CEDAR

# CEDAR Trinity 3

## CEDAR Trinity Server
## CEDAR Trinity Satellite
## CEDAR Trinity Off-line



OWNER'S MANUAL
Software version 3.0



Manual version 6.02: 14 November 2017

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# THE CEDAR TRINITY FAMILY

CEDAR Trinity is a suite of products designed for audio surveillance and related purposes that can perform audio recording, audio import of existing files, audio playback, speech enhancement, and annotation using a system of metadata notes. Three products are available: CEDAR Trinity **Server**, CEDAR Trinity **Satellite** and CEDAR Trinity **Off-line**. (See the table below). All three can be hosted on standard Windows PCs, laptops and tablets running Windows 7 or later. Windows 10 is recommended.

The Server and Satellite systems are designed primarily for monitoring, enhancing and transcribing live audio feeds - in other words, while the event of interest is happening. The Off-line system, as the name implies, has been designed for performing the same tasks on existing audio files recorded at some time in the past.

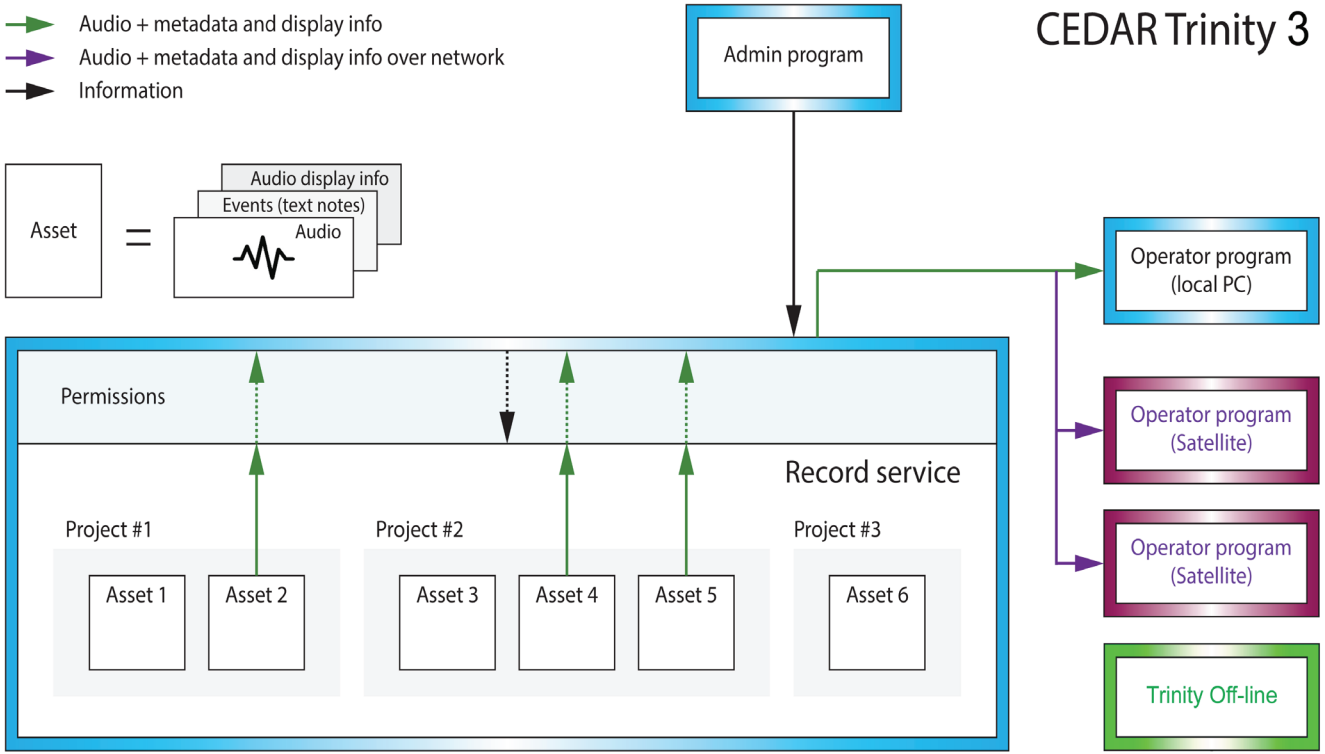
Their features are as follows:

| | Server | Satellite | Off-line |
|---|---|---|---|
| Record | ✓ | ✘ | ✘ |
| Connect to Server | ✓ | ✓ | ✘ |
| Support Satellites | ✓ | ✘ | ✘ |
| Monitor live audio | ✓ | ✓ | ✘ |
| Load existing audio files | ✓ | ✘ | ✓ |
| Enhance live audio | ✓ | ✓ | ✘ |
| Enhance existing audio files | ✓ | ✘ | ✓ |
| Add metadata notes | ✓ | ✓ | ✓ |
| Export audio | ✓ | ✓ | ✓ |
| Archive audio | ✓ | ✓ | ✘ |

Many of the facilities within the suite are common among the variants so, throughout this manual, we have adopted the following convention to indicate those products to which a given explanation is relevant.

The explanation is relevant to all versions: **[All]**
The explanation is relevant to Trinity Server and Satellite: **[Server, Satellite]**
The explanation is relevant only to Trinity Off-line: **[Off-line]**

… and so on.


Audio + metadata and display info
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## Understanding Server, Satellite, and Off-line

### The Record Service [Server]

For an audio acquisition system, its heart is an audio recording program called the **record service**. You will never see this; it runs as a Windows service which means that it is running in the background whenever the computer is switched on and not asleep. The record service will automatically resume recording after a reboot or when you turn the computer on.

In principle, it can record unlimited channels of audio as either individual tracks or stereo pairs. Recordings are stored as **assets** that contain the audio, **events** (text notes about the audio), and information that will allow the audio to be displayed.

The record service can be accessed from the Admin Program and the Operator Program, either locally (on the same PC) or remotely (across a network).

### The Admin program [Admin.exe] [All]

This allows an administrator to control all aspects of the record service's function and to determine which functions are available for any given user.

When administrating the record service, Its primary functions are to:

- create and delete assets
- manage users and determine which functions each user is permitted to perform

The Admin program also provides facilities to set up the Operator program.

### The Operator program [CEDAR Trinity.exe] [All]

Depending upon the product used and the permissions granted by the administrator, the Operator program allows a user to monitor audio, open existing audio files, **enhance** audio, add **events** (text notes), **export** and **archive** audio.

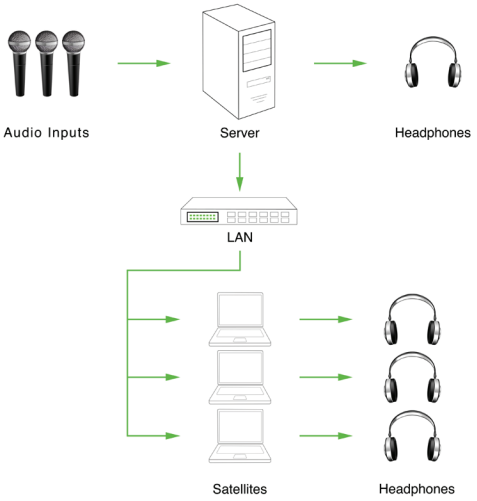
We recommend that the Operator program is run under a Windows standard user account (not a Windows administrator account).

### Standalone recording/monitoring use [Server]

A Server system contains all three of these programs, and allows the user to configure the record service and perform all of the functions provided by the operator program. It can act as the heart of a networked audio system or as a standalone system, in which case its only client is the PC on which the Server is itself running.

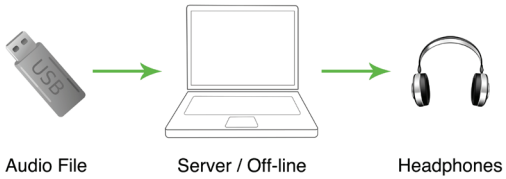
## Multi-user network use [Server, Satellite]

A Satellite does not contain the record service, so it must be connected to a Server across a network to access assets. There is no fixed limit to the number of Satellites that can be connected to a central Server. To the operator, the only difference between the Server and the Satellite is the location of the recorder; whether it is local to the system or accessed across the network. The user interface is otherwise identical.




## Using existing audio files [Server, Off-line]

Both the Server and Off-line products can access and process existing audio files held on devices such as hard drives, memory sticks, CDs and DVDs. However, an Off-line system cannot connect to a CEDAR Trinity network nor can it record audio, so it cannot be used as either a Server or Satellite.



## Other important concepts

### Projects and Assets [All]

The core of CEDAR Trinity is the **asset**, a 1- or 2- channel recording that includes additional information in the form of **events** and **audio display information**. All audio within an asset is time-stamped, and its position along the timeline cannot be changed.

**Server assets** **[Server, Satellite]**

Server assets are assets that are created, managed and stored by the record service. You can create them in two ways:

- by recording audio using Trinity Server, whereupon it is available to operators of the Server and any attached Satellites (a "**record asset**")
- by importing an existing audio file through the record service whereupon it is also available to operators of the Server and any attached Satellites (an "**import asset**")

An unlimited number of server assets can be grouped into a **project** (or projects).

Once a server asset has been created it must be **mounted** (which is equivalent to mounting a hard disk drive on a computer) to become active. Once mounted, a record asset may or may not be live - meaning that it may or may not be connected to an audio input. A record asset that is not live is still available for review. All server assets may be reviewed using the **operator program** on a Server or connected Satellite. The range of actions that the operator can perform will be determined by the **permissions** granted by the system's **administrator**.

The following actions can be performed upon server assets without interrupting any recording being carried out by the server (including recording to the record asset being addressed):

- Accessing and replaying any part of an asset with or without enhancement
- Adding and editing user text events
- Exporting raw or enhanced audio to either an audio file or an audio CD
- Archiving all or part of an asset to free up disk space

**Local assets** **[Server, Off-line]**

Local assets are usually created by importing an existing audio file directly into the Operator program (see below) running on either a Server or Off-line system, whereupon it is stored on the local system and is only available to the operator using that system.

A local asset is also created by **archiving** a server asset. (See section: Operator's manual.)

The concepts of mounting and 'live' are not relevant to local assets.

The following actions can be performed upon local assets:

- Accessing and replaying any part of an asset with or without enhancement
- Adding and editing user text events
- Exporting raw or enhanced audio to either an audio file or an audio CD

## Users and permissions [All]

At any given a time, a CEDAR Trinity **user** will be identified by the HSP security key being used. There are two categories of user who, depending upon privileges, may access some or all of the features of the product in use. They are:

### The administrator

A user with Windows administrator and CEDAR Trinity administration privileges who may use the **Admin program** to configure the system and manage permissions for operators.

### The operator

A user who has access to the **Operator program** and who may, depending upon the permissions granted by the administrator, carry out monitoring, recording, enhancement and other operations.

## Verification [All]

A separate program, **TVerify**, is supplied to enable users to verify that no-one has tampered with assets, exports and archives.

# SAFETY INSTRUCTIONS

**[All]**

**The following precautions are relevant whether CEDAR Trinity or CEDAR Trinity Satellite is installed on your own PC or on hardware supplied by CEDAR Audio:**

In addition to any safety instructions supplied by the hardware manufacturer, you must observe the following:

- **Water and moisture**

  The hardware must not be exposed to rain or moisture. Furthermore, if it is brought directly from a cold environment into a warm one, moisture may condense inside it. This, in itself, will not cause damage, but may cause electrical shorting. This could damage the unit, and even cause danger to life. Always allow the unit to reach ambient temperatures naturally before connecting the mains power.

- **Mounting and ventilation**

  Do not subject the unit to strong sunlight, excessive dust, mechanical vibration or excessive shocks. It is not susceptible to excessive heat build-up, but should be installed away from heat sources such as radiators and other devices that produce large amounts of heat.

- **Cleaning**

  Clean the unit only with a dry cloth. Never use abrasive pads or liquid cleaners such as alcohol or benzene.

- **Damage requiring service**

  The hardware contains no user-serviceable parts and should on no account be opened or dismantled by unauthorised personnel.

  A unit should be returned to qualified service agents when it has been exposed to liquids, when it fails to function correctly, when it has been dropped, or when the case is damaged.

**Listening Volume**

Listening at loud volumes can cause permanent hearing loss. **DO NOT** listen for long periods at a high level, at a level that is uncomfortable, or at a level that exceeds prevailing safety standards for hearing exposure. If you experience any hearing loss or ringing in your ears, consult an audiologist immediately. It is also a good idea to have your ears and hearing checked annually.

# RECOMMENDED SPECIFICATION

**[All]**

## Operating System

We recommend that CEDAR Trinity should only be used on PCs running Microsoft Windows 10 (64-bit) or later.

## Minimum recommended hardware

- **CPU**: Intel i5 quad core or AMD equivalent
- **Memory**: 8GB RAM
- **Hard Disk Space**: 100GB for system, application and audio recording
- **USB**: 1 port required for HSP security key
- **Display**: 1024 x 768 pixel
- **I/O:** WDM compatible audio I/O

## System Configuration

### 3rd party software

Most software is not designed to run for extended periods, so resource leaks and other problems can lead to a gradual degradation of performance over time. We recommend that, when CEDAR Trinity is to be installed on a user's own hardware, all unnecessary software is removed. This includes the third party applications that come pre-installed on most new PCs.

### Power saving

Turn off automatic power saving using the Power Options control panel.

It is safe to turn off the display automatically if desired.

### Updates

Turn off automatic updates or schedule them for a time when recording will not be in progress. Updates can cause system restarts, which will temporarily suspend recording.

We recommend that, when possible, you update Windows regularly.

## Local Area Network (LAN)

A LAN is a computer network that interconnects computers across a limited area. It is assumed to have sufficient bandwidth and security to support the operations described in this manual.

## Assumed Knowledge

This manual assumes that you are fully conversant with PCs and Microsoft Windows®. It will refer to operations that are common to these, but will not attempt to explain them.

# Installation

# INSTALLATION

**[All]**

Your CEDAR Trinity package should contain the following components:

- software on a USB memory stick
- a HSP-2 USB security key that holds the licences for the various features within CEDAR Trinity and serves to identify the user
- a warranty registration card

You should also have received a set of licences. These are usually provided separately by email.

**If you are installing a new version of CEDAR Trinity on an existing system, it is vital that you uninstall any previous versions. You do so using the standard Windows Program and Features facilities.**

Once you have done so:

- Insert the USB memory stick.
- Run the installer package **setup.exe**.
- Follow the instructions offered by the installer.
- Choose whether to install CEDAR Trinity Server, CEDAR Trinity Satellite or CEDAR Trinity Off-line as appropriate.
- Press the Next button when prompted to do so and the software will be installed.
- A message will tell you when the operation has been completed successfully.
- When the installation is complete, click on Close.
- Insert the CEDAR Trinity HSP security key into any available USB socket.

The PC will identify the HSP and, after a few moments, CEDAR Trinity will be ready for use.

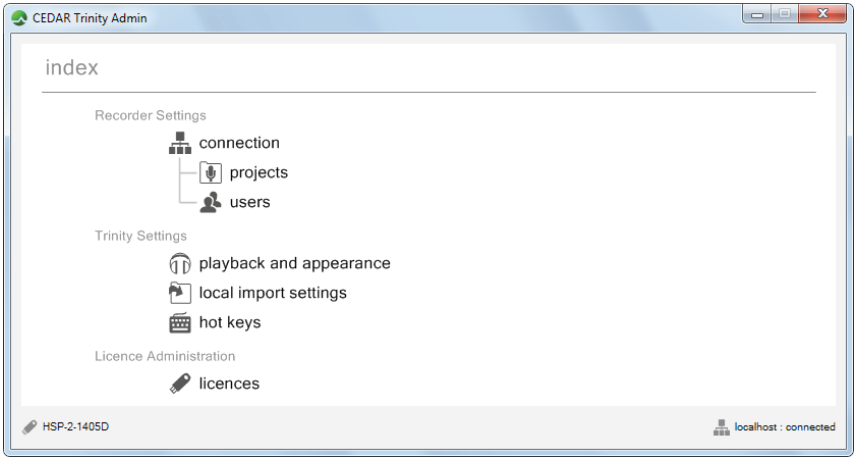
### Registering licences

Before using the system it will be necessary to install a set of CEDAR Trinity licences. Please refer to the section **Registering licences** in the Administration chapter that follows.

# Administration

# Index

**[All]**




CEDAR Trinity builds upon the user account control within Microsoft Windows to segregate roles between administrators and operators. Administrators can use the Admin utility to configure the system.

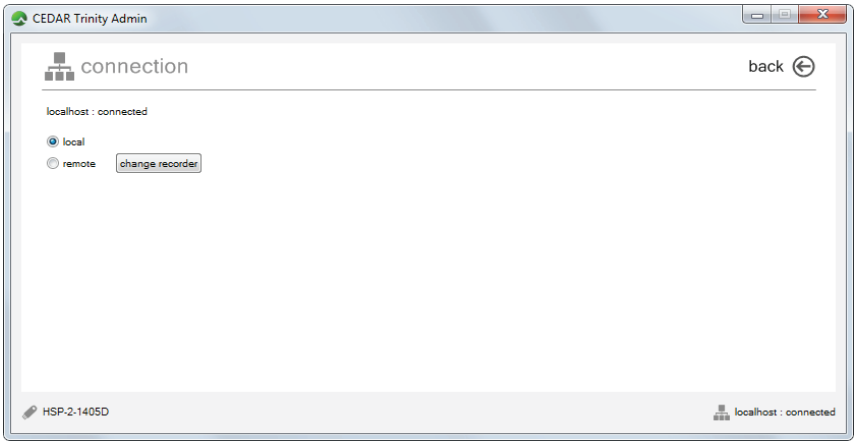
- **connection**: choose which record service to access
- **projects**: administrate the projects and assets on the connected record service
- **users**: control which users have access to the connected record service and what actions they are permitted to perform
- **playback and appearance**: choose settings for the operator program
- **local import settings**: determines the location in which the system stores the assets created from existing audio files
- **hotkeys**: set up hotkeys for the operator program
- **licences**: administrate the licences on the HSP security key.

Clicking on any of the icons in the **index** page will take you to the linked page.

The **projects** and **users** pages are only available if you have Remote Admin permission or are running the CEDAR Trinity Admin utility on the same machine as the record service. If you select a remote connection in the **connection** page and do not have suitable privileges, the projects and users pages will become unavailable.

# Connection

**[Server, Satellite]**




For CEDAR Trinity Servers and Satellites to function, the Admin and operator programs need to know the location of the record service (either local or over the network) to which they'll be connected. This is necessary both to administer its assets and listen to its audio. The **local** radio button is available if you have installed a Server system (not a Satellite) on the computer on which you're running the Admin program, otherwise you will have to connect to a **remote** record service. Decide whether you are connecting to a local or remote record service and, if necessary, click on the **change recorder** button to enter its hostname.

*(A hostname is a name assigned to a device connected to a network; within CEDAR Trinity this means the names of computers connected to the LAN. Depending on your network setup, the CEDAR Trinity hostname can be a hostname or a numeric IP address such as 192.168.2.2 or a label such as you would see in Microsoft Windows Explorer. If your network has a suitable Domain Name Server the hostname could also be a fully qualified domain name. In cases of difficulty, consult your network administrator.)*

A new connection should be registered on the status bar within a few seconds and this message will then be shown in the bottom right hand corner of the window:

[hostname] : connected

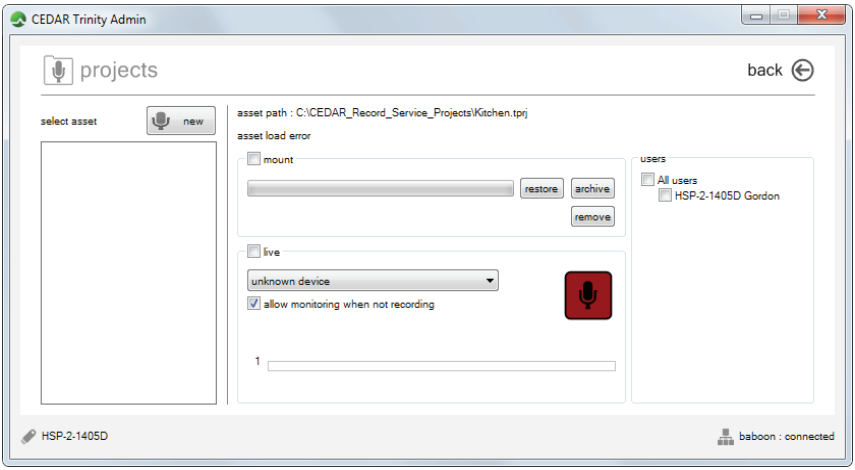
If you select a remote connection without suitable privileges, the **projects** and **users** pages on the **index** page will show 'permission denied'.

Press **back** to return to the index page.

If the operator program is already running when you change connection, it too will change connection within a few seconds.

# Projects

**[Server, Satellite]**




This page and its associated sub-pages allow you to create assets and group them into projects.

## Project

A project is a group of assets. When selecting audio to monitor or enhance, operators will be presented with a list of available projects. When one of these is selected then, depending upon the operator's privileges, some or all of the contained assets will become available.

## Asset

An asset is an envelope that contains 1- or 2- channel audio, metadata (notes about that audio), and peak file metadata that allow that audio to be displayed in the operator program in a quick and convenient fashion. An asset may be created from an incoming audio stream (a 'recording asset') or from an existing audio file (an 'import'). It is stored as a collection of specially formatted audio files.

- When the asset is mounted and continuously recording, each file is up to one hour long. Each time that an hour is passed, a new file is created. These files are not visible to the operator, who will always see continuous audio.
- When you stop recording but the asset remains mounted, the current audio file is finalised and a new file containing no audio data is created.
- These empty files are created every hour and provide a contiguous timeline until you begin recording again, whereupon the current empty file is finalised and a new audio file is created.

- When an asset is not mounted, no files of either type are created.

**Users**

When administrating projects and assets, it is possible to determine which operators are able to access given assets. If no assets in a given project are available to an operator, that project is not visible.

When assets exist, the administrator can determine here which operators are able to access them.

**Mount**

An asset has to be mounted both for recording and to be accessible to operators. Administrators have access to unmounted assets to be able to delete them, archive them or to restore archives.

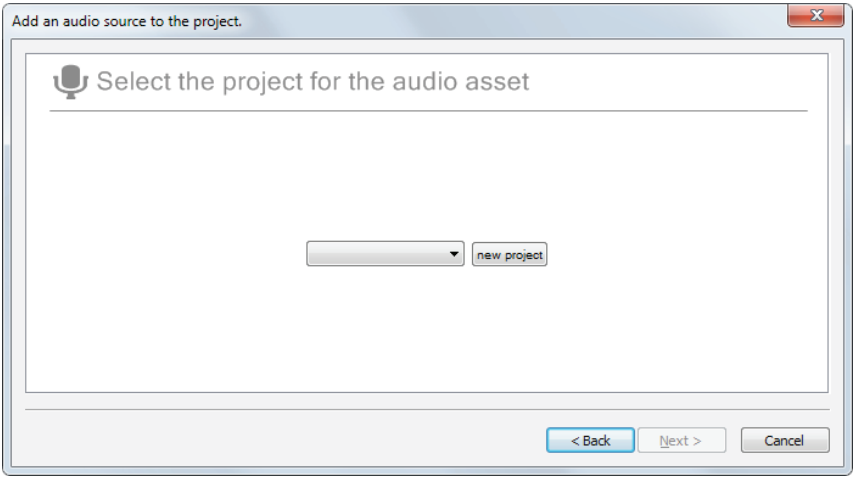
**Live**

When a recording asset is live, it monitors the audio stream from the chosen soundcard, whether this is internal or external to the PC. This audio can be monitored by the operator and/or recorded.

Assets created from existing audio files cannot be live.

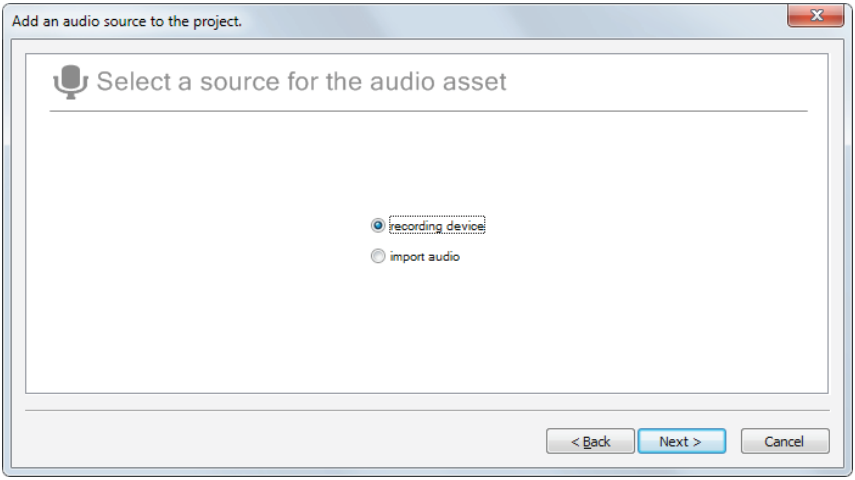
## Creating a new asset [Server, Satellite]

When you first launch an instance of CEDAR Trinity, there are no assets associated with it. It is necessary to create one or more assets to use the system. To create a new asset click on the **new** button to launch the new asset wizard.

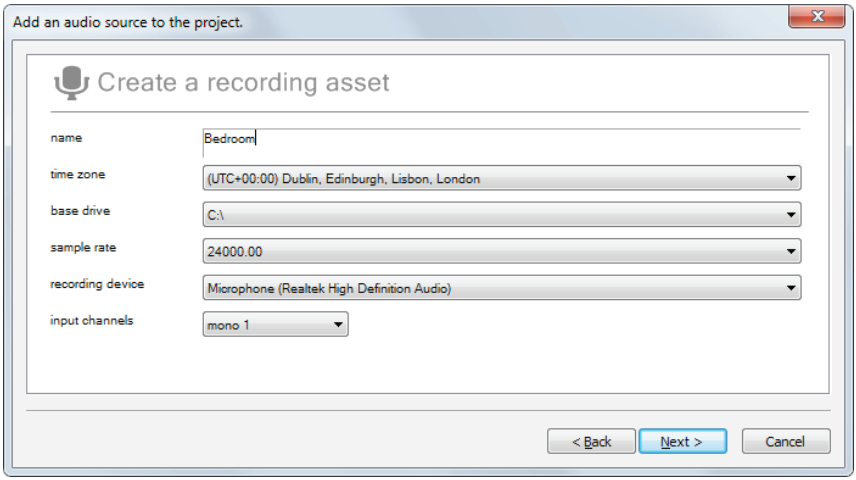



If existing projects exist they will appear in the drop down menu, and you will be able to create the new asset within one of these. If the menu is empty or if you wish to create a new project, click on **new project** and enter a suitable project name when prompted. Click on **Next >** to continue.

The next screen asks you whether you wish to create a recording asset (click on **recording device**) or an import asset (click on **import audio**). Select the appropriate option and click on **Next >** to continue.



**If you are creating a record asset:**




**Name**

Give your asset a suitable name.

**Time zone**

Select the correct time zone for time stamping the audio.

**Base drive**

The project will be stored in a privileged folder on the selected drive.

**Sample rate**

There is a trade-off between the sample rate and the quality of the recorded audio.

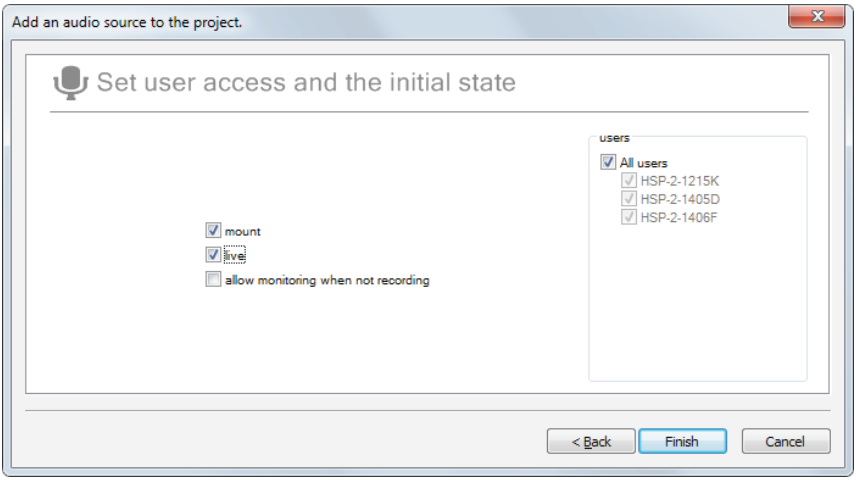
| RATE | QUALITY | RECORDING SIZE |
|---|---|---|
| 8kHz | Traditional telephone quality speech | 60MB per hour per channel |
| 16kHz | Wideband telephone quality speech | 120MB per hour per channel |
| 48kHz | High fidelity music | 350MB per hour per channel |

**Recording device**

The audio input will normally be the built-in audio recording device if the record service is installed on a laptop or tablet. However, in a large desktop/server PC there may be a choice of internal and external recording devices. Select the desired device from the drop-down list. Its settings may be configured using the Sound option within the Windows Control Panel on the computer hosting the record service. Ideally, the soundcard's sample rate should be greater than or equal to the asset sample rate.

**Input Channels**

Choose the channels on your recording device to which audio sources are connected, and then click **Next >** to proceed.




Determine the initial state of the asset. All of these settings can be changed at a later time is desired.

**Mount:** The asset will be active and permitted users may access it

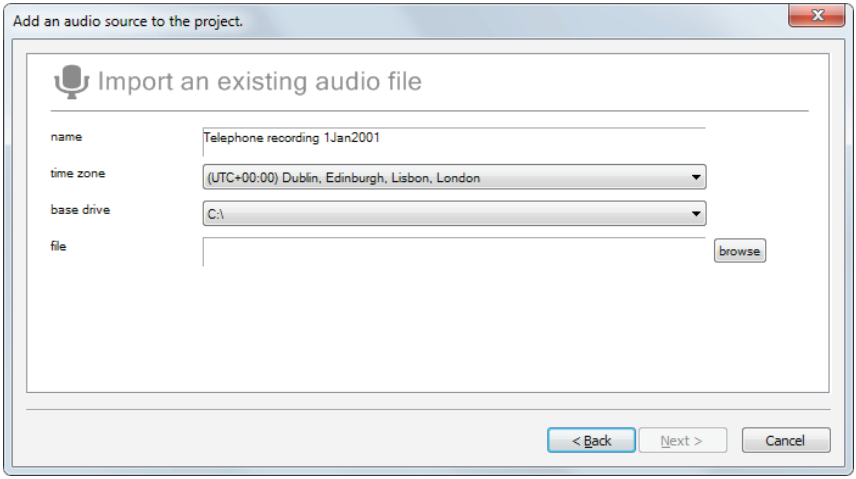
**Live:** If mounted, it may be possible to record to the asset

**Allow monitoring when not recording:** In some jurisdictions it may be necessary to prevent monitoring when no recording is taking place. Set this appropriately.

**Users:** Choose which operators(s) will have access to this asset.

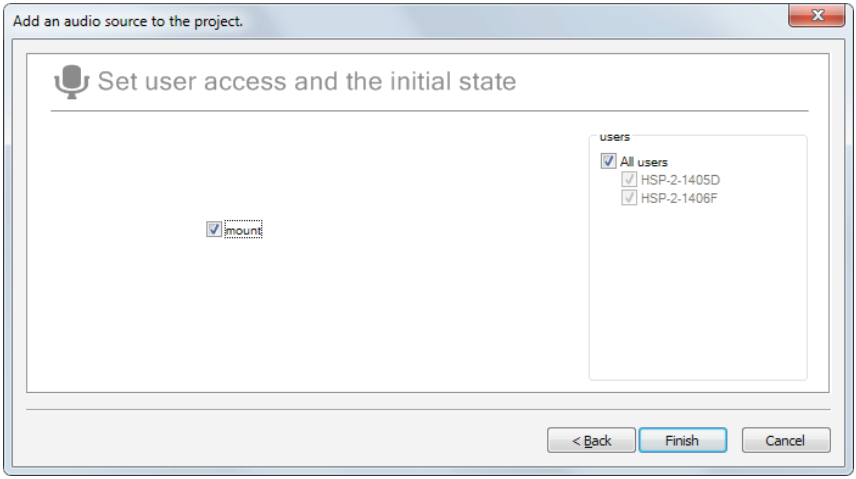
Having made your selections, click **Finish**.

**If an import asset is being created:**




You should provide a suitable name for the asset, set the time zone, and determine the drive on which the asset will be stored. You must also insert the path of the source file from which the new asset will be created.

Click on **Next >** to proceed.

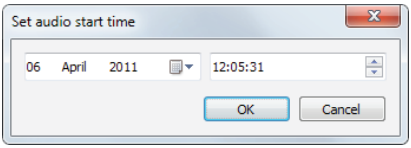



Determine the initial state of the asset. All of these settings can be changed at a later time is desired.

**Mount**: The asset will be active and permitted users may access it

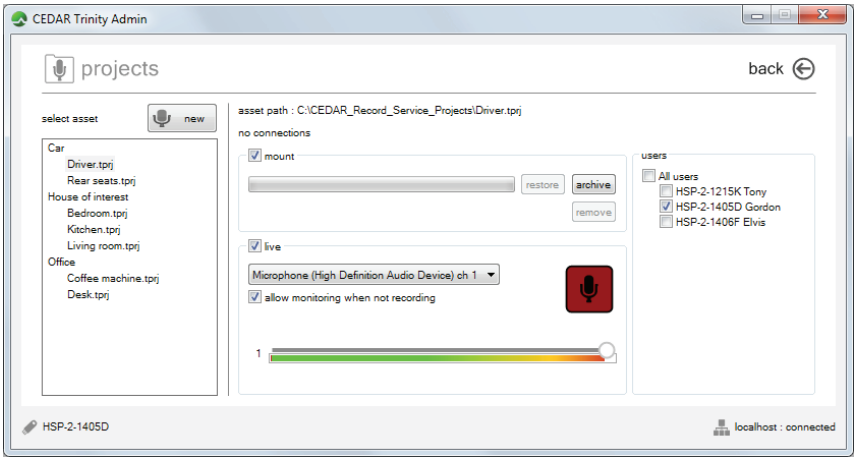
**Users**: Choose which operator(s) will have access to this asset.

Having made your selections, click **Finish**. You will be presented with a window that allows you to position the audio on the CEDAR Trinity timeline. If there are time data available (for example, contained within a broadcast WAV chunk) this will be entered as a suggestion. However, you are free to position the audio anywhere you wish.




Click **OK**. CEDAR Trinity will now make a copy of the audio file (the original is left untouched) and the asset will appear in the project/asset list on the projects page.

## Managing existing projects and assets




Each project and asset on the connected record service is in the list to the left of the projects screen. Clicking on any given asset will display its details in the panels to its right.

These panels will be:

- Recording assets - Mount, Live, Users
- Import assets - Mount, Users

To move assets between projects in the list, simply click, drag and drop them. If you move all of the assets from a given project, that project will cease to exist.

## The mount panel

### Mounted assets

If an asset is mounted, you may archive some or all of it. See Archiving.

### Unmounted assets

If an asset is not mounted, you may perform the following actions on it:

Select an asset and click on **Remove** to remove it from the project/asset list. You will be given the option to delete the asset files from the hard drive. Use with care; if you select delete and click on OK, deletion is permanent. When all of the assets within a project have been removed, that project will cease to exist.

Click on **Restore** to restore the audio within a previously archived asset to its original position within that asset. Enter the path of the archive or to browse connected drives. Restoring a large archive can take some time. You can view the progress on the associated progress bar.

You can only restore an archive into one of two places:

- the asset from which it came
- an empty asset

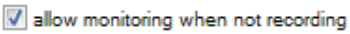
### The live panel

Only recording assets can be made 'live'. When as asset is live, an audio stream is connected to it, and you can then determine whether that stream is being recorded or not. Click on the **record** button to switch recording on/off. The input meters are active whether recording is taking place or not.

The **input level controls** allow you to determine the input level. In normal use, set the level so that the signal is mostly in the green zone, with only occasional peaks in the amber zone. Try not to allow the signal level to enter the red zone because this will increase the chance of clipping distortion.

If you need to change the input device to which the asset is connected, you can do so using the drop down list in this panel. However, it is inadvisable to change the audio device while an asset is live.

#### Audio monitoring



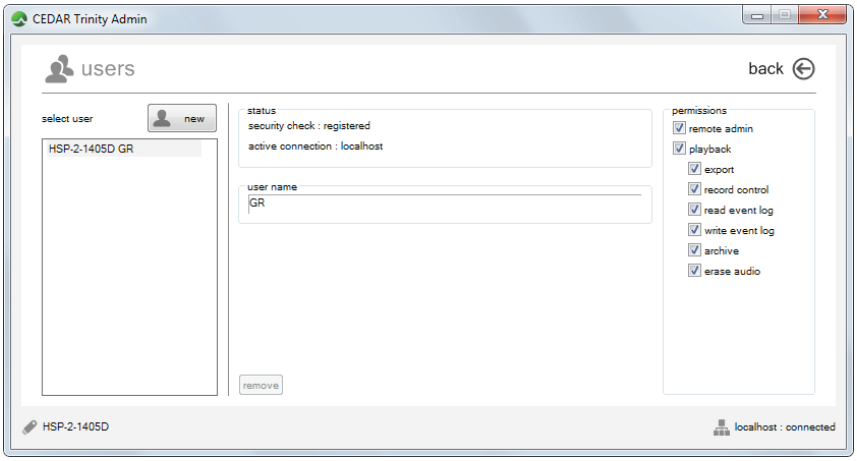

Under normal circumstances, the operator will want to listen to the audio whether it is being recorded or not. In some jurisdictions it may be necessary to prevent monitoring when no recording is taking place. Uncheck the tick box to make it impossible to hear incoming audio that is not being recorded.

### The users panel

All users (both administrators and operators) registered in the Users page are visible in the users list. For each asset, you can specify which users have permission to access it. Specific user permissions are determined on the Users page.

# Users

**[Server, Satellite]**




The list on the left of the screen displays all of the HSP security keys registered with the connected record service. Users are identified by their HSP security key. Clicking **new** will access a dialogue box that allows you to add a new user to the list. Clicking on an entry in the list will show its details.

### Status panel

The status panel shows the selected HSP security key's **security check** and connection status. The security check field indicates whether the HSP security key has been verified with the record service. This field will change from 'waiting for first connection' to 'registered' when the security information has been transferred from the security key to the record service. If the record service can communicate with the HSP security key and its security information is verified, the **active connection** field indicates its IP address. If the key is not found, the field states **none**.

### User name panel

For convenience, you can add or change the user name associated with a given HSP security key.

The **remove** button will remove the selected user from the list. You cannot remove the HSP security key indicated in the lower left corner of the screen because this is the one that you are currently using to connect to the system.

### Permissions panel

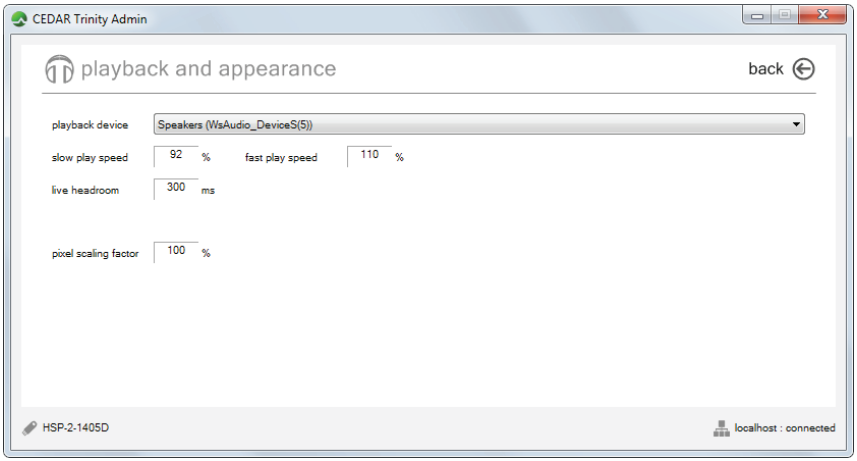
This contains check boxes for the user permissions.

- **Remote Admin**: allows the user to administer the record service from anywhere on the network.
- **Playback**: allows operators to access the record service. Operators may be permitted (in any combination) to export audio and the event log, control the recording on/off status, read and write events, archive, and erase audio. The removal of any of these permissions will remove the appropriate panels and controls from the operator's screen.

Changes to permissions will take effect within a few seconds. If permission for a given operation is withdrawn from an Operator while that operation is in progress, it will be aborted. Note that administrator can start and stop recording from the projects page independent of these permissions.

# Playback and appearance

**[All]**




This page changes the playback characteristics and the appearance of the operator screen for all operators using this computer. It can only be used to determine settings on the computer on which it is running

**Playback device**

Selects the playback device on the local computer. This will normally be the built-in sound card. The selected device can be configured using the Sound option within the Windows Control Panel.

**Slow play speed**

Sets the slow play speed as a percentage of normal speed. Monitoring at a speed in the range 90% - 95% can sometimes help in interpreting difficult audio passages.

**Fast play speed**

Sets the fast play speed as a percentage of normal speed. This allows operators to speed up the reviewing of an asset without losing too much intelligibility, and allows them to catch up with the live audio after pausing or reviewing an audio selection.

**Live headroom**

Sets the delay time between live recording and playback monitoring. Increase this value if you notice glitches while monitoring a live audio stream across a network.

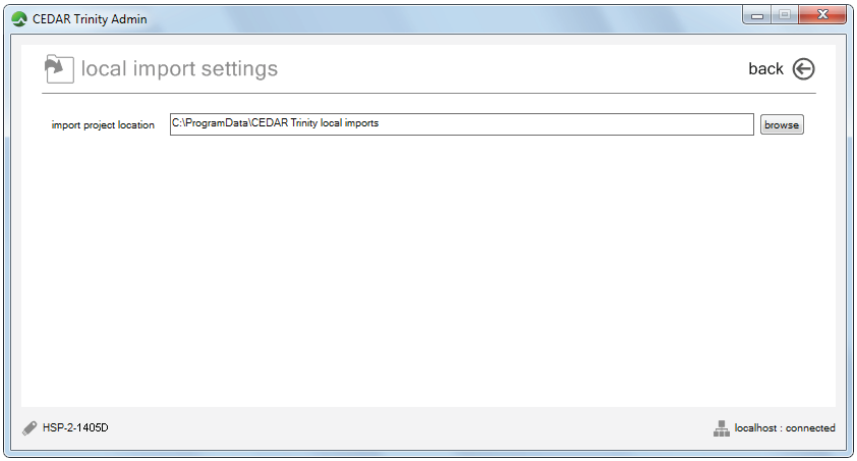
*Note: This type of glitch does not affect the integrity of the recording; only the playback is affected.*

**Pixel scaling factor**

Adjusts the visual scaling of the 0perator screen. If this is being run on a PC with a low resolution screen, the pixel factor can be decreased so that it fits that screen. You will need to restart the operator program for any changes to take effect.

# Local import settings

**[Server, Off-line]**




When an existing audio file is imported directly, either by dragging it onto the Home screen of the Operator program or by using the **Import audio file** option in its drop-down menu, a copy is made and this becomes a **local asset**.

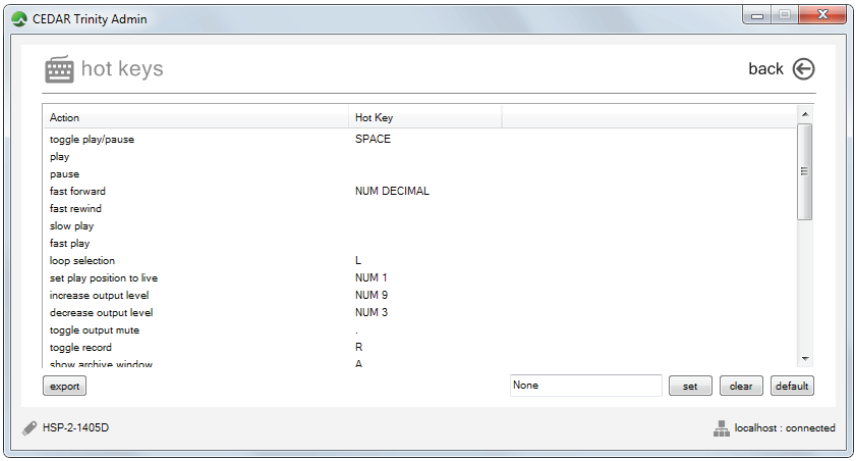
The **local import settings** page allows you to determine where this asset is stored. Type the required path into the **import project location** field or use the **browse** button to browse in the usual fashion.

For many operators, it will be acceptable to leave this path at its default setting, but you may wish to alter it if you need to store assets in particular locations, perhaps for security purposes.

If you delete the contents of the import project location field, it will revert to its default.

# Hotkeys

**[All]**




This allows you to assign hotkeys in order to control various functions from the keyboard. It only affects the PC on which it is running.

Select an action and type the desired keystroke into the edit box. To adopt this, click on the **set** button.

To clear that hotkey press the **clear** button.

To assign the default hotkey press the **default** button.

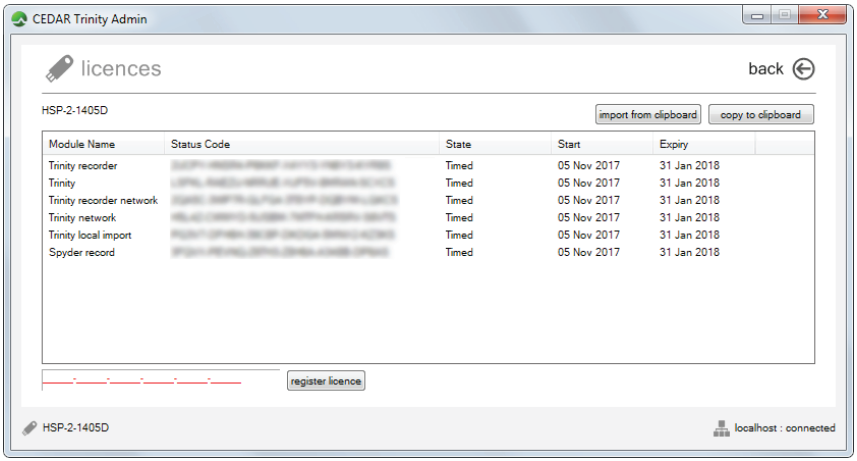
Press the **export** button to export the hotkey list as a .csv file.

**External controllers**

Some external hardware controllers can be configured to simulate key presses. On a USB foot pedal, for example, you may be able to assign the play/pause toggle and fast rewind to the footswitches. This will leave your hands free for typing.

# Registering licences

**[All]**




Launch the CEDAR Trinity Admin program by clicking on the desktop icon or accessing it via the Start menu. You will require Windows administrator privileges to do so. The **Index** page will appear. Click on the **Licences** icon to access the Licences page.

To enable new licences, type each password into the edit box and press the **Register Licence** button. Alternatively, copy the text that contains the passwords into the clipboard, and press **import from clipboard** to import them. It can take a few seconds for a change of licence to be registered by the system. The various elements within CEDAR Trinity are controlled by six licences, and to authorise a system you will require:

- the **Trinity** licence to open any project from the CEDAR Trinity home screen
- the **Trinity network** licence to allow the local CEDAR Trinity operator to connect to remote recorder services
- the **Trinity recorder** licence to run the CEDAR Trinity record service
- the **Trinity recorder network** licence to allow the local record service to accept remote connections
- the **Trinity local import** licence to import audio files to create new assets
- the **Spyder record** licence to use an AudioTel Spyder as the input device

To authorise a CEDAR Trinity Satellite system you require only the **Trinity** and **Trinity network** licences.

Each licence applies to a specific HSP security key and cannot be registered on other keys.

# FIRST SETUP TUTORIAL

### CEDAR Trinity Server

This tutorial assumes that you have read the preceding pages and that you understand the concepts and controls described. Note that administration privileges are required to perform a setup.

1. Having installed the software, ensure that your HSP security key is plugged into your PC and launch the Admin program. It can take a few seconds to establish the connection, after which the connection status in the bottom right of the program should show:

   localhost : connected

   'localhost' is the ***hostname*** for the local machine.

2. You will now be on the **index** page. Access the **licences** page and, if they are not already present, enter each of the licences relevant to the key.

3. Return to the Index page and access the **projects** page to create a project and the first asset contained within it. Pressing **new** will enter the setup wizard.

4. Click on **new project** and choose an appropriate name. Tell the system that the asset will contain new audio from a recording device. (You could also click on the **import audio** button to load audio from a pre-existing audio file.)

5. Determine the parameters of the **asset** that will be contained within the project. Beware: some of these cannot be changed once the project has been created.

6. Tick the **mount** and **live** checkboxes so that the asset will be accessible from the operator screen and recording is possible.

7. Determine whether or monitoring is enabled when not recording.

8. For a system hosting multiple Satellites, determine which users are able to access the asset. As this is the first set up, click on All users to make it visible to all users of the system.

9. Click **finish** to return to the projects page.

10. Select the asset that you have just created from the list on the left of the screen.

11. Access the **playback and appearance** page and select the desired playback device from the dropdown menu. Click on **back** to return to the index page.

12. Enter the users page, select your HSP key and enable all of the permissions.

13. Close the Admin program.

14. Launch the operator program. You will now be able to select the project from its home screen, whereupon it will appear in the operator screen.

## CEDAR Trinity Satellite

This section describes the steps necessary to start using a Satellite. Administration privileges will be necessary to perform them.

**On the Server to which the Satellite is connected:**

1. Ensure that your HSP security key is plugged into your PC and then launch the CEDAR Trinity Admin program.
2. The Recorder status in the bottom right of the Admin utility should show:

   localhost : connected

   It can take a few seconds to establish the connection.
3. Access the users page to add the satellite user(s) and define their permissions. This will require typing in each Satellite's HSP-2 serial number.

**On each Satellite:**

1. Ensure that the appropriate HSP security key is plugged into the PC and then launch the CEDAR Trinity Admin program.
2. Access the **licences** page and if necessary enter each of the licences relevant to the given HSP key.
3. Return to the **index** page.
4. Access the **connection** page. Click on **change recorder.** A window will appear to enable you to type in the recorder hostname or IP address.

   *If you do not already know this, access Control Panel / System on the Server to which you wish to attach the Satellite. Make a note of the* **Computer name** *field. Now return to the Satellite that you are configuring and enter this name exactly as noted into the* **Recorder hostname** *field and press OK.*

   After a few seconds, the localhost status should change to:

   [hostname] : connected
5. Return to the **index** page and select the desired playback device on the **playback and appearance** page.
6. Close the Admin utility and launch CEDAR Trinity. After a few seconds the status bar on the home screen should show:

   [hostname] : connected
7. You will now be able to select any projects on the Server for which you have appropriate permissions.

### CEDAR Trinity Off-line

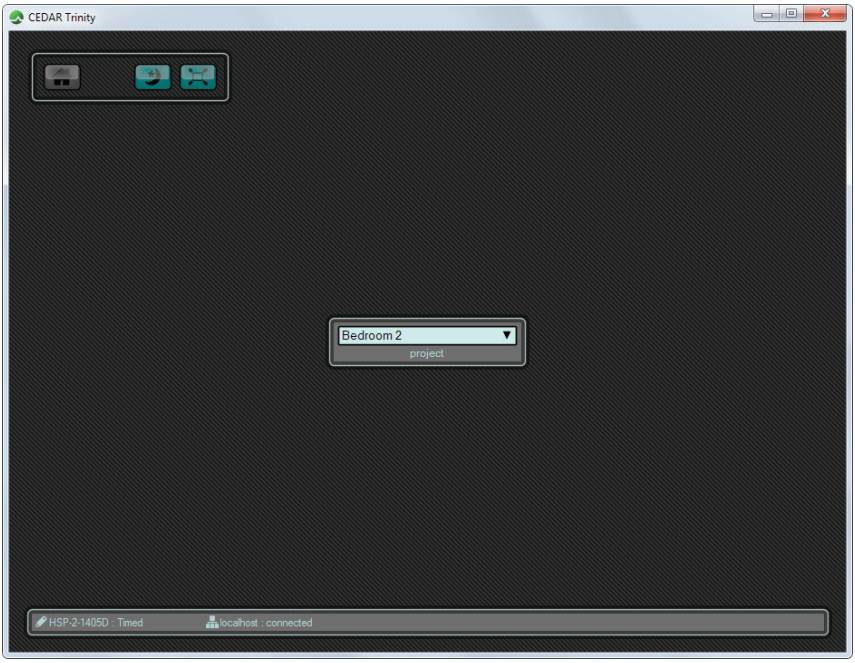
This section describes the steps necessary to start using a CEDAR Trinity Off-line system. Administration privileges will be necessary to perform them.

1. Ensure that the appropriate HSP security key is plugged into the PC and then launch the CEDAR Trinity Admin program.
2. Access the **licences** page and if necessary enter each of the licences relevant to the given HSP key.
3. Return to the **index** page and select the desired playback device on the **playback and appearance** page.
4. Close the Admin utility and launch CEDAR Trinity.
5. You will now be able to drag and drop existing audio files onto the Home page or select them **Import audio file** option in the drop-down menu to create local assets.

# Operator’s manual

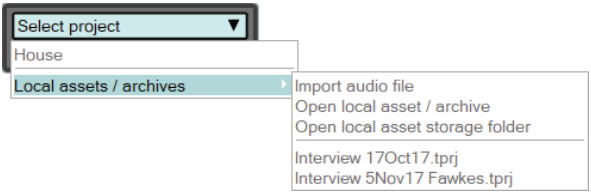
# HOME SCREEN

**[All]**




Double-click on the CEDAR Trinity icon to launch the program. The home screen will appear.

## Project Panel




The options accessible from the drop-down menu will depend upon which type of system you are using.

| | Server | Satellite | Off-line |
|---|---|---|---|
| Open projects held on connected servers | ✓ | ✓ | ✘ |
| Import existing audio files (create new local asset) | ✓ | ✘ | ✓ |
| Open existing local assets and archives | ✓ | ✓ | ✓ |
| Show local asset storage folder and its contents | ✓ | ✘ | ✓ |
| Select an existing asset from the local asset folder | ✓ | ✘ | ✓ |

**Managing the Local Asset Storage Folder**

You cannot create a local asset by dragging and dropping an audio file directly into the local asset storage folder window. However, you can delete a local asset by opening the folder and deleting it in the usual fashion.

## View Panel

This panel is shown on both the home screen and the operator screen and fulfills the same function on each.

**Home**

Returns you to the home screen.

**Night/Day**

Toggles between the standard (daytime) colour scheme and a more discrete 'stealth' scheme for use at night or in dark environments.

**Full Screen**

Allows you to switch between full screen and windowed modes.

## Status Bar


This provides information regarding the status of the system:

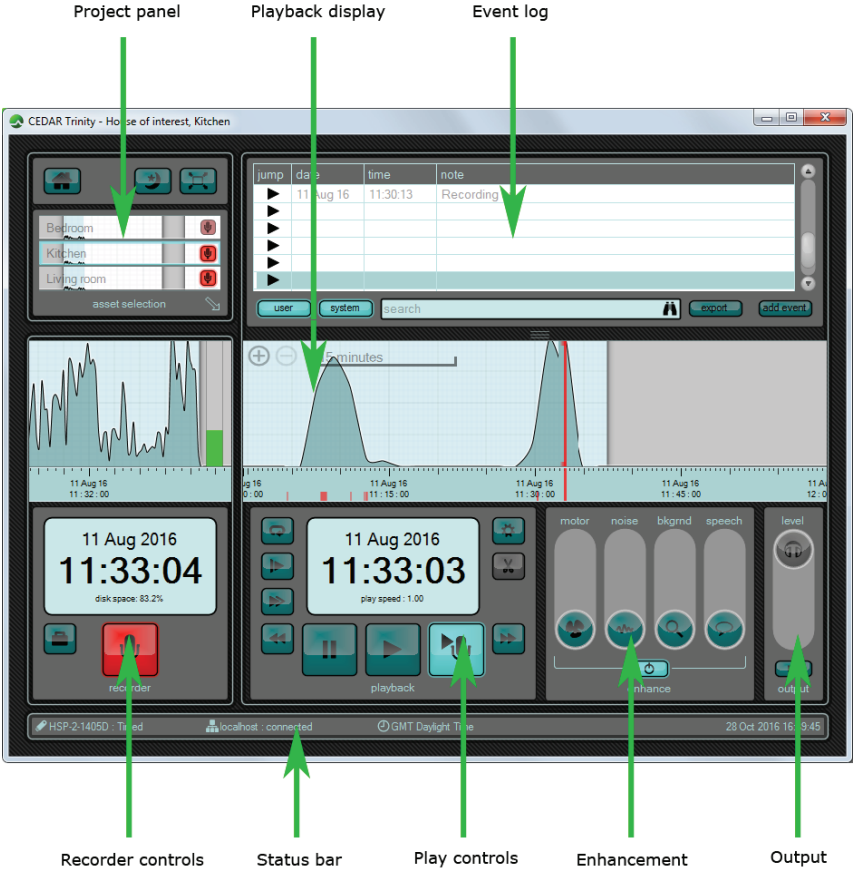
- The licence status of the local HSP security key.
- The hostname and status of the selected record service (applicable to Server and Satellite only).

# OPERATOR SCREEN

**[All]**

Once a project or archive has been opened, the operator screen will appear.

This allows the operator to monitor, record and navigate within an asset, to add notes, to enhance the intelligibility, and to export or archive the audio. The appearance of the screen will depend upon the type of asset loaded and the permissions granted to the current operator.



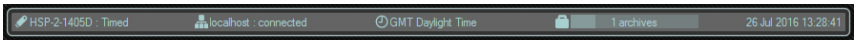
## Controlling CEDAR Trinity

You can control the operator screen fully using either a mouse or a touch-screen. Clicking, double-clicking and dragging are common actions for both, while other actions such as pinch gestures, right-clicking and dragging, and the mouse wheel, are context-dependent. Wherever possible, CEDAR Trinity follows standard Microsoft Windows conventions. You can also control CEDAR Trinity using standard keyboard conventions where:

- **Tab** and **Shift-Tab** move between controls
- **Enter** selects a control
- **Escape** cancels a control
- The **arrow keys** change a control value

In addition, hot-keys can be assigned to various operations. These are common to all users on a given computer and are set within the administration program.

## Status Bar




The status bar provides information regarding the status of the system:

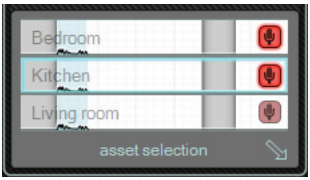
**All versions:**

- the licence status of the local HSP key
- the project's time zone expressed as an offset to UTC
- information about the point under the mouse cursor (where appropriate)

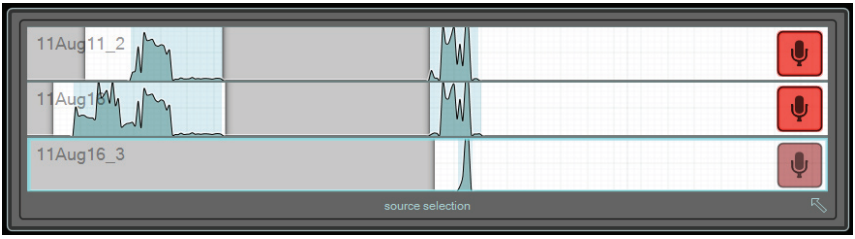
**Server and Satellite only:**

- the hostname of the record service or archive (if an archive was opened)
- the progress of any ongoing archiving operations

## Asset selection panel [Server, Satellite]




If you have a single asset available within the current project, this panel will show only the view options. If you have two of more assets available the panel will expand to show these in thumbnail form. Only one asset may be monitored and controlled at any given time. Click on a given asset's thumbnail to select it for monitoring.



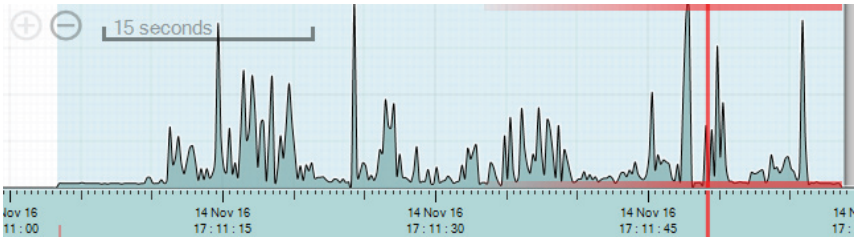

You may open an expanded view by clicking on the arrow in the bottom right corner of this panel . Click on the arrow to close the expanded window.

### Record buttons

With the appropriate permissions, record buttons will appear within each asset, whether in thumbnail view or expanded view. These report whether recording is taking place or not .

You may click on any record button to toggle it on and off. This will not affect your choice of which asset is selected for monitoring.

## Playback display [All]




The playback display illustrates the audio contained within the selected asset. It allows you to zoom in and out, and to navigate around the time axis. Double-clicking in the time axis will move the **play cursor** (the vertical red line) to the selected location. Clicking and dragging the cursor across the display will select a region which will be shown in green. This selection can then be **looped** for playback or exported to a WAV file or an audio CD.

The date and time of the point under the mouse cursor is shown on the **status bar**. Dragging the time axis left and right scrolls the viewed area. Double-clicking anywhere on the playback display will set the play cursor to that position.

The timeline of the thumbnails in the project panel is always the same as that of the playback display. (Server and Satellite only.)

### Events

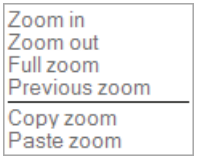
Events are displayed as small red tick marks at the bottom of the time axis.


### Zooming

You can zoom the display by:

- Pressing the +/- buttons
- Using a pinch gesture anywhere on the playback display
- Placing the mouse cursor over the display and using the mouse wheel
- Right-clicking and dragging on the playback display

You may also reveal the zoom menu by right-clicking anywhere in the playback display.



**Playback scale**


The scale next to the + and - buttons shows the interval between large graticule lines on the time axis. Normally the playback display tracks the play cursor by jumping forwards whenever the play cursor reaches the end of the screen. This tracking is disabled if you change the zoom, but is re-enabled by pressing any of the play buttons.

**Display areas**

The areas of the display are colour-coded as follows:

- Grey = the asset was not live
- White = the asset was live but not recording
- Blue = the asset was live and recording
- Green = an area that has been selected by the user
- Hatched = an area that has been erased by the user

**Live Region** **[Server, Satellite]**

If your administrator has allowed this, you may monitor live audio even when CEDAR Trinity is not recording. In this case a region of about 10 seconds of recent audio, the **live region** indicated by the red bars at the top and the bottom of the display, allows you to do so. Once audio that is not recorded has passed out of the live region, it is lost and cannot be recovered.

If no live region is visible, you should zoom in to the right hand end of the playback display to reveal it.

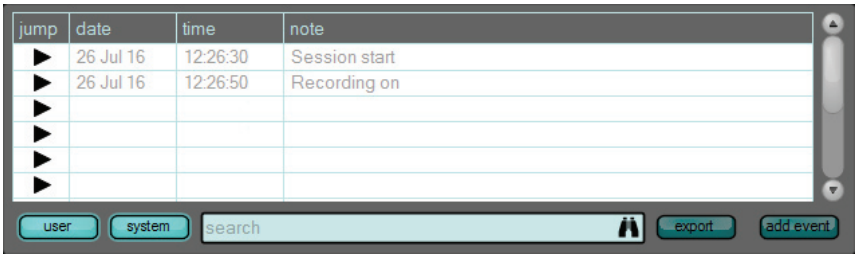
*Note: Playback may become unreliable if the play cursor is too close to the right hand end of the display.*

**Drag Handle**

Just above the playback display you will find a drag handle that resizes the display with respect to the rest of the screen.

## Event Log panel [All]

The **event log** is a list of system events and user events. On Server and Satellite systems, this be visible if your administrator has given **read event log** permission, or if you open an existing audio file or archive. It is always visible on Off-line systems.



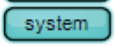

Click on the jump button to move the play cursor to that event's location.

If your administrator has given you **write event log** permission (Server and Satellite systems), double-clicking on a user event anywhere except on its jump button will access the user event editor which will allow you to edit, move or delete it.

### Search Filter


This causes the log to display only those events that match the search criteria: user events, system events and any event that contains the search text that you type into it. The filter also affects the tick marks displayed on the time axis and the cue points in an exported WAV file.


Toggle user event visibility on/off




Toggle system event visibility on/off

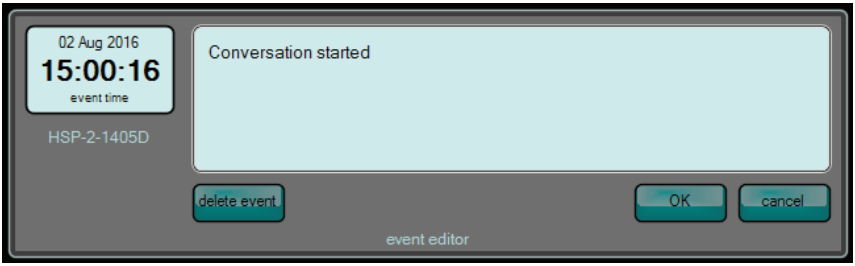
### Export (events)


This option will appear if the administrator has given **export** permission or if you have opened an existing audio file or archive. It exports any events that match the current search filter, or all events if no criteria are applied. The export takes the form of a Comma Separated Values (.csv) file that can be loaded into a suitable spreadsheet or database.

### Add Event


This option will appear if the administrator has given **write event log** permission or if you have opened an existing audio file or archive. It adds a user event at the current position of the play cursor and accesses the **user event editor**.

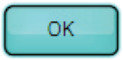
## User event editor [All]



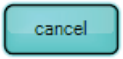

The user event editor allows you to edit, move or delete user events.

The text window allows you to enter information. This can contain notes about the audio, a transcription, or anything else of interest.

Double-click on the **event time** window to open the **date/time editor** and, if desired, define the date and time of the event. (See date/time editor.) This is the position on the timeline at which the event will be stored, and where it will appear in the events list.

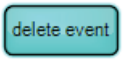



Press **OK** to insert the event into the event log.



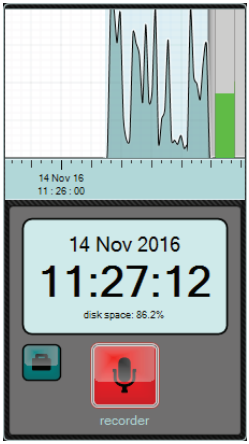

Press **cancel** to close the event editor and leave the event log unchanged.

If you double-click on an existing event in the event log, you will open it. You can then modify its date and time, and add or delete text. Press **OK** to re-insert it into the event log. You cannot modify system events.




You may delete the event by pressing the **delete event** button. You cannot delete system events.

## Recorder panel [Server, Satellite]




The recorder panel is split into two sections: the audio display and the control panel. It is only shown for live projects and its purpose is to monitor and control the record service.

**The audio display**

- The **peak meter** monitors the project's audio input irrespective of whether recording is turned on or off.
- The **peak display** shows any recently recorded audio. It always displays about one minute of audio.

**The recorder controls**

The **record button** switches recording on and off. Pressing the record button will automatically generate an event note in the event log. Your administrator may have disabled the record on/off button for any given user, but the record button will nonetheless indicate whether recording is on or off.

If your administrator has provided you with the appropriate permission, the **archive** button will be visible and, when clicked, will reveal the Archive Control panel (see below).

The **date/time box** shows the project's current date and time as well as the percentage of disk space available.

## Playback Panel [All]


This allows you to perform various playback functions as follows:

**Time display**


This displays the date and time of the current play cursor position. Double-clicking will access the **date/time editor** to set the play cursor to a precise position.

**Play (monitor)**

Starts playing at normal speed from the current cursor position. If the cursor is not visible in the screen, pressing play will shift the waveform so that it becomes visible.

**Pause**

Pauses audio playback.

**Fast Forward**

While held, this causes the audio to fast-forward. Playback will revert to its previous speed as soon as the button is released.

**Rewind**

While held, this causes the audio to rewind. Playback will revert to its previous speed as soon as the button is released.

**Loop**

Loops the current selection, shown in green on the playback display.

**Slow Play**

This causes the audio to play back at a slightly slower speed. This can sometimes help in interpreting difficult audio passages.

**Fast Play**

This causes the audio to play back at a faster speed. It allows you to speed up the reviewing of an asset without losing too much intelligibility, and to catch up with the live audio after pausing or reviewing an audio selection.

**Export selected audio**

If the user has been given permission to **export** by the administrator, or has loaded an existing audio file or archive, this button will appear and, when clicked, accesses the export audio window.

**Erase selected audio**

If the user has been given permission to **erase** by the administrator, or has loaded an existing audio file or archive, the audio selected in the playback display may be erased.

**Monitor live** **[Server, Satellite]**

This is a special case of the Play button. Pressing this will cause the play cursor to jump to the current (real) time, and allows you to listen to the live audio (if any) with minimal delay. This button is only available on a live project.

## Audio export [All]

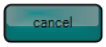

You may export the audio currently selected in the playback display, either to a CD or to a .WAV file. Multiple exports may be queued and, if so, the export button will display the progress for the current export. Note that shutting down CEDAR Trinity during an export will abort it.

The date/time windows show the start and end points of the selection. Double-clicking on either of these will access the **date/time editor**, allowing you to specify the selection more accurately than might be possible when dragging with the mouse or using a touch screen.

Audio enhancement as determined by the **enhance panel** is applied to the export. The enhancement settings for the whole of the export are determined when it is initiated.


Pressing the **WAV** button will access a Windows Browse dialog box to select a destination for the WAV file. The events log (or the filtered events, if appropriate) will be included as cue points within the file.


Pressing the **CD** button will export the selected audio to audio CD(s). Note that there has to be adequate hard disk space on your PC because the export works by copying the audio to your local hard drive before burning. A large export can span multiple CDs, so a pop-up message box will ask you to insert additional CDs if required.




Pressing the **Cancel** button will cancel any export currently in progress.

Click anywhere outside of the export audio window to close it.

## Erase [All]


You may erase the audio currently selected in the playback display. Enter any text that you would like recorded in the comment window, and then click on **erase**.

The audio will be erased and an event will be created to record this. The event will include the text that you entered here.

Erasing a long selection may take some time.

Click anywhere outside of the erase audio window to close it.

## The date/time editor [All]


Various parts of CEDAR Trinity offer date/time displays. When applicable, double-clicking on these will access the date/time editor.

You may adjust each field individually using the arrows, the mouse wheel, or by dragging. Three buttons provide helpful starting points for editing, although it isn't necessary to use any of these.

Set the date and time display to:

- The start date and time of the asset
- The current position of the play cursor
- The current end date and time of the asset

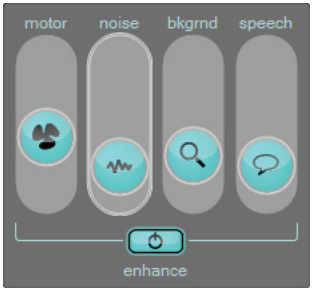
Clicking **OK** will position the cursor at the displayed date and time.

Press **cancel** to close the date/time editor without changing the position of the cursor.

*Note: Dates and times are displayed in the asset's time zone, which will have been determined by the administrator when the asset was created.*

## Enhance and output panels [All]

### Enhancement




CEDAR Trinity offers four processes that allow you to enhance the audio output while monitoring. Irrespective of these settings, assets are recorded without any enhancement.

For each of the enhancement processes, the user should increase the value (when needed) to obtain the optimum improvement, but should not attempt to over-process because this may impair intelligibility.

**Motor**

Removes steady noises such as whines and hums. When applicable, increase the amount of processing until a satisfactory amount of noise suppression is achieved without making the wanted speech sound thin.

**Noise**

Removes background noises such as air conditioning and fans that can impair intelligibility and cause listener fatigue.

**Background**

Makes background sounds more audible in the presence of loud foreground signals. This is useful if someone who is near the microphone is talking to someone who is further away.

**Speech**

Brightens muffled speech to make it more intelligible in the presence of other sounds.

**Enhance Off/On**

Simultaneously toggles all four enhancement processes on/off.

## Output

### Output level

This controls the output level from the system to your headphones and loudspeakers. Set it so that the loudest signals are at a safe and comfortable volume.

### Mute (audio output on/off)

You can mute the output by clicking on the mute button.

## In Use

### Finding a suitable listening level

With the output and enhance buttons on, find a safe and comfortable listening level. One way to determine this is to reduce the output level to zero then loop the loudest part of the audio. With the **background** fader set to about 50% and the other three enhancement faders set to zero, slowly increase the **output** level until the desired volume is achieved.

### Enhancing the audio

Having set a safe listening level, start with all the enhancement faders at zero. If there are noises such as buzz or engine noise in the audio, raise the **motor** fader to suppress this. Use the **noise** fader to suppress any background noise, but be aware that over-processing with this can damage intelligibility. Use the **background** fader to help reveal low-level signals and the **speech** fader to emphasise the speech. Having done so, and if necessary, use the **output** level control to obtain a suitable listening level for the material.

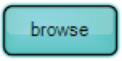
Once you have found rough settings for each of the enhancement faders, you will probably be able to fine-tune them to further increase intelligibility. Looping and slow speed playback, when combined with audio enhancement, can be invaluable in understanding difficult passages.

## Archive control panel [Server, Satellite]

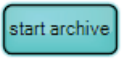

Archiving frees up hard disk space by saving audio to a remote drive and then offering you the opportunity to delete that audio from the record service. This panel allows you to determine how much audio is copied to the archive.


The audio to be archived extends from the start of the asset to a position determined by dragging the **archive point** left or right, as shown by the red arrow in the diagram above. Double-clicking on the archive point accesses the date/time editor, allowing you to determine the archive point numerically.

An asset is stored as a collection of specially formatted audio files. Archiving copies a whole number of these files; it does not allow you to copy parts of a file. Consequently, you will notice when you move the archive point that it snaps to file boundary times. These might be the start and stop times of short recordings, or sections of one hour lengths of longer ones.




The archive destination can be set by clicking on the **browse** button and navigating to an appropriate location, or it can be typed directly into the edit box.




Pressing **start archive** will copy the selected audio together with its events to the destination. When copying is complete, you will be asked whether you want to delete the archived audio from the asset. A system event will be added if the audio is deleted.

Clicking anywhere outside the control panel will hide it.

### Archiving from a single asset

Only one archive operation can be performed on a given asset at any given time.

The archive button will show the progress of the current archive operation for that project, even if initiated by another user.

**Archiving from multiple assets**

You can archive multiple assets in parallel by switching between assets and clicking on the archive button in each. The status bar will show the progress of all on-going archive operations.

**Closing CEDAR Trinity while archiving**

Closing CEDAR Trinity will abort all on-going archive operations initiated by a given user.

# Additional Information

# SUMMARY OF UPDATES

### Updates on CEDAR Trinity 3:

- Introduced the Off-line system to complement the Server and Satellite systems.
- The number of simultaneous live channels on Server systems was increased from 24 to the maximum number that the host system and its I/O can accommodate.
- Asset thumbnails and expanded views were enhanced to include record on/off buttons.
- Support for the AudioTel Spyder multichannel microphone system was added.

### Updates on CEDAR Trinity 2:

- Importing existing audio to create a CEDAR Trinity asset was added
- With the appropriate permission, it became possible to erase highlighted audio from assets.
- Following archiving, audio could be restored to its original position within an asset, or used to create a new asset.
- Access to assets could be restricted to specified operators.
- A new noise reduction process based upon CEDAR's flagship FNR process was adopted.
- The number of simultaneous live channels was increased from eight to 24.
- Administrators could now group multiple assets within a project. This allows the operator to view the waveforms of multiple assets simultaneously and to switch quickly to an asset where something appears to be happening.
- Assets now had a time zone associated with them, and daylight saving time was correctly applied.
- The response of the system when connected to high latency networks was improved.
- Although not displayed to the operator, the HSP ID was now recorded within user events.
- Exports could be verified using the TVerify utility.
- The enhancement parameters were now embedded as metadata in exports.

# VERIFICATION

**[All]**

TVerify is a command line utility that can be used to create an XML report detailing the integrity of CEDAR Trinity assets, exports and archives.

By default, TVerify is installed in the same location as the main CEDAR Trinity application. Running TVerify from the Windows command prompt without any command line arguments prints a usage summary.

Further documentation about TVerify and technical information about the structure of CEDAR Trinity assets is contained in the document **Verification of CEDAR Trinity projects** that is installed alongside TVerify.

# RECORD SERVICE PROPERTIES

**[Server]**

The record service is always running in the background as a Windows service.

The default behaviour should be appropriate in most cases. However, Microsoft provides various configuration options that can be set by the system administrator. These can be found under Control Panel | Administrative Tools | Services.

Select **properties** for the record service and you will find various options that change its behaviour. By default, it starts automatically and will restart five seconds after a failure.

# TECHNICAL SUPPORT

Should you experience any difficulties with CEDAR Trinity, please contact your local dealer or CEDAR office.

Alternatively, you may send an email to support@cedaraudio.com.

In either case, please provide the following details:

- Your HSP serial number and software version number.
- Details of the host PC.
- A precise description of the problem and the steps necessary to recreate it.

*Note: You must register your CEDAR Trinity or CEDAR Trinity Satellite system before seeking support. This can be done using the warranty card supplied with the product, or on the CEDAR website at www.cedaraudio.com.*

### AudioTel Spyder

If your support enquiry refers to a combined CEDAR Trinity and AudioTel Spyder system, please contact your the supplier from whom you obtained the system.

# CONTACTS

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**Worldwide Dealer List:**

For a current dealer list, please visit:
https://www.cedaraudio.com/surveillance/surveillancechannel.shtml

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| | |
|---|---|
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| 'a/the System' | means an instance of the CEDAR Trinity including but not limited to CEDAR Trinity Server, CEDAR Trinity Satellite, CEDAR Trinity Off-line, TVerify and all associated CEDAR products whether in hardware or software form developed and/or supplied by the Company; |
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(b) repair or replacement of those components of the System that do not meet the warranties contained within this Document.

The foregoing states the entire liability of the Company to the Licensee.

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## 12. TERMINATION

This Licence may be terminated forthwith by the Company if the Licensee commits any material breach of any terms of this License. Forthwith upon such termination the Company shall have immediate right of access to the System for the purpose of removing it.

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Notwithstanding that the whole or any part of any provision of this Document may prove to be illegal or unenforceable the other provisions of this Document and the remainder of the provision in question shall remain in full force and effect.

## 14. HEADINGS

The headings to the Clauses are for ease of reference only and shall not affect the interpretation or construction of this Document.

## 15. LAW

This Document shall be governed by and construed in accordance with English law and all disputes between the parties shall be determined in England in accordance with the Arbitration Act 1950 and 1979.

# CEDAR Trinity 3

| | |
|---|---|
| Inspected: | |
| QC Engineer: | |
| Serial number: | |

Designed and manufactured by

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Subject to revision at the Company's sole discretion. E&OE.