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A **BELDEN** BRAND

# **ITX™ SOFTEL™ INSIDE**

INTEGRATED iTX™ SUBTITLING SOLUTION

## **Configuration & User Guide**

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[www.grassvalley.com](http://www.grassvalley.com)

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# About iTX Softel Inside Subtitles

Softel Inside is an integrated solution for importing, managing and playing out subtitles on an iTX channel. This includes both open and closed subtitles (including closed subtitles from both files and live feeds). This guide explains the concepts behind Softel Inside subtitling, how to configure Softel Inside for your iTX system, how to import and manage subtitle sources and assets, and how to payout Softel Inside subtitles with your videos and live events.

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Note: In this document, the word “subtitles” is used as a collective term for open captions, closed captions (including Teletext) and live subtitles.

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## Overview of Softel Inside Features

Softel Inside provides the following features and functionality:

- Importing of subtitle files using Delivery Manager.
- Payout of open and closed subtitle files.
- Live subtitle payout.
- Multi-language subtitles associated with a single video asset.
- For Teletext, an apology page can be displayed if the expected subtitles are unavailable.
- Configurable landing page for Teletext, which is displayed when viewers first access Teletext.
- Subtitle asset management using Asset layout in iTX Desktop.
- Time and text metadata definitions, which can be viewed from the Events tab of the subtitle asset.
- Subtitle preview via the Channel Preview layout in iTX Desktop.
- Automatic scheduling of subtitle content when video assets are scheduled.

To use Softel Inside subtitles, your iTX system must meet the following requirements:

- You must have the required Subtitle and Softel Inside licenses.
- Your iTX channel must be running on Output Server 2.

For more information about purchasing software licenses and the Grass Valley license dongle, please contact: [itxlicensing@grassvalley.com](mailto:itxlicensing@grassvalley.com).

## About Subtitle Assets, Locations and Intents

Within iTX, subtitles are a type of asset, which are created using one of the following methods:

- **Subtitle files**, which are imported and registered using a Delivery Manager endpoint with a drop folder. The subtitle file then becomes a subtitle asset. If you give a subtitle file the same name as a pre-existing video asset, the subtitles and video asset are automatically linked on registration in the database.

As a subtitle file can generally only contain one transcription, to support multiple languages or alternative transcriptions (e.g. for hard of hearing), all of the different subtitle files for a single video must be placed into their own sub-folders within the Delivery Manager drop folder. Once registered in iTX, each of these alternative subtitle files becomes a different location within the same subtitle asset. Each location and file is distinguished by a user-defined tag called an "Intent". The names of your Intents should identify the transcription's language and purpose. For example, a subtitle asset with subtitle files containing transcriptions for English, French and English for hard of hearing could have Intents called `English`, `Francais` and `English_HOH`.

### IMPORTANT

A subtitle file can only be transmitted in the format that it was imported (e.g. open subtitle files can only be transmitted as open subtitles).

- **Metadata**, which can also be imported by Delivery Manager or a REST API.

## About Closed, Open and Live Subtitles

iTX supports closed, open and live subtitles.

- **Closed** subtitles are transmitted as data alongside the video signal. This means the viewer can turn them on and off from their television or set-top box. There are two types of closed subtitles:

- **Teletext** is a form of closed subtitles that is commonly used in Europe, Asia and Australia. An iTX channel can have more than one Teletext page, each page carrying a different Intent. **Teletext pages are configured as services within iTX.** See [About Services and VBI Lines](#) on page 3.

iTX supports Teletext landing pages (one per channel). This is the default page that is displayed when a viewer turns on Teletext.

iTX also supports Teletext apology pages, which is an information page that is displayed when subtitles are required but not available to inform the viewer of the missing subtitles.



- **Closed Captions** is a form of closed subtitles that is commonly used in North America. An iTX channel can have up to two Closed Captions services each carrying a different intent. See [About Services and VBI Lines](#) on page 3.
- **Open** subtitles are rendered into the visible frame with the video and therefore cannot be turned on/off by the viewer.
- **Live subtitles** are typically used for live broadcasts and come from external feeds via the iTX Subtitle Gateway. The subtitle text is created moment-to-moment by a stenographer or an automatic speech-to-text solution and delivered to the iTX system over IP.

Each feed of a live transcription has its own Location and Intent in the subtitle asset. These Intents can be the same as those used for file-based subtitles.

## Supported Subtitle Formats

A reference table of subtitle file formats that can be imported into iTX where they are converted to an internal format is available in [Supported Subtitle Input Formats and Associated Registered Assets](#), on page 59.

## About Services and VBI Lines

Each channel transmits its subtitle information via a service. A Teletext service is analogous to a single Teletext page (e.g. 888). Services are mapped to VBI line pairs for transmission.

In Teletext mode, you must configure the VBI line pairs for transmission. The VBI lines may have several services allocated to them, but the more services that are allocated the more VBI lines are required to transmit them. Though services can share VBI line pairs, a guide would be 1 line pair per two services. If landing pages are being used, then they must use a different set of line pairs than those configured for services.

When using Closed Captions, VBI lines are automatically configured and hidden from the user.

## About Subtitles Service Rules

Subtitle service rules are used to define the priority of the subtitle intents, so that if the first intent is not available then the next intent is used, and so on.

When configuring subtitles, you create a page for each set of subtitles you want to make available. For example, you could create a Teletext page for English subtitles and call it 'Page 888', and a page for French subtitles called 'Page 889'. You can also specify alternative languages for each page, in case the preferred subtitles are not available in the subtitle asset when it is scheduled. This is controlled by defining the Subtitle Service Rules for each channel. If the Rules for 'Page 888' state 'English, French' then if the scheduled subtitle asset has both English and French Intents, the English intent will go to air; but if there is no English intent in the asset, then French will go to air instead.

For Teletext, in addition to alternative Intents, the subtitle service rule can also be set to display an apology page if none of the selected Intents are available in the scheduled subtitle asset.

For Closed Captions, the Subtitle Service Rules work in much the same way. The notable differences are that there is no such concept as an Apology page, and there are a maximum of two closed and two open services, each of which have preset names.

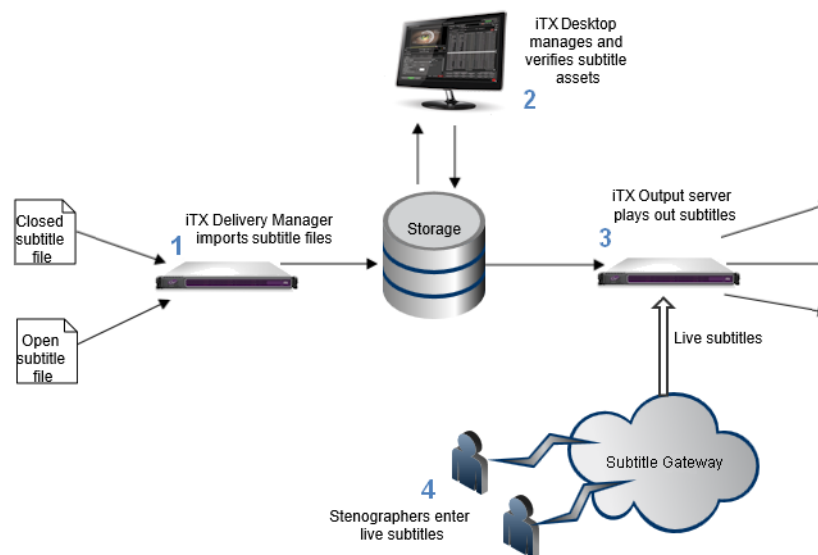
See [Setting Subtitle Service Rules](#) on page 37 for more information.

## Functional Overview of Softel Inside Subtitle Integration

[Figure 1-1](#) provides a functional overview of how the iTX system imports, manages and plays out subtitle content on an iTX channel.

### Annotation key:

- 1 Closed and/or open subtitle files are imported into the iTX system using the iTX Delivery Manager application.
- 2 Once imported, the subtitle files are stored as assets within the iTX system. Using the Asset layout in iTX Desktop, you can perform various asset management tasks, such as removing the link between a subtitle and a media asset if they have been incorrectly associated.
- 3 Scheduling and playing out subtitle content using the iTX Desktop and iTX Output Server 2.
- 4 Live subtitle insertion and payout.



*Fig. 1-1: An overview of subtitle import, management and payout.*

[Figure 1-2](#) on page 5 illustrates the relationship between a video asset, its subtitle asset and the subtitle sources (which can be both subtitle files or live subtitles). It also shows how subtitle service rules can be used to map specific Intents to the scheduled video event, even if the subtitle asset has additional Intents. This means the same video and subtitle asset pair can be used for different broadcasts.

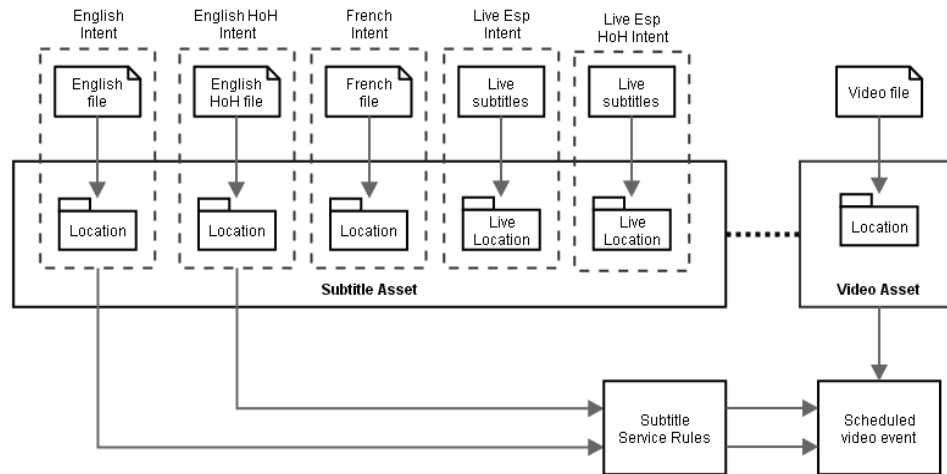


Fig. 1-2: A video asset and its linked subtitle asset, which contains multiple Intents, only two of which are mapped to the schedule video event at payout.

Figure 1-3 illustrates how services and Intent rules relate to one another. The services are configured in the Output Server 2 service, while rules are mapped to services in the iTX Desktop. Each service has its own rule. In the case of closed services, this would typically include file-based subtitles with an apology page displayed if the file is absent (e.g. English\_Closed, Apology). The rule may allow Live subtitles in the absence of the file-based subtitles before resorting to the apology page (e.g. English\_Closed, English\_Live, Apology). For Closed Captions, the rules are simplified since there is no concept of an apology page.

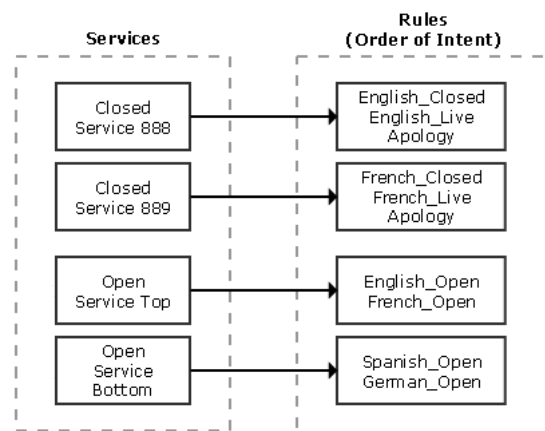


Fig. 1-3: The relationship between services and rules.

## Installing iTX Softel Inside Subtitles

iTX Softel Inside is installed and configured as part of Output Server 2 and operated from iTX Desktop.

For more information on installing Output Server 2, see the *iTX Output Server 2 Channel Configuration Guide*.

For more information on installing iTX Desktop, see the *iTX System Administrator Guide*.

## Licensing Requirements

Softel Inside subtitles are a licensed feature within iTX. The subtitle configuration on Output Server 2 checks that the features being configured are licensed within the product. If the configured option is not licensed, then the Output Server 2 reports an error and the configuration indicates which option is unlicensed.

Please contact Grass Valley's sales or technical support for assistance with licensing.

---

**IMPORTANT**

While Output Server 2 is in an error state, playout is not possible on that channel.

---



# Configuring iTX to Import Subtitles

This chapter explains how iTX imports subtitle files, via Delivery Manager, and how to configure your iTX system to ensure your subtitles are imported as required. This includes how to create the required Intents in your Opus database and how to configure a Delivery Manager CIFS (Common Internet File System) Drop endpoint to import subtitles with different Intents.

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## About Subtitle File Imports

Subtitle files are imported into iTX by putting them into a drop box folder, monitored by iTX Delivery Manager, from where they are automatically imported and assigned properties, including their Intent. To ensure that the subtitles are imported with the correct properties and stored in the right location configuration needs to be carried out on the iTX Output Server and iTX channel using the iTX Desktop.

The iTX configuration needed to import subtitle files must be carried out in the following order:

- 1 Create the required subtitle Intents using the iTX Desktop.
- 2 Create the CIFS Drop endpoint folders.
- 3 Configure a new CIFS Drop endpoint in iTX Delivery Manager.

When a subtitle file is imported, Delivery Manager uses a Subtitle File Converter module to do the following:

- 1 Convert the subtitle file from its native format to an iTX internal format.
  - All closed Teletext subtitle files are converted to `.stl` files
  - All Closed Caption files are converted to `.mcc` files
  - All open subtitle files are converted to `.xif` files

---

Note: A reference table of subtitle file formats that can be imported into iTX where they are converted to an internal format is available in [Supported Subtitle Input Formats and Associated Registered Assets](#), on page 59

---

## 2 Extract time and text information to associate with the asset.

### Notes

- Version 2.8 also registered a proxy dfxp location. From v2.9 these are not registered, but any existing dfxp files remain.
- For subtitle files which contain Font information, that font must be installed on the machine where the subtitles are being imported to prevent the subtitle file converter from using an unsuitable fall back font. This is particularly important where a subtitle contains Chinese characters and the import occurs on a server with a Latin character set which would not have the Chinese font installed as a default.

### IMPORTANT

A subtitle file can only be transmitted in the format that it was imported (e.g. open subtitle files can only be transmitted as open subtitles). There is no means of converting open subtitles to closed, or vice versa.

## Managing Subtitle Intents

A subtitle Intent is a user-defined profile, used to group subtitles by type and language. Intents are needed for both live subtitles and subtitle files and are used in rules and subtitle assets. Open and closed subtitles of the same language must have separate Intents (for example, `English_Closed` and `English_Open`). However, Live locations can share Intents with file locations.

When playing out subtitles, rules are used to specify the order in which the subtitles should be used, through the ordering of Intents.

These Intents are defined in the Opus Admin layout of iTX Desktop and are accessible to all other iTX channels within the same iTX domain.

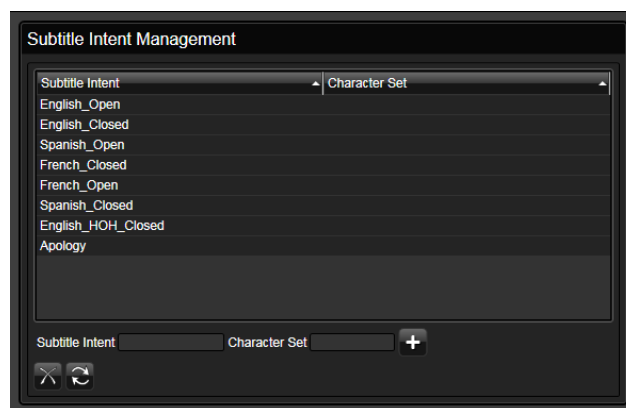



Fig. 2-1: The Subtitle Intent Management panel in Opus Admin showing existing Intents.

## Refreshing the Subtitle Intent List

Before adding or removing an Intent, it is worth refreshing your local list to ensure you have the latest list of Intents on your iTX domain.

#### To refresh the list of subtitle Intents

- 1 Open the iTX Desktop.
- 2 Click **Engineering** in the layout selection bar.
- 3 Click **Opus Admin**.
- 4 In the **Subtitle Intent Management** panel, click **Refresh** .

The updated list shows the latest Intents stored by any user in the same iTX domain.

## Adding a Subtitle Intent

Intents can be added to iTX as required. When you add a subtitle Intent it becomes available to all other channels in the same iTX domain.

#### To add a subtitle Intent

- 1 Open the iTX Desktop.
- 2 Click **Engineering** in the layout selection bar.
- 3 Click **Opus Admin**.
- 4 In the **Subtitle Intent Management** panel, specify a **Subtitle Intent** name that identifies its purpose and type. For example, `ENGLISH_HOH_CLOSED` for English closed subtitles with additional text for the deaf and hard-of-hearing. Subtitle Intents are case sensitive and must have unique names.

---

Note: The **Character Set** field is a placeholder for future functionality. We recommend that this field be left blank at this time.

---


- 5 Click **Add** .

The Intent is displayed appended to the list and the Subtitle Intent field is cleared.

## Deleting a Subtitle Intent

Intents can be deleted from iTX as required. When you delete a subtitle Intent it is removed across the entire iTX domain.

#### To delete a subtitle Intent

- 1 Open the iTX Desktop.
- 2 Click **Engineering** in the layout selection bar.
- 3 Click **Opus Admin**.
- 4 In the **Subtitle Intent Management** panel, select the Intent to be deleted.
- 5 Click **Delete** .

## Creating Subtitle Endpoint Sub-Folders for Delivery Manager

Delivery Manager is able to import subtitle files and automatically assign an Intent and location to the resulting asset, by matching the endpoint sub-folder the subtitle file was dropped into with an Intent in the Opus database. However, this is reliant on you creating a specific folder structure for your endpoint. As such, you must add a new CIFS Drop endpoint to your iTX Delivery Manager specifically for importing subtitle files.

Where and how the physical sub-folder structure is created depends on your file storage system, so it cannot be covered in this documentation. iTX needs to know the location of the drop box folder and this is specified the **Media Path** field of the CIFS Drop endpoint in iTX Delivery Manager.

The folder structure within the CIFS inbox has the following requirements:

- To keep subtitle files separate from other media, it is recommended that you create a `Subtitles` sub-folder within the `Inbox` folder (e.g. `CIFS_Inbox`).
- Within the `Subtitles` folder, create two sub-folders, one called `Closed` and one called `Open`.
- Within the `Closed` and `Open` folders, create sub-folders that correspond to the `Intents` that you have already configured.

Figure 2-2 shows the base folder structure required. Intent sub-folders are required at the level below `Closed` and `Open` in order to import subtitle files.

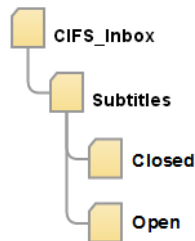


Fig. 2-2: The base folder structure required. Subtitles are not imported at this level.

Figure 2-3 provides an example of a drop box folder, called `CIFS_Inbox`, and its sub-folder structure.

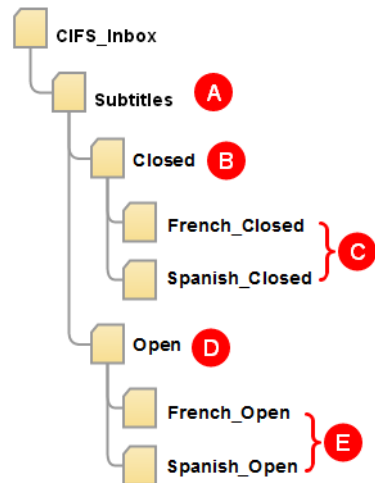


Fig. 2-3: Example CIFS drop box folder structure for open and closed subtitles and subtitles with Intents. The annotation is explained in the table below.

Folder	Use this folder to register...
A	Do not use. Subtitles placed at this level will fail the import.
B	Do not use. Subtitles placed at this level will fail the import.



Folder	Use this folder to register...
C	A closed subtitle file with an Intent of French_Closed or Spanish_Closed.
D	Do not use. Subtitles placed at this level will fail the import.
E	An open subtitle file with an Intent of French_Open or Spanish_Open.

## Creating Subtitle Endpoint Sub-Folders for Multi-Language .mcc files

For closed captions, .mcc files may contain subtitles for multiple languages, which are held as CC1 and CC3 within a single file. This is the only file type for which multi-language input is supported within iTX.

In order to import these files, a special symbol must be included in the drop box sub-folder's name to separate the languages. The symbol used is '^'.

Figure 2-4 provides an example of a drop box folder, called CIFS\_Inbox, and its sub-folder structure.

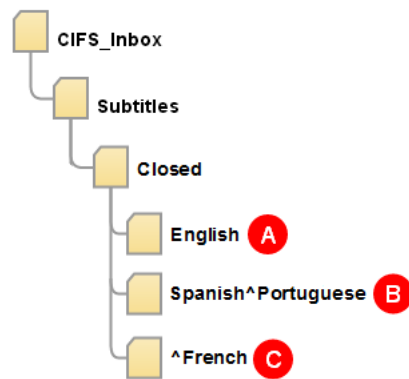


Fig. 2-4: Example CIFS drop box folder structure for importing closed multi-language .mcc subtitle files. The annotation is explained in the table below.

Folder	Use this folder to register...
A	<ul style="list-style-type: none"> <li>• CC1 subtitles with an Intent of English.</li> <li>• CC3 subtitles are not registered.</li> </ul>
B	<ul style="list-style-type: none"> <li>• CC1 subtitles with an Intent of Spanish and</li> <li>• CC3 subtitles with an Intent of Portuguese.</li> </ul> These are both registered as Intents in a single subtitle Asset.
C	<ul style="list-style-type: none"> <li>• CC1 subtitles are not registered.</li> <li>• CC3 subtitles with an Intent of French.</li> </ul>

## Configuring Subtitle Endpoints in Delivery Manager Config

So that subtitles are automatically imported, a CIFS Drop endpoint needs to be configured in the iTX Delivery Manager Config. Follow the instructions in the “Adding and Configuring a CIFS Drop Endpoint” section in the *iTX Delivery Manager Configuration and Setup Guide*. Pay particular attention to the settings within the CIFS Drop End Point Details section of

the CIFS Drop endpoint configuration, as there are some that are directly relevant to importing subtitle files (e.g **Media Path** and **Search Sub Folders**).

## Importing Subtitle Files

Subtitle files are automatically imported when they are placed into a sub-folder of the CIFS drop box folder. If an Open subtitle file is placed in a Closed folder (or vice versa), an error is generated.

A small number of subtitle files can be imported into either folder type. See [Supported Subtitle Input Formats and Associated Registered Assets](#), on page 59 for details about the input subtitle file extensions which are supported; whether they are treated as Open or Closed; and the file type which is registered dependent on the Time Service Source Format.

---

Note: If the subtitle file has the same name as an existing video asset and the subtitle asset did not previously exist in the system, the subtitle will be linked to the video asset automatically.

---

A subtitle file can be manually linked from within iTX Desktop. See [Linking a Subtitle Asset to Another Asset](#) on page 41.

The following example scenarios cover the configuration that is needed to import different types of subtitles.

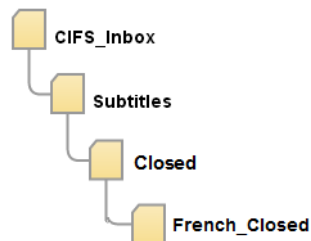
### Scenario 1: Importing subtitles of all the same language

In this example scenario, all the subtitles to be imported are closed French subtitles.

#### Create the following

- 1 An Intent with a name that clearly describes its language and type, for example French\_Closed.  
See [Managing Subtitle Intents](#), on page 8.
- 2 The CIFS Drop endpoint folder structure as  
CIFS\_Inbox\Subtitles\Closed\[Intent name].

For Example:



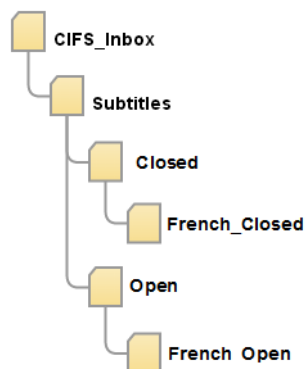
See [Creating Subtitle Endpoint Sub-Folders for Delivery Manager](#), on page 9.

### Scenario 2: Importing open or closed subtitles of the same language

In this example scenario, all the subtitles to be imported are French, but there is a mix of open and closed files.

### Create the following

- 1 Two Intents with names that clearly describe their language and type, for example French\_Closed and French\_Open.  
See [Managing Subtitle Intents](#), on page 8.
- 2 The CIFS Drop endpoint folder structure containing the following folders, as shown below.



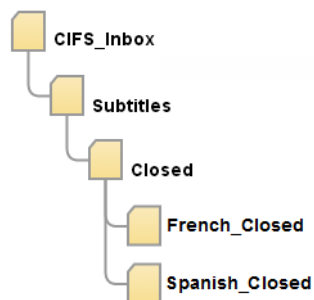
See [Creating Subtitle Endpoint Sub-Folders for Delivery Manager](#), on page 9.

## Scenario 3: Importing all open or all closed subtitles of different languages

In this example scenario, all the subtitles to be imported are closed files but they are either French or Spanish.

### Create the following

- 1 Two Intents with names that clearly describe their language and type, for example French\_Closed and Spanish\_Closed.  
See [Managing Subtitle Intents](#), on page 8.
- 2 The CIFS Drop endpoint folder structure containing the following folders, as shown below.



See [Creating Subtitle Endpoint Sub-Folders for Delivery Manager](#), on page 9.

## Scenario 4: Importing open or closed subtitles of different languages

In this example scenario, the subtitles to be imported are either French or Spanish and can be open or closed.

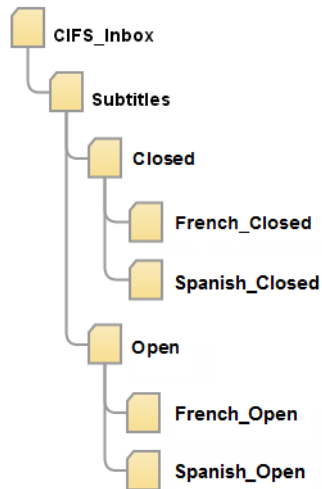
**Create the following**

1 Four Intents with names that clearly describe their language and type, for example:

- French\_Closed
- French\_Open
- Spanish\_Closed
- Spanish\_Open

See [Managing Subtitle Intents](#), on page 8.

2 The CIFS Drop endpoint folder structure containing the following folders, as shown below.



See [Creating Subtitle Endpoint Sub-Folders for Delivery Manager](#), on page 9.

## Scenario 5: Importing Multi-language MCC files

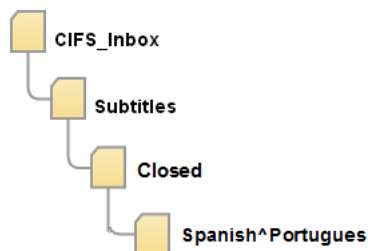
In this example scenario, all subtitles to be imported are closed .mcc files containing both Spanish and Portuguese.

**Create the following**

1 One Intent with a name that clearly describes the two languages, together with the special separator, for example, Spanish^Portuguese.

See [Managing Subtitle Intents](#), on page 8.

2 The CIFS Drop endpoint folder structure containing the following folders:



See [Creating Subtitle Endpoint Sub-Folders for Delivery Manager](#), on page 9.

# 3

## Configuring iTX for Teletext or Closed Captions Payout

This chapter explains how to prepare iTX Output Server 2 channels to payout Teletext or Closed Captions subtitles.

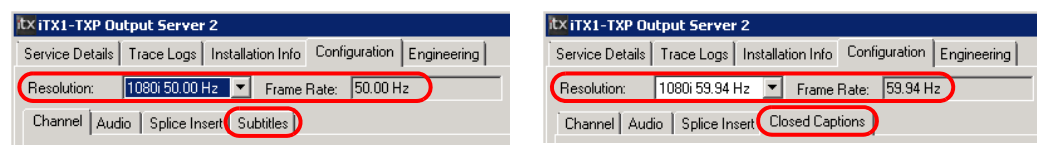
For each of the output targets (SDI, 2022-2, External DVB or External SCTE 27) associated with the TXPlay channel, you must define the subtitle output configuration, as well as configure and map subtitle services using the Output Server 2 Configuration page.

### Summary

- About the Subtitles/Closed Captions Configuration Page ..... 15
- Configuring an SDI Output for Teletext or Closed Captions Payout ..... 17
- Configuring an IP 2022-2 Output for Teletext or Closed Captions Payout ..... 24
- Configuring an External DVB Output for Closed Subtitles Payout ..... 26
- Configuring a SCTE 27 Output for Closed Subtitle Payout ..... 28

### About the Subtitles/Closed Captions Configuration Page

When the I/O Device Controller and the Output Server's Frame Rate is set to **50 Hz**, the Configuration page on the Output Server 2 user interface contains a **Subtitles** tab. However, when the I/O Device Controller and the Output Server's Frame Rate is set to **59.94 Hz**, the Configuration page contains a **Closed Captions** tab.



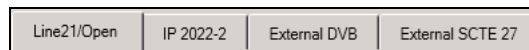
**Note:** If you open the Output Server 2 Configuration page and do not see the Subtitles or Closed Captions tab, verify the **Frame Rate** setting (50.00Hz for Subtitles or 59.94 Hz for Closed Captions). If the Frame Rate is incorrect, open the I/O Device Controller's Configuration page, set the **Frame Rate Family** setting and click **Save**. Then return to the Output Server 2 Configuration page, set the **Resolution** and then click **Save**.

The Subtitles/Closed Captions Configuration pages contain a sub-tab for each of the output targets (SDI, 2022-2, External DVB or External SCTE 27) configured for the TXPlay channel in the **iTX Channel Config** (TxPlay2 Config) window. The SDI target is represented by the **WST/Open** sub-tab on the Subtitles Configuration page and the **Line21/Open** sub-tab on the Closed Captions Configuration page.

Subtitles Configuration page sub-tabs



Closed Captions Configuration page sub-tabs



These tabs contain the subtitles output and service configurations that define how subtitles are to be transmitted to the channel for playout. Instructions of how to configure each output target type for subtitles playout is provided in the remaining sections of this chapter. The following table describes the function of some of the common components on the Subtitles/Closed Captions Configuration page.

	<p><b>Import Configuration</b></p> <p>The <b>Import</b> button allows you to import the Subtitles configuration from another channel. See <a href="#">Importing a Saved Output Server 2 Configuration</a>, on page 36.</p>
	<p><b>Export Configuration</b></p> <p>The <b>Export</b> button allows you to export the Subtitles configuration. See <a href="#">Exporting (Backing up) the Output Server 2 Configuration</a>, on page 35.</p>
	<p><b>Add and delete services</b></p> <ul style="list-style-type: none"> <li>Clicking the + button adds a new, non-configured service to the list of unmapped services.</li> <li>Clicking the - button deletes the selected service from the list of unmapped services.</li> </ul>
	<p><b>Map and Unmap services</b></p> <ul style="list-style-type: none"> <li>Clicking the &gt;&gt; button moves the selected service from the unmapped Services list (left) to the Service Mapping list (right).</li> <li>Clicking the &lt;&lt; button moves the selected service from the Service Mapping list (right) to the of services to the unmapped Services list (left).</li> </ul>
	<p><b>Configure Output</b></p> <p>Clicking the <b>Configure Output</b> button opens a dialog containing the configuration settings that define the output characteristics relevant to the specific output target type.</p>

## Opening the Subtitles/Closed Captions Configuration Page

### To open the Subtitles / Closed Captions Configuration page

- 1 On the playout server, expand the instance of Output Server 2 for the channel to be configured (e.g. ITX1-TXP Output Server 2).

The Output Server 2 user interface appears.

#### IMPORTANT

When the Frame Rate and Resolution are is set to 50.00 Hz, the Output Server 2 Configuration page displays a Subtitles tab. If however the Frame Rate and Resolution are set to 59.94 Hz, the Closed Captions tab appears instead of the Subtitles tab. For any other Frame Rate, no configuration tab is displayed.

- 2 Select the **Configuration** tab.

- 3 Select either the **Subtitles** or **Closed Captions** tab.  
The configuration parameters for subtitles playout appear on the tabbed pages designated for each of the channel's output targets.

## Configuring an SDI Output for Teletext or Closed Captions Playout

If the channel has been configured to have one or two SDI output targets, then the **WST/Open** tab(s) appear on the Output Server 2 **Configuration** > **Subtitles** page and the **Line21/Open** tab(s) appear on the Output Server 2 **Configuration** > **Closed Captions** page.

The following sections provide instructions for configuring an SDI channel to playout Teletext or Closed Captions subtitles:

### To playout Teletext subtitles on an SDI channel output:

- [Defining the Teletext Output Configuration for an SDI Output](#), on page 17
- [Mapping Closed Teletext Services for an SDI Output](#), on page 21
- [Mapping Open Subtitles Services for an SDI Output](#), on page 23

### To playout Closed Captions subtitles on an SDI channel output:

- [Defining the Closed Captions Output Configuration for an SDI Output](#), on page 20
- [Mapping Closed Services for an SDI Output \(Closed Captions\)](#), on page 22
- [Mapping Open Subtitles Services for an SDI Output](#), on page 23

## Defining the Teletext Output Configuration for an SDI Output

The Teletext Output Configuration specifies the transmission mode and VBI lines upon which to transmit the subtitles, assigns a landing page for the channel's subtitles and other settings related to the playout of subtitles.

### To define the SDI channel's Teletext Output Configuration

- 1 On the playout server, open the **Subtitles** Configuration page in the Output Server 2 user interface ([page 16](#)).
- 2 Select the **WST/Open** tab.
- 3 Click **Configure Output**.  
The **Teletext Configuration** dialog appears.
- 4 Set the transmission mode by expanding **Mode and Priority** and selecting one of the following options from the **Transmit** field:
  - **OP-47 Split**
    - Operational practice for the storage and distribution of Teletext data (including subtitles) in the vertical ancillary data space of a HD signal.
    - This describes the transport mechanism for sending Teletext subtitle VBI lines, encapsulated as Subtitling Distribution Packets, on one or more HD lines in the VANC.
    - Use this option for SD or HD or UHD channels where OP-42 enhancements are not required.
  - **OP-47 (OP-42) Split**

- OP-47 is still the transport and storage mechanism in this case, but with the enhancements from Operational Practice-42 to improve the reliability of the transmission of the embedded Teletext subtitles. The specification states that:
    - Teletext subtitles must be transmitted on VBI lines 21 and 334.
    - All subtitle data must be double-transmitted.
    - Dummy VBI packets must be sent when there is no subtitle data.
    - Automatic subtitle clears must be generated when no subtitle data is seen for 10 seconds.
    - Subtitles must be sent using parallel Teletext transmission mode.
  - Use this option for SD or HD or UHD channels that require OP-42 enhancements.
  - **SMPTE-2031 Split**
    - An alternative standard for embedding VBI subtitle data in the vertical ancillary data space of a HD signal.
    - Based on the mechanism used in DVB subtitling (DVB/ETSI EN 301 775).
    - Use this option for DSD or HD or UHD channels.
- 5 In the **Rendering** field, select **After XG** (default) or **Before XG**.
- Rendering the subtitles before the XG rendering allows them to be rendered on a lower layer. This permits the subtitles to be scaled back with the video when performing a DVE using the Vertigo XG. Rendering the subtitles after the XG rendering produces subtitles on a higher layer, on top of the video.
- Note that the **Rendering** list's options are only available if the TXPlay2 channel configuration includes the Integrated XG.
- 6 Expand **VBI Lines** section and check the Field 1 and Field 2 VBI lines on which the subtitle information is to be sent.
- For optimal delivery, we recommend that you allocate 4 VBI lines per subtitle service organized as 2 matching pairs of lines from each field.
- Lines that have been assigned to the landing page or another stream appear grayed out.
- 7 Expand the **Dummies** section and set its parameters. Legacy receivers require dummies so that they know that the VBI line is active and that they do not miss the start of the subtitle.
- a Check the **Enable** field to transmit dummies.
  - b In the **Page** field, enter the page on which the dummy data is to be transmitted. Note that we recommend that this field remain set to its default value.
- 8 Configure the **Landing Page** and/or **x31 Cues** parameters.
- A landing page is the default page displayed when Teletext is accessed by the viewer. The landing page is generated from an EP1 file and may contain text stating which Teletext page the subtitles are available on.
- In iTX v2.12 SP3 (or later), you can also enable the **x31 Cues** setting to allow opt-out x31 cue packets to be encoded into the selected VBI lines, which contain valid opt-out data when a VANC secondary event is scheduled and includes a type X31CUES.
- The following values are used in the x31 packet:
- Channel: B



- Address: D7
- Data: Softel D1 Inserter
- Encryption: Off

**In version 2.12 SP2 and earlier:**

- Expand the **Landing Page** section.
- In the **Page** field, specify the landing page number.
- Click the Browse button next to the **File** field and navigate to the EP1 file that is to be displayed when the landing page number is accessed. The file's pathname is then displayed in this field.
- In the **Layout** field, specify the trip codes and color codes that to define the contents of Row Zero. This can include the date, page number and magazine number, and in all range of colors.  
  
Note that hovering over the **Layout** field's heading displays a listing of valid trip codes and color codes.
- In the **Time Offset** field, specify the time (in minutes) that will be added to/subtracted from the system time so the landing page displays the local time.
- Expand the **VBI Lines** subsection, check the Field 1 and Field 2 VBI lines on which the landing page information is to be sent.

**In version 2.12 SP3 or later:**

- Expand the **Other WST Data** section.
  - Expand the **VBI Lines** subsection, check the Field 1 and Field 2 VBI lines on which the landing page information and/or x31 cue packets are to be sent.
  - Expand the **Landing Page** subsection and set the following fields:
    - In the **Page** field, specify the landing page number.
    - Click the Browse button next to the **File** field and navigate to the EP1 file that is to be displayed when the landing page number is accessed. The file's pathname is then displayed in this field.
    - In the **Layout** field, specify the trip codes and color codes that to define the contents of Row Zero. This can include the date, page number and magazine number, and in all range of colors.  
  
Note that hovering over the **Layout** field's heading displays a listing of valid trip codes and color codes.
    - In the **Time Offset** field, specify the time (in minutes) that will be added to/subtracted from the system time so the landing page displays the local time.
  - Expand the **x31 Cues** subsection, check **Enable** to send x31 cue packets to the Field 1 and Field 2 VBI lines that were selected above.
- 9 Configure the **Row 0** parameters, which define what text should be displayed across the top of the screen when viewing the Landing Page. This user definable text is always suffixed with the channel time.
- Expand the **Row 0** section.
  - In the **Control** field, specify the Teletext control bit value. Consult the *Enhanced Teletext Specification ETSI EN 300 706* for more information.

- c In the **Data** field, enter 32 characters using hexadecimal ASCII format to define what to display in the Row 0. For more information, consult the *Enhanced Teletext Specification ETSI EN 300 706*.
      - d From the **Language** list, select the language for the landing page.
- 10 Expand the **General** section and set the following parameters:
  - a In the **Clears Periods** field, set a frequency for sending clears in seconds. When sending subtitles on, for example, page 888, if there are air gaps between subtitles, then 'clears' are sent with this periodicity. Clears ensure that TV is not left with a 'hanging' subtitle.
  - b In the **Use 20ms Rule** field, check this item to ensure that subtitles are started on the last active VBI of a field. This assists older TVs to properly decode subtitles.
- 11 Click **OK** to close the **Teletext Configuration** dialog.
- 12 Click **Save**. Output Server 2 automatically shuts down and restarts to apply your changes.

## Defining the Closed Captions Output Configuration for an SDI Output

The Closed Captions Output Configuration defines the closed caption insertion and XDS handling.

### To define the SDI channel's Closed Captions Output Configuration

- 1 On the playout server, open the **Closed Captions** Configuration page in the Output Server 2 user interface ([page 16](#)).
- 2 Select the **Line21/Open** tab.
- 3 Click **Configure Output**.  
The **Line21 Configuration** dialog appears.
- 4 If you are playing media that contains embedded captions, checking **Caption Passthrough** (default) causes those captions to be sent to air if there are no scheduled captions. When unchecked, the embedded captions will not go to air irrespective of whether there are scheduled captions.
- 5 Leave **XDS Passthrough** checked (default), unless there is a requirement to block upstream embedded or SDI live sources of XDS.
- 6 The **Regenerate Embedded 708** option can only be selected if **Caption Passthrough** is checked.  
If you are playing media containing embedded captions and there are no scheduled captions, checking **Regenerate Embedded 708** causes 708 data embedded in the media to be regenerated from the embedded 608 data. When unchecked (default), 708 data is not regenerated and remains unchanged.
- 7 In the **Regenerate 708** field allows you to define how 708 is generated when there are scheduled captions. Select one of the following options:
  - **Always**: The 708 data is always generated from 608 data.
  - **NotPresent**: The 708 data is only generated from the 608 data if it does not already exist.
  - **Off**: The 708 data is passed in the caption file.
- 8 In the **Rendering Priority** field, select **After XG** (default) or **Before XG**.

Rendering the subtitles before the XG rendering allows them to be rendered on a lower layer. This permits the subtitles to be scaled back with the video when performing a DVE using the Vertigo XG. Rendering the subtitles after the XG rendering produces subtitles on a higher layer, on top of the video.

Note that the **Rendering Priority** list's options are only available if the TXPlay2 channel configuration includes the Integrated XG.

- 9 Click **OK** to close the **Line21 Configuration** dialog.
- 10 Click **Save**. Output Server 2 automatically shuts down and restarts to apply your changes.

## Mapping Closed Teletext Services for an SDI Output

Configuring and mapping closed services allows you to specify the Teletext pages on which the subtitles will be viewed. Each closed service can also have an apology page associated with it, which is only displayed if it has been added to the service rules (see [page 37](#)).

### To configure and map a closed Teletext service

- 1 On the playout server, open the **Subtitles** Configuration Page in the Output Server 2 user interface.
- 2 Select the **WST/Open** tab.
- 3 Select an existing closed service from the **Closed Services** list or create a new closed service.  
To create a new closed service:
  - a Click the + button below the **Closed Services** section.  
A generically-named service is added to the list of closed services.
  - b Rename the service by double-clicking the service's name in the services list. When the name is highlighted, type the new name and press Enter.
- 4 To map the closed service, select the service in the **Closed Services** list and click the >> button and the closed service is moved to the **Teletext Mapping** section.
- 5 In the service's **Page** field, enter the number of the page upon which the Teletext subtitles will be viewed. For example, 888.
- 6 Specify the apology page that will be displayed if it is included as an Intent in a service rule.
  - a Click the Browse button next to the **Apology** field.
  - b Navigate to the desired EP1 file and click **Open**.

The apology file's name is displayed in the **Apology** field.

---

**Note:** The apology page does not need to be registered into iTX, but it must be kept stored in a location that is accessible to the Output Server.

---

- 7 From the **Language** drop-down list, select the language character set to use for previewing in iTX Desktop and also for packet 28 data in the transmission signal. This will inform compatible set top boxes and televisions which character set to use for displaying the subtitles.

- 8 Configure the closed service's **Advanced** settings:
  - a Click the **Configure** button in the **Advanced** field.
  - b In the **Closed Configuration** dialog, set the following fields:
    - **Stopper**: Stoppers are generally required in a teletext subtitling only environment to terminate the reception of a teletext subtitle. Under normal circumstances, the reception of a teletext subtitle is by a following Row 0 transmission.
    - **Clears**: When checked, clears are sent using the frequency defined in 'Clears Period' field in the Output Configuration.
    - **Double Transmit**: When checked, subtitles are sent twice, which improves teletext reception by older TVs.
  - c In the **Row 0** section, complete the following fields as required:
    - **Control**: Specify the Teletext control bit value. Consult the Enhanced Teletext Specification ETSI EN 300 706 for more information.
    - **Data**: Enter 32 characters using hexadecimal ASCII format to define what to display in the Row 0. For more information, consult the Enhanced Teletext Specification ETSI EN 300 706.
    - **X28**: When working with different languages it is sometimes necessary to define a region code other than the default of 0, which is done by sending an X28 packet. When checked the associated hexadecimal ASCII data populates the X28 packet.
    - **X29**: Very similar to X28 described above, and carries the same data, but is required by some teletext decoders to properly handle some languages.
  - d Click **OK** to close the Closed Configuration dialog.
- 9 Click **Save**.

Output Server 2 automatically shuts down and restarts to apply your changes.

## Mapping Closed Services for an SDI Output (Closed Captions)

Configuring and mapping closed services allows you to specify the closed captions services on which the captions will be displayed.

In an SD environment, it is possible to send up to four streams of data, and they are known as CC1, CC2, CC3 and CC4. CC1 can be considered to be the 'first language' and CC3 can be considered to be the 'second language'. For example, CC1 is English captions and CC3 is Spanish captions. CC2 and CC4 are not used by iTX for captions and typically carry other forms of data.

In an HD environment, it is possible to send up to six streams of data, and they are known as CS1 – CS6. Often CS1 will be a match for the CC1 captions described above, sent in a different format provided by the HD delivery stream, and CS2 might be a match for the CC3 captions. Any of the six services can be configured to carry the HD subtitles.

### To configure and map a closed service for Closed Caption playout

- 1 On the playout server, open the **Closed Captions** Configuration page in the Output Server 2 user interface.
- 2 Select the **Line21/Open** tab.

- 3 Select an existing closed service from the **Closed Services** list or create a new closed service.  
To create a new closed service:
  - a Click the + button below the **Closed Services** section.  
A generically-named service is add to the list of closed services.
  - b Rename the service by double-clicking the service's name in the services list. When the name is highlighted, type the new name and press Enter.
- 4 To map the closed service, select the service in the **Closed Services** list.
- 5 In the **VANC** section, click the >> button next to either the **CC1** or **CC3** sections. The closed service is then moved to the corresponding section.
- 6 In the service's **708 Services** field, select one of the following options: **None**, **CS1**, **CS2**, **CS3**, **CS4**, **CS5** or **CS6**.
- 7 Click **Save**.  
Output Server 2 automatically shuts down and restarts to apply your changes.

## Mapping Open Subtitles Services for an SDI Output

Open subtitles services can be configured to display the text on either the top of the screen or as "free" in which case they retain their position 'as authored'.

If you create two open subtitles services, it is possible to have one intent displayed using a bottom service and a different intent displayed using a top service. The assignment of intents to a service is done using Subtitle Service Rules.

### To configure and map open subtitles services for an SDI output

- 1 On the playout server, open the **Subtitles / Closed Captions** Configuration page in the Output Server 2 user interface ([page 16](#)).
  - 2 Click either the **WST/Open** or **Line21/Open** tab.
  - 3 Select an existing open service from the **Open Services** list or create a new open service.  
To create a new open service:
    - a Click the + button below the **Open Services** section.  
A generically-named service is add to the list of open services.
    - b Rename the service by double-clicking the service's name in the services list. When the name is highlighted, type the new name and press Enter.
- 
- Note:** If a service is already mapped to the Top or Free section, you must remove it before mapping a different one. Select the currently mapped and click the << button to move that service back into the Open Services list.
- 
- 4 If you want the subtitles to be displayed in the top section of the screen during playout, select the service and click the >> button next to the **Top** section.  
The service is move to the **Top** section.
  - 5 If you want the subtitles not to be restricted to the top of the screen during playout, select the service and click the >> button next to the **Free** section.  
The service is move to the **Free** section.

- 6 Click the **Configure** next to the service that was just added.
- 7 In the **Open Service Configuration** dialog, set the following fields and then click **OK**.
  - **Y Offset:** Adjusts the position of open bitmap subtitles by adding a pixel offset to the y position of an open bitmap subtitle. This can be a value between -200 and +200.
  - **Safe Area:** Defines the area of the screen into which open subtitles are placed. This defaults to 80% of the configured screen canvas size (as defined by the resolution chosen on the Configuration tab of the Output Server 2) with a 10% border for each side.
- 8 Click **Save**.

Output Server 2 automatically shuts down and restarts to apply your changes.

## Configuring an IP 2022-2 Output for Teletext or Closed Captions Playout

If the channel has been configured to have one or two IP 2022-2 output targets, then the **IP 2022-2** tab(s) appear on the Output Server 2 user interface's **Configuration > Subtitle** page.

These tabs feature Teletext and DVB Subtitles Transcoding parameters that allow you to configure the related descriptor and Packetized Elementary Stream (PES) packet.

This output produces a complete transport stream to be passed to a downstream Mux using the playout server's Gige output. Each service is allocated its own Subtitle Packet Identifier (PID) and the subtitles are output as bitmaps inside this PID.

If the IP 2022-2 output is associated with the second channel IP 2022-2 output, you have the option to include an additional PID, which contains the complete Teletext stream created from any SDI output configured in the WST/Open (SDI) channel target.

The following sections provide instructions for configuring an IP 2022-2 channel to playout Teletext or Closed Captions subtitles:

- [Defining the Subtitles Output Configuration for an IP 2022-2 Output](#), on page 24
- [Mapping Subtitle Services for an IP 2022-2 Output](#), on page 25

### Defining the Subtitles Output Configuration for an IP 2022-2 Output

Sets up the display metadata associated with the subtitle PES packets inside the 2022-2 stream.

#### To configure the Subtitles Output parameters

- 1 On the playout server, open the **Subtitles / Closed Captions** Configuration page in the Output Server 2 user interface ([page 16](#)).
- 2 Select the **IP 2022-2** tab.
- 3 Click **Configure Output**.

The **Output Configuration** dialog appears.
- 4 In the **Composition Page ID** field, enter or select the composition ID that identifies your DVB Subtitles stream payload. Generally broadcasters use a value of 1 or 2.

- 5 In the **Ancillary Page** field, enter or select the Ancillary page ID if ancillary page data is provided in the stream.
- 6 Click **OK** to close the **Output Configuration** dialog.
- 7 Click **Save**. Output Server 2 automatically shuts down and restarts to apply your changes.

## Mapping Subtitle Services for an IP 2022-2 Output

The **Subtitles / Closed Captions** Configuration pages allow you configure the subtitles services to be inserted into the 2022-2 output.

### To configure and map a subtitle service

- 1 On the playout server, open the **Subtitles / Closed Captions** Configuration page in the Output Server 2 user interface ([page 16](#)).
- 2 Select the **IP 2022-2** tab.
- 3 (For Teletext only) If a Teletext service is already setup on the Output 1 (SDI), you can output the Teletext output subtitle data in the Teletext PID defined below.
  - a In the section labeled “**VBI mapped directly as set up in SDI tab**”, select the **Enabled** check box.
  - b In the **PID** field, specify the DVB PID that Teletext subtitles are output on. Note that all defined Teletext subtitles pages will be sent on this one PID. Valid values are from 32 to 65535 and must not conflict with other DVB PIDs already defined elsewhere.
- 4 Select an existing service from the **Services** list or create a new service.

To create a new service:

  - a Click the + button below the **Services** section.  
A generically-named service is add to the list of services.
  - b Rename the service by double-clicking the service’s name in the services list. When the name is highlighted, type the new name and press Enter.
- 5 To map a service, select the service in the **Services** list and click the >> button and the service is move to the **Service Mapping** section.
- 6 Perform the following tasks in the table:
  - a In the **PID** field, specify the DVB PID that Teletext subtitles are output on - all defined Teletext subtitles pages will be sent on this one PID. Valid values are from 32 to 65535 and must not conflict with other DVB PIDs already defined elsewhere.
  - b (For Closed Captions only) In the **ISO Language** column, specify the three letter ISO639-2 language code for the Teletext elementary stream.
  - c Click the **Configure** button in the **Advanced** field.
- 7 In the **Open Service Configuration** dialog, set the following fields and then click **OK**.
  - **Y Offset**: Adjusts the position of open bitmap subtitles by adding a pixel offset to the top y position of an open bitmap subtitle. This can be a value between -200 and +200.
  - **Safe Area**: Defines the area of the screen into which open subtitles are placed. This defaults to 80% of the configured screen canvas size (as defined by the resolution

chosen on the Configuration tab of the Output Server 2) with a 10% border for each side.

- **Subtitle Type:** This setting informs downstream decoders whether the subtitles can be presented on a display of a particular type. The default setting is "(0x10) Normal with no monitor aspect ratio criticality".

8 Click **Save**.

Output Server 2 automatically shuts down and restarts to apply your changes.

## Configuring an External DVB Output for Closed Subtitles Playout

If the channel has been configured to have the External DVB as an output target, then the **External DVB** tab appears on the Output Server 2 user interface's **Configuration > Subtitle** or **Closed Captions** page.

The External DVB Configuration page allows you to specify DVB closed subtitle services that are included in the external submux transport stream.

This output type consists of a TCP/IP connection using the TSNetwork2 protocol over to the Submux server running the TSIO service. Typically, there is one TSIO Submux shared between a number of iTX channels and the output from the TSIO submux is passed on as Gige output to a downstream mux.

The following sections provide instructions for configuring an External DVB output to playout closed subtitles:

- [Defining the Output Parameters for an External DVB Output](#), on page 26
- [Mapping Closed Subtitle Services for an External DVB Output](#), on page 27

## Defining the Output Parameters for an External DVB Output

Sets up the display metadata associated with the subtitle PES packets inside the TSIO network stream.

### To configure the External DVB output parameters

- 1 On the playout server, open the **Subtitles** Configuration Page in the Output Server 2 user interface. See [Opening the Subtitles/Closed Captions Configuration Page](#) on page 16.
- 2 Select the **External DVB** tab.
- 3 Click **Configure Output**.
- 4 In the **External DVB Configuration** dialog, perform the following actions:
  - a In the **Port** field, type the port number that the iTX Submux will use to assign the group of subtitle services output from a single iTX to the appropriate PIDs in the final Transport stream sent to the downstream Mux.
  - b In the **Page ID** field, select the Ancillary Page.
  - c Leave **Force Cluts on Clear** unchecked (default) unless there is a requirement to have the CLUT data be sent to destination set top boxes upon subtitle erasure.
  - d Leave **Disable EDS** unchecked (default) unless there is a requirement to stop the EDS structure (End of Display Set Segment) from being output.



- e Leave **Disable DDS** unchecked (default) unless there is a requirement to prevent a DSS (Display Definition Segment) from being used in the transport stream.
  - f Leave **Force DDS on All States** checked (default) to have all types of packets include the DDS.
  - g In the **Periodic Clear Timeout** field, set the length of time before subtitles are removed from the screen. The default value is 30 seconds.
  - h Check **Subtitles Contain Full CLUTs** to apply a full list of CLUTs (Colour Lookup Tables) on all subtitles. This ensures a CLUT is supplied for all subtitle rows regardless of whether they contain text or not.
  - i Check **Normal Mode for Clears** to set the DVB page to 'Normal' mode for subtitle clears.
  - j Click **OK** to close the **External DVB Configuration** dialog.
- 5 Click **Save**. Output Server 2 automatically shuts down and restarts to apply your changes.

## Mapping Closed Subtitle Services for an External DVB Output

The External DVB Configuration page allows you to specify DVB closed subtitle services that are included in the external submux transport stream.

### To configure and map a closed service for an External DVB Output

- 1 On the playout server, open the **Subtitles** Configuration Page in the Output Server 2 user interface. See [Opening the Subtitles/Closed Captions Configuration Page](#) on page 16.
- 2 Select the **External DVB** tab.
- 3 Select an existing service from the **Services** list or create a new service.  
To create a new service:
  - a Click the + button below the **Services** section.  
A generically-named service is added to the list of services.
  - b Rename the service by double-clicking the service's name in the services list. When the name is highlighted, type the new name and press Enter.
- 4 To map a service, select the service in the **Services** list and click the >> button and the service is moved to the **Service Mapping** section.
- 5 For the service that was just added, click the **Configure** button in the **Advanced** column.
- 6 In the **Service Configuration** dialog, set the following fields and then click **OK**.
  - **Canvas Override:** When enabled, select the target canvas size from the following list of options: 480i, 576i, 720p, 1080i/p and 2160p.
  - **Safe Area:** Defines the area of the screen into which open subtitles are placed. This defaults to 80% of the configured screen canvas size (as defined by the resolution chosen on the Configuration tab of the Output Server 2) with a 10% border for each side.
  - **Y Offset:** Adjusts the position of open bitmap subtitles by adding a pixel offset to the top y position of an open bitmap subtitle. This can be a value between -200 and +200.

7 Click **Save**.

Output Server 2 automatically shuts down and restarts to apply your changes.

## Configuring a SCTE 27 Output for Closed Subtitle Playout

If the channel has been configured to have the SCTE 27 as an output target, then the **External SCTE 27** tab appears on the Output Server 2 user interface's **Configuration > Subtitle** or **Closed Captions** page.

The SCTE 27 Configuration page allows you to specify SCTE 27 closed subtitle services that are included in the external submux transport stream.

This output type consists of a TCP/IP connection using the TSNetwork2 protocol over to the Submux server running the TSIO service. Typically, there is one TSIO Submux shared between a number of iTX channels and the output from the TSIO submux is passed on as Gige output to a downstream mux.

The following sections provide instructions for configuring an SCTE 27 output to playout closed subtitles:

- [Defining the Output Configuration for a SCTE 27 Output](#), on page 28
- [Mapping Closed Subtitle Services for a SCTE 27 Output](#), on page 28

## Defining the Output Configuration for a SCTE 27 Output

Identifies the TCP/IP port on the iTX device that the external DVB subtitle submux communicates with to receive the TSNetwork2 output of SCTE 27 subtitle data. If both external DVB and external SCTE 27 outputs are configured, then the TCP/IP port values must be different.

### To define the output configuration for SCTE 27 Output

- 1 On the playout server, open the **Subtitles** Configuration Page in the Output Server 2 user interface. See [Opening the Subtitles/Closed Captions Configuration Page](#) on page 16.
- 2 Select the **External SCTE 27** tab.
- 3 Click **Configure Output**.
- 4 In the **External SCTE 27 Configuration** dialog, perform the following actions:
  - a In the **Port** field, specify the TCP/IP port on the iTX device that the external DVB subtitle submux communicates with to receive the TSNetwork2 output of SCTE 27 subtitle data.
  - b Click **OK** to close the **External SCTE 27 Configuration** dialog.
- 5 Click **Save**. Output Server 2 automatically shuts down and restarts to apply your changes.

## Mapping Closed Subtitle Services for a SCTE 27 Output

The External SCTE 27 Configuration page allows you to specify closed subtitle services that are included in the external submux transport stream.

### To configure and map a service for a SCTE 27 Output

- 1 On the playout server, open the **Subtitles** Configuration Page in the Output Server 2 user interface. See [Opening the Subtitles/Closed Captions Configuration Page](#) on page 16.
- 2 Select the **External SCTE 27** tab.
- 3 Select an existing service from the **Services** list or create a new service.  
To create a new service:
  - a Click the + button below the **Services** section.  
A generically-named service is added to the list of services.
  - b Rename the service by double-clicking the service's name in the services list. When the name is highlighted, type the new name and press Enter.
- 4 To map a service, select the service in the **Services** list and click the >> button and the service is moved to the **Service Mapping** section.
- 5 For the service that was just added, click the **Configure** button in the **Advanced** column.
- 6 In the **Service Configuration** dialog, set the following fields and then click **OK**.
  - **Y Offset:** Adjusts the position of open bitmap subtitles by adding a pixel offset to the top y position of an open bitmap subtitle. This can be a value between -200 and +200.
  - **Safe Area:** Defines the area of the screen into which open subtitles are placed. This defaults to 80% of the configured screen canvas size (as defined by the resolution chosen on the Configuration tab of the Output Server 2) with a 10% border for each side.
- 7 Click **Save**.  
Output Server 2 automatically shuts down and restarts to apply your changes.



# 4

## Configuring iTX for Live Subtitles Playout

This chapter explains the purpose of live subtitles, how to install and configure the Live Subtitle Gateway and how to define live subtitle inputs. It also explains how to view all of the live subtitle inputs defined on each of the channels of your iTX system.

---

Note: This chapter is only applicable to Teletext channels.

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### Summary

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<i>Defining Live Subtitle Inputs</i> .....	33
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### About Live Subtitles in iTX

Live subtitles are used for:

- Live television programs.  
This is achieved via a dedicated subtitle asset that only contains live locations.
- A fall back for recorded programs, when the expected subtitle file is unavailable.  
This is achieved via a subtitle asset that has both file and live locations.

In both cases, a live subtitle location can only be used if its Intent has first been set in the Subtitle Service Rules section of the Subtitles tab on the Channel Config layout.

A live subtitle location shows there is a need for live subtitles, but not from where they are being sourced. The live source (or feed) is defined in a **Live Subtitle Input** configuration, which maps Intents to live subtitle sources. Each channel can have multiple live subtitle inputs, each with their own Intent (e.g. for different languages). If the same video clip or live asset is scheduled on multiple channels (e.g. for simulcast or a +1 channel), each channel must have the same Intents and inputs configured.

Live subtitle sources connect to a the iTX Live Subtitle Gateway Service, which determines how the live subtitle sources are routed to the playout servers. Only one gateway is required for all languages and channels.

### Procedural Overview - Setting up iTX for Live Subtitle Playout

To set up iTX for live subtitle playout

- 1 Ensure that a valid LiveSubs license is installed on your iTX system.
- 2 Ensure that the required subtitle Intent(s) are created/available in the iTX system. See [Managing Subtitle Intents](#), on page 8.

- 3 Ensure that your system includes a subtitle asset that has a live location. See [Linking a Subtitle Asset to Another Asset](#), on page 41.
- 4 Install and configure the iTX Live Subtitle Gateway Service on your iTX system. See [Installing and Configuring the Live Subtitle Gateway](#), on page 32.
- 5 For each of the playout channels, define Live Subtitle Input configurations. See [Defining Live Subtitle Inputs](#), on page 33.
- 6 Optional: Use the iTX Live Subtitle Gateway Service's Engineering tab to view the Live Subtitle Inputs configured on each of the channels in the iTX system. See [Viewing all of the Live Subtitle Inputs on your iTX System](#), on page 34.

---

Note: See [Scheduling & Controlling Subtitle Playback](#) on page 51 for information and instructions on how to add and update subtitles for scheduled live events.

---

## Installing and Configuring the Live Subtitle Gateway

Live subtitle sources connect to a subtitle gateway, which must be configured to determine how the live subtitle sources are routed to the playout servers. Only one gateway is required for all languages and channels.

### To install the Live Subtitle Gateway

- 1 Access and open the iTX Installer on the machine hosting the iTX framework services.
- 2 Right-click the Setup.exe file and select **Run as administrator**.  
The **iTX Select Software to Install** window appears.
- 3 Expand the **Playout** section.
- 4 Check **Live Subtitle Gateway**.
- 5 Click **OK**.  
The **Select Software to Install** window closes.
- 6 On the **iTX Installer** window, click **CONTINUE**.  
The selected components install on your server.
- 7 During the installation, the **Live Subtitle Gateway Service Configuration** window appears.
  - a Specify the IP address of the machine hosting the iTX Live Subtitle Gateway Service and indicate whether or not it is part of a network cluster.
    - If the machine is not part of a cluster (running as a standalone with no redundancy), uncheck the **Cluster Mode** setting (default). In the **Service IP** field, specify the IP address of the machine hosting the Live Subtitle Gateway Service.
    - If the machine is part of a cluster, select the **Cluster Mode** setting and then specify the virtual IP of the cluster in the **Service IP** field.
  - b Click **Save**.

## Updating the Live Subtitle Gateway Service Configuration settings

After an initial installation, the **Live Subtitle Gateway Service Configuration** window can be accessed and its settings updated.

### To update the Live Subtitle Gateway configuration

- 1 On the machine hosting the Live Subtitle Gateway Service, select **Start > All Programs > iTX 2.0 > Live Subtitle Gateway Configuration**.

The **Live Subtitle Gateway Service Configuration** window appears.

- 2 Edit the **Service IP** and/or **Cluster Mode** settings.
- 3 Click **Save**.

## Defining Live Subtitle Inputs

Each channel can have one or more live subtitle inputs; where a live subtitle input represents a single language.

### To add a live subtitle input

- 1 Open the iTX Desktop.
- 2 Click **Engineering** in the layout selection bar.
- 3 Click **Channel Config**.
- 4 From the **View** menu, select the channel to be configured.
- 5 Click the **Channel** tab and then the **Subtitles** tab.
- 6 In the **Live Subtitle Inputs** section, click **Add**.

A new row is added.

- 7 In the new row, complete the following fields:

- **Intent** - Select a subtitle intent (see [Managing Subtitle Intents](#), on page 8).
- **Character Set** - Select a language.
- **Type** - If the channel's frame rate is configure for an NTSC frame rate (59.94 Hz), select **SMART3**. If the channel is configure to an PAL frame rate (50.00 Hz), select either **XAP**, **CycloneIP** or **Newfor**.
- **Input Port** - Specify the input port that the external live subtitle feed will use to communicate with the Live Subtitle Gateway Service.
- **Output Port** - Specify the port that the playout channel (GV Engine) will use to communicate with the Live Subtitle Gateway Service.

Note that the Output Port number must be unique in that it cannot conflict with one that is already set within the system. To verify which ports are already used, consult the Live Subtitle Gateway Service's Engineering tab.

- 8 Click **Validate**.
  - If the configuration data is valid, a confirmation message appears and you can click **OK**.
  - If the configuration data is invalid (e.g. conflicting port number), an error message appears. Click **OK**, edit the configuration settings and click **Validate**.
- 9 Click **Save** and then **Close**.

## Deleting a Live Subtitle Feed

When a live subtitle input is no longer required, it can be removed.

### To delete a live subtitle input

- 1 Open the iTX Desktop.
- 2 Click **Engineering** in the layout selection bar.
- 3 Click **Channel Config**.
- 4 From the **View** menu, select the channel to be edited.
- 5 Click the **Channel** tab and then the **Subtitles** tab.
- 6 In the **Live Subtitle Inputs** section, select the row of the Live Subtitle Input that is to be deleted.
- 7 Click **Remove**.  
The live subtitle input is immediately removed from the list.
- 8 Click **Save** and then **Close**.

## Viewing all of the Live Subtitle Inputs on your iTX System

The Live Subtitle Gateway Service window provides a read-only table all of the Live Subtitle Input configurations that are currently saved for all of the channels in your system.

System administrators can use this display to view and compare these configurations when setting up multiple channels. This is particularly important since channels must have the same Intents and inputs configured in their Live Subtitle Inputs configuration if the same video clip or live asset is scheduled on multiple channels (e.g. for simulcast or a +1 channel).

Another use for this display is to a view of all Output Port numbers already assigned, since new Live Subtitle Input configurations cannot be validated if there is a conflict with an existing Output Port number.

### To view all of your system's Live Subtitle Input configurations

- 1 On the host machine, open the **Live Subtitle Gateway Service** window.
- 2 Select the **Engineering** tab.  
The Channel section of the tab displays the details all of the saved Live Subtitle Input configurations for each channel on your system.



# 5

## Exporting and Importing Output Server 2 Configurations

There are some functions of the Output Server 2 configuration which are generic to both Teletext and Closed Caption systems.

This chapter explains how to export and import an Output Server 2 configuration.

---

Note: Please refer to [Configuring iTX for Teletext or Closed Captions Payout](#), on page 15 and [Configuring iTX for Closed Caption Payout](#), on page 27 for information and instructions on data needed to configure Output Server 2 Softel Inside subtitle payout.

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### Summary

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## Exporting (Backing up) the Output Server 2 Configuration

The Subtitle configuration in the Output Server 2 Configuration user interface can be exported to another location to be used as a backup or for importing to another channel. This means that common settings across a multi-channel system do not need to be individually configured for each channel.

---

Note: A configuration can be exported at any time during editing, as long as the configuration is not in an error state.  
The Export button does not include the configuration for IP outputs.

---

### To backup/export the configuration

- 1 Open the Output Server 2 user interface:
  - a On the Payout Server, expand the instance of Output Server 2 for the channel to be configured (e.g. ITX1 Output Server 2).
  - b Click the **Configuration > Subtitles** or **Closed Captions** tab (depending on the system's frame rate setting).  
The Subtitles/Closed Captions configuration panel appears.
- 2 Click **Export...**
- 3 Navigate to the location where the configuration file is to be saved.
- 4 Enter the name of the configuration file to be saved.  
The configuration is saved to a .json file.

## Importing a Saved Output Server 2 Configuration

Subtitle configuration settings which have been exported from the Output Server2 (see [Exporting \(Backing up\) the Output Server 2 Configuration](#), on page 35) can be imported to another channel, which saves time when setting up multiple channels.

---

**Note:** A configuration can be imported at any time, even if the current configuration has not been saved. The Imported configuration overrides any settings which currently exist in the configuration.  
The Import button does not include the configuration for IP outputs.

---

### To import a saved Output Server 2 configuration

- 1 Open the Output Server 2 user interface:
  - a On the Payout Server, expand the instance of Output Server 2 for the channel to be configured (e.g. ITX1 Output Server 2).
  - b Click the **Configuration > Subtitles** or **Closed Captions** tab (depending on the system's frame rate setting).

The Subtitles/Closed Captions configuration panel appears.
- 2 Click **Import**.
- 3 Navigate to the location where the configuration file has been stored.
- 4 Select the configuration file (.json) and click **Open**.
- 5 Confirm that you want to import the file.
- 6 Click **Save** to store the imported configuration and automatically reboot Output Server. Clicking **Cancel** during an import reverts the settings to the last saved configuration.

# 6

## Setting Subtitle Service Rules

A subtitle service rule is a list of subtitle Intents, in the order the service should use them. This provides an optional fall back if a subtitle file is missing, or if nothing is specified in the subtitle event for this service. Subtitle rules ensure that text is displayed whenever subtitles are expected. In the case of Teletext, this may be an apology page added to the end of the Rules as a fall back option in case none of the configured Subtitle Intents are available. See [About Subtitles Service Rules](#) on page 3 for more information.

This chapter explains how to configure Subtitle Service Rules.

### Summary

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## Configuring the Subtitle Service Rules

Before attempting to configure Subtitle Service Rules, please consider the following prerequisites:

- The Intents required for the Subtitle Service Rules must first be created when you configure iTX for subtitle import. See [Managing Subtitle Intents](#) on page 8.
- In the case of Teletext, the services named in the Subtitle Service Rules are created whilst configuring Output Server 2. See [Configuring an SDI Output for Teletext or Closed Captions Playout](#) on page 17.
- For Closed Captions, the service names are predefined within the system.

### To configure a Subtitle Service Rule

- 1 Open the iTX Desktop.
- 2 Click **Engineering** in the layout selection bar.
- 3 Click **Channel Config**.
- 4 From the **View** menu, select the channel to be configured.
- 5 Select the **Channel** tab and then the **Subtitles** tab.

In the **Subtitle Service Rules** section, the **Service Name** column is populated with the names of the services you configured in the Output Server 2 user interface.

- 6 Click the **Rule** cell adjacent to the service for which you want to configure a rule. The **Rule Configuration** dialog is displayed.

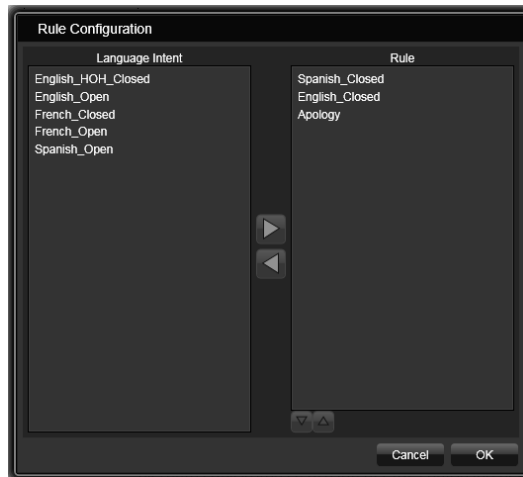




Fig. 6-1: Example Service Rule configuration


- 7 To append an Intent to the service rule:
  - a From the **Language Intent** column, select an Intent to add.
  - b Click the right arrow .
  - c The Intent is added to the bottom of the **Rule** column.

To remove an Intent from the service rule:

- a From the **Rule** column, select an Intent to remove.
- b Click the left arrow .
- c The Intent is removed from the rule.

Alternatively, double-click on an Intent to move it between the two columns.

**Note:** The Apology page should only be used for Teletext channels.

- 8 To re-order Intents within the rule, select an Intent and use the up/down arrows .
- 9 Click **OK** to save the changes.

Subtitle Service Rules	
Service Name	Rule
Closed889	Spanish_Closed,English_Closed,Apology
Closed888	English_Closed,English_HOH_Closed,Apology
OpenService	English_Open,Apology

Fig. 6-2: Example of Subtitle Service Rules on Channel Config 4

## Using the Subtitle Configuration from the Main Channel

Rather than configuring subtitle service rules for each channel separately, the **Use subtitle configuration from main channel** button allows you to configure service rules on the main channel and then use that configuration on other the simulcast and/or backup channels.

**To use the main channel's subtitle configuration on other channels**

- 1 Open the iTX Desktop.
- 2 Click **Engineering** in the layout selection bar.

- 3 Click **Channel Config**.
- 4 From the **View** menu, select the simulcast or backup channel that will use the main channel's subtitle configuration.
- 5 Select the **Channel** tab and then the **Subtitles** tab.
- 6 Click the **Use subtitle configuration from main channel** button so that displays a green icon.
- 7 Click **Close**.



# 7

## Managing and Verifying Subtitle Assets

This chapter explains how to use the Asset layout within iTX Desktop to manage subtitles before they go to air. This includes linking subtitle assets to video and live assets, unlinking subtitle assets from other assets, how to change a subtitle file's Intent, viewing subtitle content and deleting subtitle data.

This chapter also discusses the Preview as Channel layout in iTX Desktop, which can be used to verify the quality and accuracy of the subtitle content by viewing them alongside their associated video asset. From this layout you can preview configured services and how the subtitle service rules have been applied. Two services can be previewed simultaneously.

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### Linking a Subtitle Asset to Another Asset

A subtitle asset can be associated with (linked to) another asset type; so if the other asset is scheduled the subtitle asset is automatically scheduled too. The asset can be one of:



- **Video media** - a video asset.
- **Live Event** - usually a live subtitle asset would be linked to a live event.

A subtitle asset can only be linked to one video media or set identifier; however the subtitle asset can be linked to multiple live events.

There are two ways of linking subtitle assets to video media. If a subtitle asset has the exact same name as a video asset which already exists in the iTX system, then when the subtitle asset is imported into iTX, it will automatically be linked to its matching video asset. Alternatively, the link can be created manually.

Subtitle assets can only be linked to Live Events manually.

#### To manually link a subtitle asset to a video or live asset

- 1 Open the iTX Desktop.
- 2 Click **Asset** in the layout selection bar and the PinPoint Search tool is displayed.
- 3 Click the **Search Subtitles** button  to limit your searches to subtitle assets.
- 4 Click Search 

- 5 Select the required subtitle asset from the search results.
- 6 In the property editor (lower-right corner), click the **Used by** tab.  
Any existing links are displayed.
- 7 Click **Add New Linkage**.  
The **Modify Subtitle Linkage** dialog appears.
- 8 Select a **Link Type** from the drop-down list. The options are **Video Media** or **Live Event**.
- 9 Click **Search**.  
A pop-up **Pinpoint** dialog appears.
- 10 Search for the video asset you want the current subtitle asset to be linked to.
- 11 Click **OK**.

---

**Note:** There is a known bug in the system whereby for subtitle linkage all subtitle assets are reporting a frame rate of 25.00 Hz, so if you are linking a subtitle asset to a 29.97 Hz video asset a warning will pop up. This warning does not prevent the linkage from being made, nor does it have any impact on subsequent playout.



---

- 12 Click **Save** to store the linkage to the subtitle asset.

## Searching for Linked Subtitle Assets Using PinPoint

Using PinPoint, you can search for linked subtitle assets stored in iTX.

### To search for a linked subtitle asset using PinPoint

- 1 Open the iTX Desktop.
- 2 Click **Asset** in the layout selection bar and the PinPoint search tool is displayed.
- 3 Click  to limit the search to subtitles.
- 4 Choose **Subtitle Linked** in the first filter drop-down list and **Yes** in the second filter drop-down list.
- 5 Click  to start the search.

A list of all subtitle assets which are linked to other assets is displayed in the search results pane. Select **No** in the second drop-down list to search for all subtitle assets which are not linked to any other assets.

Selecting one of the subtitle assets displays information about it in the property editor (lower-right corner).

## Locating an Asset Linked to a Specific Subtitle Asset

A video or live asset which is linked to a subtitle asset can be accessed and loaded by searching for the subtitle asset which it is linked to.

### To locate the asset linked to a subtitle asset

- 1 Open the iTX Desktop.
- 2 Click **Asset** in the layout selection bar and the PinPoint search tool is displayed.
- 3 Search for your subtitle asset.



- 4 From the results pane, select the required subtitle asset.
- 5 In the **Property Editor**, click the **Used by** tab.  
A list of all media assets that the subtitle is linked to, is displayed.
- 6 Double-click on the linked asset to load it. Confirm that the video or live asset is to be loaded.

---



**Note:** Double-clicking the subtitle name in either the video or live asset reloads the original subtitle asset.

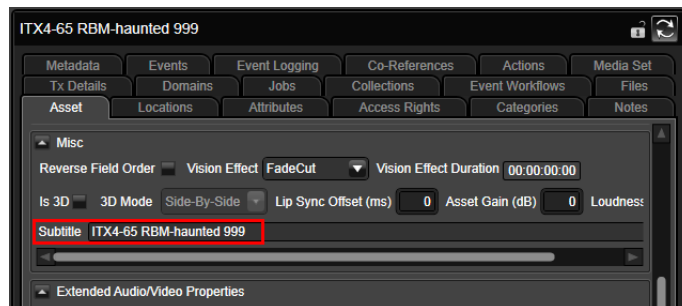
---

## Verifying that the Subtitle Asset is Linked to the Video Asset

iTX can automatically link subtitle files to a video asset when the subtitle is being imported, so it is useful to be able to verify that the subtitle file has been linked to the video asset.

### How to verify the video subtitle link

- 1 Open the iTX Desktop.
- 2 Click **Asset** in the layout selection bar and the PinPoint search tool is displayed.
- 3 Search for a video asset.
  - a Click  to limit your searches to video clips.
  - b Using drop-down lists at the top of PinPoint, create your search criteria to locate the required video asset.
  - c Click **Search** 
- 4 From the results pane, select the required video asset.
- 5 Click **Asset** in the property editor.
- 6 Scroll down to the **Misc** section. This should contain a **Subtitle** field, as pictured below:



This is the subtitle asset associated with the selected video asset.

Double-clicking the subtitle shown in the Video Asset's tab allows you to load the Subtitle asset.

---


**Note:** Live Events which have subtitles linked to them can also be searched for in a similar way and the linked subtitle asset loaded from the Live event. See [Viewing Subtitle Content Information](#), on page 46 for information on viewing the actual subtitles within the subtitle asset and linked video assets.

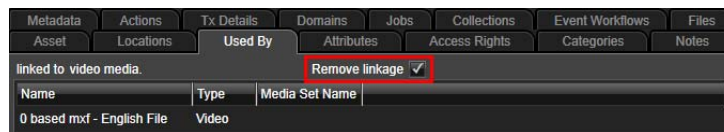
---

## Removing the Link Between a Subtitle Asset and Another Asset

If a subtitle asset has been associated with the wrong media asset, the link between them can be removed.

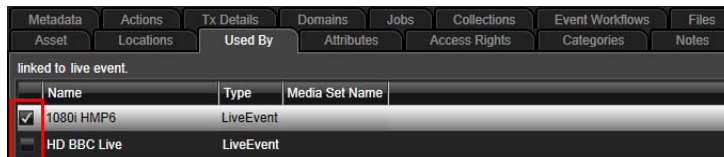
### To delete the link from a subtitle asset

- 1 Open the iTX Desktop.
- 2 Click **Asset** in the layout selection bar and the PinPoint search tool is displayed.
- 3 Click  to limit the search to subtitles.
- 4 Search for the required subtitle asset.
- 5 In the **Property Editor**, click the **Used by** tab.  
Any existing links are displayed.
- 6 If the linked asset is of the type **Video media**, check **Remove Linkage**, as pictured below:



If the linked asset is of the type **Live Event**:

- a Check the check box next to each of the assets to be removed, as pictured below:



- b Select **Remove Selected Linkages**.
- 7 Click **Save**.

## Changing a Subtitle File's Intent

You can change a subtitle's Intent through the iTX Desktop.

### IMPORTANT

Care should be taken to ensure that the chosen intent is relevant to the location type (i.e. Open, Closed or Live). See [Configuring the Subtitle Service Rules](#), on page 37 for further details on setting and changing Service Rules.

### To change the subtitle Intent

- 1 In iTX Desktop, search for and select your subtitle asset.
- 2 In the **Property Editor**, click the **Locations** tab.
- 3 For one of the locations, select the required Intent from the drop-down list.  
Changing the Intent automatically changes the **Character Set** to the one paired with the new Intent. Other parameters for the location are left unchanged.

## Adding a Location to a Subtitle Asset

Adding a placeholder location for a missing subtitle file to a subtitle asset, allows the subtitle file to be imported later. So if only the placeholder location exists when the item is scheduled, then the system will report that there is a missing subtitle.

Locations can also be added for live subtitles.

### To add a location to the subtitle asset

- 1 In iTX Desktop, search for and select your subtitle asset.
- 2 In the **Property Editor**, click the **Locations** tab.
- 3 If you are using subtitle files, create a missing location by setting the Intent and character set properties.
  - a Click **Add Missing location** and an **Add Subtitle Location** dialog is displayed, which includes options for selecting whether the location is open or closed:
  - b Select the required Intent from the drop-down list and the **Character Set** is automatically updated to the one paired with the Intent.
  - c Select a radio button to pick whether the subtitle file will be **open** or **closed**.
  - d Click **OK** to complete adding the missing location.

---

**Note:** You can only have one File Location for an Intent (irrespective of whether this is a physical or a missing location); however, you can have both a File and a Live Location for the same Intent.

---

- 4 If you are using live subtitles, create a live location by setting the Intent and character set properties:
  - a Click **Add Live location** and an **Add Subtitle Location** dialog is displayed.
  - b Select the required Intent from the drop-down list and the **Character Set** is automatically updated to the one paired with the Intent.
  - c Click **OK** to complete adding the live location.

---

**Note:** You can only have one Live Location for an Intent; however, you can have both a File and a Live Location for the same Intent.

---

- 5 Select **Save** to store the changes.

## Deleting Subtitle Data

### Deleting Subtitle Assets

Subtitle assets, including the subtitle files located in the asset, can be deleted from iTX.

#### To delete a subtitle asset

- 1 In iTX Desktop, search for and select your subtitle asset.
- 2 In the **Property Editor**, click **Delete**.

A dialog appears asking you to confirm this action.
- 3 Click **Delete** to confirm the deletion.

## Deleting Subtitle Asset Locations

A subtitle asset can contain one or more subtitle locations. Individual subtitle locations can be removed from a subtitle asset using this method. The subtitle location and, where applicable, the physical subtitle will be removed. The subtitle asset still exists, even if it no longer contains any locations.

### To delete a subtitle asset location

- 1 In iTX Desktop, search for and select your subtitle asset.
- 2 In the **Property Editor**, click the **Locations** tab.
- 3 Check the check box next to each subtitle location to be removed.
- 4 Click **Delete Selected Locations**.
- 5 Click **Save**.

## Viewing Subtitle Content Information

Subtitle information, consisting of the subtitle text, time the subtitle is displayed and its duration, can be viewed using the **Events** tab in the Property Editor of either a subtitle asset or a video asset that is linked to a subtitle asset.




If a subtitle asset contains multiple subtitle files, information for each subtitle file is displayed chronologically as separate entries in the Events tab.

---

Note: Subtitle event information cannot be edited or deleted using the Events tab.

---

### To view subtitle content

- 1 Open the iTX Desktop.
- 2 Click **Asset** in the layout selection bar. The PinPoint search tool is displayed.
- 3 Search for one of the following assets:
  - For a subtitle asset click  to limit your searches to subtitles.
  - For a video asset, click  to limit your searches to videos.
- 4 Using drop-down lists at the top of PinPoint, create search criteria to locate the required asset.
- 5 Click  to start the search.
- 6 Click **Events** in the Property Editor.

The Events tab is displayed, containing the following columns:

Column	Description
<b>Name</b>	The subtitle Intent
<b>In Point</b>	The time the subtitle is displayed
<b>Duration</b>	The length of time the subtitle is displayed
<b>Summary</b>	The subtitle text, for each subtitle file


Note: For video assets the Events tab has an additional column to the left of the 'Name'. This denotes the event type - e.g. for Subtitles this is an 'S'.

## Accessing the Subtitle File Stored on the iTX System

The subtitle information includes the folder where the subtitle file is stored, enabling the subtitle file to be accessed.

Note: This option gives you direct access to the transmittable subtitle file. We advise you not to delete, edit or replace the subtitle file directly, but to use iTX to make any changes, as you may cause errors on transmission.

### To navigate to the subtitle folder

- 1 In iTX Desktop, search for and select your subtitle asset.
- 2 Click **Locations** in the Property Editor.
- 3 Scroll to the right of the **Locations** tab.
- 4 Click the browse button  next to the required subtitle file.

The folder where the subtitle file is stored is displayed.

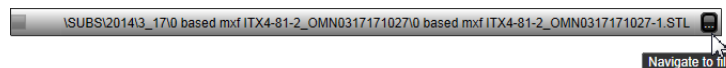


Fig. 7-1: The Locations tab showing how to navigate to the subtitle storage folder.

## Previewing Subtitle Playout Using the Preview as Channel Layout

The **Preview As Channel** layout has similar functionality to the Asset layout, but includes a media player that previews video clips in the context of a selected channel, rather than using an external monitor. If the video clip being previewed is linked to a subtitle asset, you can configure the media player to preview up to two streams of subtitles.

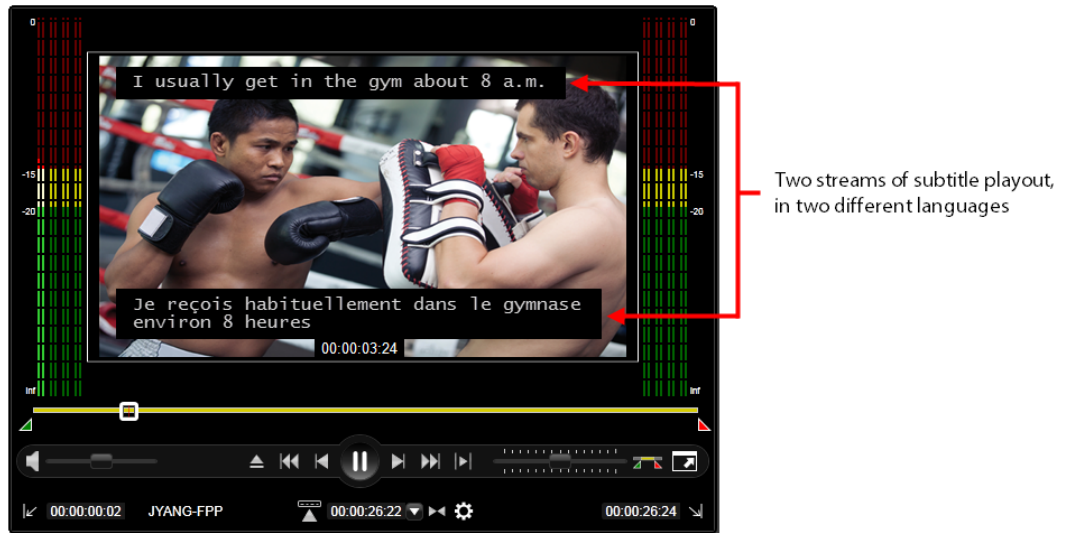


Fig. 7-2: The Preview as Channel media player, showing the playout of two subtitle streams.

---

**Note:**

- When an AJA Corvid card and drivers are installed on the host workstation, the Preview as Channel's media player can be configured to control the preview playout on an SDI video monitor. This functionality is useful for verifying video, subtitle and audio playback quality. See the *iTX Desktop Operator's Guide* for more information on SDI monitoring.
  - As Softel Inside is only supported by Output Server 2, the Preview as Channel layout can only display subtitles for Output Server 2 channels.
  - The Preview as Channel layout is only available in the 1920 x 1080 Global Layout Templates.
- 



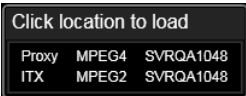
Before you can preview the subtitles in the Preview as Channel's media player, the following conditions must be satisfied:



- The subtitle Services must be properly configured on the Output Server 2 Subtitle configuration page. See [Configuring an SDI Output for Teletext or Closed Captions Playout](#), on page 17.
- The video asset being previewed must already have a subtitle asset linked to it. See [Linking a Subtitle Asset to Another Asset](#), on page 41.
- The video asset must be the same resolution as the playout channel. If the resolutions do not match, the following error message appears in the media player:  
*Frame rate mismatch: Please select a clip with compatible frame rate to the channel.*

Once the media player's subtitle services properties are set, you can use the media player's controls (Play/Pause button or seek slider) to play or scrub the video and the subtitles appear in the media player window along with the video.

## Previewing Video Assets with Subtitles

To preview the playout of subtitles in the Preview as Channel media player

- 1 Open the iTX Desktop.
- 2 Click **Preview as Channel** in the layout selection bar.
- 3 In the **Channel Selection** section on the right side of the layout, select a channel to view:
  - a Click **View**. The **Select Item** dialog appears.
  - b Select the view with the required channel.
  - c Click **OK**.
  - d Click **Channel**. The **Select Item** dialog appears.
  - e Select the view with the required channel.
  - f Click **OK**.
  - g Click **Enabled**.
- 4 Search for a video asset.
  - a Click  to limit your searches to video clips.
  - b Using drop-down lists at the top of PinPoint, create your search criteria to locate the required video asset.
  - c Click **Search** .
  - d Click the required video asset.
- 5 The video automatically loads in the media player. If you have generated proxies of your media, you must select which location (the proxy or iTX) from which to load the video:


Click location to load		
Proxy	MPEG4	SVRQA1048
ITX	MPEG2	SVRQA1048
- 6 To have the subtitles playout at the top of the screen:
  - a In the Media Player controls, click **Asset Properties** .
  - b From the **Subtitle Top Service** drop-down list, select a subtitle service.  
Select **None** if you do not want the subtitles to be displayed at the top of the screen.
- 7 To have the subtitles playout at the bottom of the screen:
  - a In the Media Player controls, click **Asset Properties** .
  - b From the **Subtitle Bottom Service** drop-down list, select a subtitle service.  
Select **None** if you do not want the subtitles to be displayed at the top of the screen.
- 8 Use the media player's controls (Play/Pause button or seek slider) to play or scrub. Subtitles appear along with the video in the media player window.

## Resetting or Clearing the Subtitle Services Settings in the Media Player

To avoid having to set the media player's **Subtitle Top Service** and **Subtitle Bottom Service** settings each time you switch between channels or close the iTX Desktop, the Subtitle

Service settings are automatically retained with the channel. This option can be displayed, if required.

**To quickly reset or disable both of the current Subtitle Service settings:**

- 1 Search for a video clip and load it into the media player, as described in [Previewing Video Assets with Subtitles](#), on page 49.
- 2 In the media player, click **Asset Properties** .
- 3 Click **Reset Subtitles**.
- 4 Click **OK** to confirm that you want to reset these settings.

Both the **Subtitle Top Service** and **Subtitle Bottom Service** settings are set to **None** and disappear from the preview.



# 8

## Scheduling & Controlling Subtitle Playout

Typically subtitles are scheduled for playout as part of a traffic system. Once a schedule containing subtitles has been loaded into iTX, various operations can be applied to subtitles. For example, you may need to change or remove a subtitle from a video asset which has been scheduled or is being played out. This chapter explains how to make these changes.

### Summary

<i>Automatically Adding a Subtitle to a Scheduled Primary Event</i> .....	51
<i>Manually Adding a Subtitle to a Scheduled Primary Event</i> .....	52
<i>Overriding the Subtitle Source for a Scheduled or On Air Primary Event</i> .....	52
<i>Updating Subtitles for On Air Video or Live Assets</i> .....	53
<i>Disabling the Subtitle Source for a Scheduled or On Air Video or Live Asset</i> .....	54

### Automatically Adding a Subtitle to a Scheduled Primary Event

The iTX channel can be configured to automatically schedule associated subtitle assets with video or live events. If a video or live event is added to a schedule, then two checks are made:

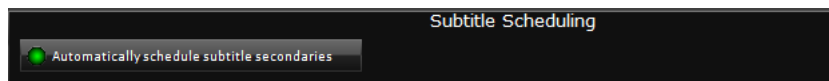
- Is the **Automatically schedule subtitle secondaries** option enabled in the Channel Config?
- Is there a subtitle asset linked to the video or live asset?

If both of these conditions are true, then a new subtitle event is added to the schedule as a secondary event.

If the video or live asset has already been scheduled, when the secondary subtitle event is linked to it, then the subtitle event is generated at the time when the link is made (as long as the event has not yet reached a state of cueing).

#### To automatically add a subtitle to a scheduled primary event (video or live)

- 1 Open the iTX Desktop.
- 2 Click **Engineering** in the layout selection bar.
- 3 Click **Channel Config**.
- 4 From the **View** drop-down list, select the view containing the channel to be configured.
- 5 Select the required channel.
- 6 Select the **Channel tab** and then the **Subtitles** tab.
- 7 Click **Automatically schedule subtitle secondaries** and its icon turns green.



8 Click **Save** and then **Close**.

In the schedule any video or live asset with an associated subtitle file, or other secondary event such as a logo, will be marked with a +. Selecting + expands the event to display the secondary subtitle as shown below.

Start Time	Type	Global ID	C	Tr	N	W	Item Name	Item Title	Duration	Status	Source
+ 14:08:57:21	Video Clip		1	N	1	1	0 based mxf 2	0 based mxf 2	00:02:00:00	Commit	X:\Cache\1c444b8-96a1-4b3d-1
- 14:08:57:21	Video Clip		1	N	1	1	0 based mxf 3	0 based mxf 3	00:02:00:00	Ready	\\SVRQA9010\CACHE\6d08a1f0-
14:08:57:21	Subtitle		1	N	1	1	0 based mxf 3	0 based mxf 3	00:02:00:00	Ready	\\SVRQA9010\CACHE\2dc85130

Subtitle secondary events are co-timed with the primary event.

## Manually Adding a Subtitle to a Scheduled Primary Event

If a scheduled video or live asset does not have subtitles linked to it, a separate subtitle asset can be added to the schedule as a secondary item on the primary event. A secondary subtitle event can be added to a video or live event even if the primary event has been cued, but not once the primary event is on air.

---

Note: Manually adding a subtitle asset does not permanently link the subtitle asset to the video or live asset - it is only linked for this one time schedule.

---

### To manually add a subtitle to a scheduled primary event (video or live)

- 1 Open the iTX Desktop.
- 2 Click **Channel Control** in the layout selection bar.
- 3 From the Content Selector, select the **Subtitle** plugin.

---

Note: If the **Subtitle** tab is not displayed, select **Configure** and add **Subtitle** to the Displayed panels list.

---

- 4 Click **Search** to display PinPoint.
- 5 Use PinPoint to locate the required subtitle and select it.
- 6 Select **OK**.  
On the **Content Selector** only the subtitle which was found is listed in the File field.
- 7 Click **Drag from Here** then drag and drop the subtitle over the relevant video or live event.  
This subtitle becomes a secondary item on the primary event, so they are played out together.

## Overriding the Subtitle Source for a Scheduled or On Air Primary Event

If a service has more than one matching subtitle Intent then the highest ordered one is used. This default behavior can be overridden and another subtitle Intent played out instead. Either a scheduled or an on air subtitle source can be edited.

For example, the subtitle has assets for the Intents `French_Closed`, `German_Closed` and `English_Closed` but the subtitle service rule for service `Closed889`, specifies `English_Closed`, `German_Closed` and `Apology`.

As `French_Closed` is not specified in the rule it cannot be used to over-ride the scheduled subtitle Intent, even though it exists. The subtitle with the `English_Closed` Intent will be used as it has higher priority than `German_Closed`.

If you have an Apology with a Source of `No Selection`, the Apology page will be displayed, but `No Selection` without an Apology displays nothing.

#### To override the subtitle source

- 1 Open the iTX Desktop.
- 2 Click **Channel Control** in the layout selection bar.
- 3 In the **Schedule Grid**, expand the video or live asset, by clicking on the +, to list the subtitle.
- 4 Click on the subtitle asset to display it in the **Event Editor**.  
The radio button shows which subtitle location is currently being used.
- 5 Check the radio button next to the alternative subtitle location, to select it instead.
- 6 Click **Store Changes**.

---

Note: If the video/live asset being changed is currently on air, a warning pops up about the changes you are making.

---

## Updating Subtitles for On Air Video or Live Assets

You can import a new version of a subtitle file into the system and replace the one which is already on air or if you want to playout a different intent on air. This allows you to:

- Update to a new version of the on air subtitle file
- Update to a higher priority intent that has arrived whilst the event is on air

#### To replace an on air subtitle:

- 1 Open **Delivery Manager**.
- 2 Locate the subtitle file to replace the one currently being played out.
- 3 Drop the subtitle file into the drop box for the required intent.
- 4 Open the iTX Desktop.
- 5 Click **Channel Control** in the layout selection bar.

If the subtitle is a new version of the one that is currently being aired the following warning is displayed:

*An updated file for currently on air subtitles has arrived.*

If the subtitle is a higher priority than the currently on air subtitle, the following warning is displayed:

*Subtitle file with a higher priority than the on air subtitle has arrived.*

- 6 Click **Fix All**, for either case, to replace the currently on air subtitle file with the newly imported one.

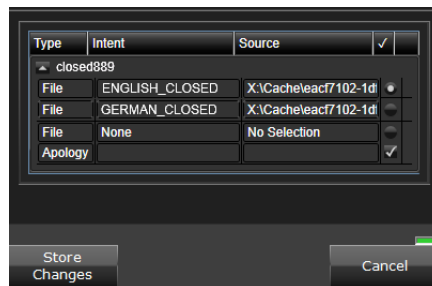
## Disabling the Subtitle Source for a Scheduled or On Air Video or Live Asset

You can disable the subtitle source going to a service, for example, if the service had the wrong subtitle file or if it is a corrupted live feed. Disabling the service leaves other services unaffected. Either an on air or scheduled subtitle source can be edited.

### To disable the subtitle source:

- 1 Open the iTX Desktop.
- 2 Click **Channel Control** in the layout selection bar.
- 3 In the **Schedule Grid**, expand the video or live asset, by clicking on the +, to list the subtitle.
- 4 Click on the subtitle asset to display it in the **Event Editor**, as shown below.

The radio button shows which subtitle location is currently being used.



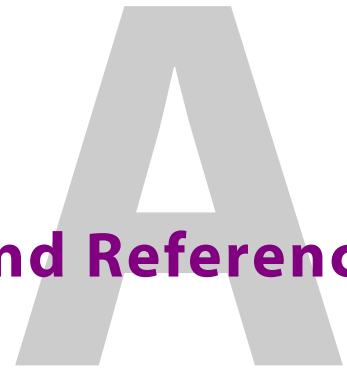
- 5 Check the radio button next to **None** to disable the current subtitle.
- 6 Click **Store Changes**.

---

Note: If the video/live asset being changed is currently on air, a warning pops up about the changes you are making. You need to confirm that you want to change the video/live asset currently on air.

---

# Supplementary Tasks and Reference



This appendix describes some of the supplementary tasks related to the configuration, operation and maintenance of a Softel Inside system, as well as providing reference information regarding supported subtitle file types.

## Summary

<i>Configuring Output Server 2 for Legacy Subtitle Playback</i> .....	55
<i>Converting Legacy Closed Caption Files</i> .....	55
<i>Using the iTX Interchange REST API to Import/Export Subtitle Metadata</i> .....	59
<i>Supported Subtitle Input Formats and Associated Registered Assets</i> .....	59
<i>Availability of Softel Inside Subtitle Information in As Run Logs</i> .....	61

## Configuring Output Server 2 for Legacy Subtitle Playback

If you had been playing out basic non-Softel inside subtitles or closed captions on a previous installation of Output Server 2, you would have had to configure one stream and one service. As of iTX v2.8 or later, legacy subtitles and closed captions no longer require this baseline configuration and therefore it must be removed from the Output Server 2 user interface.

### To remove the previous baseline subtitle configuration for legacy subtitles:

- 1 On the playout server, expand the instance of **Output Server 2** for the channel to be configured (e.g. ITX1 Output Server 2).  
The Output Server 2 user interface appears.
- 2 Go to **Configuration > Subtitles** tab.
- 3 Expand the **Services** tab.
- 4 From the Service drop-down list, select each service you have configured and click **Remove**.
- 5 Expand the **Streams** tab.
- 6 From the **Streams** drop-down list, select each stream you have configured and click **Remove**.
- 7 Click **Save**. Output Server 2 will automatically shut down and restart to apply your changes.

## Converting Legacy Closed Caption Files

Softel Inside does not support playout of legacy Closed Caption files. To use pre-existing subtitles on a closed caption system without the need to reimport them, the Asset Fixer tool has a plugin which can be used to convert these closed caption files. This must be done as part of the upgrade process for any closed caption system changing from pre-v2.9 to a

v2.11 build. The older subtitle assets are held in the system in their original .scc format, and need to be converted to .mcc and registered correctly in order for them to be used by Softel Inside.

---

**Note:** This is not required for Teletext systems where legacy subtitle payout is supported within Softel Inside.

---

The original location for the asset is retained in the system post-conversion, but because there is no Intent this will not be used in an Output Server 2 system. This location has been retained to cater for Output Server 1/Output Server 2 mixed mode setups.

The Asset Fixer plugin has been designed to be run once. When an asset is converted, a flag is set against that asset to prevent future unnecessary re-runs.

Before running the Asset Fixer plugin the subtitle intent(s) need to be configured in Opus Admin (see [Managing Subtitle Intents](#), on page 8).

---

**Note:** There is an outstanding defect against the Asset Fixer in that the Events are not currently being registered – this prevents the subtitle information from being displayed in the Subtitle Asset Events tab. It does not impact the payout of the subtitles nor the ability to view them in the Preview as Channel layout.

---

#### To configure the Asset Fixer

- 1 On the Framework Server from the **Start** menu select **All Programs > iTX 2.0 > Job Service Manager Config**.

The **Select Job Service Configuration...** selection window appears.

- 2 Select **AssetFixer** and click **OK**.

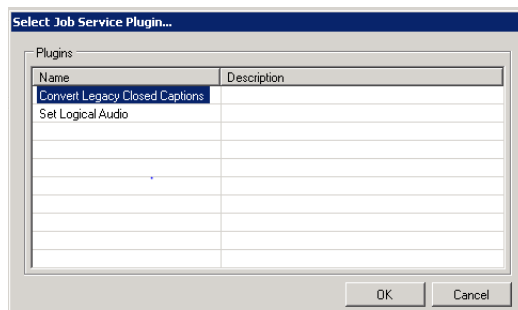
The **Job Service Manager Configuration: AssetFixer** configuration window appears

- 3 Click **Add Job Service**.

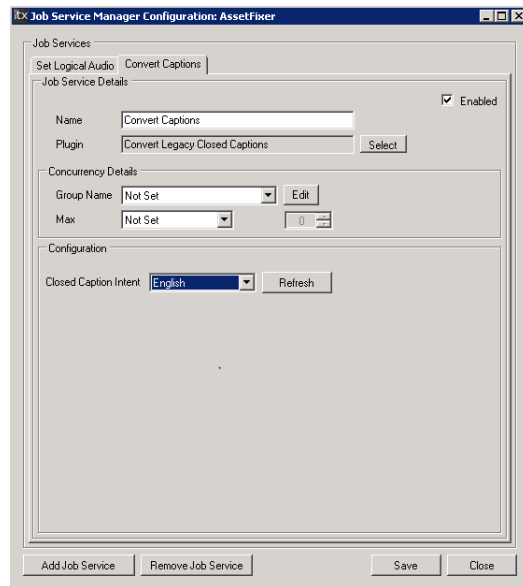
Enter a meaningful Name – e.g. Convert Captions.

- 4 Click **Select** next to the **Plugin** field.

A list of available Plugins appears.



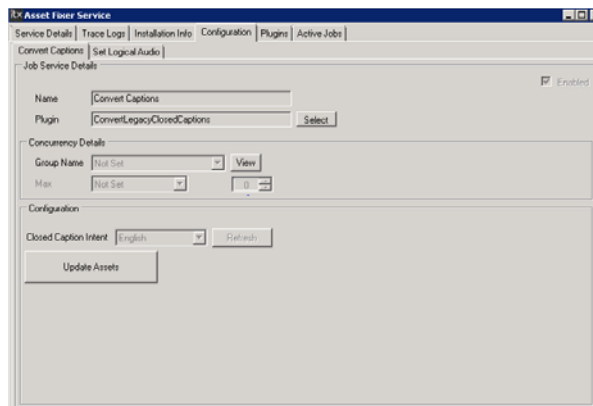
- 5 Select **Convert Legacy Closed Captions** and click **OK**.
- 6 The **Concurrency Details** should be left with their default values.
- 7 The **Closed Caption Intent** drop-down list contains all configured Intents on the system. Choose the one to be used for all subtitles currently registered in the system (e.g. English).



8 Click Save to save the configuration.

### To convert legacy closed captions

- 1 Having configured the Asset Fixer with the required Intent, this is ready to be used to convert all pre-existing closed caption assets. The Asset Fixer is a Controlled Service accessible from the Server Controller.
- 2 Launch the Asset Fixer Service – select the Configuration tab and select the sub tab which has been configured to convert the legacy closed captions.



- 3 Click Update Assets – this converts all legacy .scc assets to the mezzanine .mcc format and registers the subtitles in the system with the chosen intent.
- 4 Use the Job Monitoring layout on the iTX Desktop to monitor the progress of this job – the Type is Convert Legacy Closed Captions. Once complete, this job shows the number of assets which have been converted and also the number of assets not converted on this run due to already having been converted

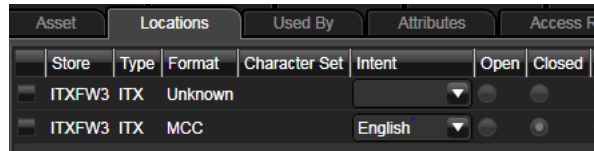
### To search for all subtitle assets which have been converted

- 1 On the iTX Desktop, select the Asset layout.
- 2 Use the Subtitle icon to restrict PinPoint searches to just Subtitle assets

3 Search for assets with a category of Subtitle Asset Converted.



4 Select one of these Subtitle Assets. The Locations tab now shows the original location, with no Intent, together with the new converted location, showing the selected Intent



Asset	Store	Type	Format	Character Set	Intent	Open	Closed
ITXFW3	ITX	Unknown				<input type="radio"/>	<input type="radio"/>
ITXFW3	ITX	MCC			English	<input type="radio"/>	<input checked="" type="radio"/>



## Using the iTX Interchange REST API to Import/Export Subtitle Metadata

iTX Opus Interchange is a REST service that uses a proprietary API format known as AssetXML, which allows you to create, modify and/or retrieve asset metadata.

In the context of iTX Softel Inside, iTX OPUS Interchange allows you to create a placeholder for a subtitle asset that will be paired with content later. OPUS Interchange also allows you to retrieve the location(s) and intent(s) that are available for a specific subtitle asset.

More information about the iTX Interchange REST API is available in the documentation and samples distributed with the Interchange 2 SDK package.

## Supported Subtitle Input Formats and Associated Registered Assets

iTX supports a number of subtitle formats which are registered using Delivery Manager.

The type of the registered asset in iTX is dependent on a number of factors, such as system frame rate and whether the file is dropped into an Open or a Closed Intent folder.

The table below shows the inputs and the expected outputs. Any subtitle file type not shown in the table is not supported by iTX.

Grey cells in the Input Subtitle File Frame Rate column indicate that these input file types do not contain frame rate information. Similarly, Grey cells in the Registered Asset side of the table indicate that this combination of input file type and system frame rate is unsupported.

Import Subtitle File				Drop Folder Type	Registered Asset		
Broadcast Type	Subtitle File Type	Subtitle File Extension	Subtitle File Frame Rate	Closed / Open	25	30Drop	30Non-Drop
Teletext	STL closed	stl	25	Closed	25 STL	25 STL	25 STL
	EBU-TT closed	xml	25	Closed	25 STL		
	PAC closed	pac		Closed	25 STL	25 STL	25 STL
	890 closed	890		Closed	25 STL	25 STL	25 STL

Supplementary Tasks and Reference  
Supported Subtitle Input Formats and Associated Registered Assets

Import Subtitle File				Drop Folder Type	Registered Asset		
Broadcast Type	Subtitle File Type	Subtitle File Extension	Subtitle File Frame Rate	Closed / Open	25	30Drop	30Non-Drop
Open	STL open	stl	25	Open	25 XIF	25 XIF	25 XIF
	EBU-TT open	xml	25	Open	25 XIF	25 XIF	25 XIF
	PAC open	pac		Open	25 XIF	30drop XIF	30non-drop XIF
	890 open	890		Open	25 XIF	25 XIF	25 XIF
	XIF	xif	25	Open	25 XIF	25 XIF	25 XIF
			30drop	Open	30drop XIF	30drop XIF	30drop XIF
			30non-drop	Open	30non-drop XIF	30non-drop XIF	30non-drop XIF
	SRT	srt		Open	25 XIF	30drop XIF	30non-drop XIF
	CAPT	capt		Open		30drop XIF	30non-drop XIF
				Closed		30drop MCC (708-only)	30non-drop MCC (708-only)
Closed Captions	SCC	scc	30drop	Closed	30drop MCC	30drop MCC	30drop MCC
			30non-drop	Closed	30non-drop MCC	30non-drop MCC	30non-drop MCC
	SC2	sc2	30drop	Closed	30drop MCC	30drop MCC	30drop MCC
			30non-drop	Closed	30non-drop MCC	30non-drop MCC	30non-drop MCC
	Cheetah CAP	cap		Closed		30drop MCC	30non-drop MCC
	NCI CAP	cap		Closed		30drop MCC	30drop MCC
	SMPTE-TT	xml	30drop	Closed		30drop MCC	30drop MCC
			30non-drop	Closed		30non-drop MCC	30non-drop MCC
	MCC	mcc	30drop	Closed	30drop MCC	30drop MCC	30drop MCC
			30non-drop	Closed	30non-drop MCC	30non-drop MCC	30non-drop MCC

## Availability of Softel Inside Subtitle Information in As Run Logs

On Output Server 2 systems, the Standard, ITXML and BXF As Run logs include subtitle information detailing the Softel Inside service mapping.

The subtitle mapping relates to the last state of the event; if a subtitle event was updated while on-air, then a comment is written before the final event log specifying what the mapping has changed from.

The subtitle mapping information is written in different ways depending on the type:

### Standard As Run

Subtitle mapping for a subtitle event is written to the 9th column of the subtitle event in the format:

```
[subtitle_service_name]^[mapped_intent];[subtitle_service_name]^[mapped_i
ntent]...
```

The `subtitle_service_name` is the name of the subtitle service as defined in the Output Server 2 configuration and the `mapped_intent` is the subtitle intent that has been mapped to that service.

If a subtitle file, live location or apology are not mapped to a service, then the `mapped_intent` is specified as 'None'.

#### Example:

```
5/13/2016-
10:04:58:08|Subtitle|Entourage_S1_Ep01_Pilot|Entourage_S1_Ep01_Pil
ot|00:29:07:00|00:00:00:00|00:00:00:00||801^English;802^French;Ope
n^None|
```

An on-air update is detailed as a comment:

```
5/13/2016-
10:01:57:22|Comment|||00:00:00:00|00:00:00:00|00:00:00:00|On air
subtitle has updated from: 801^Apology;802^French;Open^None| to
801^English;802^French;Open^None
```

### ITXML AsRun

Subtitle mapping information is detailed in the `ScheduledEvent/Details/SubSvcMaps` element of the subtitle event.

Each service is specified in a `SvcMapping` element where the `SelectedFileIndex` element specifies the zero based index of the `FileMapping` element which specifies the intent mapped to this service.

If `SelectedFileIndex` specifies 999 as the index and `ApologyEnabled` specifies true then an apology went to air, otherwise nothing went to air for that service.

On-air updates are logged in a `TXComment` event type and specifies the same string as the standard writer in the `UserData` element.

### BXF AsRun

Subtitle mapping information is detailed in multiple `Description` elements within the `AsRun/BasicAsRun/Content` element for a subtitle event. Each `Description` element specifies a single service mapping in the same format as the standard writer.

**Example:**

```
<AsRun>
  <BasicAsRun xmlns="http://smpte-ra.org/schemas/2021/2008/BXF">
    ...
    <Content>
      ...
      <Description>801^English</Description>
      <Description>802^Apology</Description>
      <Description>Open^None</Description>
    </Content>
```

As per the ITXML writer, on-air updates are detailed in a Comment event type.



## **Grass Valley Technical Support**

For technical assistance, contact our international support center, at 1-800-547-8949 (US and Canada) or +1 530 478 4148.

To obtain a local phone number for the support center nearest you, please consult the Contact Us section of Grass Valley's web site ([www.grassvalley.com](http://www.grassvalley.com)).

An online form for e-mail contact is also available from the web site.

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