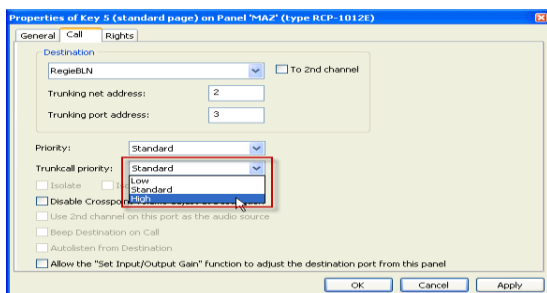


Figure 767: Trunking - Director - Selecting the trunk call priority

The maximum number of simultaneous calls in a trunked system is dependent on the number of trunklines available.

For example, as soon as the trunkline capacity is used up by calls with a “Standard” priority and a call with a “High” priority is activated, one of the standard calls will be terminated. If calls with priorities “Standard” and “Low” are active at the same time, the call with the lowest priority will be ended to allow the higher priority call to use the trunkline.

As soon as an active trunking call is ended by a call with a higher priority, this will be indicated on the affected control panel keys.

**Active Trunking Call:**

**Trunking call ended by a call with a higher priority:**



Figure 768: Trunking - Markers Panel key

## 16.5 Displaying trunking calls

The Trunk Navigator software displays the current status of the trunkline capacity in % for each direction.

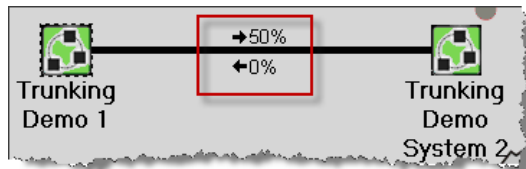


Figure 769: Trunk Navigator - Capacity used on the trunkline

In addition, the trunkline area of the Trunk Navigator software lists which trunklines are being used and in which direction.

Local port	Remote port	Alloc RX	Alloc TX	Usage RX	Usage TX
Trunking Demo 1::TRK1 S1 (1, 1)	Trunking Demo System 2::TRK1 S2 (No	No	Yes	3	36
Trunking Demo 1::TRK2 S1 (1, 2)	Trunking Demo System 2::TRK2 S2 (No	No	No	0	32

Figure 770: Trunk Navigator - Active trunk lines

The exact details of which trunk port of a system activated a certain call and the destination for the call are listed in the trunk call area.

Source port	Destination	Priority	Trunkline Path
Trunking Demo 1::Uplink (net:1, port:6)	Call to port: Trunking Demo System 2::PGM BLN (net:2, port:4)	standard	Trunking Demo 1::TRK2 S1 (1, 2) -> Trunking Demo System 2::TRK2 S2 (2, 2)

Figure 771: Trunk Navigator - Active source and destination ports

All trunk call connections are also listed in the log area along with the exact time they took place. The log file is saved as a .txt file in the same directory as the Trunk Navigator.

```

9:13:48 Allocate free line from net=1, port=2 to net=2, port=2
9:13:48 Trunk request successful: srcNet=1, srcPort=262, destNet=2, dest=3236, tceId=0x101020813, path: (1, 2) -> (2, 2)
9:13:48 SendAddPort: net=1, side=1, trunkId=28150, virtId=32774, out=1, tceId=0x101020813
9:13:48 Force Add Port: eventId=50237, audioOut=1, ui16TrunkPortId=28150, ui16PortId=32774, ui8RoomCode=0x0, ui8SODimLevel=0x7, ui8Flags=0x24
9:13:48 SendAddPort: net=2, side=3, trunkId=1542, virtId=32768, out=0, tceId=0x101020813

```

Figure 772: Trunk Navigator - Log entries of an active trunk call

**Note:** Since the trunkline capacity is dependent on the source being used, multiple direct calls can be activated at the same time from a single source. The distribution to the ports in the destination system is handled by the CPU in the remote system.

As soon as a trunkline has reached its maximum capacity, this will be indicated by “100%” being displayed in red.

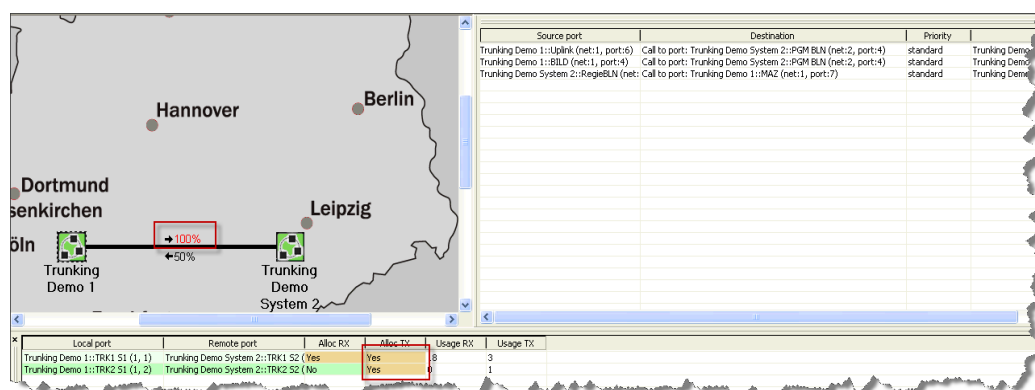


Figure 773: Trunk Navigator - 100% use of a trunkline

If another trunk member tries to activate a trunk call with the same priority, this person will see a busy signal on the corresponding control panel key when they press it.

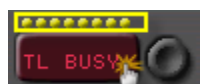


Figure 774: Trunking - Panel key display Trunkline busy

If a trunkline or an entire trunked system is offline, it will be displayed red in the Trunk Navigator.

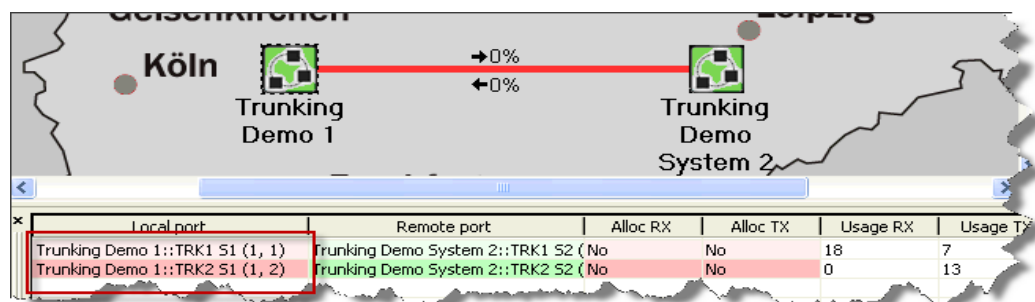


Figure 775: Trunk Navigator - Trunkline offline

If a user tries to make a call, the caller will see an error message when the key is pressed.



Figure 776: Trunking - Panel key display Trunkline or trunk system not available

## 17 TROUBLESHOOTING

Problem	Possible Cause	Potential Solution
Director cannot connect to Artist	Network is not activated	Press the network button in Director
	Incorrect IP address in Director	Enter the correct IP address
	Network cable is not connected	Connect the network cable to the 10BaseT port on the CPU rear card
	Ethernet is only connected to the redundant PC	Connect the Ethernet cable to the active CPU, or use a switch or Ethernet hub to connect to both CPUs at the same time
	Wrong Ethernet cable	Direct connection PC->Artist: 10BaseT X-Over ; Hub/Switch : 1:1
	IP address of the PC is not in the same subnet mask as Director	Make sure that the PC is in the same subnet as Artist (Ex. 192.168.42.x)
	A firewall is blocking the network connection	Deactivate the firewall or unlock port 8192
	Windows Network ARP cache problem after changing the IP address	Execute the DOS command "arp -d *" : Reset the ARP cache
Unstable IP-connection (interruptions during firmware update or downloading configurations)	Wrong speed setup of your PC network-card	Set the speed of your network-card in your Windows device manager to "Auto detection" or "10Mbit halfduplex"
2 or more nodes are connected via fiber, but only 1 node is visible in the online bar	Fiber connection is not working	Clean the fiber connectors, check the cable (see CPU LEDs)
	Fiber is not connected correctly	Make sure that the node 1 downstream TX is connected to the upstream RX of the next node, and vice versa
	Node addresses are the same	Change the node address of a node
	The systems are running different software versions	Update/downgrade all systems to the same software version
	Wrong fiber cable type or fiber transceiver installed	Check the hardware for which fiber type should be used
It is not possible to read out the configuration from the system	Network is not active	Press the network button in Director
	The Director version is newer / older than the firmware in the system	Open the version of Director that matches the firmware installed
	The system was not used for a long period .The CPU has therefore lost the configuration	Open the configuration from the hard drive and send it to the system (afterwards reset the system)

	You do not have the user rights to read out the configuration from the system	Contact your system administrator
It is not possible to send a configuration to the system	Network is not active	Press the network button
	Configuration contains an error	Check the "Cfg errors" tab in Director for undefined entries
	The version of Director is newer/older than the Artist firmware	Use the correct version of Director that matches your firmware
	The node address in the configuration is not the same address as the system	Adjust the node addresses, either in the configuration or on the node itself
	You do not have the necessary user rights or have clicked "Cancel" in the Log-in window	Contact your system administrator, or click "Ok" when logging in
Panel / Port does not boot	The connection to Artist is faulty	Check the cabling
	The Artist CAT5 cable is connected to the "Expansion" port	Connect the CAT5 cable to the "Matrix" connector
	The panel has no power	Check the power cable
	The yellow LED on the corresponding client card is active, -> all 8 ports are not working	The client card is not configured or it has the wrong firmware
	The panel is connected to the 2nd channel of a stereo port / an AES signal is not working	Always connect a panel or AES signal to the even numbered port of a stereo port
	Cable is too long	Check whether the maximum cable length of approx. 300m has been reached
	The panel crashed	Reset the panel by cycling the power or with a software reset
ECP 10xx/20xx does not work	The ECP's address is incorrect	Check the address in Director and on the dip switch on the ECP
GPI card does not work	The jumper setting on the GPI card is incorrect	Check the bay and jumper setting on the GPI card (see the sticker on the GPI card)
The complete system has crashed or does not boot. The CPUs make a clicking noise	The HDLC cable on the CPU rear cards is defective or not present	Connect the HDLC cable to the "HDLC" connector on both CPU rear cards
Clicks in the digital 4-wire audio	There is no Ring Clock Master in the Artist ring / the Ring Clock Master is set for external sync, but no sync signal is present	Set a node in the ring as the Ring Clock Master ( -> Online bar -> Node properties) / connect a valid sync signal to the sync module
No audio, incorrect signaling, no reply function on certain panels, N/A display for working ports	A hardware configuration change was made in the software or a new configuration was sent to the system without a system reset	Reset all nodes (Director->Extras->Reset all Nodes)

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## 19 NOTES



## NOTES



## NOTES

## 20 SERVICE

We offer comprehensive customer service options for this product, if you have further questions or suggestions. Service includes:

- Telephone service
- E-mail service
- Skype service
- Fax service
- Configuration support
- Trainings
- Repairs

Your first contact should always be your local distributor / dealer.

In addition, Riedel Customerservice in Wuppertal, Germany is always available to help you.

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(Monday - Friday, 8:00 – 17:00 Central European Time)

**Fax: +49 (0) 202 292 9419**

**Skype: [riedel.communications.service](https://www.riedel.net/communications.service)**

**Or use the contact form on our website:**

**[www.riedel.net](http://www.riedel.net)**

For repairs, please contact your local distributor. Your distributor will help you with the repair process and with securing replacement parts.

The address for sending repairs directly to Riedel Communications GmbH & Co. KG is:

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**D-42109 Wuppertal**  
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