

## Comrex Switchboard for Audio Codecs

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### Introduction

Comrex **Switchboard** for audio (formerly known as BRIC Traversal Server) is a feature that allows presence notification, status and connection help (NAT Traversal) via a cloud-based service. **Switchboard** is delivered as a standard feature with ACCESS codecs, and can be purchased as an upgrade to BRIC-Link codecs. The **Switchboard** within the hardware codec provides the following functions:

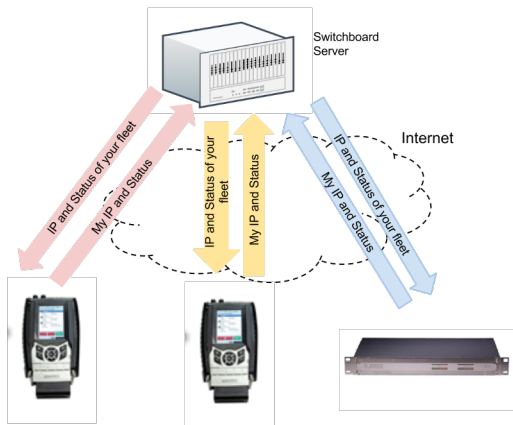
- The ability for Comrex audio codecs to sync with a cloud based server and deliver status information
- The ability for Comrex audio codecs to determine their public IP address and the type of any NAT-style router ahead of the codec, and display that information to the user
- The ability of Comrex audio codecs to display presence, status, NAT info and IP addresses of other codecs within the same fleet
- The ability to share this information with codecs outside the fleet (**Shares**)
- The ability to take instruction from the server on how best to traverse NATs when placing a call between two codecs

Besides the functions contained within the **Switchboard** driver inside the hardware codec, the server itself is the other key element to the system. This server will contain a **Switchboard** account, and the user will be required to enter information about the codec fleet into this account via the web.

It's important to understand the distinction between these two pieces. The **Switchboard** driver within the codec is the portion that has been licensed and warranted by Comrex. The cloud server itself can be one that you deploy, or the one provided for free use by Comrex at **switchboard.comrex.com**. In the case of mission critical networks, it's important to understand that **switchboard.comrex.com** is provided free of charge and at will. As such, Comrex offers no warranty as to availability of this server or of its function. The specific disclaimer about **switchboard.comrex.com** will be sent along with your account credentials. If you have a network that requires absolute 100% availability of this server, the software that runs the Comrex **Switchboard** is available from Comrex in an executable format, free of charge, with basic instructions on how to set it up. The address of the server used for these functions is configurable in the codec firmware.

Contact Comrex for details on obtaining this software.

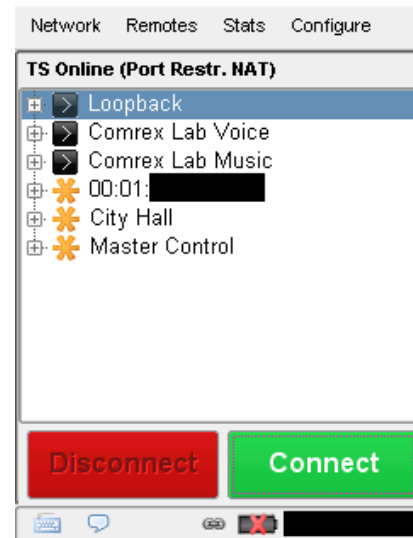
## Comrex Switchboard for Audio Codecs



This figure shows a typical small codec fleet (3 units) that are configured to work with **Switchboard**. Each codec opens a channel to the **switchboard.comrex.com** server, and provides the server information including the current public IP address, connection status, firmware revision, and the type of router (if any) that exists in the link (This IP and router information is found by the codec via a protocol called STUN. The **Switchboard** server doubles as a STUN server, helping the codec figure this all out).

The presence (whether the codec is attached to the Internet) and status (whether actively connected to another codec) of each member of the fleet is reflected on the user interface of each codec. Each member is displayed by a familiar name, rather than IP address. If the address of any member changes, it is updated in the background of the system automatically.

As shown, **Switchboard** members are displayed differently than connection destinations that have been entered manually into each codec. The codecs retain the ability to make connections in the traditional way, by “dialing” an IP address directly.



When a **Switchboard** member is dialed by a codec, a different sequence of events occur. Depending on the NAT status on each end of the call, the system may make the call several ways, including by instructing the called party to initiate the connection. This is all transparent to the user.

# Comrex Switchboard for Audio Codexs

## Switchboard Configuration and Operation on the Codec Side

There is very little to do to make **Switchboard** work on your codec. As long as the “**Traversal Server**” function on your device is enabled (this is enabled in ACCESS by default, disabled on BRIC-Link--see manual) then your codec is ready to be synced with **Switchboard**.

## Switchboard Configuration on the Server Side

When **Switchboard** was purchased, you should have been given account credentials on **switchboard.comrex.com**. You will key that address into a web browser and ACCESS your server configuration page on the Internet. It is here that you will add the codecs that are in your fleet.

### Adding codecs

In order for **Switchboard** to be useful, you’ll need to let it know which codecs are yours. This is done in the “**Add New Units**” section. Codecs are identified on **Switchboard** by the Ethernet MAC ID of the unit (note that other modem devices attached to ACCESS may have their own MAC addresses - **Switchboard** uses only the Ethernet MAC). Ethernet MACs are in the form of six two-digit hexadecimal numbers and are unique.

Comrex | Switchboard

Audio Codexs

Contact Lists

Sharing

## Add New Unit

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Unit MAC Address

MAC Address

Add New Unit

It’s not intuitive for codecs to be identified by their Ethernet MAC address long term. On the codec itself, a system settings entry exists in the user interface allowing you to change the codec name from the default MAC. Once an easily recognizable name is entered, it will be reflected on the server (and other codecs) using that name.

After you have entered the details for your codec, you will be given the option to choose a **Contact List** for that codec. **Contact Lists** are covered in the section below. For now, choose “default” so all codecs in your fleet are visible to each other.

Once a codec is added to your account, you should break the network connection on the codec (power down, remove modem or network cable) in order for the device to properly sync with the **Switchboard** server.

# Comrex Switchboard for Audio Codecs

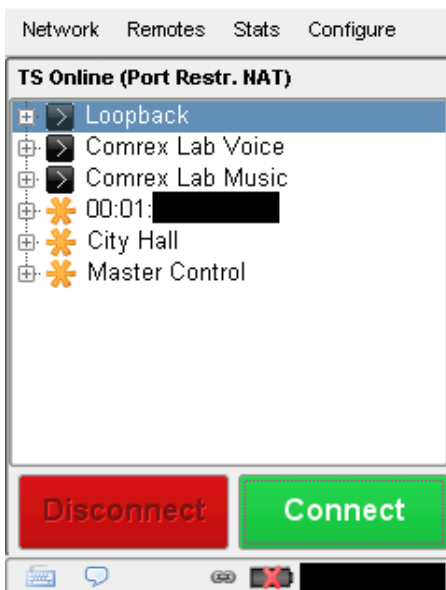
Once added and synchronized, your **Switchboard** list will show all the codecs in your account, including their connection status and firmware revision.

## Audio Codecs

[+ Add New Unit](#)

	Unit Name   MAC	Connection Status	Firmware	
	ACCESS Rack Audio Codec City Hall 00:40: [REDACTED]	Offline Last seen 2012-06-13 14:28:44	2.8-p11-test1	<a href="#">Details</a>
	ACCESS Rack Audio Codec Master Control 00:40: [REDACTED]	Offline Last seen 2013-11-06 23:00:14	devel	<a href="#">Details</a>
	ACCESS Portable Audio Codec 00:01: [REDACTED]	Offline Last seen 2013-10-31 13:45:17	2.8-p23	<a href="#">Details</a>
	ACCESS Portable Audio Codec Weather C 00:01: [REDACTED]	Offline Last seen 2013-05-16 04:08:56	2.8-p10	<a href="#">Details</a>
	ACCESS Portable Kabul office	Offline	2.7.1-p3	<a href="#">Details</a>

For the simplest configurations, where it's desired for the entire account to be visible to all codecs, and only one administrator, **Switchboard** server setup is now complete. Codecs registered on the server will display the presence and status of all other in the same account.



## Creating Additional Switchboard Users

In some situations, you may wish to create additional **Switchboard** users who can access the server web interface. You can do this via the **"Users"** tab at the top of the main codec list. This allows you to create accounts for users that can later be deleted if no longer desired. As shown, several user accounts can be created with unique passwords.

Comrex | Switchboard Welcome: Franklin Roosevelt

[Audio Codecs](#) [Contact Lists](#) [Sharing](#) [Users](#) [Sign Out](#)

User has been added to your Account.

## Users

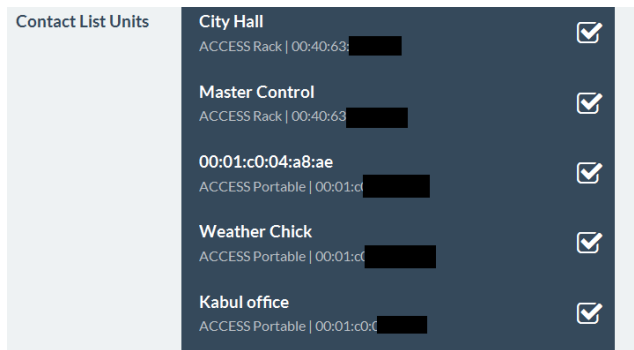
[+ Add New User](#)

Name	Username	Email	Phone	
Franklin Roosevelt	Franklin	franklin@ww2.com		<a href="#">Edit</a>
Josef Stalin	Josef	josef@ww2.ru		<a href="#">Edit</a>
Winston Churchill	Winston	winston@ww2.co.uk	876-987-3456	<a href="#">Edit</a>

## Filtering the Codec Lists

In some situations, it might not be desirable for every codec in your fleet to see the **Switchboard** status of every other codec. To help filter what's displayed on a codec's interface, **Switchboard** has implemented the concept of **"Contact Lists"**. **Contact Lists** contain a subset of your codec fleet on your account. You can create multiple **Contact Lists** that consist of different subsets. With the exception of **Shares** (discussed later), only units within your **Switchboard** account may be assigned to **Contact Lists**.

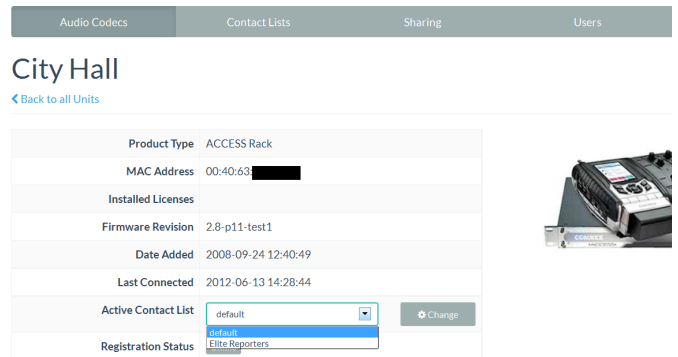
# Comrex Switchboard for Audio Codecs



By default, a master **Contact List** is created that contains all codecs on your account. And by default, every codec in your fleet uses the master list. So if you're not interested in segregating codecs on your account, the default configuration will work fine.

You can create multiple **Contact Lists**, each with a subset of your codecs, and save them on the **Switchboard** server. You then have the ability to assign these lists to your codecs. This will reduce the number of devices displayed *on that unit* to the codecs on the **Contact List**.

This is an important point. Assigning a **Contact List** to a codec determines what gets displayed *in its own list*. It does not have any impact on how that codec is displayed on other devices.



As shown, in the **Switchboard** web interface you can select one of your individual codecs and change the "**Active Contact List**" from default. This will change the list of codecs displayed on that unit.

## Switchboard Shares

In the case where you'd like to allow users outside your account see the status of some devices in your fleet, **Switchboard** has implemented **Shares**. **Shares** are subsets of your codec fleet that you define. Once defined, you can invite other **Switchboard** accounts to add your **Shares**, and your codecs become visible to them.



# Comrex Switchboard for Audio Codecs

**Shares** are a one-way transaction. If you invite an external user to share, and he accepts, you don't get any additional status on your codecs. The external users must create a share and invite you for the share to be two-way.



**Shares** are created by clicking the top tab entry labeled “**Shares**”. A list of your current **Shares** appears and you can add more by clicking “**Add New Share**”.

## Share a Device

[Back to all Shares](#)

**Share Information**

Share Name:

Units to Share:

- City Hall  
ACCESS Rack | 00:40:6
- Master Control  
ACCESS Rack | 00:40:6
- 00:01:c0: [redacted]

The share creation screen allows you to choose a subset of your fleet for this share.

00:01:c0: [redacted]  
ACCESS Portable | 00:01:c0: [redacted]

Account to Share With:

Activate this Share?

Add New Share

After you make your selection, you'll need to enter either the name of the account you wish to share with, or the email address of the administrator of the account (it must be the one they used to create their **Switchboard** account). An email will be sent from the server asking the user to confirm your **Shares**.

Once the **Shares** are confirmed, your shared devices will appear as options in the external user's contact list menu. This is important: **Shares do nothing until the external user adds them to a contact list**. If the user has only a single (default) contact list for his fleet, he must still manually add your codecs to that in order for them to be visible to his fleet.

Finally, if you want to temporarily deactivate a share, this can be done by editing the share entry. A tick-box on the bottom allows activation/deactivation of a share without the need to delete it or re-invite users.