CONFIGURATION MANUAL

Epsio FX (Reveal Mode)

Version 1.2 - July 2015

Epsio.FX

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Table of Contents

1. Introduction

1.1. Product Description

Epsio FX can be used in Reveal Mode to display the scoreboard data of a basket ball match (game clock and shot clock) on the video output being replayed.

Epsio FX Reveal Mode is based on the following working principle:

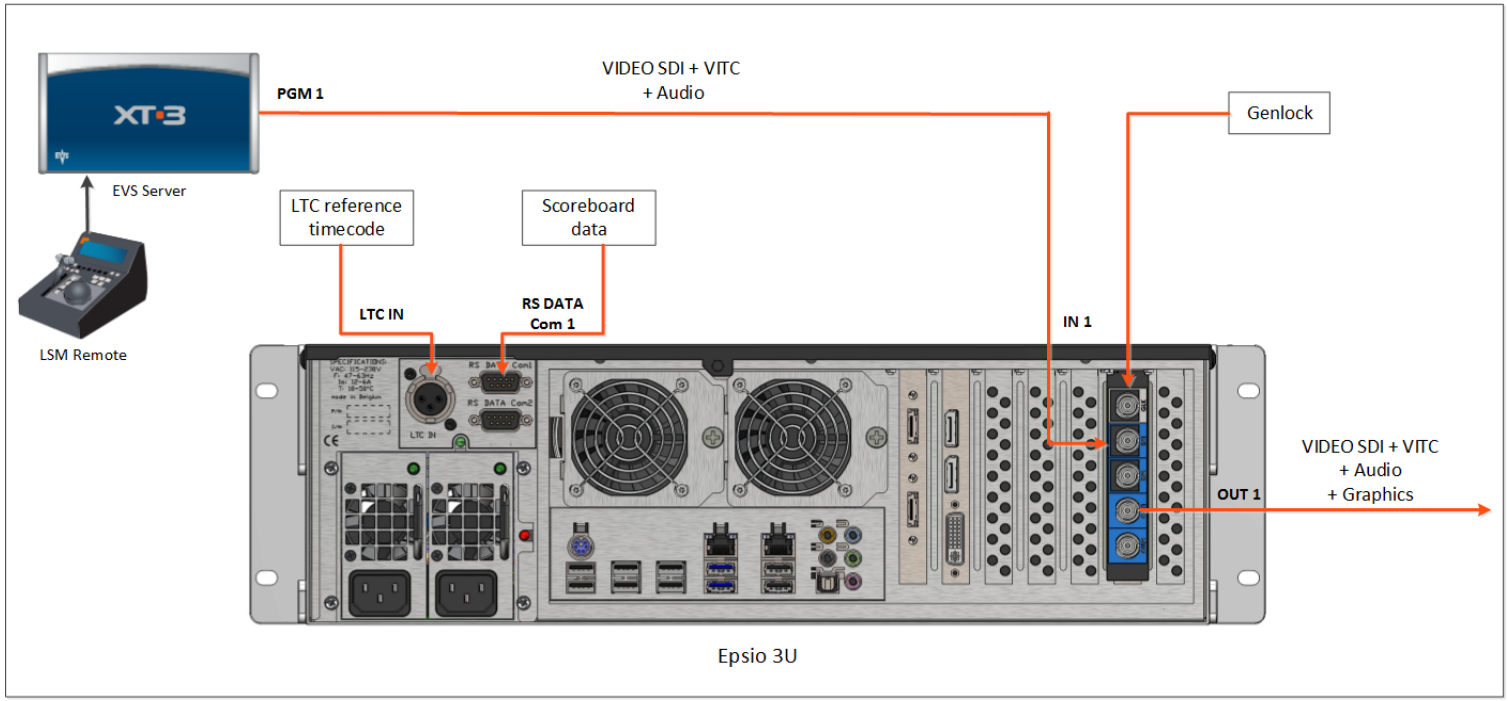
- During the match, the scoreboard data is stored on the Epsio server along with a synchronized reference timecode.
- During replay, the AV material from the EVS server's PGM is entered into Epsio, and then replayed with the scoreboard data in overlay.

1.2. Cabling

Recommended Cabling

The following schema shows how the Epsio hardware needs to be cabled to configure and operate Epsio FX (Reveal Mode):

- The scoreboard data is entered into one of the **RS DATA Com** port (RS 232 port).
- The LTC reference timecode is entered into the **LTC IN** port (XLR port).
- The video SDI, audio and the VITC data embedded in the video signal are entered into the **video input 1** port (**IN1**) of the PCX3 board (BNC connector).
- The Genlock data is entered into the **GLK** port (BNC connector).

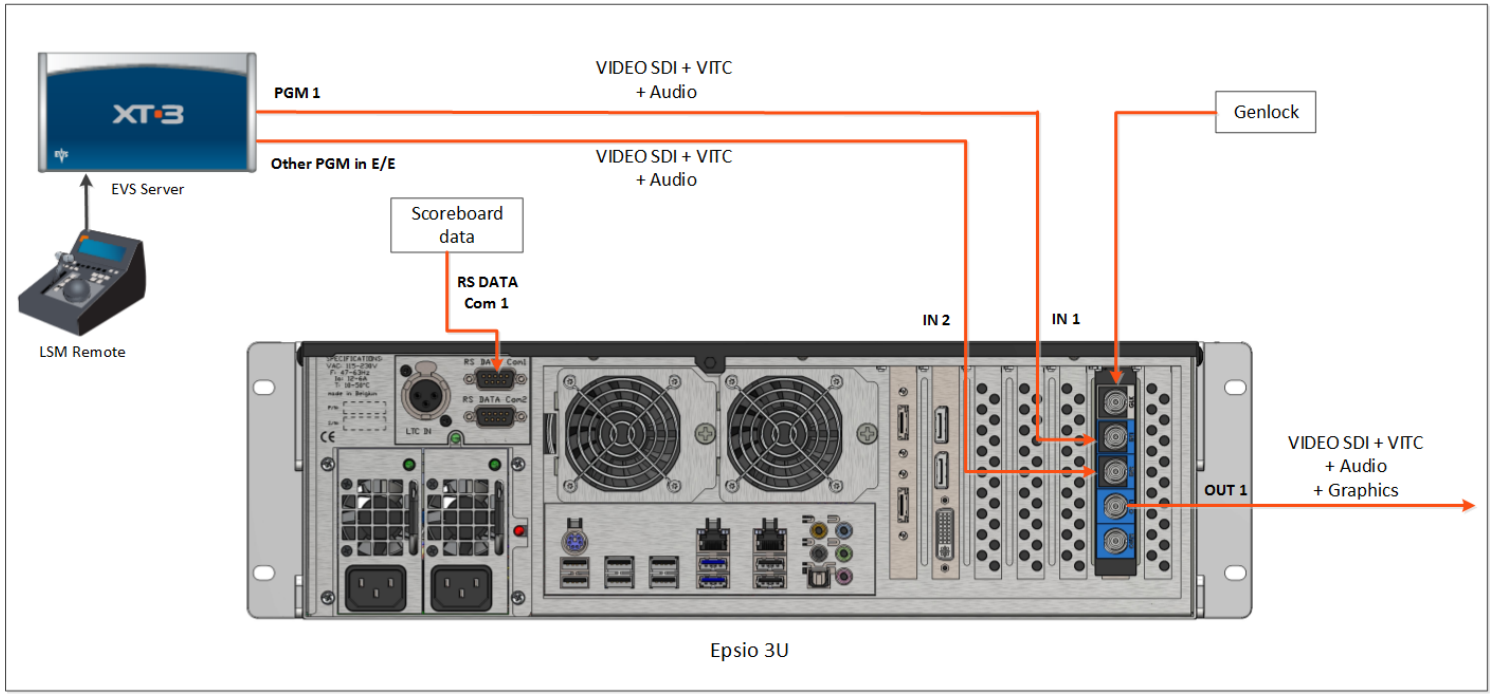


Alternate Cabling

In case you cannot enter the LTC reference timecode via the **LTC IN** connector, you can use an alternate cabling:

You can provide the reference timecode information by entering a PGM output of the EVS server into the **video input 2** connector (**IN2**) of Epsio.

This PGM output needs to be in E to E and have the same Multicam configuration as the PGM1 plugged into the **video input 1** connector (**IN1**).



1.3. Requirements and Limitations

Hardware and Software Requirements

EVS Server

Software: Multicam version 11.02 or 12.02 (or higher)

Epsio FX

Hardware: Epsio with the new version of the backplane including the following connectors above the power supplies:

- one XLR connector
- two RS 232 Data Com ports

Software:

- **OS:** Windows 7
- **Graphic Board:** NVIDIA QUADRO FX 2000
- **XSecure:** license option 20 for Epsio FX (Reveal Mode)

Timecode Requirements

- When Epsio is cabled, a continuous reference timecode must be entered into Epsio.

  During data recording, this timecode allows Epsio to store the scoreboard data with a corresponding timecode.

  See section "Cabling" on page 2.
- When Multicam is configured, you need to make sure the PGM coming from the EVS server into Epsio through the video input 1 port (IN1) has the LTC timecode embedded in HAnc VITC timecode.

  During replay, this timecode allows Epsio to read the stored scoreboard data corresponding to the timecode of the incoming video signal.

  See section "Setting up Multicam" on page 7.

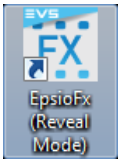
Limitations

- The following scoreboard data protocols are currently supported: Daktronics and OES.
- There is a 6-frame delay between the EVS server output and the Epsio output.
- The Data Com ports are configured so that FIFO buffers are not used. This is a factory setting.

1.4. Opening Epsio FX (Reveal Mode)

How to Open Epsio FX (Reveal Mode)

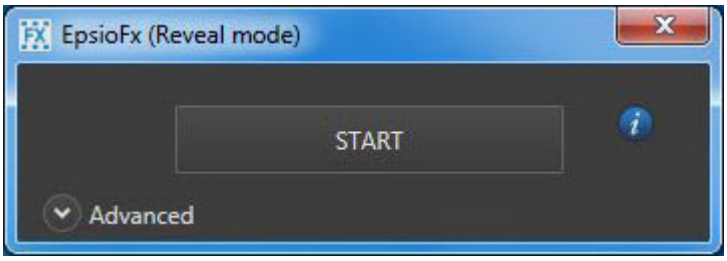
To open Epsio FX (Reveal Mode) user interface, proceed as follows on the Epsio server:

- Click the application icon 

  OR

- Select the application from the **Start menu > All Programs > Evs Broadcast Equipment > EpsioFX > EpsioFX (Reveal Mode) > Epsio FX (Reveal Mode) Launcher**.

  The Epsio FX (Reveal Mode) Launcher opens:



Epsio FX (Reveal Mode) consists in this Launcher window in which you can perform the following actions:

- Defining the Epsio FX (Reveal Mode) parameters.

  This is one of the required configuration steps before you can start working with Epsio FX (Reveal Mode). See section "Configuring Epsio Parameters" on page 8.

- Starting Epsio FX (Reveal Mode) once the application has been configured and tested on the venue. See below.

How to Start Epsio FX (Reveal Mode)

Before you can actually start using Epsio FX (Reveal Mode), you need to configure it as explained in the section "Overview" on page 6.

- When Epsio FX (Reveal Mode) has been configured and is open, click the **Start** or **Start Offline Mode** button for the application to start working.

The button depends on the working mode selected in the parameters.

By default, Epsio FX (Reveal Mode) operates in live mode, and the timestamped scoreboard data is stored in an archive named on the pattern `Record_YYYY_MM_DD`.

When you will replay the PGM1 of the EVS server (coming into the video input 1 connector of Epsio), the scoreboard data will automatically be displayed on the video output.

2. Configuration

2.1. Overview

It is recommended to configure the EVS server and Epsio in the following sequence:

#	Configuration Step	GUI	Compulsory or Optional
1.	Setting up the Multicam Parameters	EVS Server	Compulsory
2.	Launching the Multicam Configuration	EVS Server	Compulsory
3.	Installing a Custom Graphic Pack	Epsio	Optional
4.	Configuring Epsio Parameters	Epsio	Compulsory
5.	Checking the Information Screen	Epsio	Compulsory
6.	Adjusting the Delay	Epsio	Compulsory

The operations specified below are not part of the main workflow:

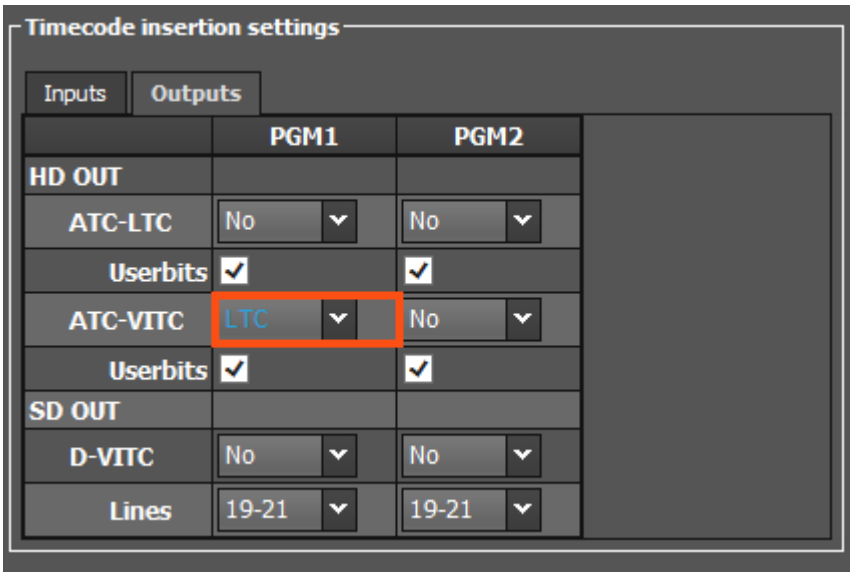
#	Action	GUI
1.	Working Offline	Epsio
2.	Managing Scoreboard Data	Epsio and EpsioRevealDataSetManager.bat

2.2. Setting up Multicam

Configuring the Timecode Insertion Settings

NEW !

In the Multicam Configuration module, **Channel** page (advanced view), **Timecode Insertion** settings, in the HD OUT section, the value for ATC-VITC parameter has to be set to **LTC** for PGM1:



Note
If you use the alternate cabling, configure in the same way the player channel plugged into the video input 2 port (IN2) of the Epsio server.

Starting an Appropriate Multicam Configuration

After you have set up the timecode insertion settings, start a Multicam configuration on your EVS server. The 1080p and 4K formats are not supported.

2.3. Installing a Custom Graphic Pack

When your company has requested a customized graphic pack, you will receive an executable including all components of the graphic pack.

To install the custom graphic pack, proceed as follows:

1. Copy the executable on the Epsio server.
2. Double click the executable.

   The first installer window opens.
3. Click **Install**.

4. Answer by **Yes** or **No** to the following message: `"Do you want to remove all other templates"`.

   Even if you remove all other templates, the default template will always remain installed on the Epsio server.

5. On the last window, click **Finish** to exit the installer.

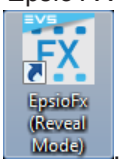
The graphic pack is installed on the Epsio server, and is available in the configurations settings of the Launcher in Epsio FX (Reveal Mode). See section "Epsio FX Reveal Mode Parameters" on page 9.

Note
If you install a new graphic pack after you have configured Epsio FX (Reveal Mode), check that the new graphic pack has been selected in the Launcher before you use the Epsio FX (Reveal Mode).

2.4. Setting up Epsio

2.4.1. Configuring Epsio Parameters

To configure the Epsio parameters, proceed as follows:

1. On the Epsio server, open the Epsio FX (Reveal Mode) user interface by clicking the Epsio FX (Reveal Mode) icon 

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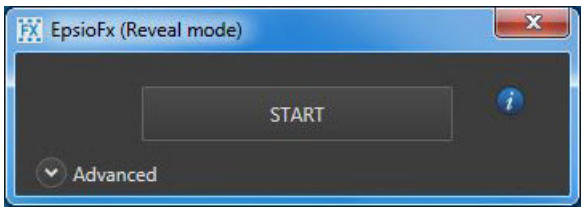
   The Epsio FX (Reveal Mode) Launcher opens:



2. Click **Advanced** to expand the Advanced pane where you will find the Epsio FX (Reveal Mode) parameters.
3. Fill in the fields as explained in the Advanced pane and in the section "Epsio FX Reveal Mode Parameters" on page 9.

When you have defined the parameters, you can:

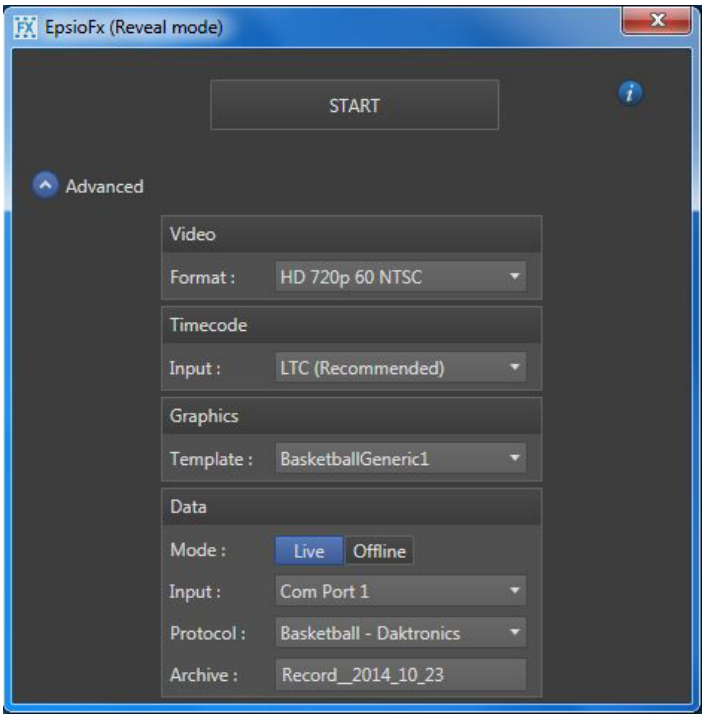
- Start Epsio FX (Reveal mode) by clicking the **Start** or **Start Offline Mode** button at the top of the Launcher window.
- Close the launcher if you do not want to use Epsio FX (Reveal Mode) directly.

2.4.2. Epsio FX Reveal Mode Parameters

Introduction

The parameters of Epsio FX (Reveal Mode) are available in the Advanced pane of the Epsio FX (Reveal Mode) launcher. When you open the Advanced tab, the parameter values are the ones of the last session.

See section "Configuring Epsio Parameters" on page 8 to see how to access the parameters.



Video & Reference

Format

Description	Video standard (field rate and resolution) applied to the video output of Epsio. The video standard defined on Epsio must correspond to the running configuration on the EVS server.
Values	The list of values correspond to the formats available with the PCX3 board of Epsio: • SD 50 PAL 16:9 • SD 60 NTSC 16:9 • HD 1080i 50 PAL • HD 1080i 60 NTSC • HD 720p 50 PAL • HD 720p 60 NTSC

Timecode Reference

Input

Description	Live timecode reference used in the data recording to map the scoreboard data with a corresponding timecode.
Values	Two values are possible depending on the cabling: • **LTC** if the continuous timecode reference is entered through the **LTC IN** port on the back panel. • **VITC** if the continuous timecode reference is entered through the **video input 2** port (IN 2) on the back panel. In this case, the incoming feed must be the HAnc VITC of a PGM in E/E.
Initial value	LTC

Graphics

Template

Description	Graphic pack to be used during the production
Values	At least the default graphic pack is installed and available. It has the following name: **BasketballGeneric** Other custom graphic packs are listed if they have been installed on the Epsio server.

Data

Mode

Description	Working mode of Epsio FX (Reveal Mode). Depending on the working mode, the Start button in the launcher will have a different wording (**Start** or **Start Offline Mode**)
Values	Two modes are available: • **Live:** mode used by default when you work on a live production: ◦ The application reads the scoreboard data feed from the Com Port. ◦ The scoreboard data is recorded on Epsio. • **Offline:** mode used when you need to work outside the live production, or perform a demo: ◦ The application reads the scoreboard data from an archive file selected by the user. ◦ No data is recorded on Epsio.
Initial value	Live

Intput

Description	RS232 Data Com port on which the scoreboard data is entered.
Values	• **1** for RS Com 1 • **2** for RS Com 2

Protocol

Description	Provider of the scoreboard whose data is entered into Epsio.
Values	Two scoreboard protocols are available in Epsio: • **Basketball - Daktronics** • **Basketball - OES**

Archive

Description	Name of the archive in which the recorded data is stored (in live mode) or read (in offline mode).
Values	In Live mode, the scoreboard data is stored by default in an archive named by the following pattern: `Record_YYYY_MM_DD`. You can specify another name. In Offline mode, you need to select an archive name to be able to start working with Epsio FX (Reveal Mode).

2.4.3. Working Offline

Introduction

By default, Epsio FX (Reveal Mode) works in Live mode: It is operated during a match, and the scoreboard data is fed directly form the scoreboard into Epsio.

In specific cases (for example, a demo), you need to work outside a production environment. In this case, you will work as follows:

- The AV material recorded on an EVS video server is fed into Epsio.
- The scoreboard data stored in an archive is used on Epsio instead of a direct feed. The Data Com port is therefore not cabled, and the continuous reference timecode does not have to be fed into Epsio either.

How to Set up Epsio to Work Offline

To set up Epsio to work offline, you have to set the Epsio parameters as follows:

1. Click the Epsio FX (Reveal Mode) icon on the desktop, then click **Advanced** in the Launcher to open the Advanced pane.
2. In the **Data** group box, **Mode** field, select **Offline**.
3. In the **Data** group box, **Archive** field, select the archive you want to use to provide the scoreboard and corresponding TC data.
4. Fill in the other parameters as described in "Epsio FX Reveal Mode Parameters" on page 9.
5. Click the **Start Offline Mode** button in the Epsio Launcher.

2.4.4. Managing Scoreboard Data

Introduction

You may want to keep the scoreboard data after the match, for example to further exploit the AV material with a scoreboard data display after the event, or to provide the data for a demo.

To this end, you will need to store the scoreboard data to an archive. I may then need to export it, and then import and restore it onto another Epsio server. These actions are performed from the Launcher or via the `EpsioRevealDataSetManager.bat` file opening a DOS command.

The following table gives an overview on the actions to manage scoreboard data, and where they are performed:

Action	Interface
Archive the scoreboard data	Epsio FX (Reveal Mode) Launcher
Restore a scoreboard data archive	Epsio FX (Reveal Mode) Launcher
Export a scoreboard data archive	EpsioRevealDataSetManager.bat file
Import a scoreboard data archive	EpsioRevealDataSetManager.bat file
Delete a scoreboard data archive	EpsioRevealDataSetManager.bat file
Rename a scoreboard data archive	EpsioRevealDataSetManager.bat file

How to Archive the Scoreboard Data

To archive the timestamped scoreboard data during a live production, proceed as follows:

1. Click the Epsio FX (Reveal Mode) icon on the desktop, then click **Advanced** in the Launcher to open the Advanced pane.
2. In the **Data** group box, **Archive** field, type the name you want to give to the archive.

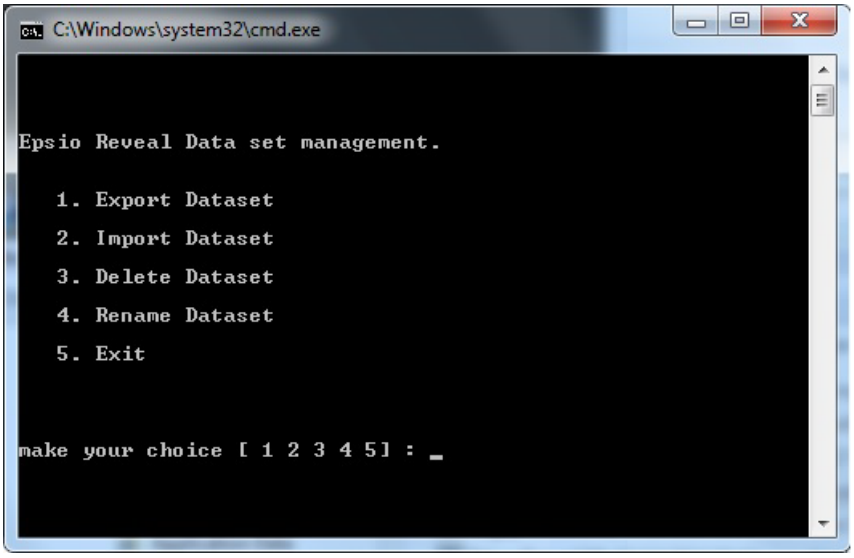
The scoreboard data will be archived on the Epsio server during the production. This archive will remain available after the production.

How to Export a Scoreboard Archive

To export a scoreboard data archive out of the Epsio server, proceed as follows:

1. Select **EpsioFX (Reveal Mode) Dataset Manager** from the menu Start > All Programs > EVS Broadcast Equipment > EpsioFx (Reveal Mode).

   A DOS prompt opens and displays a list of available commands on scoreboard archives:



2. Type **1** and press **Enter**.

   The archives stored on the Epsio server are listed in the DOS prompt.

3. Type the figure that corresponds to the archive you want to export, and press **Enter**.

   A Save As window opens.

4. Point to the requested location, and type the name of the .zip file where the scoreboard archive will be stored.

The scoreboard data archive is exported to a .zip file stored in the specified path.

How to Import a Scoreboard Archive

To import a scoreboard data archive to Epsio, proceed as follows:

1. Store locally the .zip file containing the scoreboard data archive to be imported onto the Epsio server.
2. Select **EpsioFX (Reveal Mode) Dataset Manager** from the menu Start > All Programs > EVS Broadcast Equipment > EpsioFx (Reveal Mode).

   A DOS prompt opens and displays a list of available commands on scoreboard archives.

3. Type **2** and press **Enter**.

   An Open window opens.

4. Point to the .zip file containing the scoreboard data archive to import, and press **Open**.

   In the DOS prompt, the following message is displayed:"`Enter the name of the new DataSet:`"

5. Type the name of the new data in the DOS promp, and press **Enter**.

The scoreboard data archive is imported onto Epsio, and will be available in the Launcher, **Data** section, and **Archive** field to be restored.

How to Restore the Scoreboard Data Archive

If you want to restore a scoreboard data archive on an Epsio server where the original data has not been recorded, you first need to import the scoreboard data archive onto the Epsio server.

To restore a scoreboard data archive in an offline environment, proceed as follows:

1. Click the Epsio FX (Reveal Mode) icon on the desktop, then click **Advanced** in the Launcher to open the Advanced pane.
2. In the **Data** group box, **Archive** field, select the name of your archive from the drop-down field.

The scoreboard data set included in the archive file is restored on the Epsio server, and can be used in an offline environment.

How to Rename a Scoreboard Archive

To rename a scoreboard data archive on an Epsio server, proceed as follows:

1. Select **EpsioFX (Reveal Mode) Dataset Manager** from the menu Start > All Programs > EVS Broadcast Equipment > EpsioFx (Reveal Mode).

   A DOS prompt opens and displays a list of available commands on scoreboard archives.

2. Type **4** and press **Enter**.

   The archives stored on the Epsio server are listed in the DOS prompt.

3. Type the figure that corresponds to the archive you want to rename, and press **Enter**.
4. Type the new name for the scoreboard data archive, and press **Enter**.
5. Answer **Y** and press **Enter** to confirm you want to rename the scoreboard data archive.

The scoreboard data archive is renamed and available with its new name in the Launcher.

If it was previously selected in the Launcher, the renamed archive will still be selected in the Launcher the next time you will open Epsio FX (Reveal Mode).

How to Delete the Scoreboard Archive

To delete a scoreboard data archive on an Epsio server, proceed as follows:

1. Select **EpsioFX (Reveal Mode) Dataset Manager** from the menu Start > All Programs > EVS Broadcast Equipment > EpsioFx (Reveal Mode).

   A DOS prompt opens and displays a list of available commands on scoreboard archives.

2. Type **3** and press **Enter**.

   The archives stored on the Epsio server are listed in the DOS prompt.

3. Type the figure that corresponds to the archive you want to delete, and press **Enter**.
4. Type **Y** and press **Enter** to confirm you want to delete the scoreboard data archive.

The scoreboard data archive is deleted on the Epsio server and is no longer available in the Launcher.

2.5. Checking the Parameters

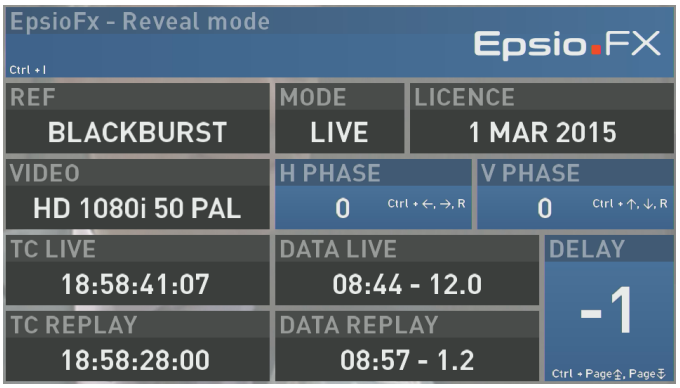
2.5.1. Checking the Information Screen

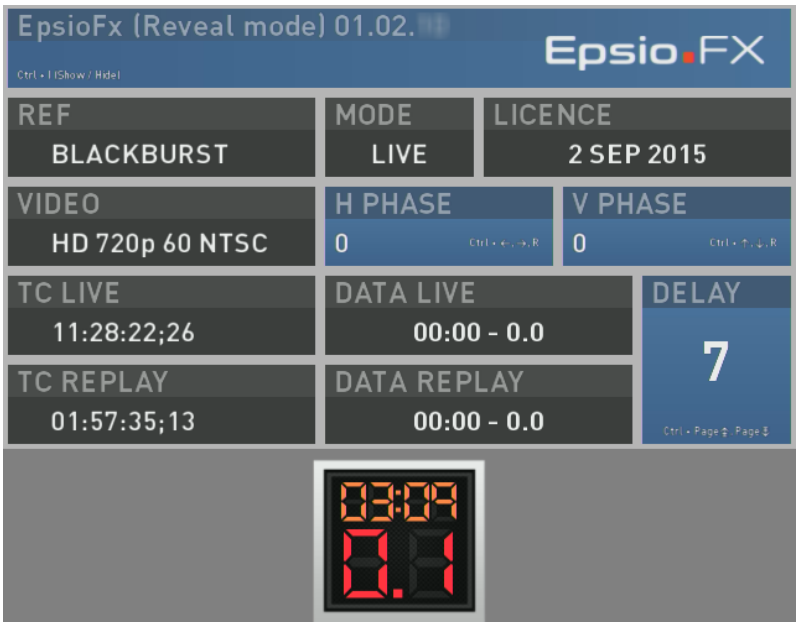
Introduction

After Epsio FX (Reveal Mode) has been configured, you start the recording process by clicking the **Start** or **Start Offline Mode** button in the Launcher.

At this time, an information window is displayed on the output of Epsio server. It allows the operator to check the Epsio configuration, and the signal characteristics.

The Information window looks like the following one:





Background Colors

This table describes that meaning of the possible background colors for the cells of the Information window.

Background Color	Meaning
Blue	Command area. The cell value is editable using the specified keyboard shortcut.
Gray	Cell with normal field value.
Orange	Cell with field value revealing a potential problem (for ex. license expiration). This corresponds to a warning.
Red	Cell with field value revealing a problem (for ex. wrong genlock signal). This corresponds to an error.

Field Values

The following table describes the information in each cell, and explains the possible issues which lead to an orange or red cell background.

Cell/Field Name	Description
Ref	Genlock type, and status. The status is indicated by the cell color. If the cell is red, it means the genlock signal is bad.
Mode	Mode in which Epsio FX (Reveal Mode) is used: **Live** or **Offline**
Licence	Number of days before the expiry date of the XSecure Epsio FX (Reveal Mode) license option. The cell turns orange when the license code will expire in less than 15 days. The cell turns red when the license code has expired.
Video	Video format applied to the video output of Epsio. If the cell is red, it means that the video format entered into the video input 1 port (IN 1) does not correspond to the video format defined in the Epsio FX (Reveal Mode) parameters.
TC Live	Reference timecode value read in the timecode input on the LTC IN port, or on the video input 2 port (IN2) when the alternate cabling is used.
Data Live	Scoreboard data at the live timecode.
TC Replay	LTC timecode value read on the video input 1 port (IN1) receiving the feed from the EVS server.
Data Replay	Scoreboard data at the replay timecode.

Commands

The following commands are available from the Information window:

To ...	Do the following action ...
To hide or show the information screen	Press **CTRL** + **I**.
To adjust the horizontal phase	Press **CTRL**+ **Left Arrow / Right Arrow**
To ajust the vertical phase	Press **CTRL** + **Up Arrow / Down Arrow**
To reset the phases	Press **CTRL** + **R**
To increase or reduce the delay	Press **CTRL** + **Page Up / Page Down** See section "Adjusting the Delay" on page 18 for more information on this task.

2.5.2. Adjusting the Delay

Introduction

Before you start working live on a venue with Epsio FX (Reveal Mode), you need to adjust the delay to compensate for the offset between the recorded scoreboard data and the actual scoreboard data in the arena.

How to Adjust the Delay With Control of the Scoreboard

To adjust the delay when you can control the scoreboard, proceed as follows:

1. Record as you perform the following recommended game/shot clock sequence in the arena:
   a. Point all cameras to the scoreboard (game/shot clock) display.
   b. Start the game clock at 2:00, and begin the countdown.
   c. Run the shot clock multiple times from 24 to 0.0.
   d. Run the shot clock finally at ~30 sec. on the game clock until the shot clock reaches 0.0 (red square around the basket lighting up).
   e. Let the game clock run to 00:00 with red border.
2. Jog back to the timecode when the shot clock reaches 0.0 (step d), and adjust the delay with **CTRL** + **Page Up** / **Page Down** to get the shot clock 0.0 on the video output at the exact frame where the square around the arena scoreboard turns red.
3. Browse through all cameras and check that the delay is good on all cameras. Otherwise, adjust it as described on step 2.

How to Adjust the Delay Without Control of the Scoreboard

To adjust the delay when you cannot control the scoreboard, proceed as follows:

1. Record a video sequence where the shot clock reaches 0.0 and you see the red square around the basket lighting up.
2. Jog back to this instant, and adjust the delay with **CTRL** + **Page Up** / **Page Down** to get the shot clock = 0.0 on the video output at the exact frame where the square around the arena scoreboard turns red.
3. Check that the delay is good on all other cameras, otherwise adjust it.

Restrictions

Synchronized Cameras

As Epsio FX (Reveal Mode) is based on the VITC synchronization, it is important to check the signal timing.

Examples of camera sources not in sync.:

Frame Sync: If a camera is resynchronized through a frame synchronizer.

Supermotion combined output: If the combined output of a camera operating as SuperMotion is recorded on another EVS server, it will be delayed by a frame compared to the super motion phases.

iMovix x10 UltraMotion: A processed camera like an iMovix 6x or 10x camera for UltraMotion has a slight delay.

Straight Recorded Clips

Epsio FX (Reveal Mode) works with SLSM cameras. However if the user records hypermotion cameras, the VITC is not the same as with other cameras. For this reason, clips not created on the current record trains cannot be used with Epsio Fx (Reveal Mode).

LED Timing Issue

As the LED scoreboards are not genlocked together, a difference may occur between the scoreboard and the graphics displayed. This is due to the fact the data coming from the clock provider may arrive between 2 frames of the video. You may also see a visual difference between the basket clock and the arena's ribbon board clocks in some cases.

2.6. Troubleshooting: No Scoreboard Data on Output

If you do not see any data on the scoreboard display on the output, this issue might have several causes listed below. For each possible cause, perform the corresponding check:

Cause	The scoreboard is not connected to the Epsio server.
Solution	Check that the scoreboard is physically connected to the RS Data Com 1 or RS Data Com 2 port.

Cause	The connection port specified in the Launcher
Solution	Check that the port number specified in the **Input** field in the Launcher corresponds to the RS Data Com port number that is connected.

Cause	The protocol specified in the Launcher does not correspond to the protocol of the connected scoreboard device.
Solution	Check that the protocol specified in the **Protocol** field in the Launcher corresponds to the communication protocol of the scoreboard device.

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