



grass valley

A **BELDEN** BRAND

MORPHEUS

AUTOMATION SOFTWARE

Engineer's Manual v4.6 Rev. 2

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1. Introduction

Welcome to Morpheus, Grass Valley's flagship TV transmission automation product. Morpheus is a powerful, highly sophisticated, stable, fully scalable, feature-rich system, offering facilities that satisfy the most demanding transmission requirement.

1.1 Automation

Automation is the use of technology to control all the equipment in the broadcast chain, making each component do the right thing at the right time.

For example:

- Playing material from a video server device.
- Playing material from a tape by rolling a VTR.
- Selecting an outside source to air.
- Superimposing a station logo onto the channel output.
- Superimposing a moving 'ticker' onto the channel output.
- Automatically selecting the correct aspect ratio for a piece of video.

1.2 What Automation Does

- Translates the schedule into timed remote control commands that are sent to broadcast equipment.
- Confirms to the user that the equipment is operating correctly.
- Provides protection against equipment faults or other failure.
- Informs the user if content is missing.
- Communicates with Morpheus media management (refer to page 615) to initiate the movement of content.
- Allows operators to override the schedule if necessary.

1.3 Essential Properties of an Automation System

- Allow operators to create a schedule of items for playout and translate this into timed remote control commands to equipment.
- Control all commonly used broadcast equipment, and more, and be easily expandable to new products.
- Play out the right programme at the right time, with no errors or omissions.
- Control a mixer and router in order to get the desired source to air.
- Schedule audio overs, captions, tickers, DVE moves and the control of auxiliary equipment such as ARCs.
- Control backup devices and activate them quickly.
- Have a high level of tolerance to faults, breakdowns and power outages to preserve channel output.
- Provide a way of manually overriding the schedule, for example to end an event early or to stay on it longer than scheduled.

1.4 How Automation Works

Automation feeds schedule data, ahead of broadcasting, to a module known as the 'device controller'.

From the schedule, the device controller calculates the points in time at which to send specific remote control commands to broadcasting equipment, adjusting start times to allow for preroll (refer to page 646).

The device controller also reports device and playout status to the operator.

2. Structure

Morpheus automation consists of three layers:

1. Top Layer - the Editor (Edit Workstation).
See below.
2. Middle Layer - the EventStore.
Refer to Section 2.2 EventStore.
3. Bottom Layer - the Device Controller Cards.
Refer to Section 2.3 Device Controller Cards.

2.1 Editor (Edit Workstation)

The top layer is the operator's client terminal, known as the Editor.

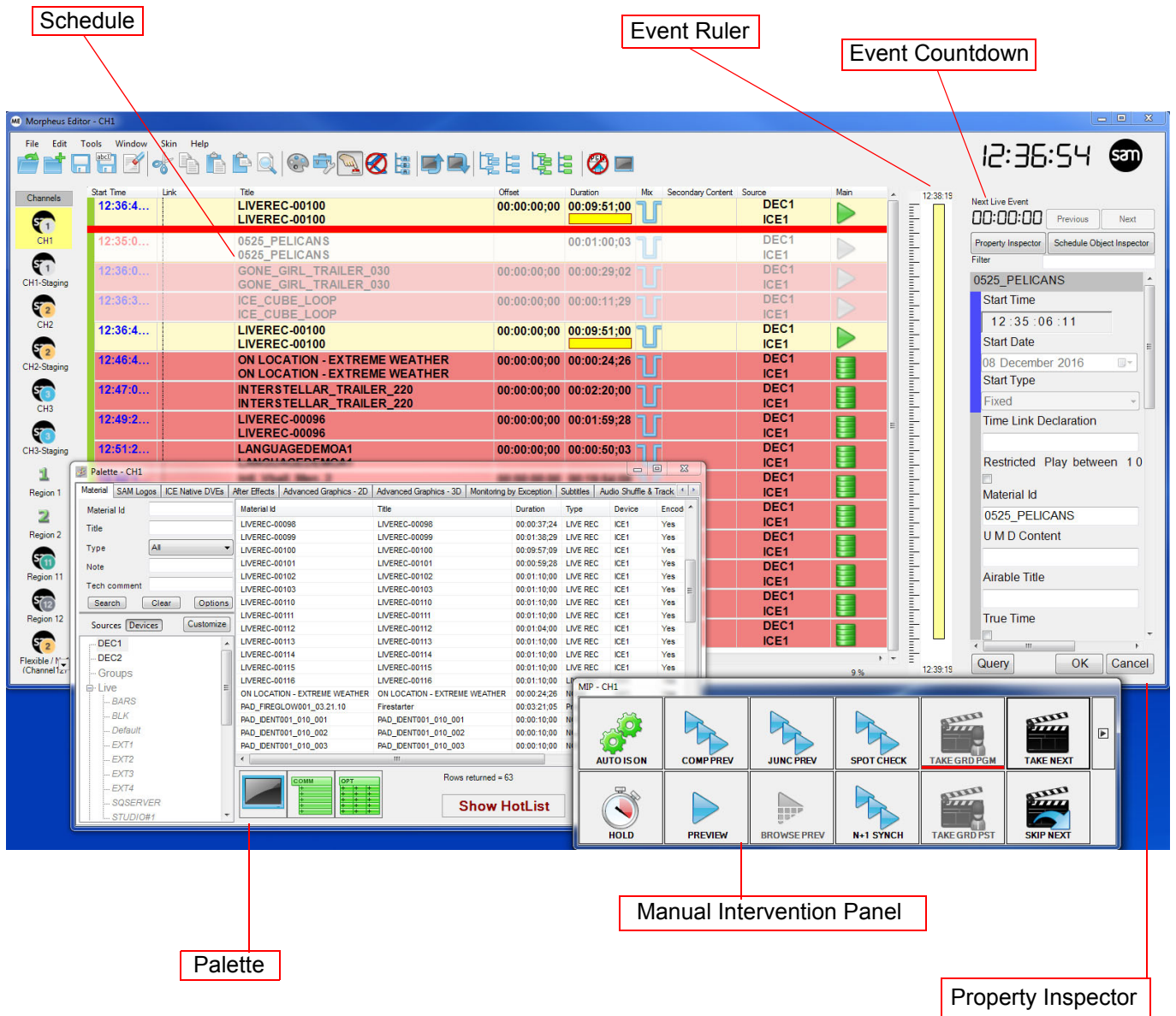


Figure 1 The Editor (Edit Workstation)

The Editor allows operators to interact with the system by appending schedules and monitoring the status of the playlist. There can be as many Editors in a system as needed. Each Editor can be configured to show as many or as few of the channels in the system as required.

The main areas of the Editor window are:

- The schedule (see below)
- The Property Inspector (see below)
- The Schedule Inspector (see below)
- The event ruler (see below)
- The event countdown (refer to page 5)

Secondary windows that can be opened from the Editor are:

- The Palette (refer to page 5).
- The Manual Intervention Panel (refer to page 5).

Schedules can be created in the Editor by adding clips and recordings from the Palette or by importing or appending a previously created file from Morpheus or from a third party system.

The Editor scans the EventStore for events in the required channel and then views, modifies or deletes them. It can also save and load schedule files that have been created in the Online Editor, the Offline Editor (refer to page 6) or exported from a third party system.

A large red X displayed in the schedule pane indicates that a new EventStore configuration was imported whilst the Editor was running. A purple colored schedule pane indicates that the EventStore is not visible to the Editor (the default color of purple can be reconfigured).

2.1.1 The Schedule

The schedule displays a list of events to be played out at specific times.

A typical schedule consists of recordings, graphics, live material and other items that produces the channel input visible to a user.

All automation channels have individual schedules.

The Editor communicates with the Morpheus media management database (refer to page 588) that stores information for each piece of material. The Editor takes information from the database and uses it to populate the relevant fields on the schedule.

2.1.2 The Property Inspector

The Property Inspector displays properties for the event that is highlighted on the schedule, for example, 'Start Type' or 'Duration'.

The parameters that appear on the Property Inspector, the order in which they appear and their properties can be modified in the Configurator (refer to page 50).

The Property Inspector is divided into parts corresponding to different components of the scheduled event. For example, the upper part can display properties for the mixer event with the lower part showing those for the payout event.

The Property Inspector is described in detail in the Morpheus Operator's manual.

2.1.3 The Schedule Object Inspector

The Schedule Object Inspector contains information on a single schedule that is present in the Editor. Clicking on an event displays information about that event's schedule.

The Schedule Object Inspector appears next to the Property Inspector and is described in detail in the Morpheus Operator's manual.

2.1.4 The Event Ruler

The event ruler shows the timing relationship between primary events (refer to page 646) and secondary events (refer to page 648).

The event ruler is described in detail in the Morpheus Operators manual.

2.1.5 The Event Countdown

The event countdown is displayed at the top right of the Editor window beneath the clock. It counts down in hours, minutes and seconds to either the next live event or to a highlighted event on the schedule.

2.1.6 The Palette

The Palette allows operators to search the Morpheus media management database (refer to page 588) for material. When the material has been found, operators can drag and drop it onto the schedule.

The Palette is described in detail in the Morpheus Operators manual.

2.1.7 The Manual Intervention Panel (MIP)

The Manual Intervention Panel (MIP) is a panel of buttons that allow operators to override the schedule. There are software and hardware forms.

The software MIP is a pop-up window accessible from the Morpheus Editor (refer to the Morpheus Operators manual).

The hardware MIP is either a bank of buttons on a transmission controller or a custom made bank of push buttons on a panel or in a box. For further information on the hardware MIP, refer to 'Hardware Manual Intervention Panel and GPs' on page 639.

2.1.8 Offline Editor

The Offline Editor is similar to the Online Editor (Workstation), however, it does not connect to the EventStore through the Rescale MSSQL database (refer to Section 2.2.2 Rescale MSSQL Database).

The Offline Editor is used for creating and editing schedules off-line. It has the same appearance as the Online Editor but lacks some of its features such as the clock and the live event countdown.

The Offline Editor has the following purposes:

- Preparing schedules off-line, without affecting the on-air schedule
- Testing a schedule for timing or sequencing
- Checking the summary of a future schedule for commercial or other content, or total duration

It is not possible to preview a schedule that has been prepared offline unless it has been saved and subsequently loaded into a preview channel (refer to Section 7.4.1 Channel Types).

As the Offline Editor does not communicate with the EventStore, it must have access to **current_system.xml** (refer to page 131) in order for it to obtain device and channel information. If the file cannot be found, then the following message is displayed (Figure 2):

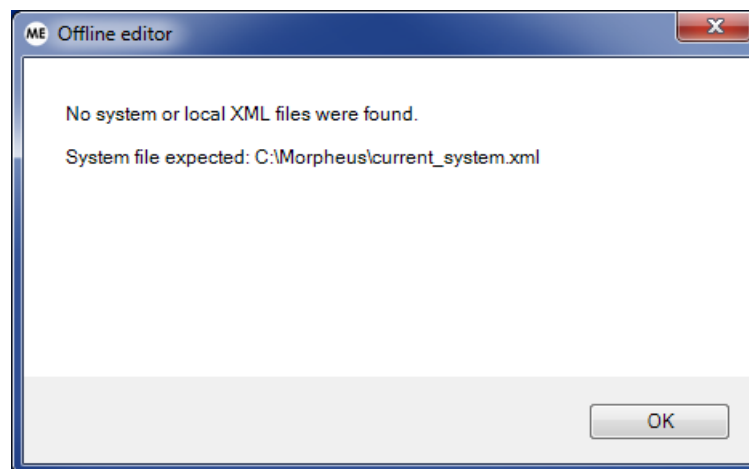


Figure 2 Offline Editor System XML File Missing

Specify the location of the file using a switch in the Offline Editor shortcut:

1. Right click the Offline Editor and from the menu select **Properties**. The Offline Editor Properties window will be displayed.
2. In the Target text box, append the path for the system XML file to the existing path for the Morpheus Offline Editor executable, using the **/of** switch.

Example:

C:\Morpheus\MorpheusEditor.exe /of C:\EventstoreExport\current_system.xml

For additional information, refer to Chapter 5.3.3 Application Startup Switches for the Editor.

Note:

If the Offline Editor is not on the same machine as the **current_system.xml** file, the file must be accessible as a mapped drive and stated in the shortcut. For example:

```
/o \\U:\configs\02sept11.xml
```

The Offline Editor can be used to check and update the status of material in the Main column using **Offline > Update all Material Statuses**. The Offline Editor cannot report the device status from the Bridge (refer to page 242), therefore the single status barrels (refer to page 236) that appear in the **Main** column on the schedule only refer to the Morpheus media management database. The event look-ahead (refer to page 243) is irrelevant to the Offline Editor.

MediaBalls can be created in the Offline Editor (refer to page 53) separated from the live schedule. Operators can create and save MediaBalls then export them as **.xml** files using the **MediaBall Export** button that is displayed at the top of the MediaBall tab on the Palette.



The MediaBalls can then be imported into the EventStore using the Import And Export function (refer to page 131).

2.1.9 Differences Between the Online and Offline Editors

- The Offline Editor does not connect to the EventStore whereas the Online Editor must do so. For information relating to the EventStore, refer to Section 2.2 EventStore.
- The Offline Editor must have access to a valid **system.xml** file (refer to page 131) in order to obtain device information - the Online Editor retrieves such information from the EventStore.
- The Offline Editor has no real time clock.
- The Offline Editor has no live event or selected event countdown (refer to page 5).
- The Offline Editor only shows single status barrels (from the Morpheus media management database). The Online Editor shows dual barrels, from both the device and the database (refer to 'Status Barrels' on page 649).
- The Offline Editor grid display has a 'notional previous event' at the top (which can be renamed), the Online Editor does not.
- The Offline Palette has the 'MediaBall Export' button, whereas the Online Editor Palette does not.

The Offline Editor has an 'Offline' menu as shown below:

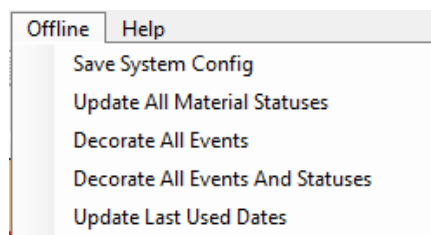


Figure 3 Offline Editor - Offline Menu

- Save System Config

Creates a system XML file that can be imported into a live Morpheus system - it provides a mechanism of importing the configuration of an item, such as that of a MediaBall, from the Offline Editor.

- Update All Material Statuses

Updates the status of all of the material barrels from the media management database.

- Decorate All Events

Updates the material information (for example, material title) as configured in the **Tools -> Configuration -> Miscellaneous -> Offline Editor Decoration Settings** section.

- Update Last Used Dates

Updates the instance table in the media management database with the last date that the material was used - this is different to the last aired date.

Note: The Editor is described in detail in the Morpheus Operators manual.

2.2 EventStore

The middle layer, the core of the system, is known as the 'EventStore'.

The EventStore is where the configuration for all the system's channels is held, together with all the events that are scheduled to play out on those channels. It also performs all timing calculations including automatically determining the timing of the PGM and PST events based on the current time.

The contents of the EventStore are modified in the following conditions:

- A change is made to a channel schedule.
- An event goes into the past.
- A device, channel, Event Type or source is added. These are all described in the 'Configurator' section on page 50.
- A change is made to the configuration of any of the above.
- A change is made to the configuration of a Morpheus application.
- The Snapshotter (refer to page 48) takes its regular snapshot.
- A MediaBall (refer to page 53) is created.

2.2.1 Model

The 'model' is a term used in Morpheus to denote 'the whole system as it now stands'. It consists of the last snapshot (refer to 'Snapshotter' on page 48) and any subsequent instructions in the command queue (refer to 'Queues' below).

When Morpheus applications are started there may be an indication on the startup splash screen to the effect that the model is being read from the EventStore.

2.2.2 Rescale MSSQL Database

The EventStore exists in RAM but is backed up to an SQL Server database known as the 'Rescale MSSQL database'.

The rescale database holds the contents of the EventStore. Its name is in the form Rescale_225_0_50_11, 225.0.50.11, being the UDP Multicast address (refer to page 35) of that system.

The rescale database has configurations, schedules, devices and source names and determines how automation works.

2.2.2.1 Queues

The rescale database has two queues - the 'command queue' and the 'snapshot queue'. The queues are constantly written to a hard drive, allowing full recovery in the event of a server failure. Each is described below.

Command Queue

The command queue is one of two queues in the EventStore. It is a store of all transactions (for example, updates or changes) that have been passed to the EventStore since the last snapshot.

Snapshot Queue

The snapshot queue contains the last few snapshots from the Snapshotter. When the EventStore is restarted it automatically reads the queues from the machine's hard drive.

In a disaster recovery situation the EventStore contents can be deleted by clicking **Recreate Queues** in the Deploy application (refer to page 41). They can then be rebuilt by re-importing the **current_system.xml** file (refer to 'Import/Export' on page 131) and reloading the saved channel schedules.

2.2.3 Morpheus Scripting

The Morpheus Automation system includes a scripting function. It is possible to add scripts into the system to achieve given outcomes for defined inputs or actions. Morpheus generates and stores these scripts centrally within the EventStore and the scripts are triggered by relevant devices and applications within the Morpheus system as required.

Typical inputs to a script include:

- A GPI input to a Device Controller card
- MAP panel control - a Grass Valley product that consists of an LED button panel with RS422 serial control connection into a Device Controller card (refer to page 157)
- Custom button in the MIP
- A Morpheus alarm generated on a device failure
- Changing a channel on an Online Edit Workstation

Typical output actions from a script include:

- Manual intervention (for example, Take Next or other MIP function)
- Insert a predefined Event Type or MediaBall
- Action an Event Type or MediaBall within the running schedule

Example 1

Executing a script (typically from a MAP or MIP panel button) inserts a MediaBall secondary to the PGM event, that immediately triggers. The MediaBall controls a graphics device to place a full-screen overlay onto the on-air output. An extension of the script puts the PGM event in hold so that operator intervention will be required. A second press of same button ends the secondary MediaBall.

Example 2

The script inserts a pre-ordained live source event to the PST position, and, at the same time it takes the current PGM event and uses the Multipart Programme (MPP) feature (Chapter 7.7.2 Multipart Programme Tab) to replicate the PGM event to the next-after-PST position in the schedule. At this point, the operator can Take Next into the live feed, and when complete, the operator can Take Next again, back to the programme. The MPP feature ensures that the second part of the Programme resumes exactly at the point at which it had been before the live feed - the duration rolls to the end of the Programme.

For further information on this option, please contact a Grass Valley representative.

2.3 Device Controller Cards

Below the EventStore level is the device controller layer that houses modular cards in Grass Valley's 3U Icon frame.

A device controller card connects directly to controlled broadcast equipment. It fits in a Grass Valley standard Icon frame and cables from broadcast devices terminate on a rear panel type 1433.

2.3.1 Specification

The card has an on-board, industry standard ETX form factor single board computer (SBC) and runs a real-time operating system known as 'On-Time'.

For connection to the outside world it has:

- Eight serial ports
- 16 GPI connections (refer to page 636)
- An ethernet port

Of the eight serial ports, all are RS-422 capable and ports 1 and 2 can also be RS-232.

The GPI connections can be independently configured as inputs or outputs. If the GPIs are being used as inputs for an external MIP (refer to page 638), their functions are fixed.

2.3.2 Redundancy

Two cards can be run in a redundant configuration, in which case a dual rear panel is needed. The rear panel has one set of device connections but two ethernet ports since each individual card has its own IP address and ethernet connection.

A pair of cards in a redundant configuration provides automatic failover if the active card fails, is rebooted, or is removed - the failover process is transparent to the automation system.

2.3.3 IP Addresses

The IP address of the active card is always shown in the Bridge (refer to page 242) on the Controller Status tab (refer to 'Bridge Tabs' on page 246).

In a larger system more cards, or card pairs, are added in order to provide the required number of equipment connections.

Each card has its own IP address that is used for communication with the Bridge.

In a redundant pair, the cards have individual IP addresses that are normally consecutive, for example 10.0.1.55 and 10.0.1.56.

The IP address of each card is set in the configuration file, **pbak.dat**, but we recommend labelling each card with its IP address to enable rapid identification.

2.3.4 Communication with the Bridge

The Bridge continually synchronizes each card with instructions from the EventStore (refer to page 242) that must be issued to devices - synchronization from the bridge occurs within a period of time known as the Event Look Ahead (refer to 'Event Look Ahead' on page 243).

The card(s) can continue to run the channels for this period of time if the Bridge is shut down for maintenance or upgrades, or if a network or other fault occurs.

Communication with the EventStore is by means of the Bridge, that continuously scans the EventStore for events that are within the execution window.

The Bridge configuration includes a list of devices that are connected to cards or pairs of cards, and event data is passed only to the controller that needs it.

2.3.5 Timecode

A time-of-day timecode reference is vital to an automation system.

The device controller has an LTC input and an on-board timecode reader, and timecode (refer to page 632) is distributed to the rest of the system by means of UDP multicasts (refer to page 35) to the Bridge.

In a multiple card system, timecode is fed to all cards to enable correctly timed event execution, and the Bridge updates the EventStore clock using the earliest timecode to arrive from any of the selected device controllers. It does, however, favour signals locked to timecode and Black and Burst.

'Valid timecode present' is indicated by LED3 on the card edge being illuminated.

The card also has an analogue video reference input and a reference reader and, if timecode is lost, it can continue using its own internal clock locked to the video reference.

Ideally, when timecode is restored there is no discrepancy between the two. If video reference is also lost, the cards can free-run but the longer the situation continues, the greater the likelihood of commands or events being lost due to the 'jump' when timecode is restored.

2.3.6 Restarting a Card

Each card has an individual **pbak.dat** file that is loaded from the compact flash drive at boot-up. It holds all configuration settings for the card to enable it to communicate with the broadcast devices connected to it. It also has a copy of the operating system and proprietary code combined into one file, **pbak.rtb**.

Restarting is the only way to make the card read an updated configuration. The card can be restarted by pressing the reset button on the front edge of the card or by pulling the card out of the frame and re-inserting it. Removing and re-inserting a card must be followed by an extra push to make sure that the card is fully home in the rear connector. Failure to properly seat the card can cause operational issues.

Note: Re-inserting the card will reset the Ethernet adaptor.

When the card is started, it attempts to connect to all of its configured devices, and reports the responses to the Bridge that displays them on the Devices tab (the Devices tab can be displayed from the Controller Status tab).

2.3.7 Polling the Devices

As soon as an event is within the execution window (event look ahead, refer to page 243) and data has been forwarded to the cards, devices can be polled in order to verify that the correct material is present.

- A video server must match the material against a received filename
- A VTR can only confirm that a tape is loaded and that it is in remote mode

Responses from the devices are sent to the Bridge and are subsequently entered into the EventStore device status field appearing on the Editor schedule as a barrel on the right-hand side of the **Main** column (refer to 'Status Barrels' on page 649).

2.3.8 Replacing a Faulty Card

If a faulty card is being replaced, it is necessary to remove the compact flash drive from the faulty card and transfer it to the replacement card in order to transfer the device configuration and assign the IP address - this preserves the link between the device name specified in the EventStore and the physical card to which the Bridge sends event data.

If the faulty card is one of a redundant pair, it can be replaced without disruption to the output.

If there is no backup card, a replacement should be installed during an event that is long enough to allow the swap to be made - the new card will then require starting and synchronizing.

When the new card is inserted, it will connect to the Bridge which will automatically synchronize it with the EventStore. No device commands are issued during this period, therefore the channel output will not be disrupted.

2.3.9 Updating the Operating System and Configuration Files

The operating system and configuration files can be updated in the following manners:

1. With the card in place, using the PBAK Utility - the new files must be present on a drive that is accessible from Morpheus.
2. With the card out of the frame, by connecting the compact flash card to a PC with a USB card reader and using PBAK Deploy.

2.3.10 VGA Port

Both the single and the dual rear panels have a VGA port that can be connected to a monitor to provide a scrolling display of all instructions executed by the Pbak kernel (of the active card, in the case of a redundant pair). For information on the kernel, refer to page 169.

2.3.11 Dual Rear Connector Panel

Using cards in a dual redundant configuration is achieved with a dual rear connector panel that has one set of device control ports that are connected internally to the active card.

There are two ethernet ports because although the cards operate as a redundant pair, the Bridge communicates with them separately.

Cards communicate with each other over the rear panel in order to determine which one should be active - the Bridge only downloads events to the active card.

Note:

When a dual redundant pair is initially powered, it is always the first card to boot up that becomes active.

3. Resilience

Resilience (also known as auto failover) is a means of obtaining immunity to faults or equipment failure in a system, minimising the effects of user error and recovering quickly from outages where this is unpreventable.

Resilience is an important issue in broadcasting since the failure of a channel, even for a comparatively short time, may result in the loss of revenue and the risk of contract penalty clauses being invoked.

Morpheus is able to cope with large parts of the system being removed or disabled without going off air. For example:

- If an operator's Edit Workstation is turned off, all of the channels can still be monitored from any other terminal anywhere on the network.
- If the principle EventStore is turned off, the backup takes over.
- If a system has dual redundant device controllers (refer to 'Device Controller Cards' on page 12), the active card can be removed and the backup takes over.
- If all Edit Workstations and both EventStores are turned off and the active device controllers are removed, the system continues to frame accurately control all its devices.

The key to providing resilience against equipment or software failure is redundancy. Morpheus employs a number of methods to achieve a very high degree of resilience. The following table shows the principal methods.

There are four categories:

- Operational
- Software
- Hardware
- Power

Operational	Panoplay Mode	One Morpheus channel can control two mirrored playout channels and switch to chain B if a fault occurs in chain A (refer to 'Panoplay' on page 21).
	Flexible Channel	A spare channel reserved as a backup for all of the others - a schedule can be transferred to it instantly without causing any disruption.
	Sources	Each source has an allocated 'guard' source (refer to page 645) that plays out in the background, synchronously with the main source - it can be invoked at any time from the Manual Intervention Panel (refer to page 5) or from mixer panel without causing any disruption to the playout.
	Offline Editor	Provides schedule creation and viewing without affecting the active schedule and minimizes the risk of operator error.
	Online Editor	Clear, load and insert schedules. All options leave the on-air event playing.
Software	Continuous backup of queues	Command and snapshot queues (refer to 'Queues' on page 10) are continuously backed up to the Rescale database (refer to page 10) or queue files. The EventStore can be rebuilt in the event of a server crash.
	Applications	These can be run in dual redundant mode on different machines.
	Workstations, Configurator	These can be shut down without affecting output.
	Facility to back up full system configuration	Current_system.xml (refer to 'Import/Export' on page 131) can be 'exported' at any time, and reloaded as part of a system restart if required.
	Modular architecture	Any failure affects one module only, minimizing the risk of complete system failure.

Table 1 Morpheus Resilience

Hardware	Distributed processing	Database, EventStore and Edit workstations can be run on different machines so that machine failure does not necessarily lead to loss of automation.
	Database PC	Databases exist in high availability using Microsoft's mirroring technology.
	Device Controller card	<p>Device controller cards (refer to page 12):</p> <ul style="list-style-type: none"> • Are not Windows based. • Are quick to reboot and resynchronize. • Contain a continuously updated look-ahead of the schedules, so that the station output can continue for a time without loss of automation. This allows invisible reconfiguration, repair, restart or upgrade. • Are backed up in flash RAM. • Can run as a dual redundant pair with auto switchover. <p>Guard sources (refer to page 645) can be controlled from a card in another crate, protecting against crate failure.</p>
Power	EventStore PC PSUs	The PC has dual PSUs that can be fed from different supplies.
	Icon Crate PSUs	Crates can have dual PSUs.

Table 1 Morpheus Resilience

4. Morpheus Applications

The Morpheus automation system consists of many applications, some essential, others optional.

4.1 Starting Morpheus Applications

Morpheus applications are started from the 'Morpheus Shortcuts' folder on the desktop. The name and location of the folder can be changed in the 'Deploy' application (refer to page 24).

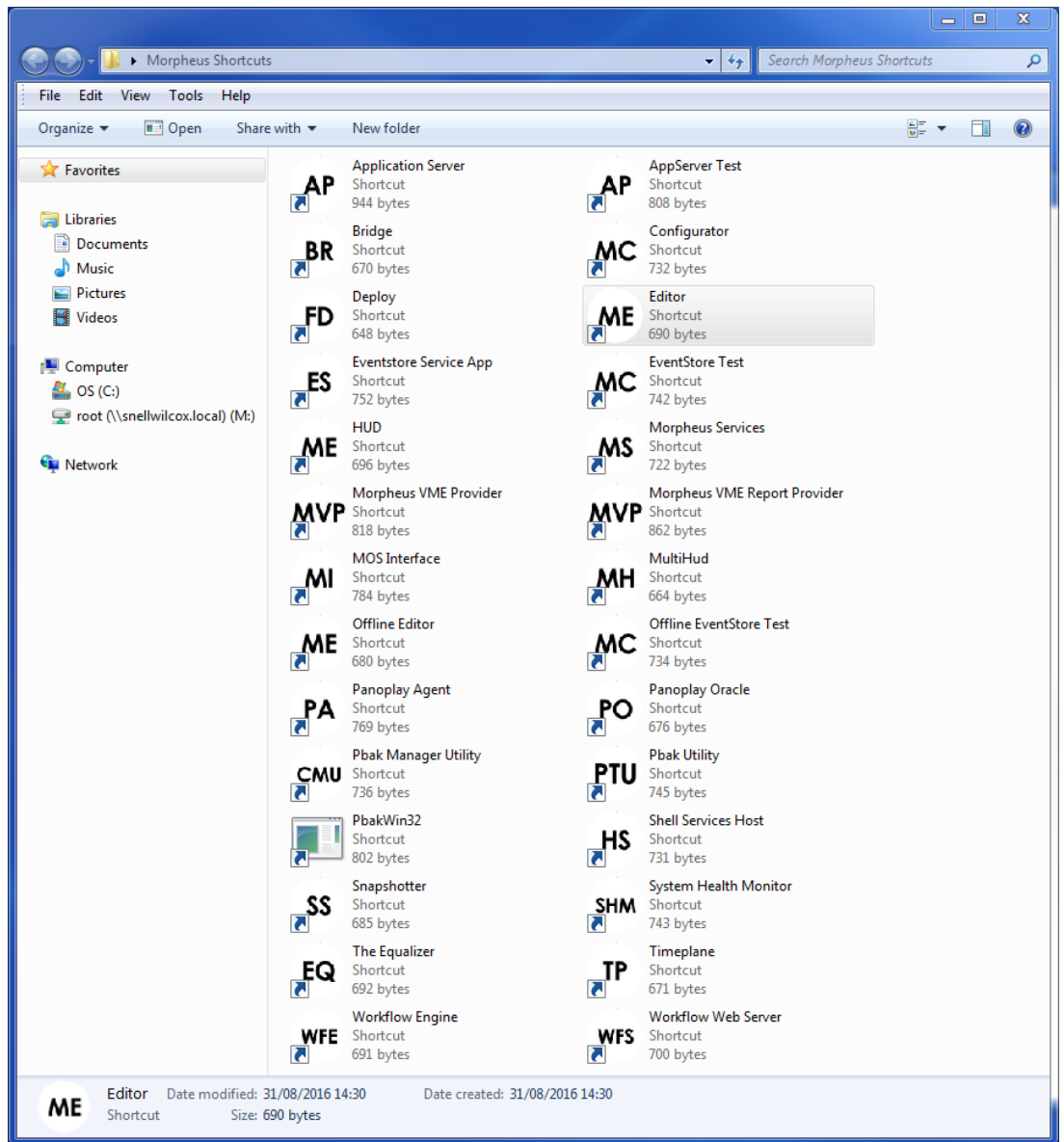


Figure 4 Morpheus Shortcuts Folder

The Editor, HUD and Timeplane are usually installed on the operator workstation with the other applications on a separate server.

Note: When starting an application that uses Rescale (for example, the Bridge), if the application is already running on the same multicast address then the user has the option of terminating the original instance. In this case, a message is added to the Windows Event Viewer application log.

4.2 Application Server

The Application Server allows the Editor and Host Shell Services applications to communicate with the Morpheus media management database. Refer to page 165 for further information.

4.3 Automated Mat-Checker (AMC)

The AMC scans a hot folder for pre transmission schedules (that are usually updated prior to transmission).

It also establishes if material has not yet been ingested (refer to page 631) onto the appropriate storage device ready for transmission, for example, Isilon, Media Grid or JBOD - requests are posted to the Morpheus media management system (refer to page 615) through the Media Management Application Server for the media to be ingested and stored.

The Automated Mat-Checker does not check that media has been ingested, it only sends the requests.

4.4 Automation Database Reporter (ADR)

The Automation Database Reporter is used to create and configure 'as run logs' and 'engineering logs'. Refer to page 569 for further information.

4.5 Bridge

The Bridge synchronizes the EventStore with the device controller cards. Refer to page 242 for further information.

4.6 Configurator

The Configurator is the configuration tool for the EventStore. Refer to page 50 for further information.

4.7 Deploy

An application to install or upgrade Morpheus. Refer to page 24 for further information.

4.8 Device Manager Viewer (DMV)

The Morpheus 'Device Manager Viewer' provides a view of the allocation of devices through a graphical representation. Refer to page 210 for further information.

4.9 Editor

The Editor application allows operators to interact with the system by appending schedules and monitoring the status of the playlist. Refer to page 3 for further information.

4.10 HUD (Head Up Display)

The HUD provides a limited, read-only view of one channel with limited event look-ahead. It is normally run on a separate workstation.

It is often used to display of the next few events in concise form, using a large font and customized color configuration.

Error messages are shown in a moving banner at the bottom of the HUD.

The HUD is a separate instance of the Editor.

For further information about the HUD, refer to the Morpheus Operators manual.

Note:

When viewing live schedules in a Playout facility, the HUD is typically displayed on a large monitor for multiple operators to view. The Editor (Workstation) is used by a member of staff whose role is to create (rather than monitor) schedules.

4.11 Mock Morpheus Application Server (MMAS)

The Mock Morpheus Application Server is a 'lite' (file based) version of the Application Server (refer to page 19) and Morpheus media management database (refer to page 588). It is not appropriate for live use.

4.12 Morpheus Services (MS)

Morpheus Services provides a .NET remoting mechanism to access objects that are not contained within the EventStore.

For information relating to the EventStore refer to Chapter 2.2 EventStore.

4.13 MOS Interface

MOS is a socket based XML interface into Morpheus. It generates a copy of the active Morpheus schedule in MOS format, commonly used to provide data to EPG (refer to page 644) or graphics systems.

For example, it can be used to establish the title of the current and next 10 events for an EPG or now/next/later functionality within a channel.

4.14 Offline Editor

The Offline Editor is used for creating and editing schedules off-line. It has the same appearance as the Online Editor but lacks some of its features such as the clock and the live event countdown. Refer to page 6 for further information.

4.15 Panoplay

Panoplay synchronizes schedules between channels that access different Event Stores. Refer to page 528 for further information.

4.16 Pbak (Automation Kernel)

Pbak is the Grass Valley automation kernel that runs on the device controller card(s). Refer to page 169 for further information.

4.17 sQ Driver

A .NET plugin to the Bridge (refer to page 242) to provide control of sQ devices that use the CORBA protocol. CORBA (Common Object Request Broker Architecture) provides a framework for distributed applications to communicate with each other, even if they are implemented in different languages.

4.18 Rescale

Rescale is not an application, it is a mechanism that applications use to perform the following:

- Obtain the event model from the Rescale MSSQL database (refer to page 9).
- Serialize the updated event model back to the Rescale database.

Applications never read from, or write to, the Rescale database, instead they always use Rescale. This ensures that the integrity of the Rescale database is maintained - after each event model update, Rescale broadcasts messages to all other applications in order to update their event models.

Updates to the Rescale database are stored as commands - Rescale ensures that they are created in the order in which the updates are applied to ensure that the event model instances (refer to page 645), in active Morpheus applications, are synchronized.

4.19 Shell Services Host (Host Shell Services)

Host Shell Services is a host application that contains various services that can be used by the system. Services include the Transfer Decorator, the Material Decorator and the Locks Decorator. Refer to page 197.

4.20 Snapshotter

Snapshotter is an application within the EventStore that takes a 'snapshot' of the current model and deletes past updates from the 'command queue' (refer to 'Queues' on page 10). Refer to page 48 for further information.

4.21 SuperDuo

SuperDuo is a legacy schedule synchronization application that has been superseded by Panoplay.

4.22 The Equalizer

An application communicates with both the Morpheus EventStore and any configured Pbak controllers or ICE devices and establishes that they are compatible. It also provides notification of any inconsistencies and contains tools to rectify those inconsistencies.

The Equalizer creates devices in the EventStore that match the names of the corresponding drivers on the Pbak cards - it also verifies the following:

- Kernel Class Ids are compatible
- Pbak driver names do not exist on more than one card
- Both of the cards of a dual controller have the same drivers and configuration

For further information, refer to Section 11. The Equalizer on page 217.

4.23 Timeplane

The Timeplane displays scheduled events across multiple channels in a timeline, where each event's length is proportional to its duration - this contrasts with an event displayed in the Editor or HUD.

The Timeplane can indicate simultaneous events exist across channels. This is less apparent in the Editor or the HUD.

Use the Timeplane to zoom in and out to show all channels simultaneously - useful in a multi-region situation.

5. Deploy

Deploy is an application for installing or upgrading Morpheus:

- Select Morpheus applications to install (it is possible to install additional applications at a later time)
- Add a multicast address
- Specify a drive and folder for Morpheus logs
- Add switches to control application startup
- Recreate queues (necessary in a disaster recovery situation)

5.1 Installing and Adding Applications

The Editor, HUD and Timeplane are usually installed on the operator workstation, whilst other applications are installed on a separate server.

Important:

If deploying Morpheus applications onto a Windows 7 platform, ensure that the display setting in Control Panel > Appearance and Personalization > Display is set to 'Smaller - 100%', otherwise some Morpheus windows will not be displayed correctly.

Complete all of Section 5.1 in order to perform the installation

1. If installing applications for the first time, run FileDeployer.exe from the C:\Morpheusfolder.
2. If adding or modifying applications, double-click on **Deploy** in the Morpheus Shortcuts folder on the desktop.

The Rescale Deployment Tool window is displayed.

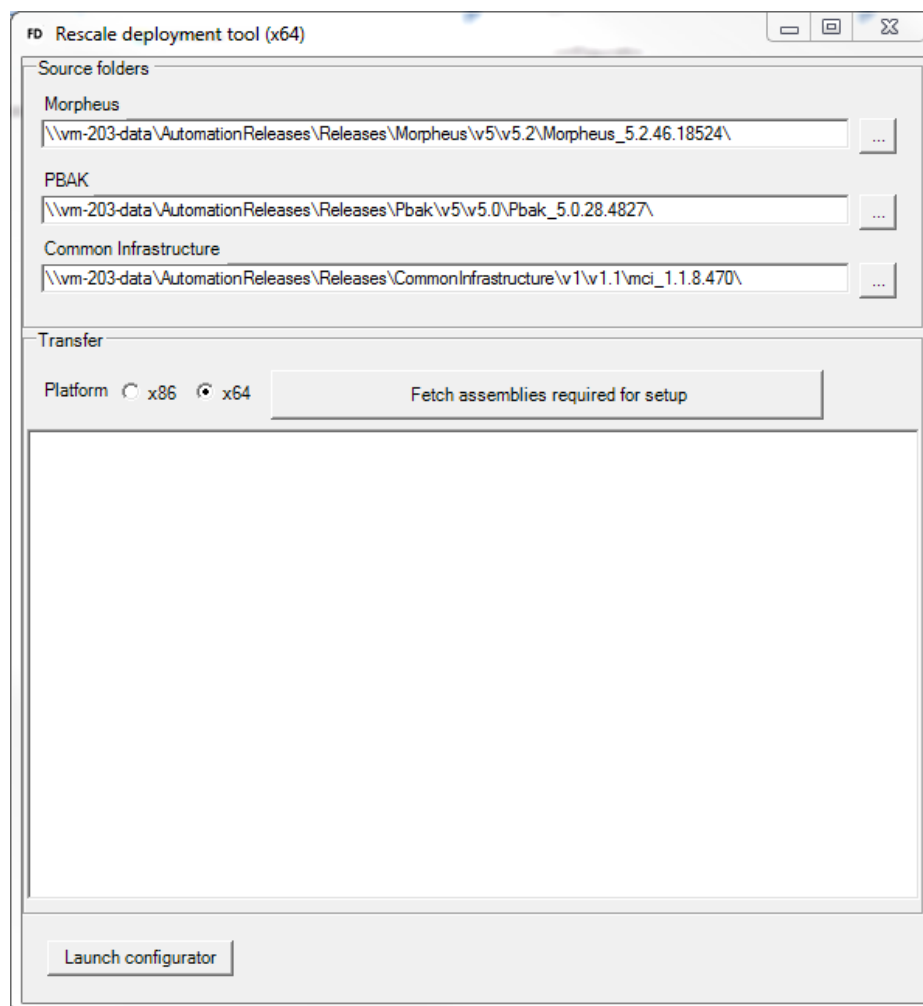


Figure 5 Rescale Deployment Tool

3. Select the source folders for the following:
 - Morpheus
 - PBAK
 - Common Infrastructure
4. In the Transfer pane, select the appropriate Operating System using the Platform radio button:
 - **x86** for a 32-bit O/S
 - **x64** for a 64-bit O/S
5. Click on **Fetch assemblies required for setup**.
6. Once the process is complete, click on **OK** when prompted with the message 'file deploy has updated'.

The words 'No errors' should appear at the bottom of the window.
7. Click on **Launch Configurator**. The Morpheus Deployment Tool window is displayed.

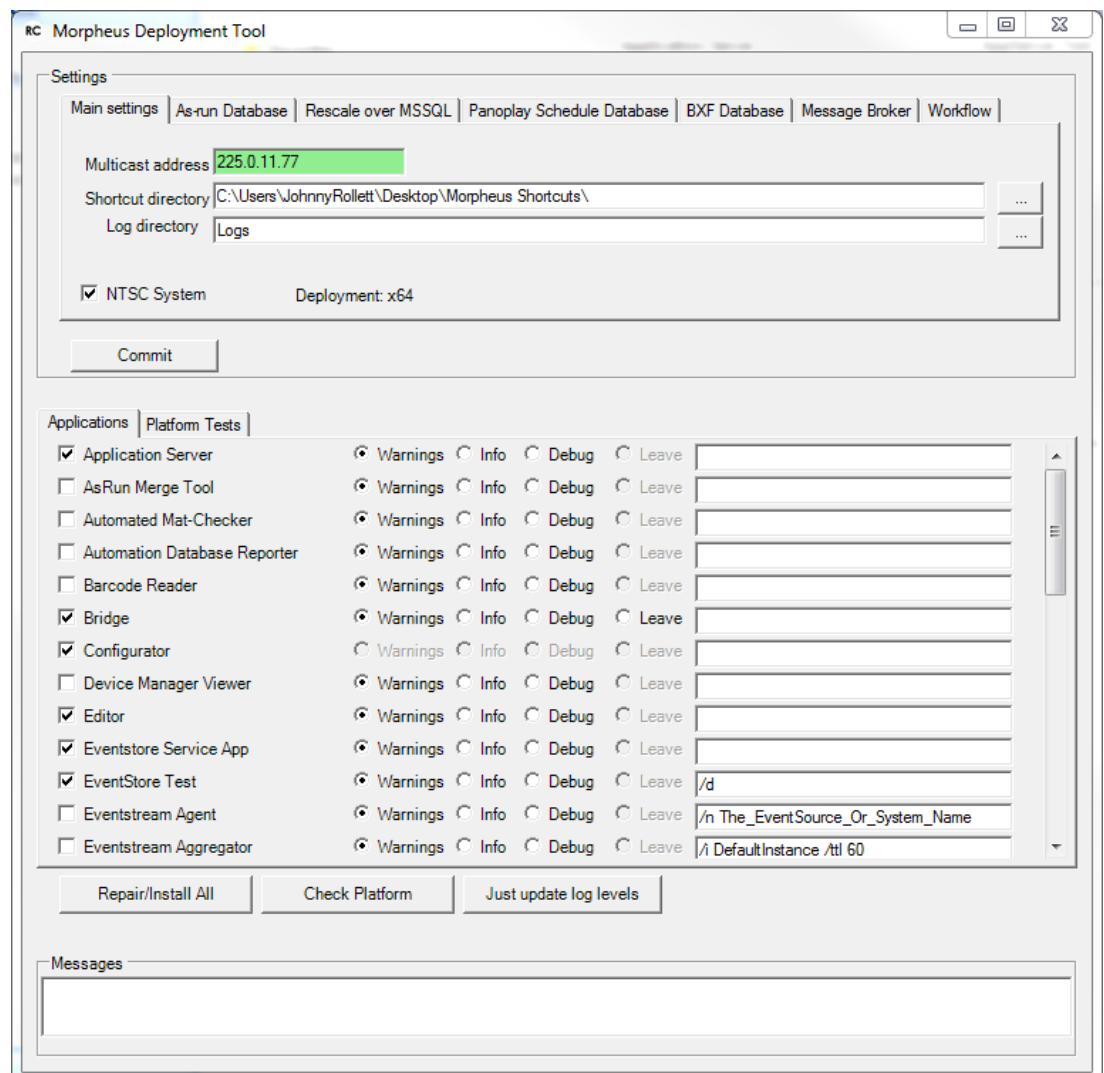


Figure 6 Morpheus Deployment Tool

5.1.1 Main Settings Tab

Note: Save any new or changes parameters by clicking on **Commit**.


- Multicast Address

Enter the multicast address for the Morpheus group - or further information, refer to Section 5.2 UDP Multicasting.


The text box is colour coded to indicate whether or not the IP address entered is a valid multicast address, and to ensure that the correct syntax is used (which includes no leading or trailing spaces):

- Green: valid
- Pink: invalid

- Shortcut Directory

Enter the location and name for the folder that will contain the installed application shortcuts (a 'Morpheus Shortcuts' folder will appear on the desktop once the deployment has been completed). A browse button  is provided for convenience.

- Log directory

Enter the folder into which system logs are to be stored. The folder is appended to the Morpheus installation folder, i.e. if 'Logs' is entered into the Log directory field, then the path will resolve to C:\Morpheus\Logs. A browse button  is provided for convenience.

- NTSC System

The video standard used by the system that Morpheus will control. Tick the checkbox in order to select **NTSC** for a 525/60 system, or clear the checkbox for a 625/50 system (refer to 'Drop-frame Timecode' on page 633).

5.1.2 As-run Database Tab

Note: Save any new or changes parameters by clicking on **Commit**.

- Automation Database Connection String

Define the connection string as SQL Server SqlConnection value pairs separated by semi-colons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwd>;Initial Catalog=<bxfl catalogue>

Where:

'Data Source=<SQL server address [typically the machine name]>;

User ID=<SQL server login account [default = sa]>;

Password=<SQL server login account password [default = sa]>;

Initial Catalog=<DatabaseName> (the name of the database with which to connect).

Note: The properties for this string will have been configured at the time of the database creation.

Verify the validity of the connection string by pressing the **Test Connection** button.

A successful connection to the database will display the following message (Fig. 7):

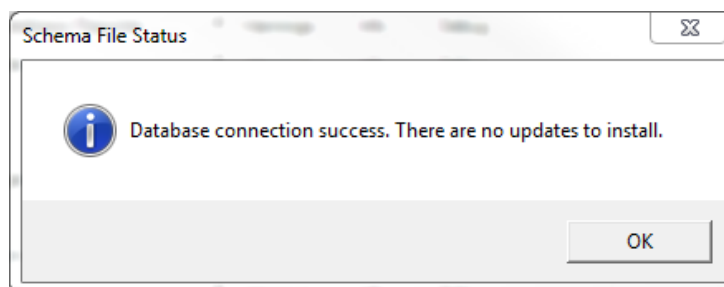


Figure 7 Database Connection Successful

If a connection fails, the following error message is displayed (Fig. 8):

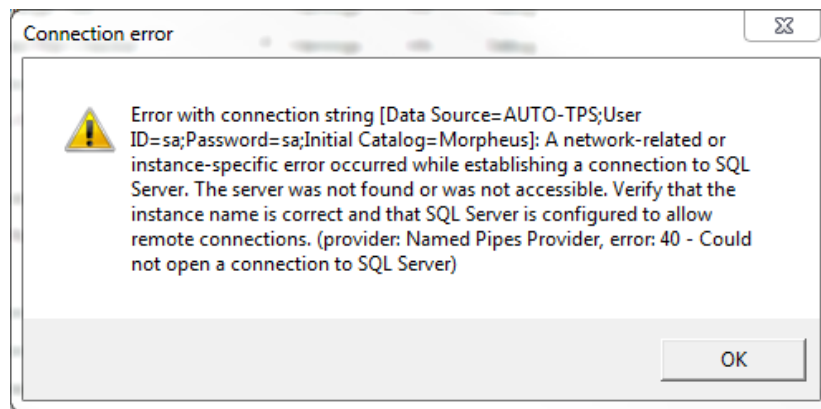


Figure 8 Database Connection Error

- Install Schema

Applies the initial structure, or updates to the structure, of the database according to the definitions in the schema file.

5.1.3 Rescale Over MSSQL Tab

Note: Save any new or changes parameters by clicking on **Commit**.

- Rescale Database Connection String

Define the connection string as SQL Server SqlConnection value pairs separated by semi-colons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwd>;Initial Catalog=<bxfl catalogue>

Where:

'Data Source=<SQL server address [typically the machine name]>;

User ID=<SQL server login account [default = sa]>;

Password=<SQL server login account password [default = sa]>;

Initial Catalogue=<DatabaseName> (the name of the database with which to connect).

Note: The properties for this string will have been configured at the time of the database creation.

Verify the validity of the connection string by pressing the **Test Connection** button.

- Install Schema

Applies the initial structure, or updates to the structure, of the database according to the definitions in the schema file.

- Recreate Queues

Recreate Queues is a process that deletes both the system Command Queues and the Snapshot Queues, thereby erasing the entire system configuration.



- Recreate Queues should only be used to rebuild an existing system, for an upgrade to some of the component applications, or for recovering from corrupt EventStore data.

- Before recreating queues, a backup of the **current_system.xml** file must be available if an existing configuration is to be reloaded (refer to page 131); to reload an existing system configuration refer to Section 5.1.3.1 Reimporting Current_System.xml.

- Always start the Snapshotter application before all others, having run the Recreate Queues process, in order to ensure that a clean build of the system is performed.

1. In the Rescale Deployment Tool, click on **Launch Configurator**.
2. Click on the **Rescale over MSSQL** tab.
3. Click on **Recreate Queues**.

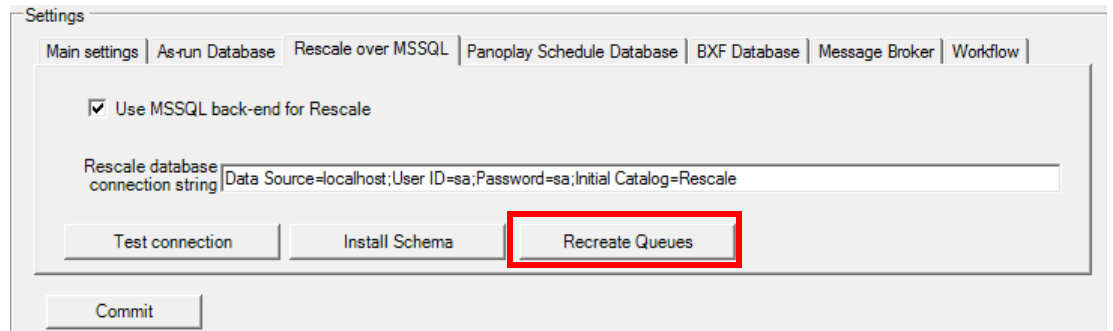


Figure 9 Recreate Queues

4. A confirmation message is displayed.



Ensure that a backup exists before confirming - it is not possible to undo this action.

5.1.3.1 Reimporting Current_System.xml

After queues have been recreated, import the backup of **current_system.xml**.

From the Configurator (refer to page 50), click on the **Import/Export** toolbar button (refer to page 131).

5.1.4 Panoplay Schedule Database Tab

Note: Save any new or changes parameters by clicking on **Commit**.

- Panoplay Schedule Database Connection String

Define the connection string as SQL Server SqlConnection value pairs separated by semi-colons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwd>;Initial Catalog=<bxfl catalogue>

Where:

'Data Source=<SQL server address [typically the machine name]>;

User ID=<SQL server login account [default = sa]>;

Password=<SQL server login account password [default = sa]>;

Initial Catalog=<DatabaseName> (the name of the database with which to connect).

Note: The properties for this string will have been configured at the time of the database creation.

Verify the validity of the connection string by pressing the **Test Connection** button.

- Install Schema

Applies the initial structure, or updates to the structure, of the database according to the definitions in the schema file.

5.1.5 BXF Database Tab

Note: Save any new or changes parameters by clicking on **Commit**.

- BXF Database Connection String

Define the connection string as SQL Server SqlConnection value pairs separated by semi-colons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwd>;Initial Catalog=<bxfl catalogue>

Where:

'Data Source=<SQL server address [typically the machine name]>;

User ID=<SQL server login account [default = sa]>;

Password=<SQL server login account password [default = sa]>;

Initial Catalog=<DatabaseName> (the name of the database with which to connect).

Note: The properties for this string will have been configured at the time of the database creation.

Verify the validity of the connection string by pressing the **Test Connection** button.

- Install Schema

Applies the initial structure, or updates to the structure, of the database according to the definitions in the schema file.

5.1.6 Message Broker Tab

Contains the settings for the database in use by the EventStore Service Application.

Note: Save any new or changes parameters by clicking on **Commit**.

- Connection String

Define the connection string as SQL Server SqlConnection value pairs separated by semi-colons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwd>;Initial Catalog=<bxfl catalogue>

Where:

'Data Source=<SQL server address [typically the machine name]>;

User ID=<SQL server login account [default = sa]>;

Password=<SQL server login account password [default = sa]>;

Initial Catalogue=<DatabaseName> (the name of the database with which to connect).

Note: The properties for this string will have been configured at the time of the database creation.

Verify the validity of the connection string by pressing the **Test Connection** button.

- Install Schema

Applies the initial structure, or updates to the structure, of the database according to the definitions in the schema file.

5.1.7 Workflow Tab

Note: Save any new or changes parameters by clicking on **Commit**.

- Connection String

Define the connection string as SQL Server SqlConnection value pairs separated by semi-colons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwr>;Initial Catalog=<dbf catalogue>

Where:

'Data Source=<SQL server address [typically the machine name]>;

User ID=<SQL server login account [default = sa]>;

Password=<SQL server login account password [default = sa]>;

Initial Catalog=<DatabaseName> (the name of the database with which to connect).

Note: The properties for this string will have been configured at the time of the database creation.

Verify the validity of the connection string by pressing the **Test Connection** button.

- Install Schema

Applies the initial structure, or updates to the structure, of the database according to the definitions in the schema file.

5.1.8 Applications Tab

1. Under **Applications**, select each application to be installed.
2. Use the radio buttons to select the log levels for each application - only one radio button can be selected per application. Greyed out log levels are not applicable.

- **Warnings**

- **Info**

- **Debug**

- **Leave**

3. If required, use the field next to the application(s) to apply any switches (refer to Section 5.3 Application Startup Switches) and then click on **Repair/Install All**.

5.2 UDP Multicasting

Multicasting is a mechanism that allows a specific group of applications, running on various computers to receive data packets from a single source device. Morpheus achieves this by multicasting over the User Datagram Protocol (UDP). A UDP packet is a formatted unit of data carried over an IP network.

In order to receive the UDP packets, each application must subscribe to the same multicast IP address, to which the source device must send packets destined for the group.

UDP multicasting is connectionless, meaning that it does not guarantee that packets will arrive at their destination and therefore does not require acknowledgement of receipt of a packet. This has the advantage of speed, at the expense of reliability.

A multicast IP address is different to a device's network IP address - they are from the reserved class D range of 224.0.0.0 to 239.255.255.255.

As with TCP, UDP at layer four of the OSI 7-layer model (refer to page 649).

5.2.1 UDP Multicasting in Morpheus

In Morpheus, all communications with the EventStore use UDP multicasting on port numbers **28523** and **28524**.

UDP multicasting is also used for communicating reference timecode (refer to page 632) from the device controller cards (refer to page 12) to the Bridge (refer to page 242).

5.2.2 Multicast Addresses

All EventStore clients must have a multicast address that specified in its shortcut (refer to 'Application Startup Switches' on page 37).

Example:

```
MorpheusEditor.exe /a 225.0.1.100
```

A 'multicast address' is an address with the same 4-byte format as an IP address. It must be configured in Morpheus to enable the distribution of UDP multicast packets.

The PC network adaptor is unaware of the multicast address (just as it is unaware of port numbers) since this relates to applications rather than network adaptors. Therefore the multicast address is not in the PC's network configuration, only in the configuration of each application.

The system multicast address is configured during software deployment (refer to 'Installing or Adding Modules') which automatically appends the correct application startup switch to the application shortcuts.

It is not held in the EventStore and consequently does not appear in **current_system.xml** (refer to page 131). It can be changed by running the Deploy application again or by editing the application shortcuts manually.

RescaleFileDeployment.xml keeps a record of the last multicast address entered during the Deploy process.

Multicasting allows two or more separate Morpheus systems to exist on the same physical network, provided each system has its own multicast address.

In Morpheus each logical Server group must have a unique Multicast address on a LAN. Multicast messages are processed by all applications that subscribe to the same multicast address.

5.3 Application Startup Switches

A switch can be applied to an application shortcut to control the manner in which the application starts.

A switch can be added to an application in either the Morpheus Deployment Tool or in the Properties window of the application shortcut.

Note:

It is recommended to only add switches directly to shortcuts in the Morpheus Deployment Tool at the installation phase - shortcut properties will then be automatically populated. The same does not apply in reverse.

Switch syntax is as follows:

```
<drive>:\<application shortcut.exe> /<switch>
```

E.g. C:\Morpheus\MorpheusEditor.exe /o

A combination of switches can be applied, for example:

```
C:\MorpheusEditor.exe /a 225.0.11.152 /t <name> /x
```

Switches can be applied in one of two ways:

- In the Morpheus Deployment Tool, prior to deploying the application
- In the properties of the application shortcut after deployment of the application

5.3.1 Adding Application Startup Switches in the Morpheus Deployment Tool

Type the required switches against each application directly into the fields highlighted in Fig. 10

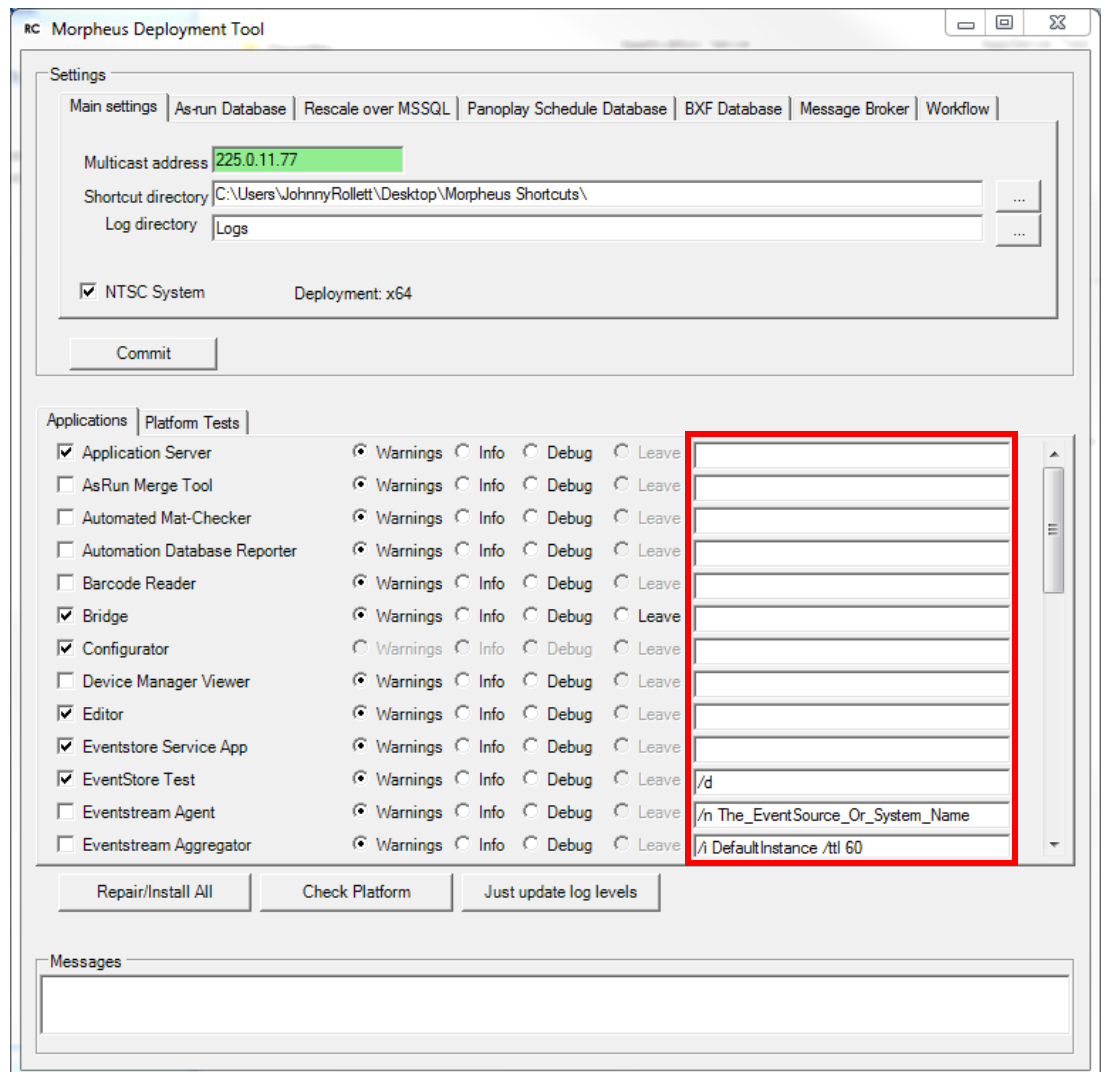


Figure 10 Morpheus Deployment Tool Application Switch Field

5.3.2 Adding Application Startup Switches into the Application Properties Field

1. Right-click on the application shortcut and click on **Properties**.
2. In the Shortcut Tab, enter the required switches in the **Target** field, as demonstrated in Fig. 11.

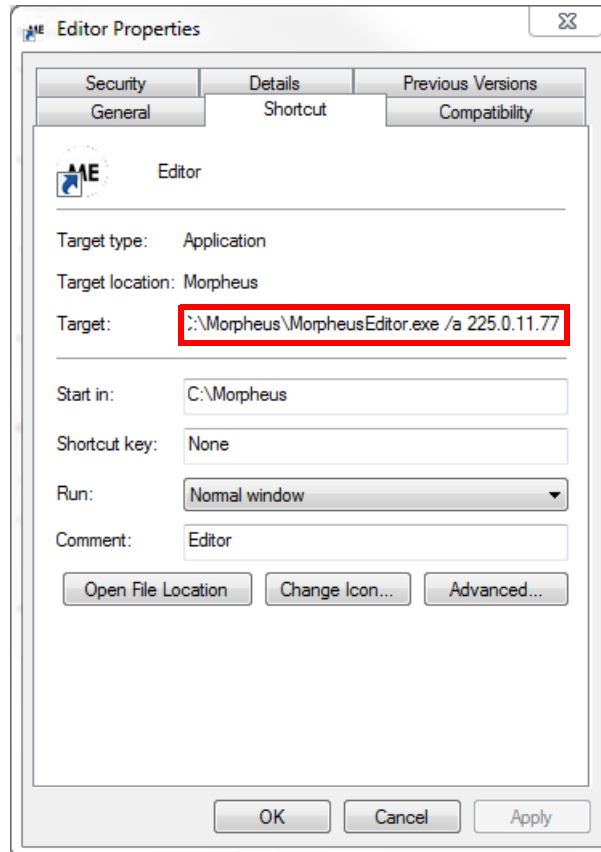
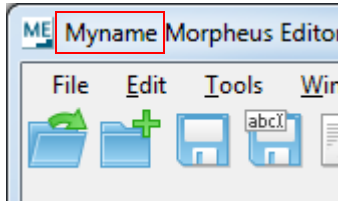


Figure 11 Editor Properties

Note: The Morpheus Deployment Tool switch fields will not be populated if this method is used.

5.3.3 Application Startup Switches for the Editor

The following switches can be used for the Editor.

Switch	Function
/a <multicast_address>	Sets the multicast address (refer to page 35).
/of <path\filename.xml>	<p>Runs the Editor as an Offline Editor and forces the use of a specific system.xml file (refer to page 131). The system.xml file is required for the Offline Editor.</p> <p>The default location for exported system xml files is c:\EventStoreExport\current_system.xml. Adding the path and filename to the Offline Editor shortcut ensures that it always reads the latest version of the file.</p>
/r rolename	Starts the Editor using a specific role name, in this case, 'rolename' (refer to page 269).
/x	Displays the Role Login window when starting the Editor, prompting for the role name only (no password is requested or required).
/r rolename /x	Starts the Editor without displaying the Role Login window, and logs the operator in automatically using the stated rolename - the system does not prompt for a password.
/t Myname	<p>Prepends the words 'Morpheus Editor', on the Editor taskbar and on the taskbar shortcut, with customisable text. For example:</p> 
/hc 1	Starts the Editor as the HUD (refer to page 21) for a specific channel (the channel number is entered after /hc).
/c <filename.xml>	Sets the name for the local configuration file.
/i <name>	Runs a named instance (refer to page 645) of the Editor.

5.4 Recreate Queues (Disaster Recovery)

Important:

Before recreating queues it is vital to ensure that a good backup of the **current_system.xml** file exists (refer to page 131). Recreate Queues always requires the system configuration to be re-imported (refer to 'Reimporting Current_System.xml' below).

Recreate Queues is a command in Deploy that deletes existing queues and generates new, empty queues. In doing so it deletes all channel schedules, configurations, Event Types (refer to page 52), MediaBalls (refer to page 53), devices and sources.

Recreate Queues should only be used for the recovery of corrupt EventStore data or for building a new system.

To recreate queues:

1. From Deploy, click on **Launch configurator**.
2. Click on the **Rescale over MSSQL** tab.
3. Click on **Recreate Queues**.

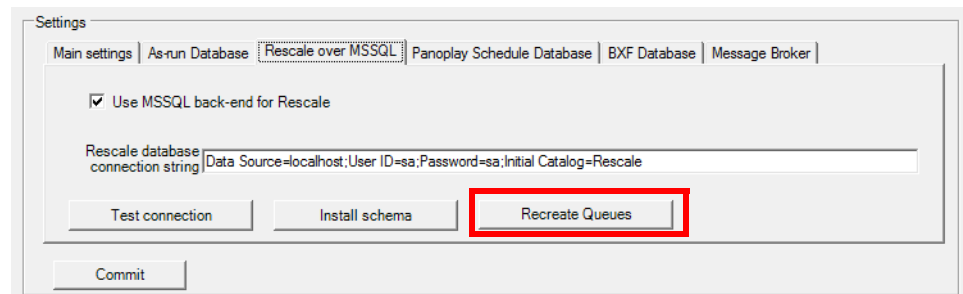


Figure 12 Recreate Queues

4. A confirmation message is displayed.



Ensure that a backup exists before confirming, as it is not possible to undo this action.

5.4.1 Reimporting Current_System.xml

After queues have been recreated, import the backup of **current_system.xml**.

From the Configurator (refer to page 50), click on the **Import/Export** toolbar button (refer to page 131).

5.5 Deploy CLI Tool

As part of the Morpheus deployment system, the Deploy CLI tool assists in automating the creation of a new Morpheus system. It requires a PC or virtual machine that contains the correct environment for Morpheus but does not yet contain the Morpheus application and configuration.

Using the Deploy CLI tool results in a fully configured Morpheus system that is ready to play out.

The application has two stages:

- **System configuration** - takes place on a central 'system preparation' server and creates the Morpheus configuration files.
- **Machine configuration** - installing and configuring Morpheus on individual machines.

5.5.1 System Configuration

The Deploy CLI tool resides on a central 'system preparation' server with the following files:

- System_Profile.xml file
- Panoplay configuration file (PanoplayConfiguration.xml)
- An Icons folder
- A set of application configuration files for each machine
- System profile file and import extensions profile file
- Machine profile file for each Morpheus server

The profile files specify the set of parameters and their values that the Deploy CLI tool uses to perform its configuration.

The system_Profile.xml file contains the following Morpheus information:

- Eventstore System Name
- Multicast address
- NTSC flag
- Database connection strings (Rescale, AsRun, BXF, Panoplay)
- Morpheus App Server endpoints (including new machine names / IP addresses)
- Panoplay endpoints (agents, oracle)
- HostShell service instance timeout periods
- Morpheus Services endpoints

Import Extensions

Each Morpheus Event Store has a set of import extensions that can be offered to the user. The Deploy CLI tool has an **Import Extensions** option that prompts the user to select one or more extensions.

To offer the extensions list to the user, using a Command Prompt, enter the following command to create a new profile file (ImportExtensions_Profile.xml):

```
MorpheusDeployCLI.exe -importExtensions
```

The file resides in the Profiles directory (see above) on the 'system preparation' server. For each import extension, the file indicates whether it should be applied to the Eventstore.

Preparing a System

Once the ImportExtensions_Profile.xml file is created and placed in the Profiles directory, the application can use the new file to update the Morpheus System.xml and version by using the **Prepare** option.

Using a Command Prompt, enter the following command:

```
MorpheusDeployCLI.exe -prepare
```

This command updates the System.xml and PanoplayConfiguration.xml files that the application can use to create individual Morpheus installations during the machine configuration stage.

The Prepare command executes the selected import extensions specified in the ImportExtensions_Profile.xml file. The process fails if the file does not exist or is in the incorrect format.

5.5.2 Machine Configuration

For each individual machine that requires a new Morpheus installation, the Deploy CLI tool is deployed with the following files:

- Base image of Morpheus to deploy
- Base image of PBAK to deploy
- System-wide base configuration
- System.xml
- PanoplayConfiguration.xml
- Icons folder
- A set of application configuration files for each machine

The Deploy CLI tool has several functions that it can perform during the machine configuration step for a particular machine:

- Morpheus software deployment (-deploy)
- Report the Deploy CLI tool version (-vtool)
- Report the Morpheus deployed software version (-vdeploy)
- Morpheus prerequisites check (-pre)
- Morpheus database schema update (-update<database>)
- Sniff the network for multicast packets for a specified time (-sniff)
- Import System.xml to create the Eventstore (-import)
- Perform an initial snapshot (-initialSnapshot)
- Recreate the Rescale queues (-recreateQueues)

Deploying Morpheus

The deployment (-deploy) function installs Morpheus onto the machine by performing the following steps:

- Configures an appropriate C:\rescale.ini including Max Hops and actual IP address.
- Configures the correct NTSC flag and x86/x64 platform.
- Configures the database connection strings.
- Moves the specified Morpheus applications and Icons to the target directory, configures their command line arguments and logging options and creates their shortcuts in the specified shortcuts directory.
- Moves the custom icons (if any) from the System / Icons directory on the 'system preparation' server to the target/Icons subdirectory, overwriting any icons installed by the previous step.
- Overwrites the installed configuration files in the target directory with the configuration files for the machine on the 'system preparation' server.
- Deploys MorpheusDeployCLI.exe and its dependent files to a target machine in the C:\MorpheusDeployCLI directory.

To deploy Morpheus, using a Command Prompt, enter the following command:

```
MorpheusDeployCLI.exe -deploy -deployData <path to DeployData>  
-machine <machine name> -morpheus <path to Morpheus image> -pbak  
<path to pbak image>
```

5.5.3 Deploy CLI Options

The Deploy CLI tool provides the following options:

Command	Description
-deploy	Deploys Morpheus onto target machines and configures them according to the parameters specified in <Machine>_Profile.xml file.
<ul style="list-style-type: none"> • -deployData <path to DeployData> • -machine <machine name> • -morpheus <path to Morpheus image> • -pbak <path to pbak image> 	
-vtool [-full]	Reports the version number of the Deploy CLI tool.
-vdeploy	Reports the versions of the installed software.
-pre	Performs a prerequisites test and reports the results.
-sniff -timesecs <no. seconds> -deployData <path to DeployData>	Runs a checks for <n> seconds for multicast packets on the network whose multicast address is specified in the System_Profile.xml file.

The options listed below should only be run once the -deploy option is executed successfully on the machine.

-importSystem	Runs Morpheus Configurator in a mode where it loads the System.xml and exits.
-initialSnapshot	Runs the Snapshotter in a mode where it performs an initial snapshot if necessary and then exits.
-updateRescale -deployData <path to DeployData> -morpheus <path to Morpheus image> [-mustbeempty]	Installs or updates a Rescale schema on a pre-existing database. If the [-mustbeempty] option is specified, the schema is only applied if the database is empty. If the database is not empty an error occurs.
-updatePanoplay -deployData <path to DeployData> -morpheus <path to Morpheus image> [-mustbeempty]	Installs or updates a Panoplay schedule schema on a pre-existing database. If the [-mustbeempty] option is specified, the schema is only applied if the database is empty. If the database is not empty an error occurs.
-updateAsRun -deployData <path to DeployData> -morpheus <path to Morpheus image> [-mustbeempty]	Installs or updates an AsRun schema on a pre-existing database. If the [-mustbeempty] option is specified, the schema is only applied if the database is empty. If the database is not empty an error occurs.
-updateBxf -deployData <path to DeployData> -morpheus <path to Morpheus image> [-mustbeempty] i	Installs or updates a BXF schema on a pre-existing database. If the [-mustbeempty] option is specified, the schema is only applied if the database is empty. If the database is not empty an error occurs.
-recreateQueues	Recreates the Rescale queues.

Table 2 Deploy CLI Tool Commands

All configuration changes are performed offline. A running system cannot be modified dynamically.

5.5.4 Logging

The tool creates a local log file: MorpheusDeployCli.log.

Reported items include:

- Deployed version
- Error conditions
- Actions performed

6. Snapshotter

The Snapshotter is an application within the EventStore that takes a snapshot of the current model and deletes past updates from the 'command queue'.

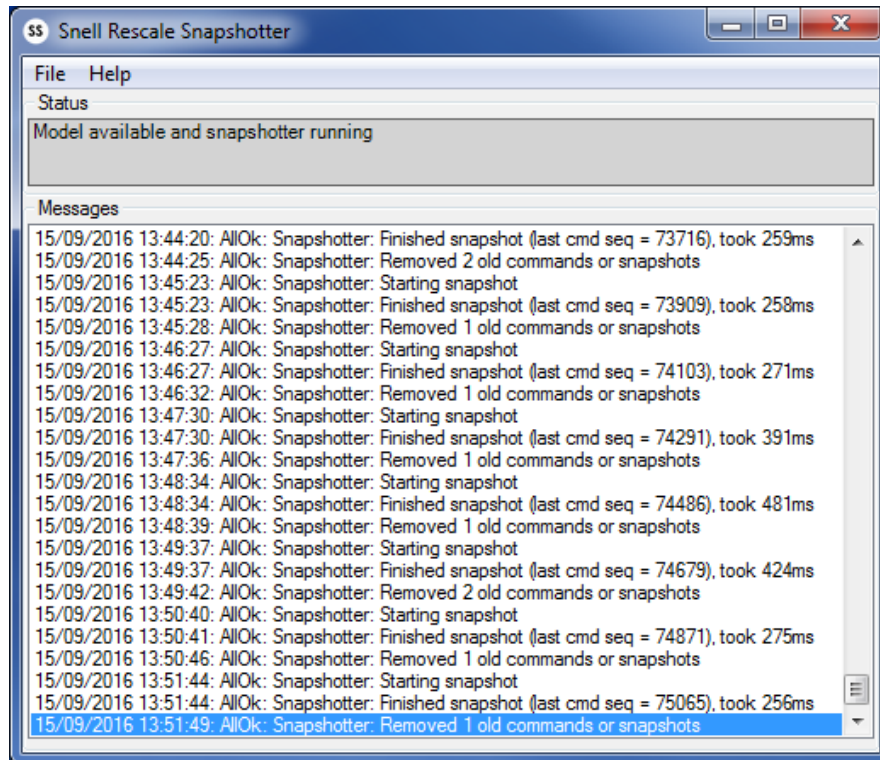


Figure 13 Snapshotter

6.1 Snapshotter Functionality

When the Snapshotter has taken a snapshot of the model, all previous updates are deleted, and old data is sent to the 'snapshot queue' (refer to 'Queues' on page 10). This process occurs every 60 seconds.

Applications that read the model from the database need only the most recent snapshot (less than 60 seconds old), and then process any updates that remain in the command queue - this prevents them from needing to go back to the snapshot when the system was started and process all updates.

The Snapshotter prevents the command queue from becoming long and unwieldy. It also ensures that applications can always start up and subsequently re-read the model rapidly.

The Snapshot queue keeps 20 old snapshots. The command queue also keeps the updates that go with those snapshots.

6.2 Snapshotter Log

The Snapshotter log is a file created by the Snapshotter. It contains a record of all Snapshotter activity and can be found in C:\Morpheus\Logs - the most recent log file is Snapshotter.exe.log. Previous Snapshotter logs have the date at the end of the filename, for example, Snapshotter.exe.log.2011-11-01.

6.3 Initializing the Model

When queues are recreated, the bar at the top (under Status) may turn yellow. To initialize the model, click on the bar.

7. The Configurator

The Configurator is the configuration tool for the EventStore.

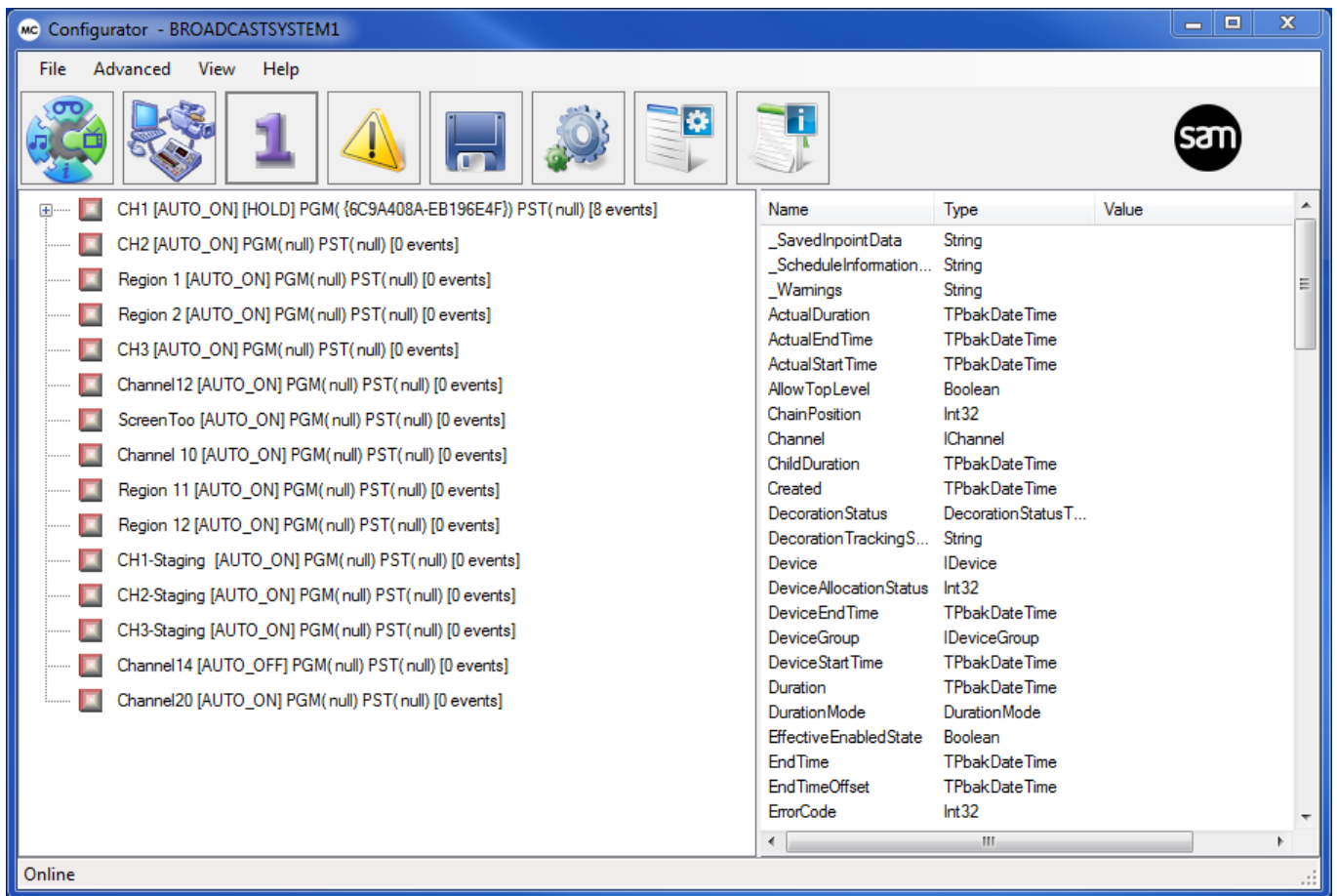


Figure 14 The Morpheus Configurator

It provides the following functions:

- Configure, visualize and add 'Event Types', i.e. templates for new events on the schedule
- Add and delete 'categories' (tabs on the Palette, refer to page 5)
- Move MediaBalls (refer to page 53) from one Palette tab to another
- Delete, edit and clone MediaBalls
- Configure the parameters that appear on the Property Inspector (refer to page 5)
- Configure secondary events (refer to page 648)
- Add, delete and configure 'devices' (pieces of equipment that are controlled by Morpheus)
- Add, delete and configure channels
- Configure alarms
- Save configuration information for the EventStore to a file, to be imported if necessary

- Configure multipart programme (page 141), junction preview (page 143) and rippling hold options (page 144)
- Clear channels
- Configure and enable Application Servers (page 165)
- Apply general system settings

On the main screen, extract parameter values by right-clicking on the required parameter. Select 'Copy Value' to place the value only into the Windows clipboard or 'Copy All Details' to copy the value and parameter name.

Note: It is possible to use the keyboard Enter key instead of the Apply button in order to configure Event Types, Devices and Channels.

7.1 Event Types

A uniquely named template containing parameters inherited from the Event Kind at the time of configuration - a single Event Type can be assigned to as many schedule events as is necessary.

When an event is created on the Editor schedule, some of its parameters are taken from the Morpheus media management database (refer to page 588), according to the material ID that has been specified. It is also possible to enter some of its parameters manually.

A default Event Type can be linked to a particular device using the Sources tab on the Channels window (refer to page 94).

An Event Type is made up of the following:

- Event kinds (see below).
- Event Type properties (refer to page 66).
- Event Type parameters (refer to page 79).

7.1.1 Event Kind

A system model consisting of a number of fixed parameters that are inherited by an Event Type at the time its configuration.

7.1.1.1 Break Header

Break header events contain main events, in order to group them into a commercial break. Main events are added to a break header as children and are automatically put into a follow-on chain (refer to 'Follow-on Event' on page 644). The first main event is fixed (refer to 'Fixed Event' on page 644), and the rest follow on from each other.

The duration mode of a break header is usually either:

- 'Use Children' (the break duration is equal to the total time of all the commercials within it), or
- 'Specified' (when a break needs to have a specific duration, and the Editor must ensure that the chosen commercials 'fill' it).

When 'Specified' is applied to an event on the Editor schedule, + or - signs appear in the Duration field. These indicate respectively that material must be added or removed from the break in order to reach the proper duration.

Note:

It is possible to add a child event, such as a keyer event to a break header, even though the keyer event would become a sibling of a playout event. This can be used to superimpose a graphic across a group of several events.

7.1.1.2 Main Event / Material Event

A playout event in a Morpheus schedule consists of two parts, one governing the playout of material (the material event) and the other governing the selection of the correct source on the mixer (the main event). Each is described below.

Main Event

Main events are events that drive a mixer. A main event can be one of the following:

- A top level event (has no owner).
- A level one event, for example, it may have an owner that is a top level event such as a break header.
- A level two event, for example, a main event in a break header that also has an opt header (refer to 'Opt Header'/'Region Header' on page 54) as its owner.

A main event cannot own another main event.

Material Event

Material events play a clip or a piece of material on a device.

Some material events are created automatically for main events, in order to play the material on the device that is attached to the main event's mixer source. The same applies if a guard source (refer to page 645) is specified, or an audio source that is different from the video source (breakaway audio).

7.1.1.3 MediaBall Header

A MediaBall header is used for creating MediaBalls. A MediaBall is a single collection of secondary events (refer to page 648), that can be moved, copied or pasted to another parent event. It is possible to create a MediaBall containing frequently used material and then add it to a primary event (refer to page 646) in order to save operator time searching for the events and then adding them individually.

Note:

A 'primary event' (also known as a 'main' or 'parent' event) is a top level event. It may have secondary events beneath it or may be a single event on the schedule.

A 'secondary event' (also known as a 'child' or 'sub' event) is associated with a primary event. One or more of its parameters are dependent on those of the primary event. It may be a Subevent of a primary event or a Subevent of another secondary event.

7.1.1.4 Normal Event

Normal Events define the behaviour of all other events in the system.

7.1.1.5 Opt Header (Region Header)

An opt header event is used on a master channel. Region headers are used on region channels. An Opt header links a scheduled break between a master channel and specified region channels - for example, a service may have several regions with the same programmes that have different commercial breaks.

For details on configuring different channel types, refer to Section 7.4 Channel Configuration.

When an Opt header is created, region header events are automatically added to the region channels linked to the master channel, and have exactly the same start time and duration.

It is possible for an operator to add an Opt header to the Editor schedule using the Palette - refer to the Morpheus Operators manual.

Note:

Only the commercial breaks are visible in the opt channels - they take their programming from the main channel.

Region headers are linked to opt headers. When the start time or duration of the opt header changes, the start time or duration of the region headers also changes. If the opt header is deleted, the region headers are also deleted (including all child events).

Opt header events and region header events can have main events as children. In addition they can have break header events or MediaBall header events as children.

The header and main child events in an opt or region header are automatically put into a follow-on chain (refer to 'Follow-on Event' on page 644), with the first main or header event being fixed (refer to 'Fixed Events' on page 644) and the rest following on from each other.

The duration of the main and header event chain is the same as that of the opt/region header.

An opt header event can only be a top-level event (it cannot have an owner). The automatically created region header can also only be a top-level event.

7.1.1.6 Record Event

A normal event that is used to schedule a device to record (such as an encoder port). This type of event must be used in conjunction with the Live Record Decorator Service (refer to page 234) that performs the database querying for the event.

7.1.1.7 Source Change Event

Changes a source on a router and makes another crosspoint.

7.2 Event Type Configuration

An outline of the procedure to create an Event Type is as follows:

1. Add a Category, or use an existing one.
2. Add or clone an Event Type / child Event Type.
3. Assign the Event Type to a Category.
4. Assign the Event Type to a Channel.
5. In the Morpheus Editor, select a channel and open the Palette: each Category, that has Event Types assigned to the selected channel, is displayed as a tab - each tab contains the Event Types that can be used on the channel.

Detailed instructions follow in the remainder of this section.

Event Types are configured from the Event Types window.

1. Click on the **Configure Events** icon on the toolbar.



2. The Event Types window is displayed:

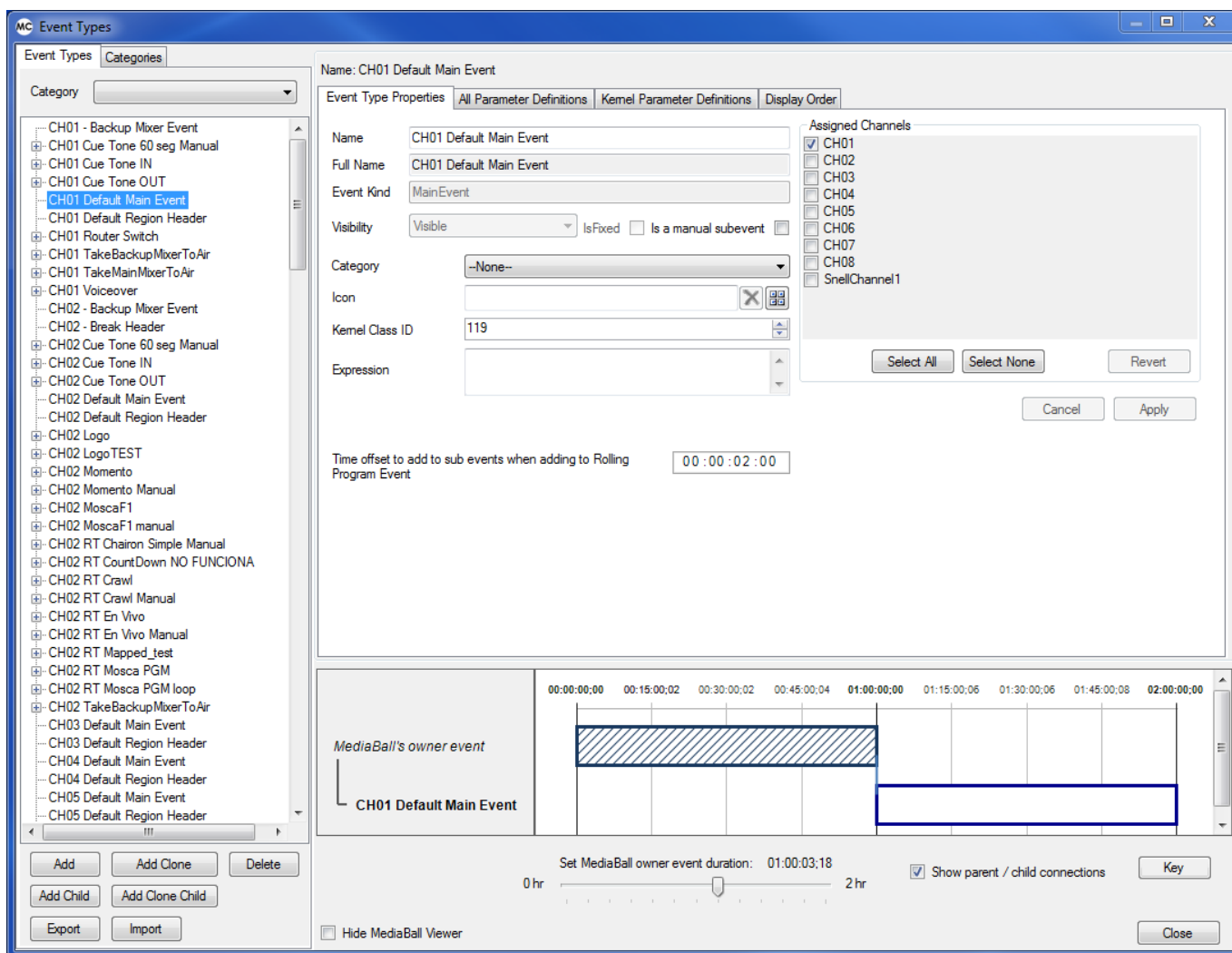


Figure 15 The Event Types Window

7.2.1 Categories

A category is a logical grouping for the purpose of organising similar Event Types on the Palette. Each channel has a dedicated Palette - a category tab will only appear on the Palette if one of the Event Types in the category has been assigned to the channel (as shown in Figure 16).

Note: It is not mandatory for an Event Type to belong to a category - the Event Type '--None--' exists for this purpose.

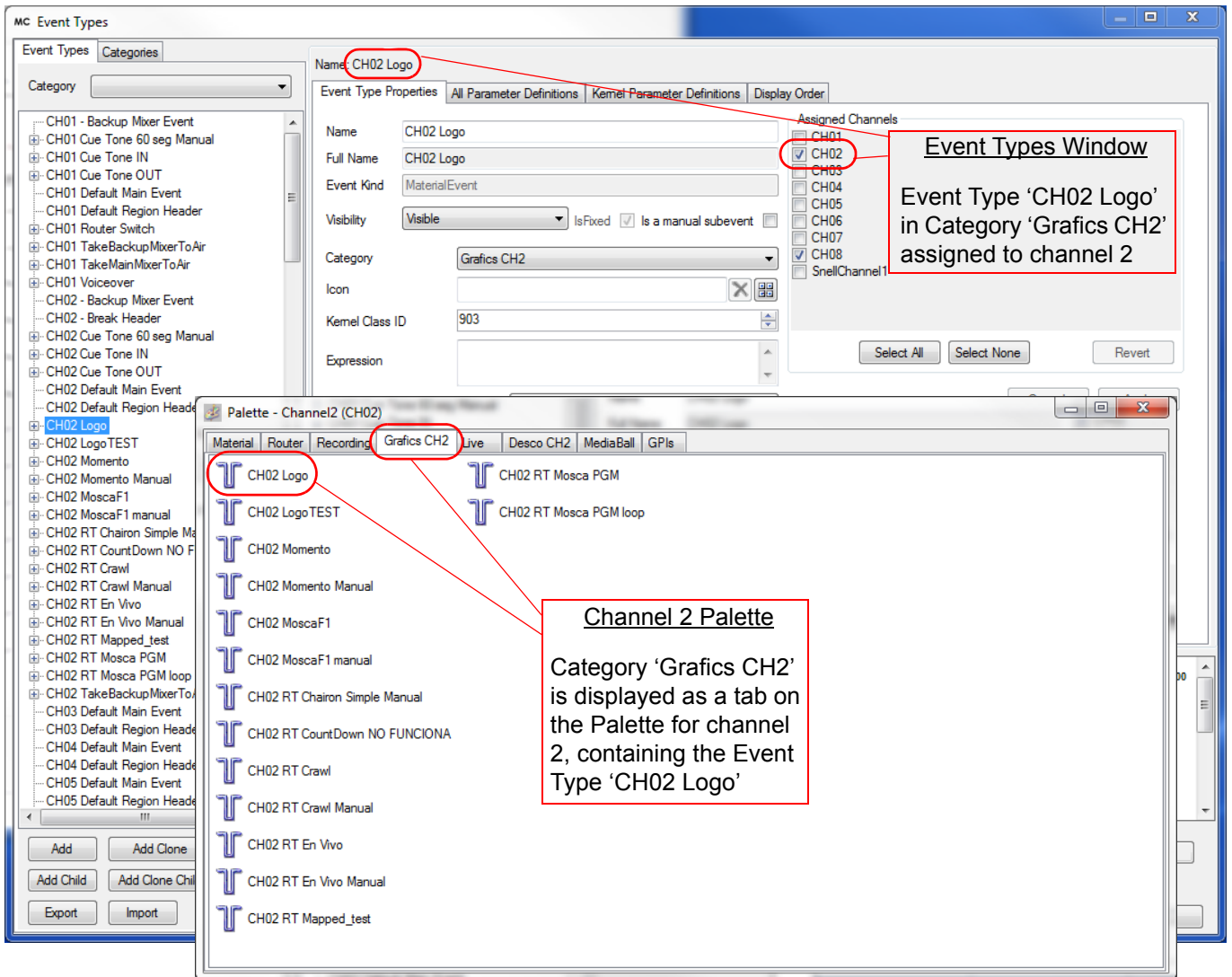


Figure 16 Event Categories

7.2.1.1 Add a Category

1. In the Event Types window, select the Categories tab and click on **Add**.
2. The Enter Name window is displayed with a default name for the category - enter a different name as required and click on **OK**. The new category appears in list to the left of the Event Types window and is now available to be selected as a property for any Event Type (Figure 17).

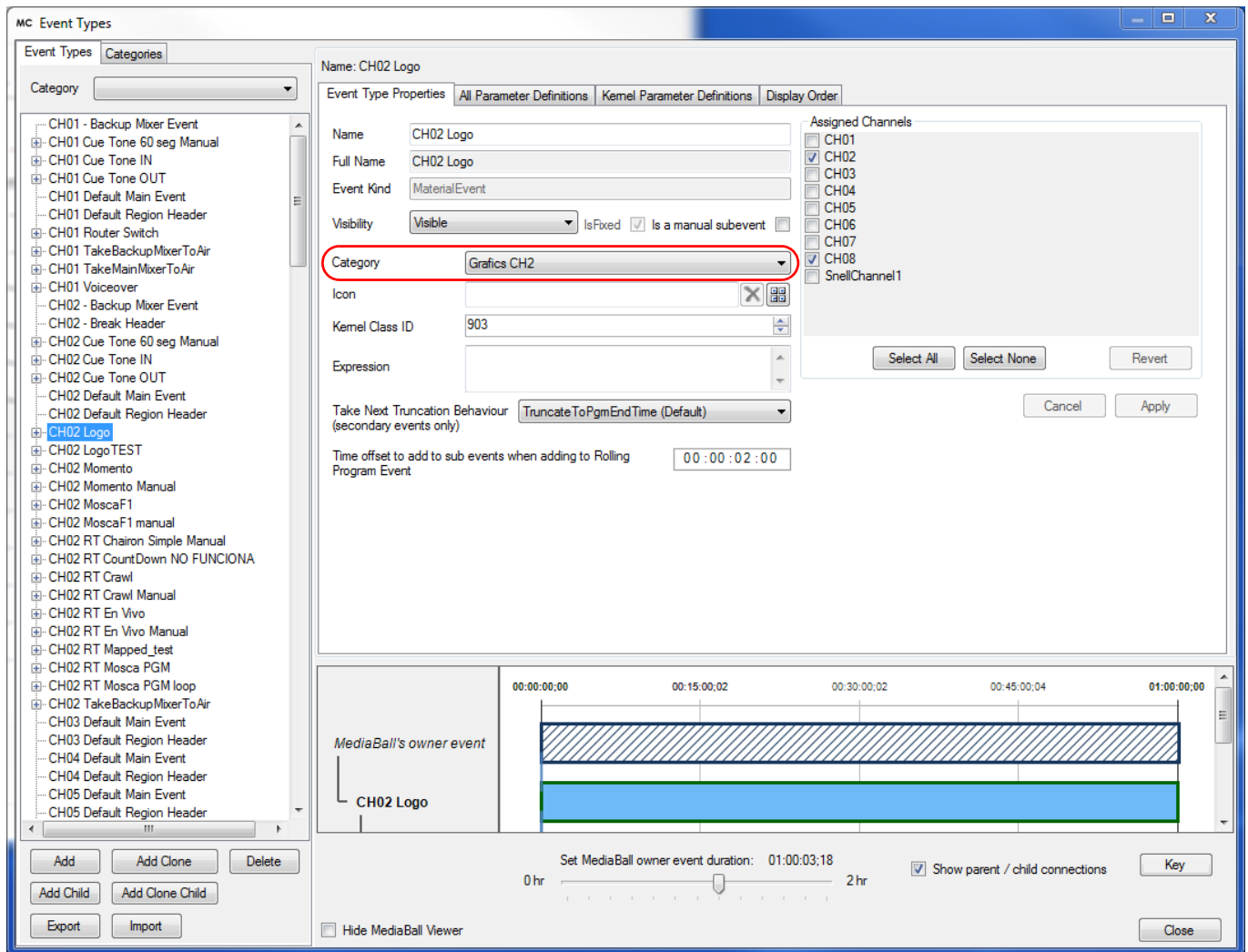


Figure 17 Event Properties

7.2.1.2 Delete a Category

1. On the Categories Tab of the Event Types Window, click on the category to be deleted
2. Click on **Delete** - there is no confirmation!

7.2.1.3 Move a Category

Moving a category relates to changing its position in the list on the Categories tab on the Event Types window - this dictates the order in which the tabs are presented on the Palette.

1. Click on a category and use the **Move Up** and **Move Down** buttons to change its position in the list.

Example

In Figure 18, the original position of category GPIs is at the bottom of the list, and will therefore appear as the last tab on the Palette.

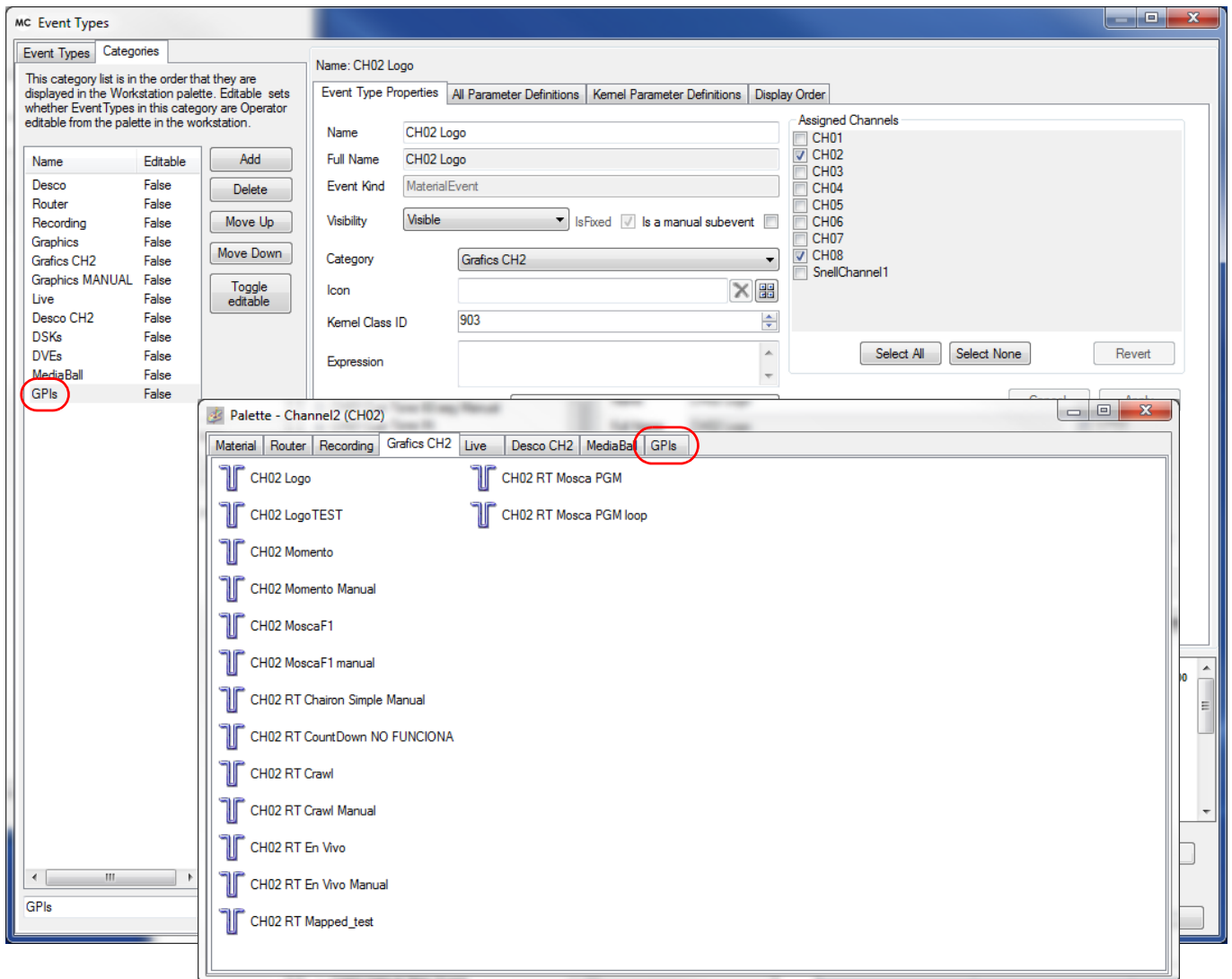


Figure 18 Moving an Event Category

In Figure 19, the category GPIs has been moved up one position in the list, above the category MediaBall - this change is also reflected in the Palette.

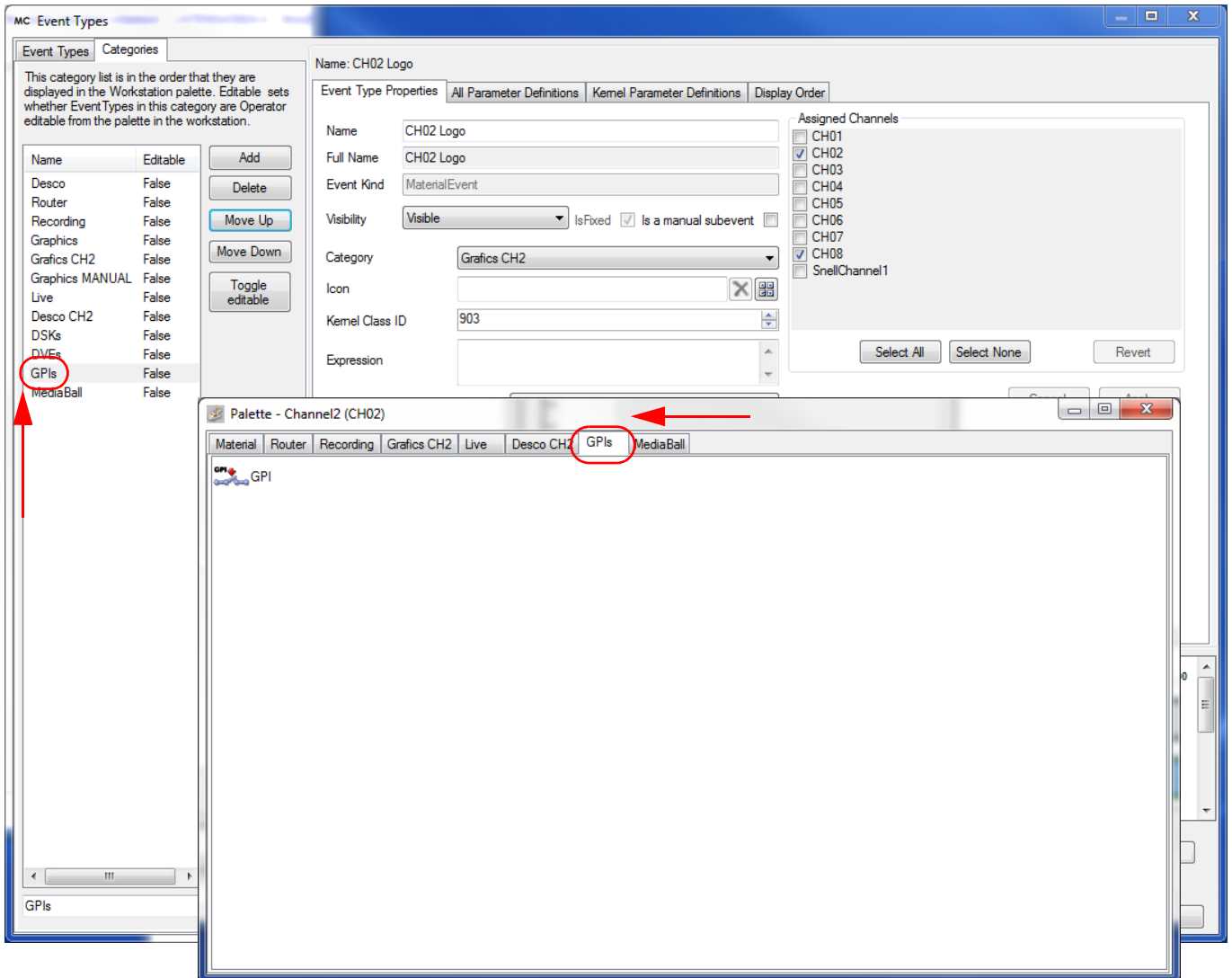


Figure 19 Moving an Event Category

7.2.1.4 Rename a Category

1. On the Event Types Categories tab, click on the category to be renamed - the field at the bottom of the Categories tab will be populated with the category name.
2. Overtyping the current name with a new name, then click on **Rename** - a confirmation window is displayed.

Note: All category names must be unique - an error message is displayed if an attempt is made to use a category name that already exists.

7.2.2 Event Type Properties

The properties of a selected Event Type are displayed on the right-hand side of the Event Types window as shown below:

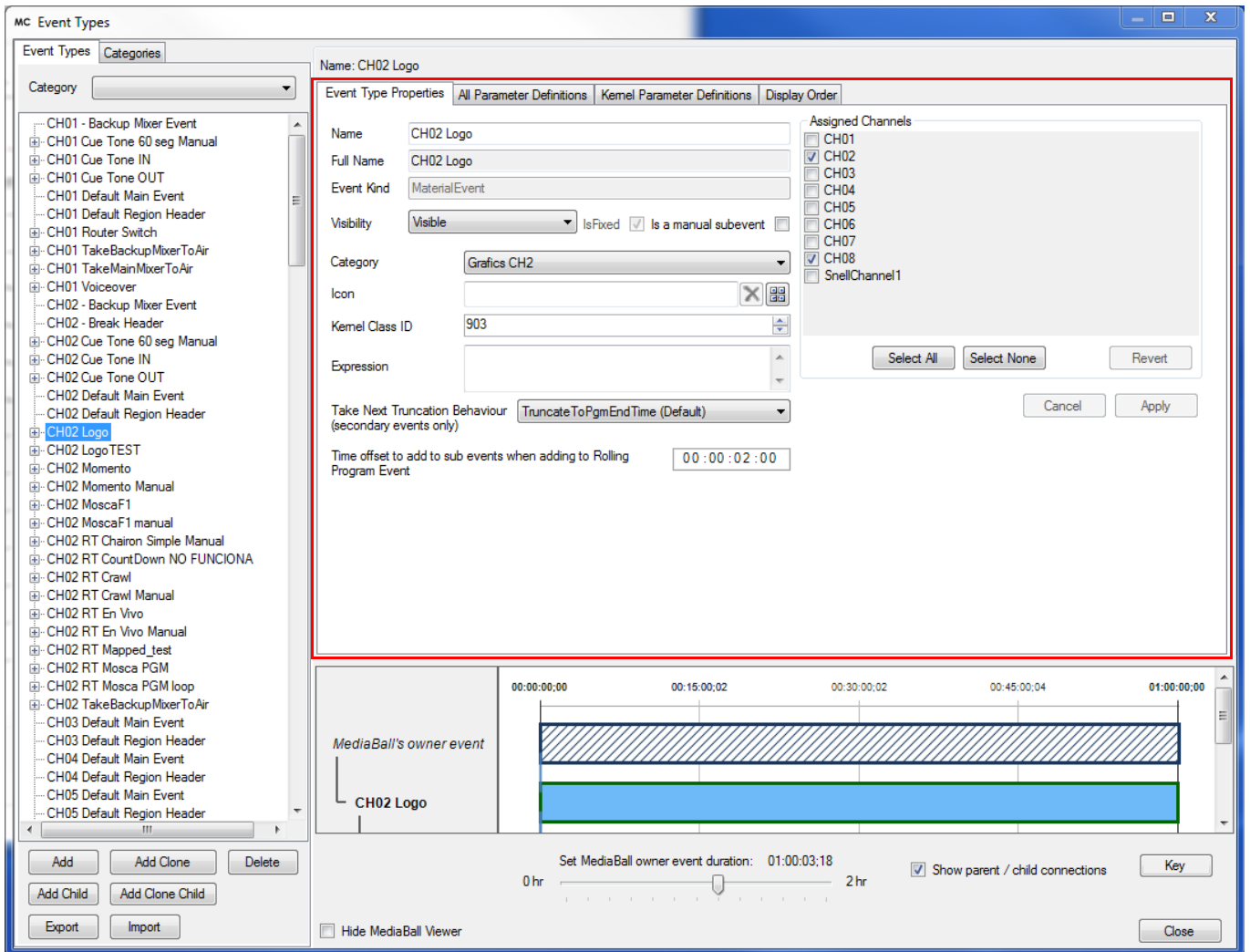


Figure 20 The Event Type Properties

When modifying a property, click on **Apply** to commit any changes or **Cancel** to abort.

- Name

A name of choice for the Event Type

- Full Name / Event Kind

The name of the Event Type and the kind of event it is (refer to page 52). These fields are for information only and cannot be changed.

- Visibility

- **Hidden** - hide events based on the selected Event Type. The events are not visible on the schedule but are visible in the palette and the Property Inspector as a subevent.
- **Visible** - display events, based on the selected Event Type, on the schedule and in the palette. The events are not visible in the Property Inspector as a subevent.
- **Visible to Administrators** - display events based on the selected Event Type on the schedule and in the palette, only if the user's role has Event Type Administrator privileges (refer to the 'Event Type Administrator' option on page 257). The events do not appear on the Property Inspector as a subevent. If the role does not have Event Type Administrator privileges, the events do not appear on the schedule, palette or in the Property Inspector (as a subevent).

A use case is where a main channel event on the schedule is to be displayed but the accompanying play events are to be hidden. The visibility option menu is disabled (greyed out) for Main Events, Break Headers and Default Region Headers, to ensure that they cannot be hidden.

- IsFixed

Checkbox to indicate whether the event type has a fixed start time (inherited from a parent/owner event), or not (top level event). The checkbox is an indicator only, and is non-configurable.

- Is a Manual Subevent

Select if events based on this Event Type are to be manual Subevents. A 'manual Subevent' is a secondary event that must be activated by a user.

- Category

To move the Event Type to a different tab on the Palette, select the required category. Refer to 'Categories' on page 66.

- Icon

The icon that is displayed in the Source column on the schedule.

Note:

The icon applies to the Event Type. It may be overwritten by the icon selected on the Source tab in the Channels window (refer to 'Configuring Channels' on page 94) for the selected source.

To select another icon, click on the button at the far right of the Icon field to display the Select Icon window. Double-click on the required icon. To remove the icon, click on the cross button.

- Kernel Class ID

A three digit number to instruct the system of the parameters that relate to a device. It is a label for the kernel parameters (a list of parameters that the kernel needs to control the device).

- Expression

Write an 'expression' in C# to set the state of an event dependant upon other objects such as Channel, Device, or other parameters of an event. The 'expression' sets the 'EffectiveEnabledState' to 'Enabled' or 'Disabled'. For example, if the same schedule is to be loaded onto two different channels, but some event types should not appear on one of the channels, an expression can be written to automatically disable those event types if they appear on the chosen channel.

- Take Next Truncation Behaviour (Secondary Events Only)

This option is only applicable to events of 'Kind': Material Event, Normal, Record, and Source Change Event. It is to be applied to Subevents only.

- **TruncateToPgmEndTime (Default)**: on a 'Take Next' of a PGM event, if the duration of a Subevent (to which this option has been applied) extends beyond the now truncated PGM event, this Subevent's duration is truncated in such a manner as to end with the PGM event.
- **DoNotTruncate**: on a 'Take Next' of a PGM event, if the duration of a Subevent (to which this option has been applied) extends beyond the now truncated PGM event, it is allowed to run for its full duration over the event that was PST but is now PGM (since the Take Next).

- Assigned Channels

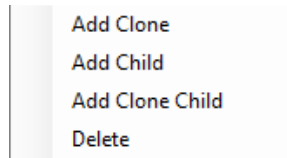
Select the channels on which this Event type is to be available.

7.2.2.1 Add an Event Type

1. At the bottom of the Event Types tab (on the Event Types Window), click on the **Add** button - the New Event Type Window is displayed.
2. Enter a name for the Event Type, and highlight an event Kind from the list of those available. Click on **OK** to save - the new Event Type is added to the list on the left of the window.
3. Configure / edit the Event Type properties as detailed in Section 7.2.2 Event Type Properties

7.2.2.2 Add a Child Event Type

1. On the Event Types window, click on the Category tab and create a category, if required.
2. On the Event Types tab, select the relevant parent Event Type (refer to 'Primary Events' on page 646) and click on **Add Child** to display the Enter Name window - alternatively, right click on the selected parent event to display a menu of choices:

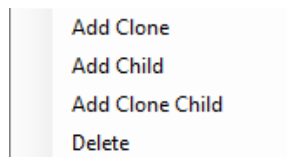


3. Type a name for the child Event Type in the field provided and click on **OK**.
The child Event Type appears under its parent on the list of Event Types.
4. Edit the properties and parameters of the child Event Type as required (refer to page 66).

When the parent Event Type is dragged from the Palette to the schedule, the event is placed on the schedule with its child beneath it.

7.2.2.3 Clone an Event Type

1. If required, use the Category tab to select the category containing the Event Type.
2. On the Event Types tab, select the Event Type from which the new Event Type will be cloned and click on **Add Clone** to display the Enter Name window - alternatively, right click on the selected parent event to display a menu of choices:



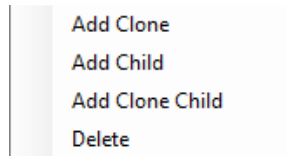
3. Type a name for the Event Type (the default is '<Event Type> clone') and click on **OK**.
The cloned Event Type appears on the list of Event Types.

Note: If an Event Type has existing child events, then they are also cloned during the process.

7.2.2.4 Clone an Event Type as a Child

Add a top level event as the child of another event as follows:

1. If required, use the Category tab to select the category containing the Event Type.
2. On the Event Types tab, select the event to which the cloned Event Type is to be added and click on **Add Clone Child** to display the Select Event Type to copy from window - alternatively, right click on the selected parent event to display a menu of choices:



3. Select the required Event Type from the list and click on **OK**.

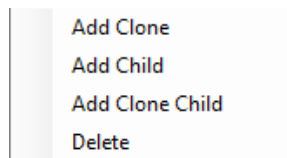
7.2.2.5 Move an Event Type to a Different Category

1. On the Event Types tab, select the Event Type to be moved.
2. Under **Event Type Properties** (refer to page 66) select the required category from the **Category** list.

7.2.2.6 Delete an Event Type

To delete an Event Type:

1. From the list, select the Event Type to be deleted and click on **Delete** - alternatively, right click on the selected parent event to display a menu of choices:



Note: If an Event Type has children, then they are also deleted.

2. A confirmation window is displayed - click on **Yes** to confirm.

Note: An Event Type cannot be deleted if there is an event that exists in the schedule that is based upon it (an error message is displayed if this action is attempted). All Events based upon the Event Type must be deleted first.

7.2.2.7 Assigning Channels to Multiple Event Types

To assign channels to more than one Event Type at the same time:

1. Click on **Assign Channels to Multiple Event Types**.
2. Click on the first Event Type to configure, hold down the shift key and click on the last Event Type to configure. The Event Types are selected.
3. Select the channels to assign to the Event Types in the box as shown below:

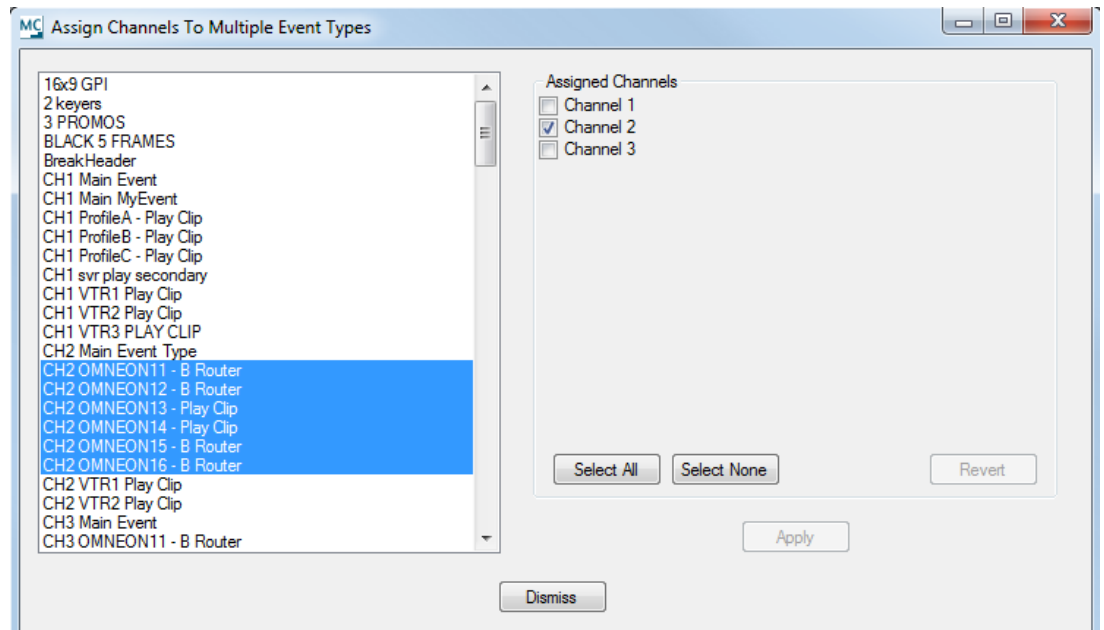


Figure 21 Assigning Multiple Channels to Event Types

4. Click on **Apply** to save the changes.

7.2.3 Event Type Parameters

Event parameters that are inherited from the system when the event Kind is specified.

Event Type Properties	All Parameter Definitions	Kernel Parameter Definitions	Display Order
Parameter Name	Parameter DisplayName	K No	Parameter Type
AspectRatio		6	IntegerParamDef
AudioGain		4	MappedIntegerParamDef
AudioLag		13	TimecodeRangeParamDef
AudioLagOut		-1	TimecodeRangeParamDef
AudioLagRate		-1	TimecodeParamDef
AudioLead		12	TimecodeRangeParamDef
AudioMixInDuration		11	TimecodeParamDef
AudioMixOutDuration		10	TimecodeParamDef
AudioMode		5	AudioModeParamDef
AudioSource		1	SourceParamDef
BreakawayAudioMaterialId		-1	StringParamDef
BreakawayAudioPlayoutDevice		-1	PlayoutDeviceParamDef

Figure 22 Event Type Parameters

Event Type parameters are properties associated with an Event Type, such as the event name or a device. These may or may not be displayed on the Property Inspector (refer to page 5).

For detailed information on each parameter, refer to the Scheduling in Morpheus manual.

Event Type parameters are divided into tabs, as follows:

- **All Parameter Definitions tab** - displays all parameters available to the selected Event Type. These may not all be visible - those that are not have **False** in the **Visible** column.
- **Kernel Parameter Definitions Tab** - displays event parameters required by the kernel, as opposed to the parameters of the kernel itself, that are forwarded by the Bridge - they are identified by their Kernel Class ID.
For information relating to the Bridge, refer to Chapter 12. The Bridge.
For information on the kernel, refer to Chapter 10. Pbak (Automation Kernel).
- **Display Order tab** - displays parameters that are configured to appear on the Property Inspector and also the order in which the parameters appear. If an Event Type is cloned, the order of the parameters is the same as for the parent.

To set a parameter as invisible on the Property Inspector:

- Select the parameter.
- Right-click and select 'Set invisible'.

The parameter disappears from the list. Click on **Reset Parameter Visibility And Display Order To Their Factory Settings** to display only the default parameters as shown in a new installation.

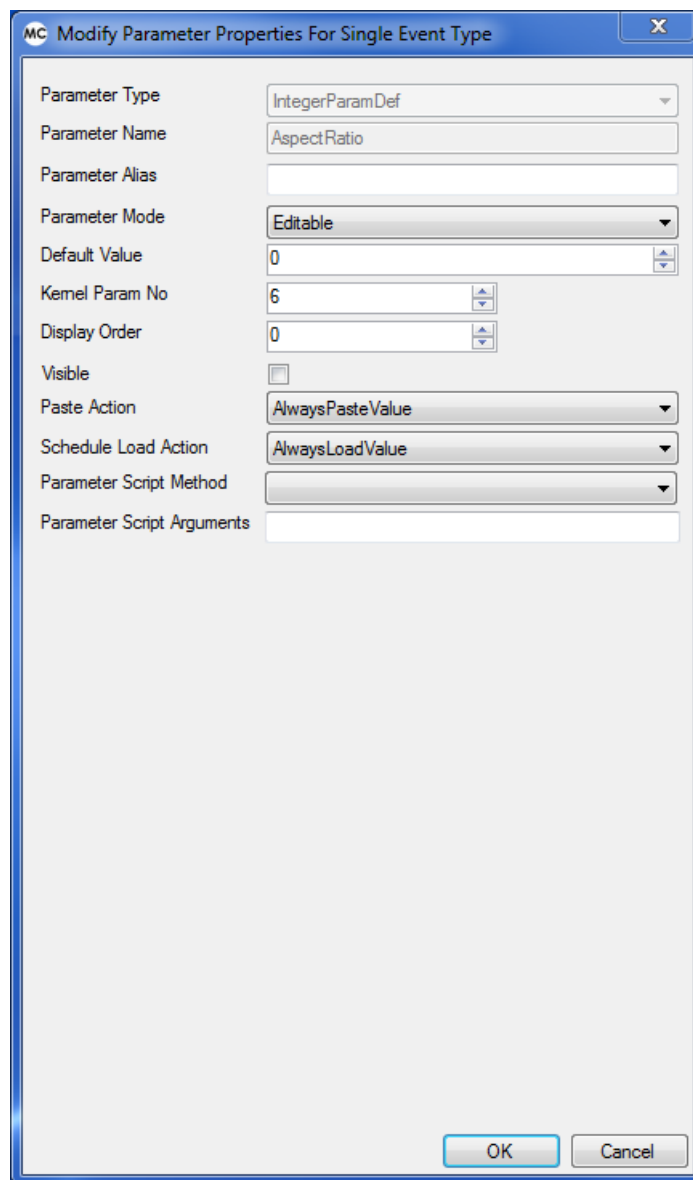
7.2.3.1 Modifying Event Type Parameter Properties

To modify a parameter for an Event Type:

1. Select the Event Type.
2. On the appropriate Parameter Definitions tab, either double-click on the parameter, or select the parameter and click **Modify Parameter**.

A parameter value can also be edited by clicking on the displayed value in the Default Value column on the tab itself. For further information on these parameters, refer to Section 7.2.3.4 'Event Parameter Definitions' on page 71.

The following window is displayed (the definitions may vary according to the parameter).



The screenshot shows a dialog box titled "MC Modify Parameter Properties For Single Event Type". It contains the following fields and controls:

- Parameter Type: IntegerParamDef (dropdown)
- Parameter Name: AspectRatio (text box)
- Parameter Alias: (empty text box)
- Parameter Mode: Editable (dropdown)
- Default Value: 0 (spin box)
- Kernel Param No: 6 (spin box)
- Display Order: 0 (spin box)
- Visible:
- Paste Action: AlwaysPasteValue (dropdown)
- Schedule Load Action: AlwaysLoadValue (dropdown)
- Parameter Script Method: (empty dropdown)
- Parameter Script Arguments: (empty text box)

Buttons: OK, Cancel

Figure 23 Modifying an Event Type Parameter

3. Edit the fields as required and click on **OK**.

Note: The Editor may need to restart for some changes to take effect.

7.2.3.2 Modifying Multiple Event Type Parameter Definitions Simultaneously

1. Select the required Event Types using Shift-click or Ctrl-click.
2. Click on the **All Parameter Definitions** tab. All of the parameters for the selected Event Types appear in the list. Parameters that are common to all of the selected Event Types are displayed in a **blue** font; parameters that are within a subset of the selected Event Types are displayed in a **gold** font, as shown in Figure 24

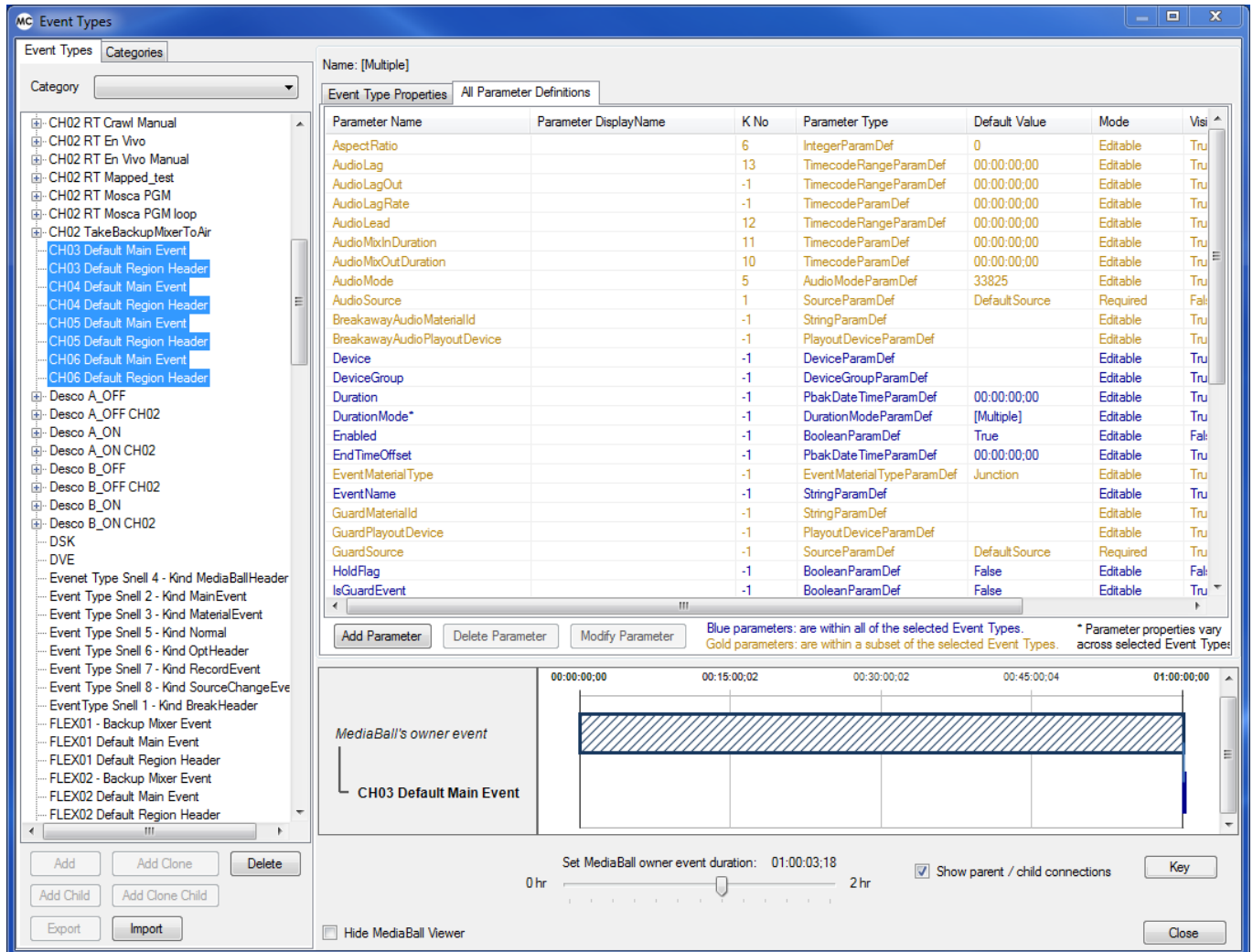


Figure 24 Modifying Multiple Event Type Parameter

Exceptions

- If a parameter in one selected event has the same parameter as another, but with different parameter definitions (e.g. StringParamDef and DeviceParamDef), then neither parameters is included in the list of All Parameter Definitions.
- If a parameter is of type EnumParamDef, it is not included in the list of All Parameter Definitions.
- If a parameter is of a Mapped*ParamDef (MappedIntegerParamDef, MappedStrinParamDef, MappedEventParamDef), it is not included in the list of All Parameter Definitions.
- If a parameter is an OidParamDef or a GuidParamDef, it is not included in the list of All Parameter Definitions.

3. Double-click on a blue coloured parameter in order to change the value that is associated to all selected Event Types. If the Event Types parameter do not all share the same value then the word [Multiple] is displayed in the default value field.

Note: It is not possible to enter multiple values for a parameter when editing in this fashion - the same new value is applied to the parameter for all Event Types.

For example, Figure 24 above shows that, for the selected Event Types, the DurationMode parameter has [Multiple] default values, i.e. the value could be any of the following: Specified, UseOwner, UseChildren, EndWithOwner, RelativeToOwner. If the value of the field is changed, then all of the selected Event Types parameter will inherit it.

Note: Any parameter that is configured with properties that vary across the selected Events, is marked with an asterisk (*).

Note: If more than one Event Type is selected, the Kernel Parameter Definitions and Display Order tabs are removed as they are only relevant on a per Event Type basis, with one exception - the Display Order tab is displayed if the following conditions are met:

- All of the selected events have the same number of visible parameters
- The names of the visible parameters of the selected events must be identical
- The names of visible parameters that are common to two or more selected events must be of the same parameter type

7.2.3.3 Event Type Parameter Context Options

Right-click on a parameter in the **All Parameter Definitions** tab in order to select one of the following options:

- Set Visible

Sets the selected parameter(s) to 'visible' on the Property Inspector.

- Set Invisible

Prevents the selected parameter(s) from being visible on the Property Inspector.

Note: It is also possible to set the visibility of the events on the schedule depending on the role of the user. Refer to Section 13.1 Common Configuration Settings for further information.

- Set order (ALL parameters, in alphabetical order)

Sets the display order for the parameters for all of the selected Event Types ONLY if they contain the same parameters, both in terms of the number of parameters and their settings. The parameters are displayed in alphabetical order.

7.2.3.4 Event Parameter Definitions

The parameter definitions listed, apply to the following tabs:

- All Parameter Definitions
- Kernel Parameter Definitions
- Display Order

- Parameter Type

The parameter type is set at the time that the parameter was created - the field is greyed out to prevent it from being changed.

- Parameter Name

The parameter name is set at the time that the parameter was created - if the field is greyed out then it cannot be changed.

- Parameter Alias

Enter an alternative name for the parameter - it will appear on the Property Inspector in place of the actual parameter name. The alias also appears as the **Parameter Display-Name** in the All Parameter Definitions tab.

- Parameter Mode

Select one of the following:

- Editable: allows an operator to edit the field on the Property Inspector.
- Read Only: displays the field on the Property Inspector but operators cannot edit it.
- Required: the field must be populated.
- EditorReadOnly: allows an operator to edit the field in the Configurator but not in the Editor.

- Default Value

The default setting, on the Property Inspector, for the field.

- Kernel Parameter No

If set to -1, the parameter is not sent to the Device Controller (refer to page 12) by the Bridge (refer to page 242).

If set to any other number, the parameter is sent to the Device Controller. The kernel parameter number dictates the order in which the parameters are sent, for example, 0, 1, 2, 3.

- Display Order

The field's position on the Property Inspector.

- Visible

Checkbox. Display the field on the Property Inspector - un-tick in order to hide the field.

- Paste Action

Dictates what happens to the parameter when the event is moved in the playlist. Make a selection from the following options:

- **AlwaysPasteValue**: All information for the parameter is retained when the event is moved.
- **NeverPasteValue**: Information in the parameter is not retained when the event is moved.
- **OnlyPasteValueWhenCut**: Information in the parameter is retained only when the event is cut.

- Schedule Load Action

- **AlwaysLoadValue**
- **NeverLoadValue**

- Parameter Script Method and Parameter Script Arguments

Using these fields, parameters in the EventStore can obtain their values from another data source. Refer to Section 7.2.3.7 Parameter Linking below.

These fields are also used for configuring the 'Morpheus DB Decorator' Host Shell Service (refer to page 247). For the service to work, set the Parameter Script Method field to 'DECORATOR' and in the **Parameter Script Arguments** field, enter a value for the Morpheus DB Decorator service (must start with **MORPHEUSDB**). Refer to 'Parameter Script Arguments' on page 250 for further information.

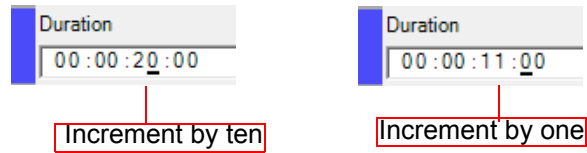
- Allow Negative Values

Checkbox. Allow negative values to be entered on the Property Inspector.

- Tens Increment Enabled

Checkbox. Sets the behaviour of timecode related parameters on the Property Inspector. When selected, if the cursor is on one of the '10s' digits, use the up or down arrows to increase or decrease the value by 10. When cleared, the up and down arrows increase or decrease the value by 1.

For example:



Note:

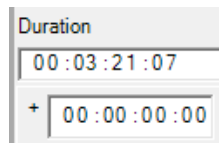
The Editor must be restarted in order for changes to this parameter to take effect.

- Clock Mode Enabled

Applies to timecode related parameters. When selected, the time counts up from 23:59:59:xx and is reset to 00:00:00:00. When cleared, it counts up higher than 24:00:00:00.

- Arithmetic Mode Enabled

Checkbox. Provides a calculator function to be used if the user needs to add or subtract values automatically. To display the calculator, press either plus or minus on the keyboard. Applies to timecode related parameters



- Minimum Time Code

The minimum timecode that can be entered on the Property Inspector.

- Maximum Time Code

The maximum timecode that operators can enter on the Property Inspector.

- Mask

String parameters can be configured with a mask that is based on a regular expression and can exist in two forms: Validation, and Replace.

For Validation, specify a regular expression that parameter values must obey. Any attempt to set the value to a value that does not match the mask does not succeed.

For Replace, the regular expression must take the form <regular expression> => <replace expression>

7.2.3.5 Adding a Parameter

To add a parameter:

1. Select the required Event Type.
2. Click on **Add Parameter**.

The Add Parameter To Single Event Type window is displayed.

3. Configure the parameters with values as required, and click on **OK**.

7.2.3.6 Deleting a Parameter

Select the parameter to be deleted and click on **Delete Parameter**.

7.2.3.7 Parameter Linking

Using the Parameter Script Method and Parameter Script Arguments fields, parameters in the EventStore can obtain their values from another data source. They can be linked together, so that one parameter's value is dependent on another parameter, or another process can provide their value (for example, data coming from a third party database).

Where a parameter is linked to another parameter, they need to be of the same type or one parameter needs to be derived from the other. There are a few exceptions, for example, linking a Device or Source parameter to a String parameter causes the device name or source name to be applied to the string parameter instead of the underlying value (Oid or integer respectively).

The Parameter Script Method defines the source of the parameter value. The Parameter Script Arguments provide properties for the script method.

Parameter Script Methods

The available Parameter Script Methods are:

- **Decorator** - the parameter is decorated by an external process. The parameter script arguments depend on the external processes. Refer to Section 21.2.3 Parameter Linking.
- **MediaBall** - the parameter is decorated by the MediaballDecoratorService. The parameter script argument ties the parameter's value to the CUSTOM_PARAMS Media Management database table.

For example, if the argument is set to VideoFormat and a custom parameter of the same name exists, the value of that parameter is copied into the event's parameter.

- **GetParameterFromFlexibleExpression** - this method allows multiple source parameters to be combined and formatted and also include some other key properties. The parameter script argument must specify an Expression property that describes the master parameters as well as the formatting of the target parameter value. The master parameters are specified as {categories:property}. If the parameter being referred to in the expression is a source or device parameter, then Morpheus uses the name of the source or device in preference to the underlying stored value (integer or Oid respectively).

The available categories are:

- channel:OnAir
- channel:Name
- channel:UtcOffset
- channel:CurrentPanoplayState
- event:Ordsym
- path:<path>
- schedule:Name
- schedule:FileID
- SlaveExecution (refer to Panoplay parameter linking on page 74)

Example 1:

Expression={path:./MaterialId}.png

This argument provides a parameter value of the MaterialId plus a file extension of .png (for example, Grass Valley1.png)

Example 2:

Expression={channel:OnAir}

This argument provides a parameter value of True or False.

- **GetParameterFromRelativeEvent** - the parameter script argument for this method must specify a Path property that describes the event path to the master parameter from the dependant parameter. For example, *Path=../DSK1/MaterialID* navigates to the event's owner's owner's DSK1 Subevent and select its MaterialID parameter. If this is not defined, then Morpheus uses the default value for the dependant parameter. This parameter link method can also select the event's own parameters, for example, *Path=./MaterialID*. Wildcards are also supported - '?' and '*' as well as **SlaveExecution** (refer to Panoplay parameter linking below).
- **GetParameterFromOwner** - the value of the parameter is obtained from a parameter in the owner event. The parameter script arguments supported are: **Name** (for example, *Name="MaterialId"*) and **SlaveExecution** (refer to Panoplay parameter linking below). If the **Name** argument is not defined, Morpheus uses a parameter of the same name.

- **GetParameterFromUltimate** - the value of the parameter is obtained from a parameter in the ultimate (highest level) event. The parameter script arguments supported are: **Name** (for example, Name="MaterialId") and **SlaveExecution** (refer to Panoplay parameter linking below). If the **Name** argument is not defined, Morpheus uses a parameter of the same name.
- **GetParameterFromMediaBall** - when an event is part of a MediaBall, the value of the parameter is obtained from a parameter in the MediaBall header. The parameter script arguments supported are: **Name** (for example, Name="MaterialId") and **SlaveExecution** (refer to Panoplay parameter linking below). If the **Name** argument is not defined, Morpheus uses a parameter of the same name.
- **GetParameterFromMain** - the value of the parameter is obtained from a parameter in the main event in the ownership chain. The main event can be the direct owner or further up the ownership chain. The parameter script arguments supported are: **Name** (for example, Name="MaterialId") and **SlaveExecution** (refer to Panoplay parameter linking below). If the **Name** argument is not defined, Morpheus uses a parameter of the same name.
- **LazyParameterLink** - this method updates events when possible rather than immediately or to an exact time frame. It is suitable for use with time-linked parameters (refer to page 77). Three different types of argument are supported:
 - **Text Objects**: the value of the parameter is obtained from a Text Object. The Parameter Script Argument must contain the name of the Text Object within square brackets, for example **[tob:OwnerActualEndTime]**, otherwise Morpheus evaluates the argument as a single line script.
 - **Flexible expression**: the value of the parameter is obtained from a flexible expression as described in **GetParameterFromFlexibleExpression**.
 - **Single Line Script**: if the parameter argument does not contain a text object or a flexible expression, Morpheus treats the argument as a single line script. Refer to Section 2.2.3 Morpheus Scripting for further information.

Time Related Parameters

Time linking is not recommended for use with 'strict' parameters. Parameter linking to the following time-related parameters is only supported using the 'lazy' parameter script methods:

- ActualDuration
- ActualStartTime
- ActualEndTime
- ContentDuration

A warning is displayed in the Configurator as shown in the example below when strict parameters are created that link to a time-related parameter:

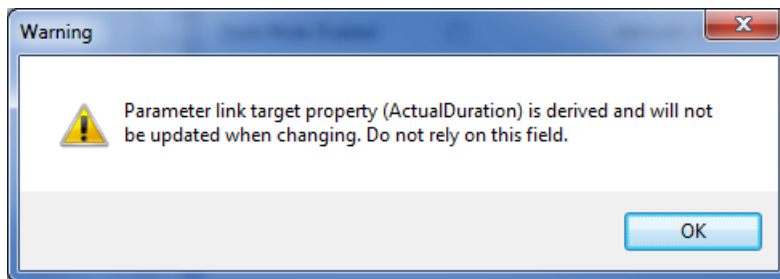


Figure 25 Parameter Creation With Time Related Parameter Linking Warning

A warning is also displayed in the Configurator as shown in the example below when importing a system XML file that contains time-related parameter linking:

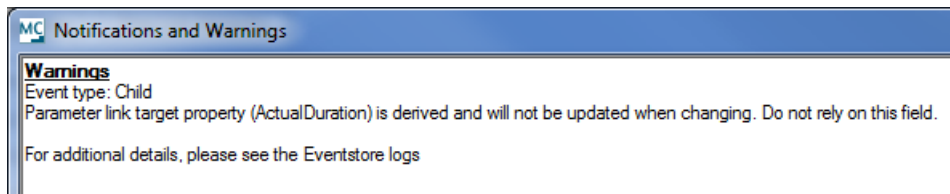


Figure 26 Importing System XML With Time Related Parameter Linking Warning

Panoplay Parameter Linking

During the synchronization of a Panoplay system, it is possible that the root event of a large structured Event Type exists but the children for that Event Type are not yet created. Alternatively, a main event can have a source set that implies the existence of a specific play clip child event but it has not yet been created. Therefore, parameter linking is disabled during Panoplay Follower synchronization transactions.

When disabling the synchronisation of a specific parameter in Panoplay, it is recommended to evaluate the parameter link on the Follower system by marking it as allowing SlaveExecution.

For example, using 'etParameterFromFlexible:

```
SlaveExecution=True, Expression={schedule:Name}_{schedule:FileId}
```

All GetParameterFrom methods support this additional argument.

7.2.4 Exporting and Importing Event Types

7.2.4.1 Export Button

Using the **Export** button, a selected Event Type can be saved to a file - the Event Type can then imported at a later time, if required.

1. Click on **Export** to display the Save mediaball window.
2. In the **File name** field, enter a name for the file and click on **Save**.

7.2.4.2 Import Button

To import an Event Type:

1. Click on **Import**.
2. Double-click on the file containing the Event Type to be imported.

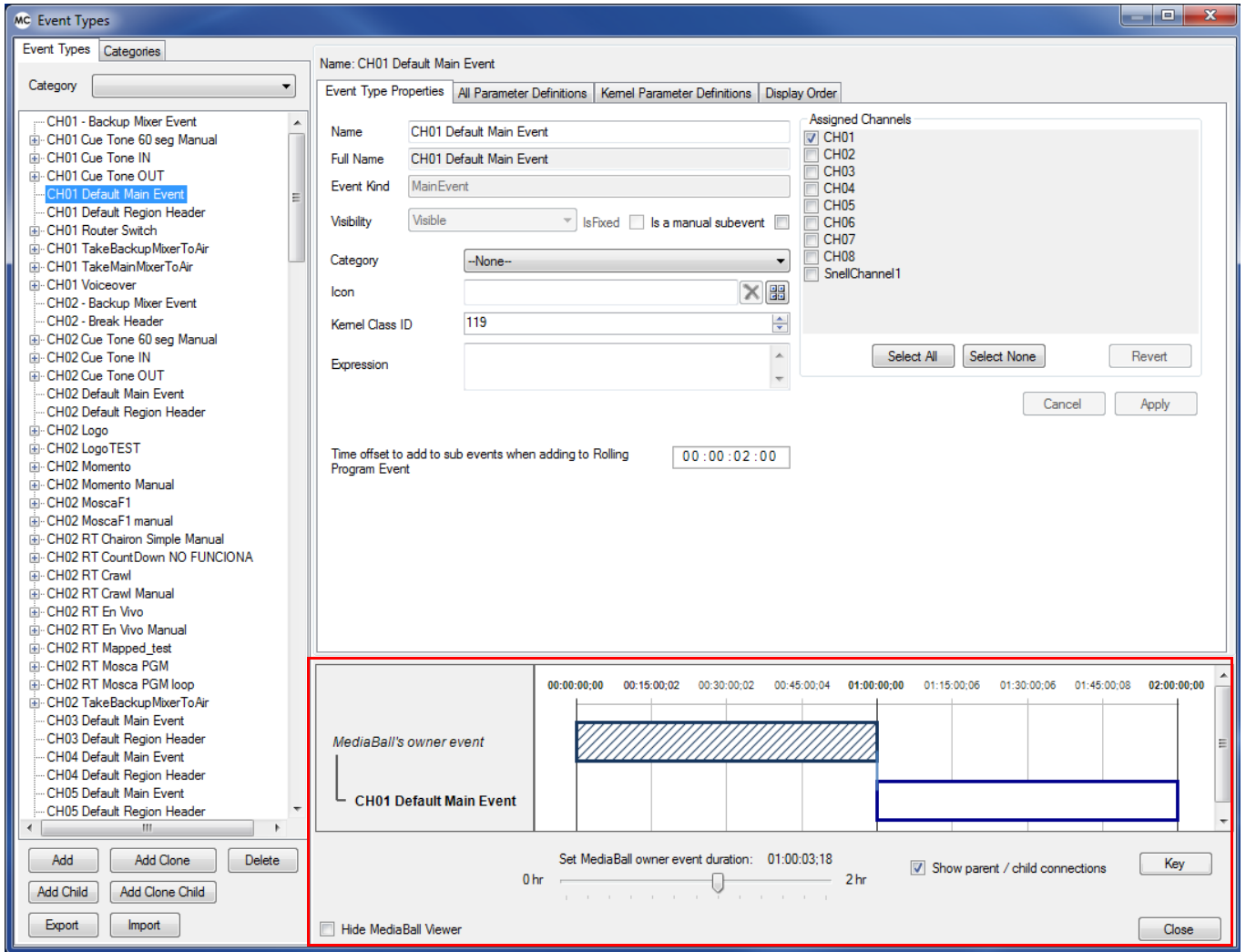
A window is displayed showing the new Event Types that are being imported.

7.2.5 Event Type Viewer

Provides a visualisation of the structure of a selected Event Type. Event Types are central to the configuration of Morpheus but can be complex both in terms of their event hierarchy and also the various possible StartMode and DurationMode settings for each event of the Event Type.

Trying to understand whether a particular configuration of an Event Type (Mediaball) is correct or not without some form of visualisation is impractical for all but the simplest Event Types.

The Event Type Viewer is displayed at the bottom of the 'Event Types' window. It contains a visual representation of an event as shown in the example below:



In the example shown above, the start time and duration of the 'CH1 Default Main Event' Event Type is illustrated relative to its hypothetical owner event.

In this case the 'CH1 Main Event' Event Type has the following properties:

- Duration is 01:00:00:00
- DurationMode is Specified
- StartMode: 'ReferenceToParentsEnd',
- StartTimeOffset is 00:00:00:00

It is displayed immediately to the right of the owner event (because its StartMode is 'ReferenceToParentsEnd' and its StartTimeOffset is 00:00:00:00), with a length proportional to its duration relative to the owner event duration (01:00:00:00 in the example).

Note:

These are the default values for Event Type: 'CH1 Default Main Event' inherited at the time it was created - they can be overridden by a user or by the Host Shell Services.

7.2.5.1 The Owner Event

The 'owner' event of the selected Event Type is always displayed in the viewer as a dark blue hatched rectangle with a dark blue border. It is always present even though the Event Type (when represented as an Event in the EventStore) may not have an owner.

Some Event Types, such as Opt Headers and Region Headers, never have owner events. Main Events sometimes have an owner, for example, if they are contained within a Break Header but usually do not. However, the Event Type Viewer always displays an owner.

The owner event duration can be modified in the viewer (from 0 to 2 hours in increments of 10 mins) by using the slider control - this will display the effect, if any, on the Event Type and its constituent events as a whole. This activity provides a means of understanding how the events of the Event Type behave within the constraints of the owner event duration.

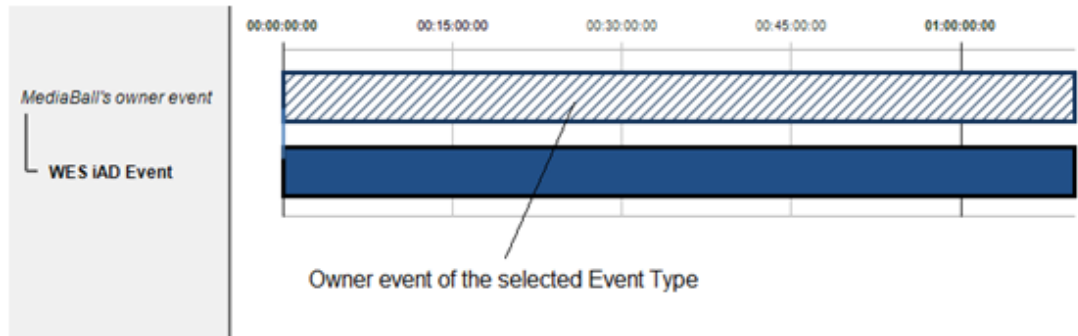


Figure 28 Owner Event of the Selected Event Type

7.2.5.2 Show Parent / Child Connections

Tick the **Show parent / child connections** checkbox to display the parent / child associations between the events of the selected Event Type.

The arrow connections indicate the StartMode for a parent / child event within the Owner Event:

- ReferenceToParentsBeginning
- ReferenceToParentsEnd

Examples

If an event has a StartMode of ReferenceToParentsBeginning, then it starts at the beginning of the parent event.

If an event has a StartMode of ReferenceToParentsEnd then it starts at the end of the parent event. The end of a parent / child connection is always at the start of child event.

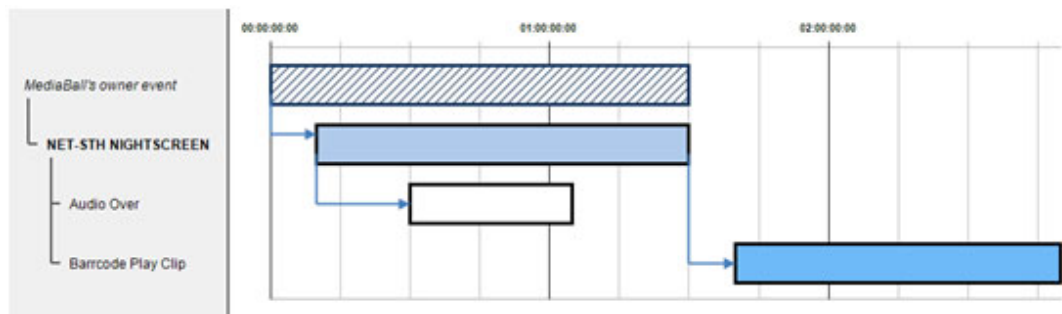


Figure 29 Parent / Child Event Relationships

7.2.5.3 Adjusting the Start Time and Duration of Events

If any of the following parameters are adjusted for a given Event Type, the changes are automatically reflected in the Event Type viewer, and will apply to any event that has been assigned the same Event Type:

- Duration
- DurationMode
- StartTimeOffset
- StartMode

7.2.5.4 Event Colour Coding

An Event Type has a coloured border that indicates its configured Event Kind property, and a fill colour to indicate the duration mode. Click on the **Key** button in order to open the colour code window (Figure 30).

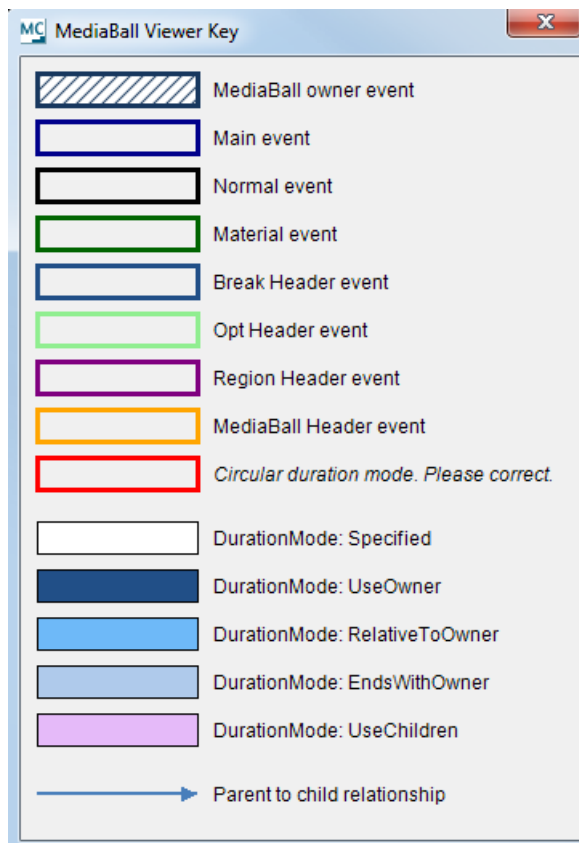


Figure 30 Event Type Viewer Colour Key

7.2.5.5 Event Type Circular Duration Dependencies

An event outlined in red indicates that there is a circular duration dependency between the event(s) and their owner event whereby the owner's DurationMode is UseOwner, RelativeToOwner or EndsWithOwner and one or of its child event DurationMode is UseChildren. An example of this is illustrated in the figure below.

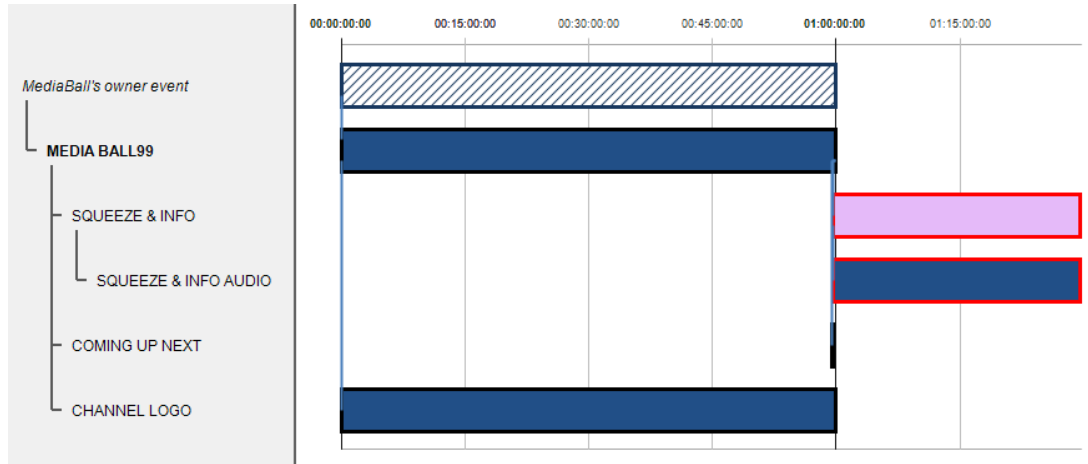


Figure 31 Incompatible Event Type Parameters

7.2.5.6 Event 'Tooltip' Summary

Hover over an event bar to reveal a pop-up window that provides an overview of the event, as shown in Figure 32.

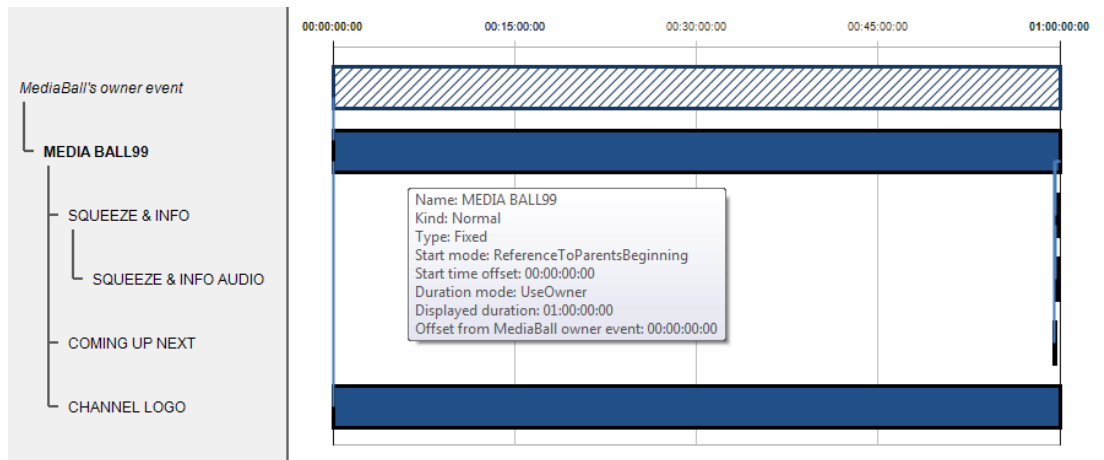


Figure 32 Event Type Overview

Clicking on an event bar will load all panes in the Event Types window with a display of the configurations of the event.

7.3 Device Configuration

A 'device' is an item of equipment that is controlled by Morpheus, for example, a server port, VTR, Flexicart, router, mixer or graphics server. In Morpheus, most devices are controlled from the device controller card(s) (refer to page 12), regardless of whether they use a serial connection, a GPI connection (refer to page 636) or a network connection.

From the Devices window it is possible to add, clone, edit and delete devices.

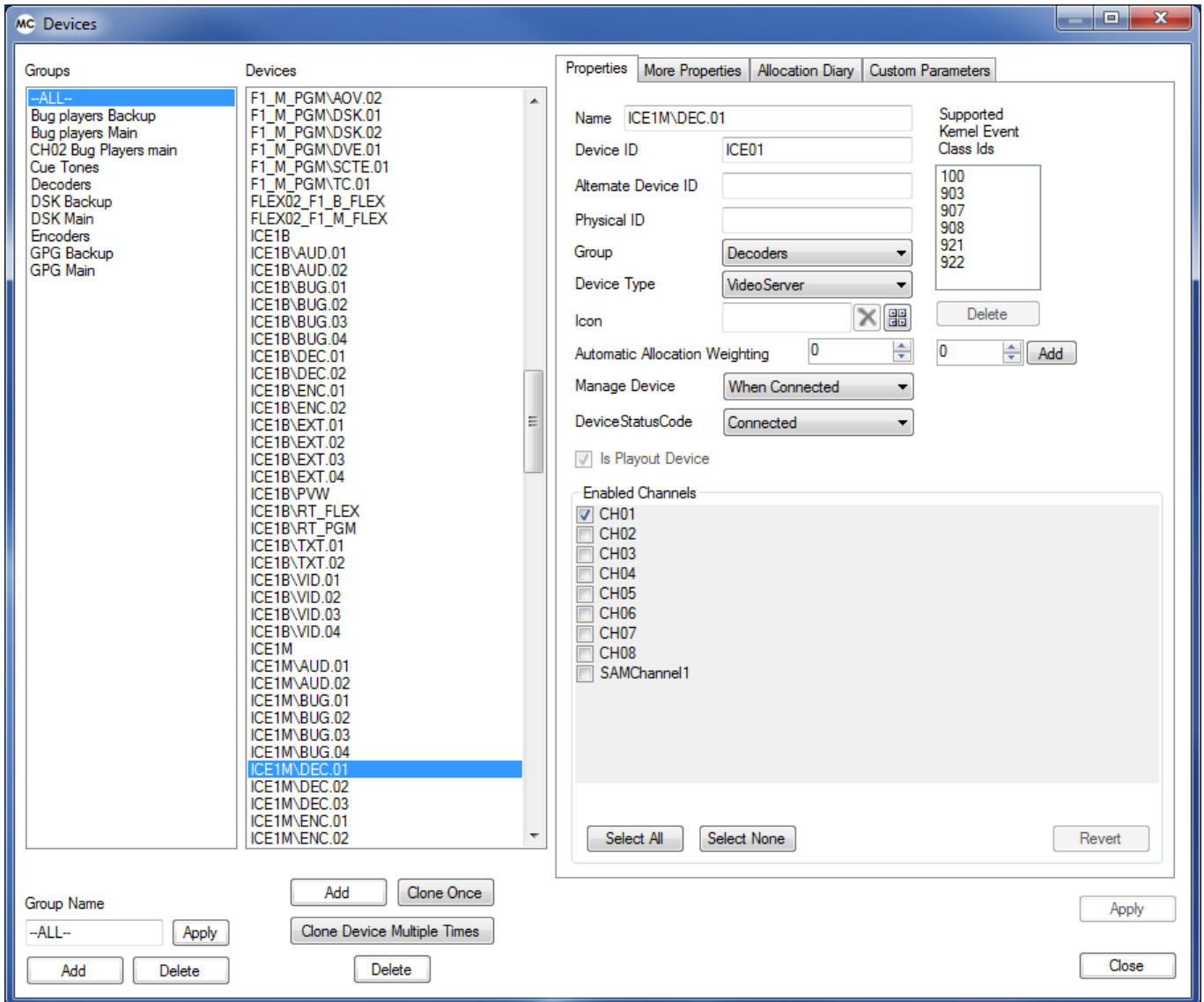


Figure 33 Device Configuration Settings

To display the Devices window:

On the Morpheus Configurator window toolbar, click on **Configure Devices**:



7.3.1 Adding a Device

1. Under Devices, click on **Add**.
The device appears on the **Devices** list with the name **NewDevice##**.
2. Edit the properties of the new device as required (refer to Section 7.3.7 Device Properties).

7.3.2 Cloning a Device Once

The cloning process creates an identical copy of a device.

1. Under **Devices**, select the device to be cloned and click on **Clone Once**.
The device appears on the **Devices** list with the name **[Device Name]CloneX** where X=1 unless a device with that name already exists in which case the number increases until it is unique.
2. Edit the properties of the new device as required (refer to Section 7.3.7 Device Properties).

Note: It is also possible to clone a device once by right-clicking on the device and selecting the required function from the pop-up menu.

7.3.3 Cloning a Device Multiple Times

A single device can be cloned multiple times simultaneously if necessary. The clones will inherit all properties from the cloned device.

To clone a device multiple times:

1. Under **Devices**, select the device to be cloned and click on **Clone Device Multiple Times**.

The following window is displayed:

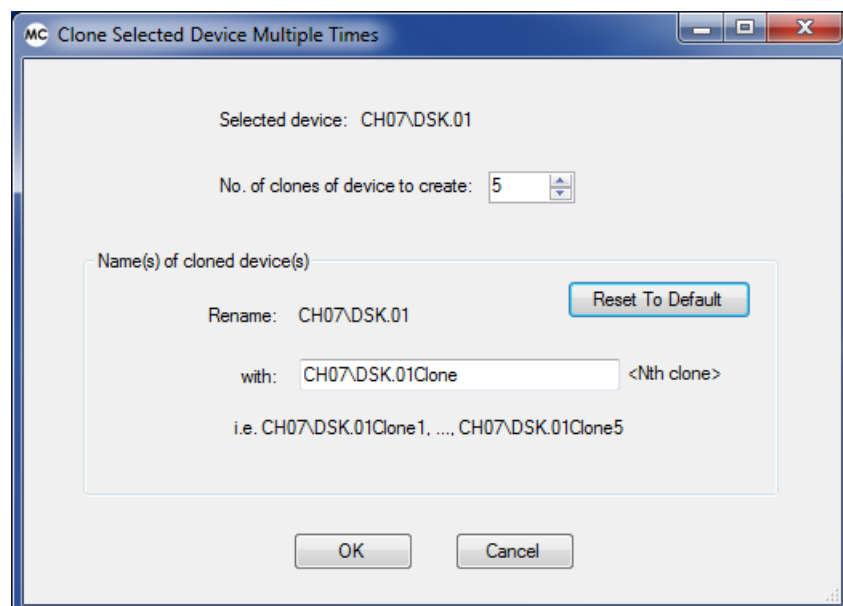


Figure 34 Configuration for Cloning a Device Multiple Times

2. Select the number of clones to create.
3. In the 'Name(s) of Cloned Device(s)' pane, the system will generate and display a default naming convention based on the name of the device to be cloned and the number of clones - if an alternative name is required, type it into the text box.

To reset an alternative naming convention back to the system generated version, press the **Reset To Default** button.

4. Press **OK** to generate the clones (the devices appear on the **Devices** list according to the selected name convention) or **Cancel** to abort.
5. Edit the properties of the new devices as required (refer to Section 7.3.7 Device Properties).

Note: It is also possible to clone a device multiple times by right-clicking on the device and selecting the required function from the pop-up menu.

7.3.4 Deleting a Device

In the Devices pane, select the device to delete and click on **Delete**, or right click on the device and select **Delete** from the pop up menu - a confirmation window is displayed.

Note: A device cannot be deleted unless no events are in existence in the Event Store.

7.3.5 Renaming A Device

If a device is renamed, the option exists to rename all subdevices simultaneously.

To rename a device and its subdevices:

1. Under **Devices**, select the device to rename.
2. In the **Name** field on the Properties tab, change the name.
3. Click on **Apply**. If other devices exist that have the same name, the Rename Devices window is displayed (Figure 35) that enquires as to whether they should also be renamed.

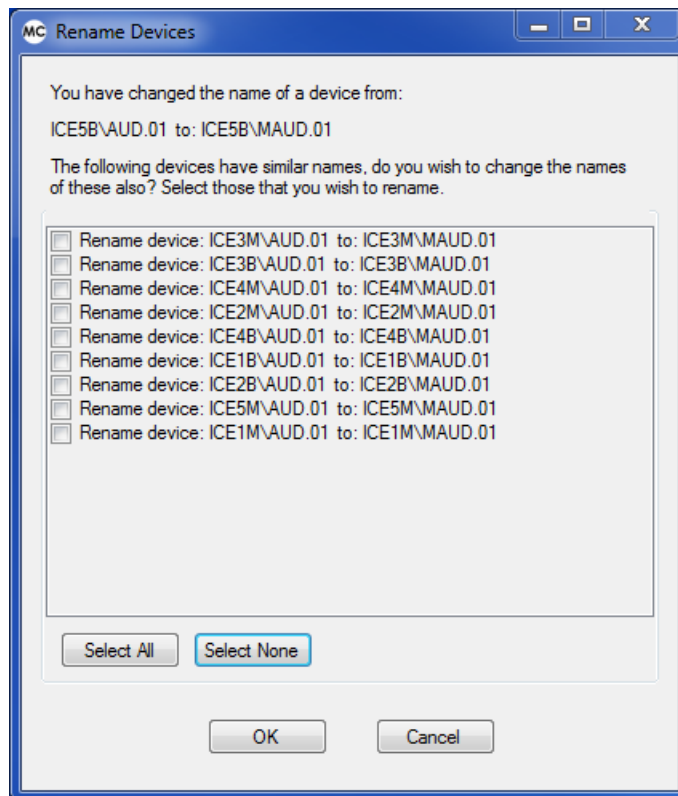


Figure 35 Renaming Multiple Devices

4. Individually tick the checkboxes for the device names that are to be changed, or use the **Select All** button to tick all of the boxes simultaneously (use the **Select None** button to un-tick all of the boxes).
5. Click on **OK**. The subdevices now appear in the list with the new name.

7.3.6 Device Groups

If required, devices can be added to a group. For example, a group can be created to contain all the devices on Channel 1.

7.3.6.1 Adding a Group

To add a group:

1. Under the **Groups** list click on **Add**.

The group is added to the **Groups** list with the name **New Group #**.

2. With the new group selected, enter a name for the group in the **Group Name** field and click on **Apply**.

7.3.6.2 Renaming a Group

To rename a group:

1. Select the group to be renamed.
2. In the **Group Name** field, edit the name and click on **Apply**.

7.3.6.3 Deleting a Group

Select the group to be deleted and click on **Delete**.

7.3.7 Device Properties

The properties and parameter definitions in this section apply to the following tabs:

- Properties
- More Properties
- Allocation Diary
- Custom Parameters

In order to save any configuration changes, click on **Apply**.

7.3.7.1 Properties Tab

- Name

The name of the device.

- Device ID

A unique identifier in the Morpheus media management database (refer to page 588) for a storage medium, commonly a tape (not a VTR), a video server or archive.

- Physical ID

If the device is a server port then the physical ID is the server name.

- Group

Devices can belong to a group. These are displayed at the left of the Devices window (refer to 'Device Groups' on page 88).

- Device Type

- CartDevice
- Other
- PageDevice
- TapeDevice
- VideoServer

- Icon

The icon that will be displayed in the **Secondary Content** column on the schedule (an icon is displayed in the column if an event has a secondary event associated with it. Refer to 'Secondary (Sub) Events' on page 648).

To select another icon, click on the button to the far right of the **Icon** field to display the Select Icon window. Double-click on the required icon. To remove the icon, click on the cross button.

- Automatic Allocation Weighting

A value allocated to a device by the Device Manager (refer to page 210) in order to set its priority in assigning it to an event - devices with the highest allocation weighting are selected first.

- Manage Device

- Never
- When Connected
- Always

- DeviceStatusCode

- Connected
- Reduced Resilience
- Limited Control
- Disconnected
- Offline
- Unknown

The status of the external device to be controlled by Morpheus. If this field is set to **Offline**, the Bridge (refer to page 242) is not connected to that device.

- Supported Kernel Event Class Ids

A 'kernel class ID' is a three digit number that allows Morpheus to identify the parameters that relate to a device. It is a label for the list of parameters that the kernel (refer to page 169) needs to control that device - the kernel parameters.

To add a kernel class ID, enter it in the spin box and click on **Add**. To delete a kernel class ID, select it and click on **Delete**.

- Enabled Channels

Select the channels on which this device is available. It is possible to select channels for multiple devices at once by clicking on the first device, holding down the shift key and clicking on the last device then changing this setting. If the channel being changed is already set on one of the selected devices, it assumes an ambiguous state and needs to be set manually.

7.3.7.2 More Properties Tab

Select multiple devices for configuration by clicking on the first device, holding down the shift key and clicking on the last device, thus allowing the properties for several devices to be changed at once. If the property being changed is already set on one of the selected devices, it assumes an ambiguous state and must be set manually. If an ambiguous property contains a configurable timestamp, for example Required Pre-roll, then the field is highlighted in pink.

- Required PreRoll

A video server is sent a 'play' command in advance of the event start time to allow for latency - this is known as the 'pre-roll time'. A VTR is incapable of instantaneous stable playout and typically requires a few seconds' pre-roll to guarantee a stable output at the desired inpoint (refer to page 645).

Use the Required PreRoll field to enter the pre-roll time.

- Allocation Window

The period before the event goes to air when the device must be available to the channel.

- Preparation Window

The period prior to an event's air time when the device must be available for that specific event (or sequence of consecutive events) for example, cueing.

- Hold Window

The time after an event when the device must be available for a specific event (or sequence of consecutive events). This is for over-runs or manual holding of the event.

- Retention Window

The period after the scheduled end time of the event when the device must be available to the channel.

- Allow Consecutive Events

Tick the checkbox in order to allow consecutive events to play out from the device. Some devices (for example, servers) allow for consecutive events but some do not (VTRs).

- Allow Comp/Junc Prev

Tick the check box to allow Comp/Junc Preview on this device.

Comp Preview (Compound Preview) allows a sequence of events to be previewed according to the resources available in the flexible channel (refer to Section 7.4.1 Channel Types).

Junc Preview (Junction Preview) allows junctions to be previewed in order to ensure that transitions, for example, will play out as intended.

7.3.7.3 Allocation Diary Tab

The purpose of the allocation diary is to allocate devices to channels at certain times of the day.

1. To add an allocation diary to the device, click on **Add**.
2. Configure the parameters as required and click on **Apply**.

To delete an allocation diary, select it and click on **Delete**.

- Name

The name of the allocation diary.

- Assigned Channel

The channel to which the allocation diary is assigned (refer to 'Configuring Channels' on page 94).

- Assigned Channel Group

The channel group to which the allocation diary is assigned (refer to 'Channel Groups' on page 101).

- Recurrence

The interval at which the allocation diary recurs.

- Does Not Recur
- Daily
- Weekly
- Monthly
- Yearly

- Start At

The date and time at which the allocation diary starts.

- Duration of allocation

The duration of the allocation diary.

7.3.7.4 Custom Parameters Tab

Custom parameters that are applied to any events that use the selected device, as long as the parameter with the same name exists.

Allows the creation of parameters to be applied to events using the device.

- Enter the **Name** and **Value** in the fields provided and click on **Add/Update**.
- To delete a custom parameter, select the parameter and click on **Delete**.

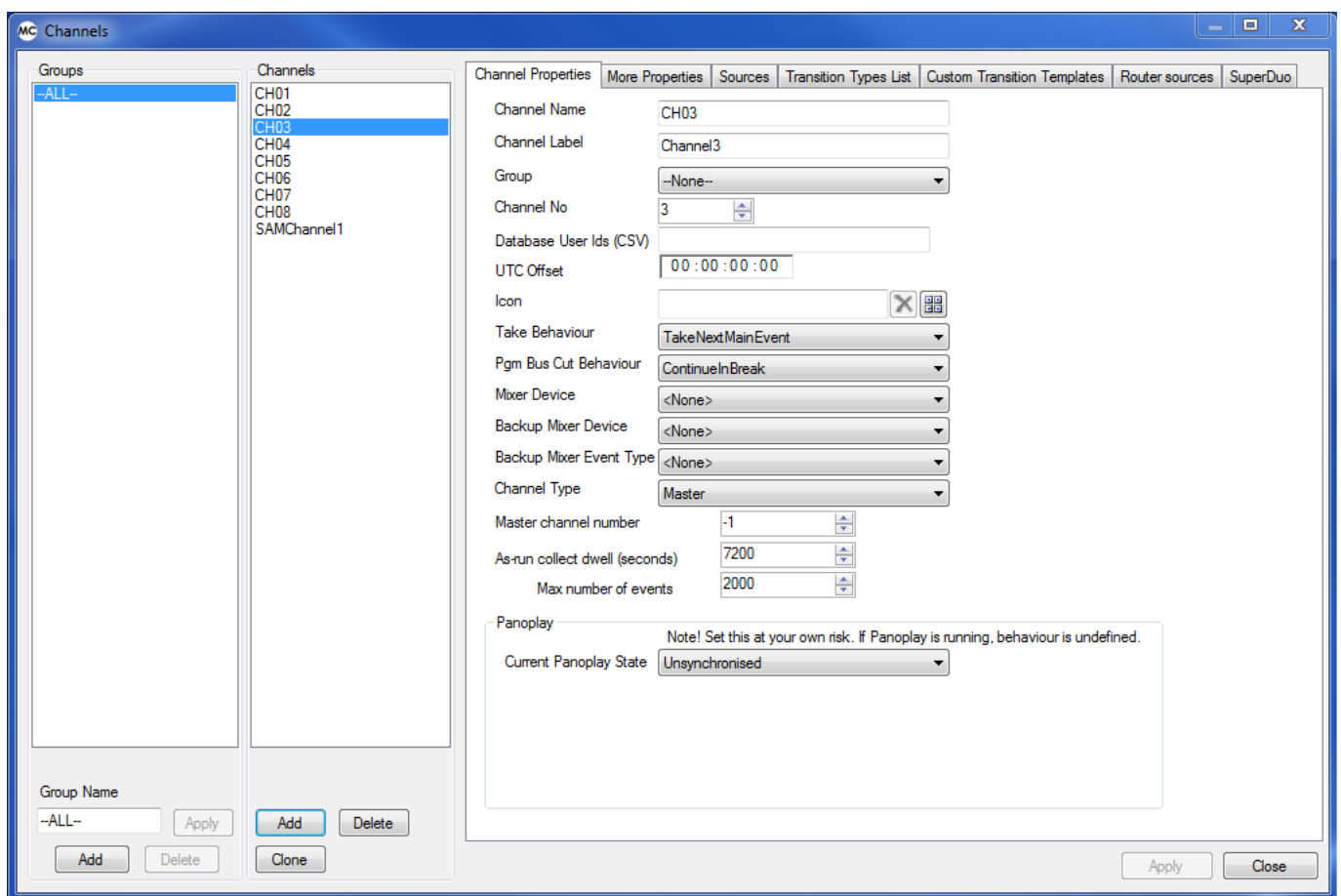
7.4 Channel Configuration

In Morpheus, a channel corresponds to a schedule. The maximum capacity in one system is 256 channels. Icons representing each channel appear in the channel bar on the Editor window.

To display the Channels configuration window click on **Configure Channels** on the Morpheus Configurator window bar.



The Channels configuration window provides the means to add, clone, edit, and delete channels.



7.4.1 Channel Types

There are four types of channel:

- **Flexible**

A Flexible Channel has dedicated hardware, and behaves as a backup to other channels in a system in order to provide resilience (refer to 'Resilience' on page 16).

Click on the **N+1 Synch** button on the Manual Intervention Panel (refer to page 5) in order to transfer events on a faulty channel to the flexible channel.

With particular configurations, it is possible to automatically take a N+1 channel to air when an N+1 operation is performed - an Event Type must be defined for the source channel with the name '<CHANNEL_NAME> N+1 Switch Event' that the N+1 process drops onto the N+1 channel in order to switch the downstream router to take the N+1 channel to air. In this case, the system moves the time link master events to the N+1 channel so that it takes responsibility for all of the time declarations. When the N+1 channel is released, the system moves the time link declarations back to the original channel.

- **Preview**

The flexible channel can also be used as a preview channel for Compound and Junction previewing and for Spot Checks.

For information on the configuration of Compound and Junction previewing, refer to Section 7.3.7.2 More Properties Tab.

For information relating to the configuration of Spot Checks, refer to Chapter 13.13.1 System > General Tab

A channel that is used for previewing events or sections of another channel. Items to be previewed are copied to the preview channel to be played using preview devices.

- **Master**

Either an independent channel or the master of an opt group (refer to 'Opt Header/Region Header' on page 54).

- **Region**

Also known as an 'opt-out channel' - contains only opt breaks (refer to page 54) that are copied automatically from the master channel. Main programme events are taken from the master channel but the breaks may contain local content.

- **Staging**

A type of channel that is used with the CFC-JIP functionality.

The isolated channel that Dead-Rolls events, or a show, selected from the Source Channel. The Staging Channel has a dedicated one-to-one alliance with a Source Channel. It can be operated in exactly the same way as a Source Channel with two exceptions:

- Events cannot be loaded onto it outside of the CFC-JIP process
- No events will ever go to air

7.4.2 Add a Channel

1. Below the Channels pane, on the Channels window, click on **Add**.

Note: A window (Figure 37) is displayed to warn that the Editor and Bridge applications must be closed before creating a new channel.

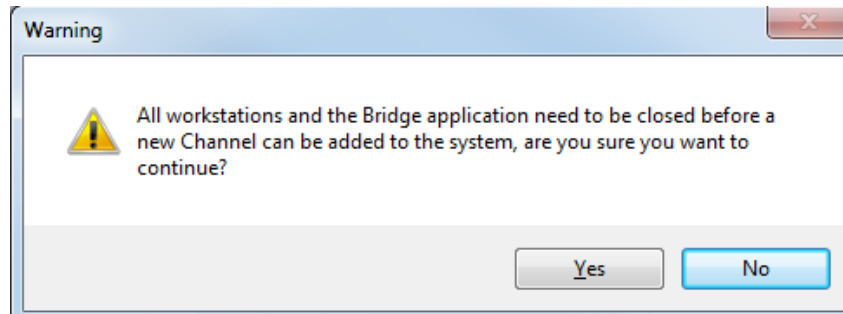


Figure 37 New Channel Warning

2. Click on **Yes** to continue.
3. The Add a New Channel window is displayed:

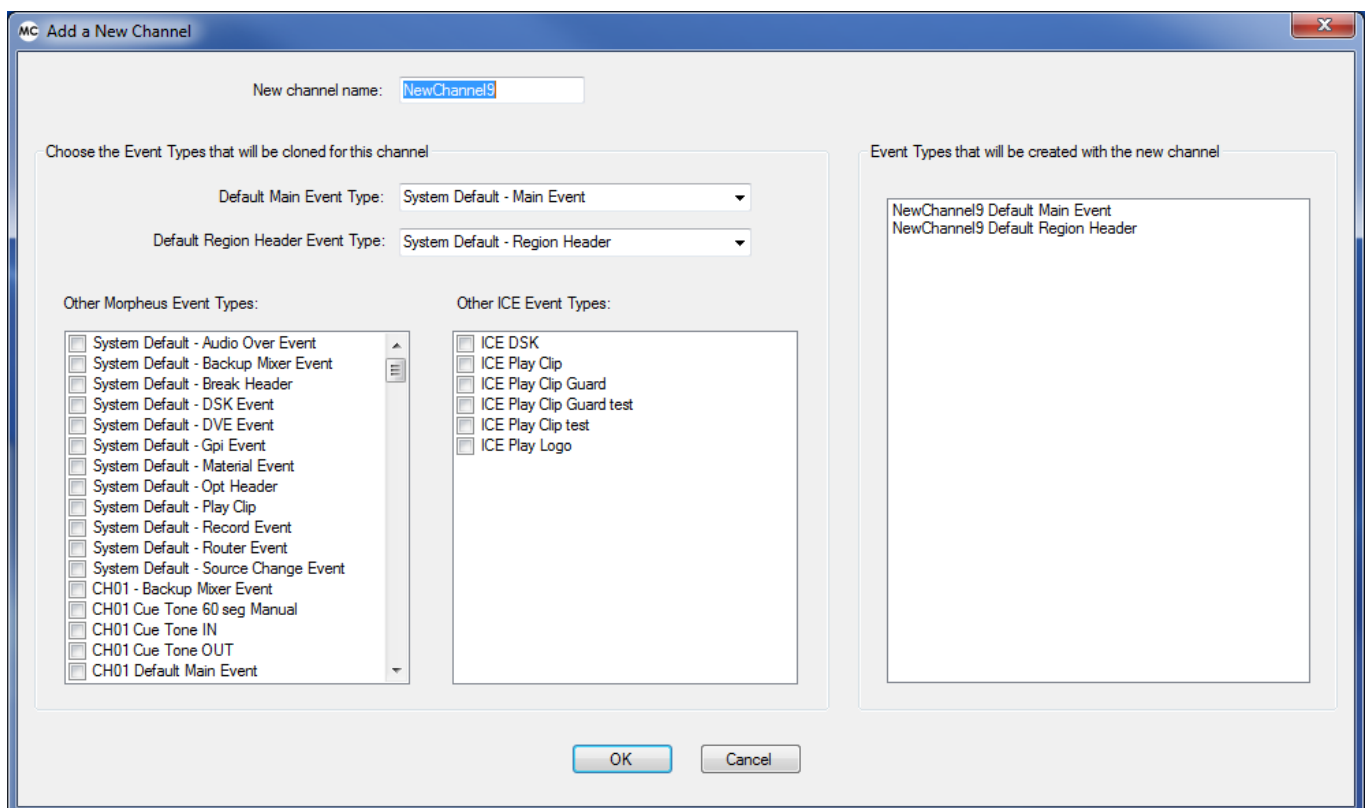


Figure 38 New Channel Settings

4. Enter a name for the channel (by default, the system adds a name in the following format 'NewChannel<N>').
5. Select a default main Event Type and a default region header Event Type from the drop-down lists. These events appear in the 'Event Types that will be created with the

new channel' box on the right-hand side of the window. Changing the name of the channel also updates the event names in this box.

6. Add any additional Event Types required for the channel by ticking the checkboxes in the 'Other Morpheus Event Types:' list - they will then appear in the 'Event Types that will be created with the new channel' pane on the right hand side of the window.
7. Add any ICE Event Types required for the channel by ticking the checkboxes in the 'Other ICE Event Types:' list - they will then appear in the 'Event Types that will be created with the new channel' pane on the right hand side of the window.
8. Click on **OK**.

The channel appears in the **Channels** list.

9. Use the tabs to edit the properties of the channel (refer to Section 7.4.6 Channel Configuration Tabs).

7.4.2.1 New Channel Configuration Options

- New Channel Name

Any unique name of choice that will identify the channel. If the chosen name already exists, the system will display a Channel Duplication Occurrence warning window as well as the text 'Channel already exists' alongside the 'New Channel Name' field.

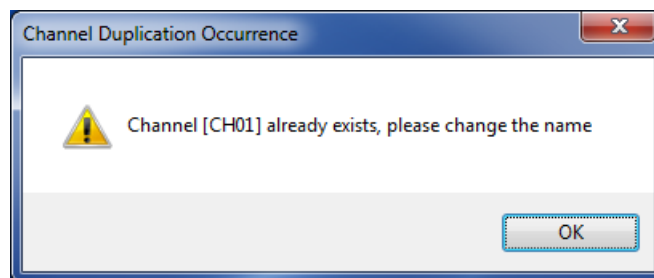


Figure 39 Channel Duplication Occurrence Warning Message

- Event Types that will be Created with the New Channel

A list of all of the Event Types that will be created with the channel from the selections made above.

7.4.3 Clone a Channel

Cloning a channel creates customisable copy of the original.

1. Open the Channels configuration window by clicking on Configure Channels on the Morpheus Configurator window bar.



2. On the Channels window, select the channel to clone and click on the **Clone** button (alternatively, right-click on the channel and select **Clone** from the pop-up menu).

The channel cloning wizard starts.

3. In the **Channel Name** field, enter a unique name for the channel. The system does not allow duplicate channel names - if the name already exists, the wizard will display a warning when the **Finish** button is pressed at the end of the process, and it will be necessary to go back and select a different name.

Click on **Next**.

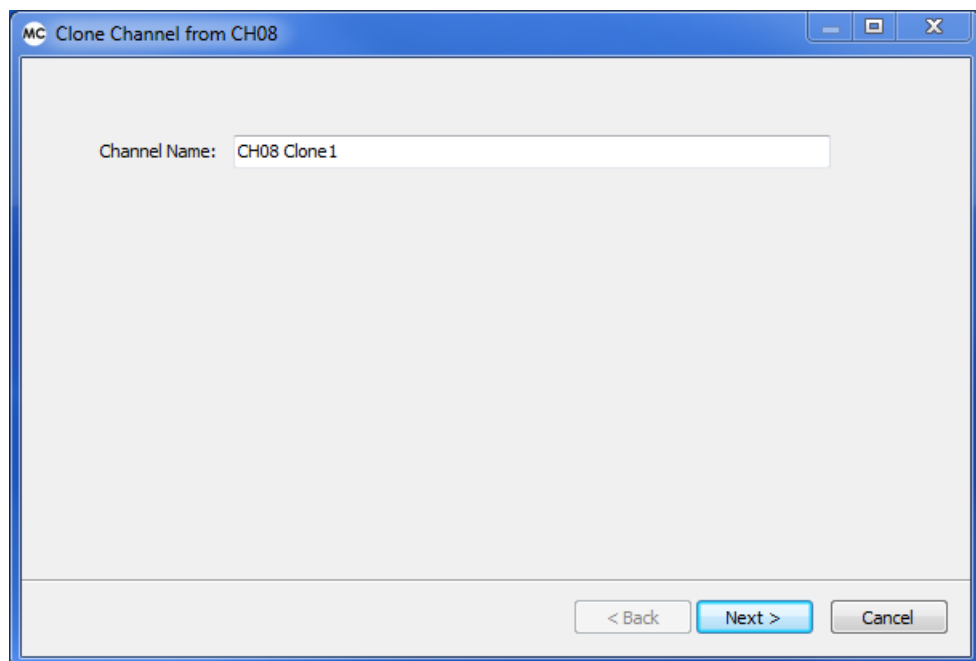


Figure 40 Clone Channel Wizard

- 4. Sources that are available for the channel that is being cloned appear in the Available Sources list.

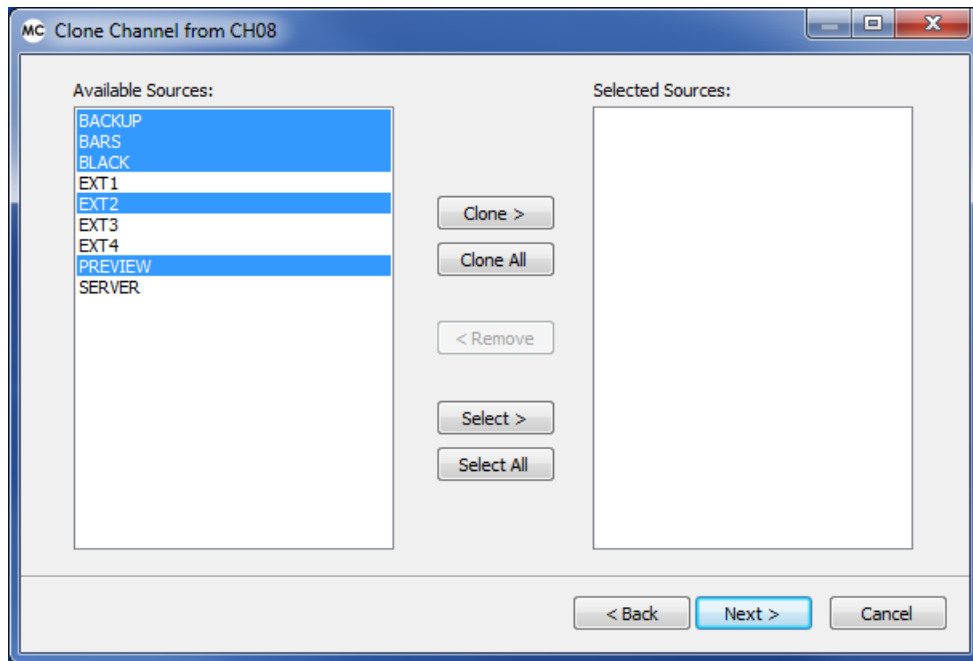


Figure 41 'Clone Channel' Wizard

Use the functions on the window in order to either 'clone' or 'select' Available Sources for the new channel. Cloning copies and renames the sources (appropriate where minor configuration changes are required to existing sources), whereas selecting makes the sources available to the channel without them being copied or renamed.

- For an individual source: click on the source and press either **Clone>** or **Select>**
- For a contiguous subset of sources: left click and hold on the first source and drag the pointer to the last source - press either **Clone>** or **Select>**
- For a non contiguous subset: left click on the first source, then <Ctrl> click on the other sources - press either **Clone>** or **Select>**
- For all sources: press either **Clone All** or **Select All**

The chosen sources appear in the Selected Sources pane.

Note:

When a source is cloned, the system applies the following name format:

<channel number> Clone1_<source name>

If a source is cloned a second time, during another channel cloning process, and that source had retained its original system default name, then the system will apply the following default by adding an additional 'Clone1_' into the name:

<channel number> Clone1_Clone1_<source name>

In order to remove sources from the Selected Sources pane, highlight the source(s) and click on **<Remove**.

Click on **Next**

5. Refer to the instructions in step 4 in order to clone / select devices for the channel and then click on **Next**.
6. Refer to the instructions in step 4 in order to clone / select events for the channel and then click on **Next**

The Event Types (refer to page 52) available to the channel being cloned appear in the Events list.

7. Click on **Finish**.

The new channel appears on the Channels list.

Note:

To configure the properties of a channel, refer to Section 7.4.6 Channel Configuration Tabs.

7.4.4 Delete a Channel

Under **Channels**, select the Channel to be deleted and click on the **Delete** button (alternatively, right-click on the channel and select **Delete** from the context menu).



Deleting a channel that is on-air will create undesirable behavior - the deletion of channels should therefore only take place during the configuration phase.

7.4.5 Channel Groups

7.4.5.1 Add a Group

1. Under the **Groups** list, on the Channels window, click on **Add**.

The Enter Name window is displayed.

2. Type a name for the group and click on **OK**.

The group now appears in the **Groups** list.

7.4.5.2 Rename a Group

1. Select the group to be renamed.
2. In the Group Name field at the bottom of the Groups list, edit the name and click on **Apply**.

7.4.5.3 Delete a Group

Select the group to be deleted and click on **Delete** - a confirmation window is displayed.

7.4.6 Channel Configuration Tabs

The fields on each tab of the Channels Window are described below.

In order to save any configuration changes, click on **Apply**.

7.4.6.1 Channel Properties Tab

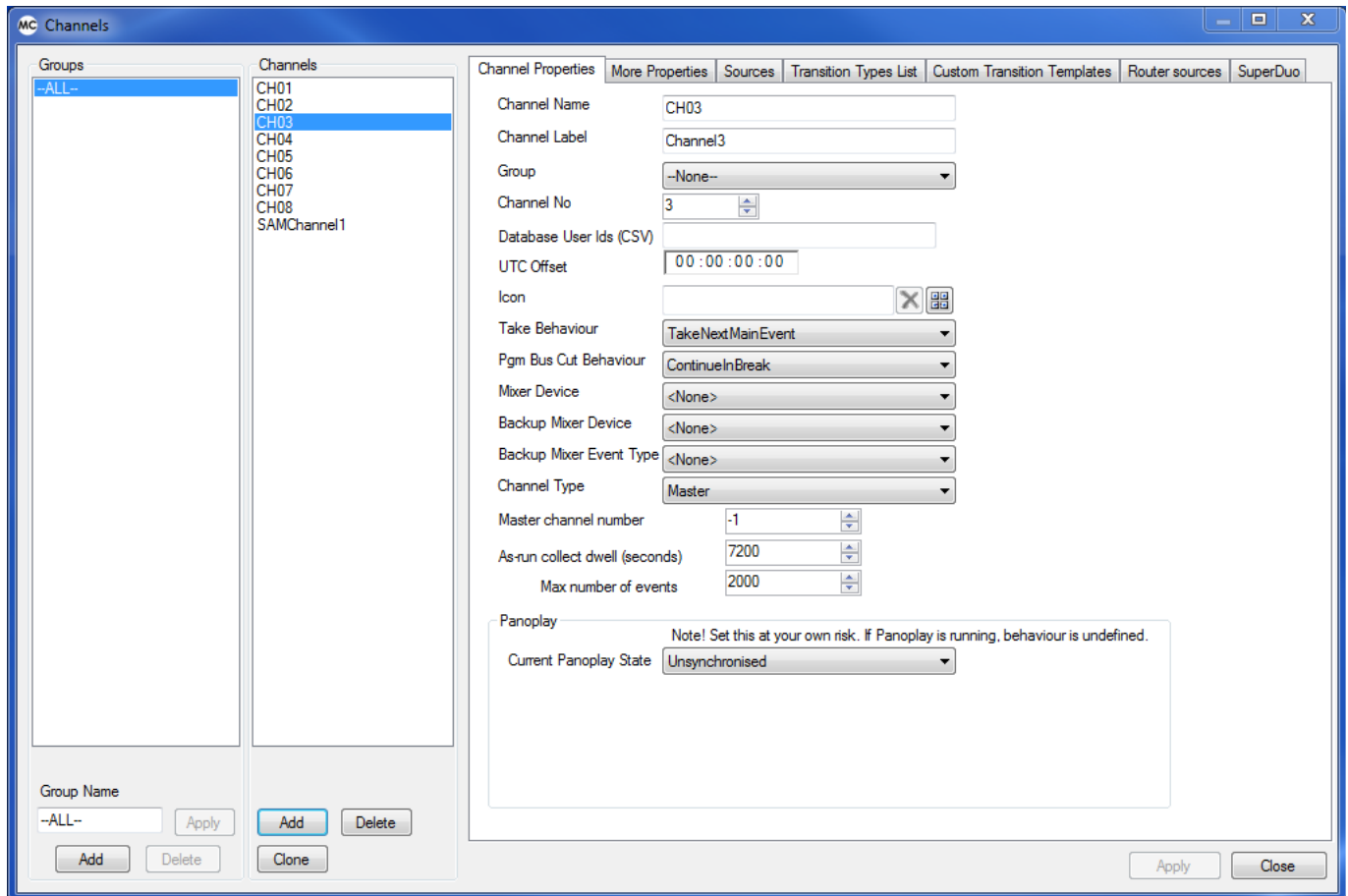


Figure 42 Channels Window: Channel Properties Tab

- Channel Name

The name that is displayed below the channel icon on the Editor channel bar. (The 'channel bar' appears in the left-hand pane of the Editor window. It shows all channels that are available to a particular role (some channels may be disabled for certain roles).

- Channel Label

An additional, optional label that precedes the Channel Name on the channel bar.

- Group

Use the **Group** drop-down menu in order to select a group in which to place the channel (refer to 'Channel Groups' on page 101).

- Channel No

The number that is displayed on the channel icon on the Editor channel bar.

- Database User IDs (CSV)

Prevents a user from viewing material intended for another channel. It must be implemented in the Morpheus media management database (refer to page 588). Ensure this field is left blank if not implemented, otherwise Palette searches will return no results (refer to page 5)

- UTC Offset

'UTC' (Coordinated Universal Time) is the time standard by which the world regulates clocks and time.

Each channel can use a local timecode that is offset from the UTC, for example when region channels have different time zones. For information on region channels, refer to Section 7.4.1 Channel Types.

The UTC Offset field allows offsets in multiples of half an hour up to +/-13 hours. All event times on the schedule change as soon as the setting is applied, and the Editor clock shows the new time immediately. 'True' reference time can always available in the Bridge (refer to page 242).

This option can also be applied for daylight saving time. If the station reference timecode can be left at UTC throughout the year it is quick and simple to implement daylight saving time by altering the UTC offset.

Refer to 'Timecode' on page 632.

- Icon

The icon that is displayed on the channel bar. To select another icon, click on the button at the far right of the **Icon** field to display the Select Icon window. Double-click on the required icon. To remove the icon, click on the cross button.

- Take Behaviour

Dictates the result of clicking **Take Next** on the Manual Intervention Panel (refer to page 5). Select from the following in the drop-down menu.

- **TakeNextMainEvent**: takes the next Commercial in a break.
- **TakeOutofBreak**: takes the next top level event that follows a break and all of its commercials.

Note:

The **Cue to Air / Cue to Preset** options on the Commercial Hotlist temporarily affect this option. If set to **TakeNextMainEvent**, clicking **Cue to Air** sets it to **TakeOutofBreak** then resets it when finished. The Commercial Hotlist is described in the Morpheus Operators manual.

- Pgm Bus Cut Behaviour

Specifies what should happen when a cut is made on the PGM bus. Select from the following in the drop-down menu:

- **ContinueInBreak**
- **CutOutOfBreak**

- Mixer Device

A drop-down list of mixer devices that have been configured in the 'Devices' page of the 'Configurator' - select a main mixer device for this channel from the list and click on the Apply button. The mixer selection will be automatically applied to the channel configuration on the Bridge.

- Backup Mixer Device

A drop-down list of mixer devices that have been configured in the 'Devices' page of the 'Configurator' - select a backup mixer device for this channel from the list and click on the Apply button.

- Backup Mixer Event Type

Select the backup mixer Event Type (refer to 'Event Types' on page 52)

- Channel Type

For information on Channel Types, refer to Section 7.4.1 Channel Types.

Set the Channel Type to one of the following from the drop-down menu:

- Flexible
- Master
- Region
- Staging

- Master Channel Number

If the selected channel is a flexible or region channel, use this field to specify the number of the master channel.

- As-Run Collect Dwell (seconds)

Set the number of seconds during which past events are greyed out on the schedule before they are moved to the AsRun database by the As Run DB Host Shell service (refer to page 201). 'As run logs' can then be created by the Automation Database Reporter (refer to page 569). The default setting is 60 seconds.

- Max Number of Events

The maximum number of events allowed for the current channel. When reached, an alarm is raised within Morpheus and the System Health Monitor (refer to page 198).

Panoplay Pane**- Current Panoplay State**

Three states exist:

- Leader
- Follower
- Unsynchronised



The state must not be changed whilst Panoplay is running - the resulting behaviour is undefined.

7.4.6.2 More Properties Tab

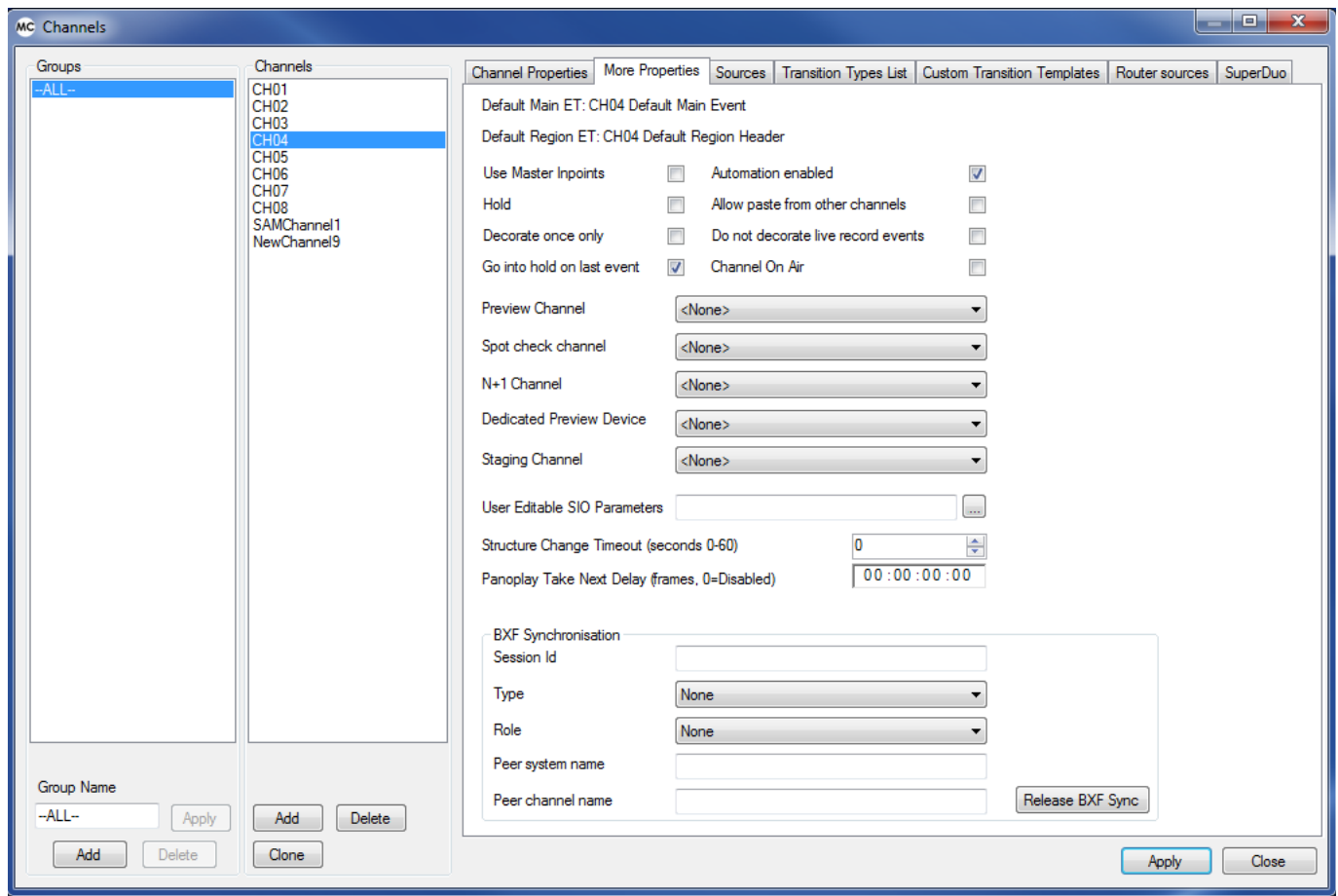


Figure 43 Channels Window: Channel Properties Tab

- Use Master Inpoints

A 'master inpoint' is the original inpoint (refer to page 645) of the tape copy. Tick the check box to use master inpoints.

- Hold

Tick the check box in order to enable the hold function for this channel - Hold is an action on the Manual Intervention Panel (refer to page 5) that pause the on-air event.

- Decorate Once Only

Some fields on the Property Inspector (refer to page 5) are decorated (populated) by the Morpheus media management database using the Material Decorator service (refer to page 236).

The normal system setting is **Decorate Always** that prevents operators from changing the values for any of these properties. If they do change a value, it reverts to its original.

When **Decorate once only** is selected, the value can be changed.

- Go into Hold on Last Event

When selected, the last event on the schedule is placed on hold before it has played out. When left clear, the event plays out.

- Automation Enabled

Tick the check box in order to enable automation for this channel.

- Allow Paste From Other Channels

Select the check box to allow operators to paste portions of schedules from other channels.

- Do Not Decorate Live Record Events

Tick the check box to prevent live events on the schedule from being decorated, even if the Live Record Decorator Service (refer to page 234) is running.

- Channel On Air

Tick the check box if the channel is an on air channel.

- Preview Channel

Select the Preview Channel from the drop-down menu that will be associated with this channel.

For information on Preview Channels, refer to Section 7.4.1 Channel Types.

- Spot Check Channel

From the drop-down menu, select the channel to use for spot checks.

- N+1 Channel

From the drop-down menu, select the Flexible Channel associated with this channel.

For information on Flexible Channels, refer to Section 7.4.1 Channel Types.

- Dedicated Preview Device

Select the dedicated preview device for this channel.

- Staging Channel

Required when using CFC-JIP.

The isolated channel on which the Dead-Roll is performed. A Dead-Roll consists of either a number of events, or a show, selected from the Source Channel. A Staging Channel is bound to a single Source Channel, and it can operate in exactly the same way, except that no events on a Staging Channel will ever go to air.

From the drop-down menu, select the Staging Channel that will be associated with this Source Channel.

For information relating to CFC-JIP, refer to Chapter 13.9 Channel Flow Control-Join In Progress (CFC-JIP)

- User Editable SIO Parameters

Enable the changing of values of editable Schedule Information Object parameters in the Editor.

To make a parameter value editable:

1. Type the parameter name into the text field. The parameter must exist in the schedule file. Use commas to add (and separate) multiple parameters at once. All parameters must be present if they are to become editable.

User Editable SIO Parameters



Figure 44 Adding an Editable SIO Parameter

2. Click on **Apply**.

- Click on the ellipsis button next to the text field. The following window is displayed:

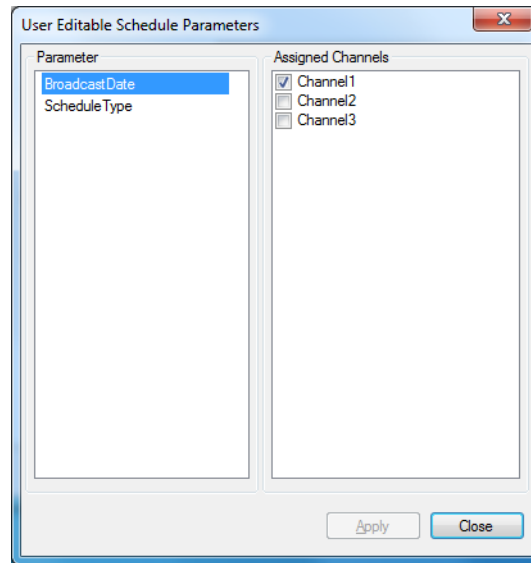


Figure 45 Assigning a SIO Parameter to a Channel

- Assign the parameters to the channel that holds the schedule. To add or remove all parameters for a channel, right click and select **Apply to all** or **Remove from all** as shown below (Figure 46):

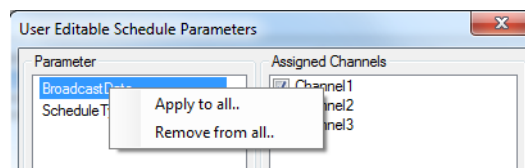


Figure 46 Applying or Removing All Parameters

The parameters in the Schedule Object Inspector in the Editor now appear in italic and bold text as shown below (Figure 47):

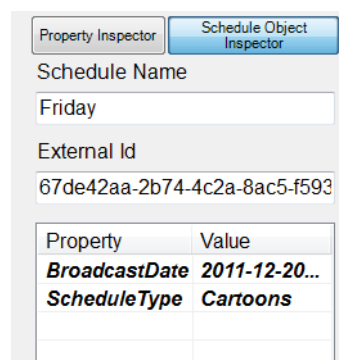


Figure 47 Editable Parameter

It is now possible to edit the values of these parameters by double-clicking on the parameter or by right-clicking on the value and selecting **Edit**.

- Panoplay Take Next Delay (timecode, 0=disabled)

Enter a value in seconds. A value of 0 disables this function.

When a take next is performed on the Panoplay Leader channel, it will not occur at precisely the same time on the Follower due to the inherent latency of the intervening infrastructure. This function ensures that a take next occurs at exactly the same time on both the Leader and Follower systems.

Disabled:

Standard behaviour. Upon a take next, the Follower channel will independently take next, and remain out of sync with the Leader until Panoplay detects a 'safe' point at which to synchronise its schedule (in order, for example, to avoid synchronising the schedule within a few frames of an event boundary). The timeframe within which the synchronisation must occur is limited to 30 seconds.

Enabled:

The feature is enabled once a non-zero value is entered into the field.

Upon a take next action on the Leader channel, the Panoplay Take Next Delay is added to the calculated Eventstore pre-roll in order to derive the start time of the next event. The new start time is then relayed to the Follower channel, via Panoplay, to ensure that it is applied to the next event, thus resulting in a synchronised take next.

It is common practice for the value of the Panoplay Take Next Delay to be in excess of 2 seconds, however this does depend upon the system infrastructure.

Note: In enabling this feature, a delay is introduced between the take next action and its effect on the Leader system.

Note: This function should only be enabled if the schedule contains manual takes.

7.4.6.3 Sources Tab

A source is a button on a mixer that selects a device. It is also an input to a router. In Morpheus, the source configuration associates device names to source numbers, along with other settings such as the guard source (refer to page 645) and the default Event Type. Configuring a source links a device with its default Event Type.

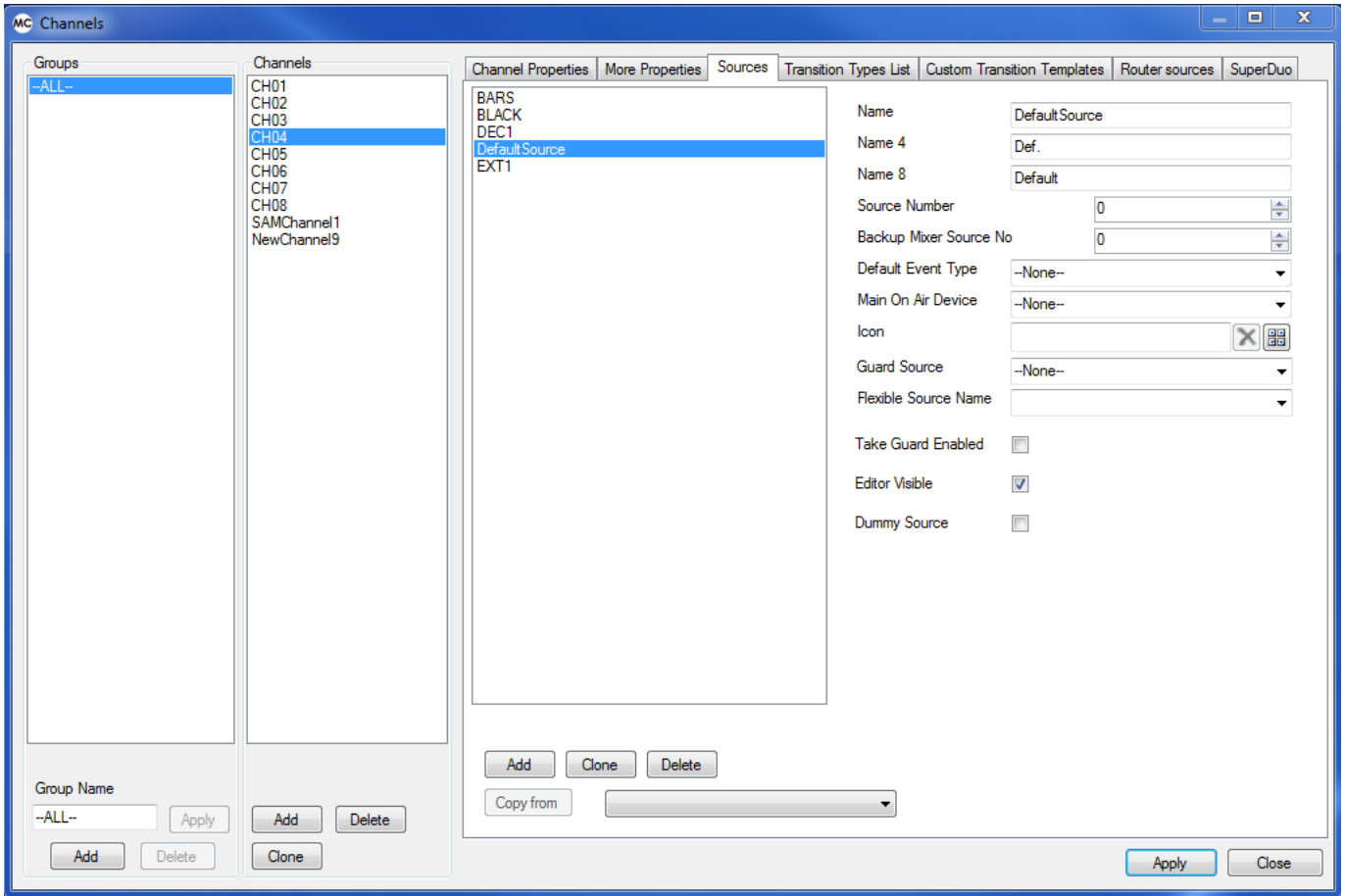


Figure 48 Channels Window: Sources Tab

Add, Clone, Delete a Source

A source can be added, cloned or deleted using the **Add**, **Clone**, and **Delete** buttons at the bottom of the Sources tab.

When a new source is created using the **Add** button, it is given the default name of 'NewSource X' (where X is a number equal to the number of existing sources). A source with the name 'DefaultSource' is automatically created for a new channel, therefore the next source that is created, using the **Add** button, will be given the default name of 'NewSource 1'.

A cloned source is automatically given a name with the format <Selected Source name>CloneX (where X=1, unless a source with that name already exists, in which case the number increases until it is unique). A cloned source is also allocated a source number automatically - the source number will be one number higher than the highest source number already allocated to a source on the same channel.

To delete a source, click on the source in order to select it and then click on the **Delete** button.

Configuration Parameters

- Name

The full source name that appears in source lists and the Property Inspector (refer to page 5).

- Name 4

The four character source name that appears on the soft legending on a mixer panel or source assign panel.

- Name 8

The 8-character source name that appears on a UMD ('Under Monitor Display'). The source name is displayed below the sources on the monitoring wall.

- Source Number

Identifies the button on the mixer panel that selects the configured source device (Main On Air Device). Multiple sources can be configured with the same source number - this practice is not recommended as it becomes impossible to uniquely identify a specific source during a program bus cut, for example.

- Backup Mixer Source No

Identifies the button on the backup mixer.

- Default Event Type

Select the Event Type (refer to page 52) required to create an event using this source.

- Main On Air Device

Select the device name connected to this source.

- Icon

The icon that appears in the **Source** column on the schedule for the selected device.

To select another icon, click on the button to the far right of the **Icon** field to display the Select Icon window. Double-click on the required icon. To remove the icon, click on the cross button.

- Guard Source

Select the device that is to be the guard source (refer to page 645).

- Flexible Source Name

The name of the backup source to be used in the flexible channel.
For information relating to the Flexible Channel, refer to Section 7.4.1 Channel Types.

- Take Guard Enabled

Tick the check box to enable **Take Guard** for this source. Take Guard is an option on the Manual Intervention Panel (refer to page 5) that activates the guard source for the on-air event.

- Editor Visible

If unchecked, the source will not be visible in the following locations of the Editor: **Main Video Source** and **Guard Source** drop-down menus of the Property Inspector, 'Source' column drop-down menu in the schedule view of the 'Editor'. Additionally the source will no longer be visible in the 'Sources' pane in the Palette.

- Dummy Source

When ticked, the ability to take guard on the 'dummy' source is disabled. The following functions will no longer be available for the source:

- The **Take Guard Enabled** checkbox (for the source in the Configurator)
- The **Toggle Guard** right-click menu option in the Editor
- **Take Guard PGM** and **Take Guard PST** buttons on the MIP

Note:

By design, this condition should be set on the dummy source used by the Missing Material Recovery Service (Chapter 14.21 Missing Material Recovery Service).

7.4.6.4 Transition Types List Tab

Tick the checkboxes in order to select the transition types that will be available from the Mix field on the Editor window and the **Transition Type** list in the Property Inspector (refer to page 5). By default, all transition parameters are selected for a new channel with the exception of wipes and splits.

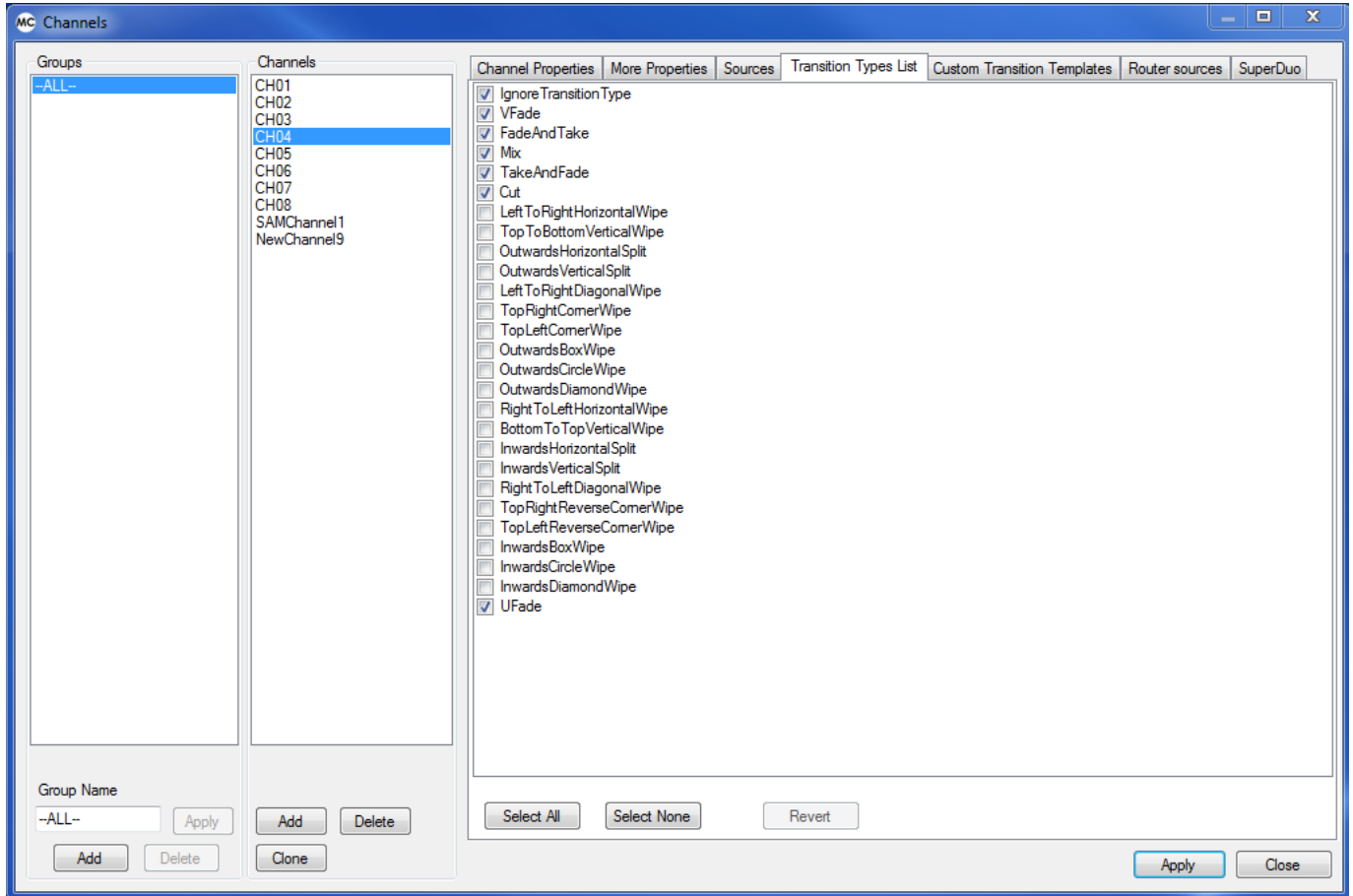


Figure 49 Channels Window: Transition Types List Tab

Transitions

A transition is a mixer effect that is used to switch between one event and the next. There are many different types of transition, the simplest being a cut (an abrupt switch between two events) - others include fades, mixes and wipes, and more advanced types include DVE transitions.

The range of transitions available from the Morpheus Editor depends on the vision mixer that is incorporated in the system. If no mixer is present then only cuts can be performed.

If a mixer is present but only one server port is available, then any transition that does not involve overlapping of material can be performed, namely cut, V-fade, U-fade, fade and take, take and fade. However to perform a cross fade (also known as X-fade, mix or dissolve) or any kind of wipe, two server ports (one for each piece of material) and a mixer are needed.

The Mix field on the schedule displays an icon that represents the mixer transition for the start of the event. The default transition is 'Cut'.



When two back-to-back main events are scheduled to play out on the same source, and they are configured for anything other than a transition of type 'cut', then the following will occur:

- The event that is that is due to transition out is truncated at the start of the transition, thereby producing the effect of a cut
- The event that is transitioning in will do so at the programmed time and according to the configured transition type

7.4.6.5 Custom Transition Templates Tab

Create custom transitions - once created, they will appear with the system defaults, in the **Transitions** list on the Property Inspector (refer to page 5). Different channels can be configured with individual custom transitions.

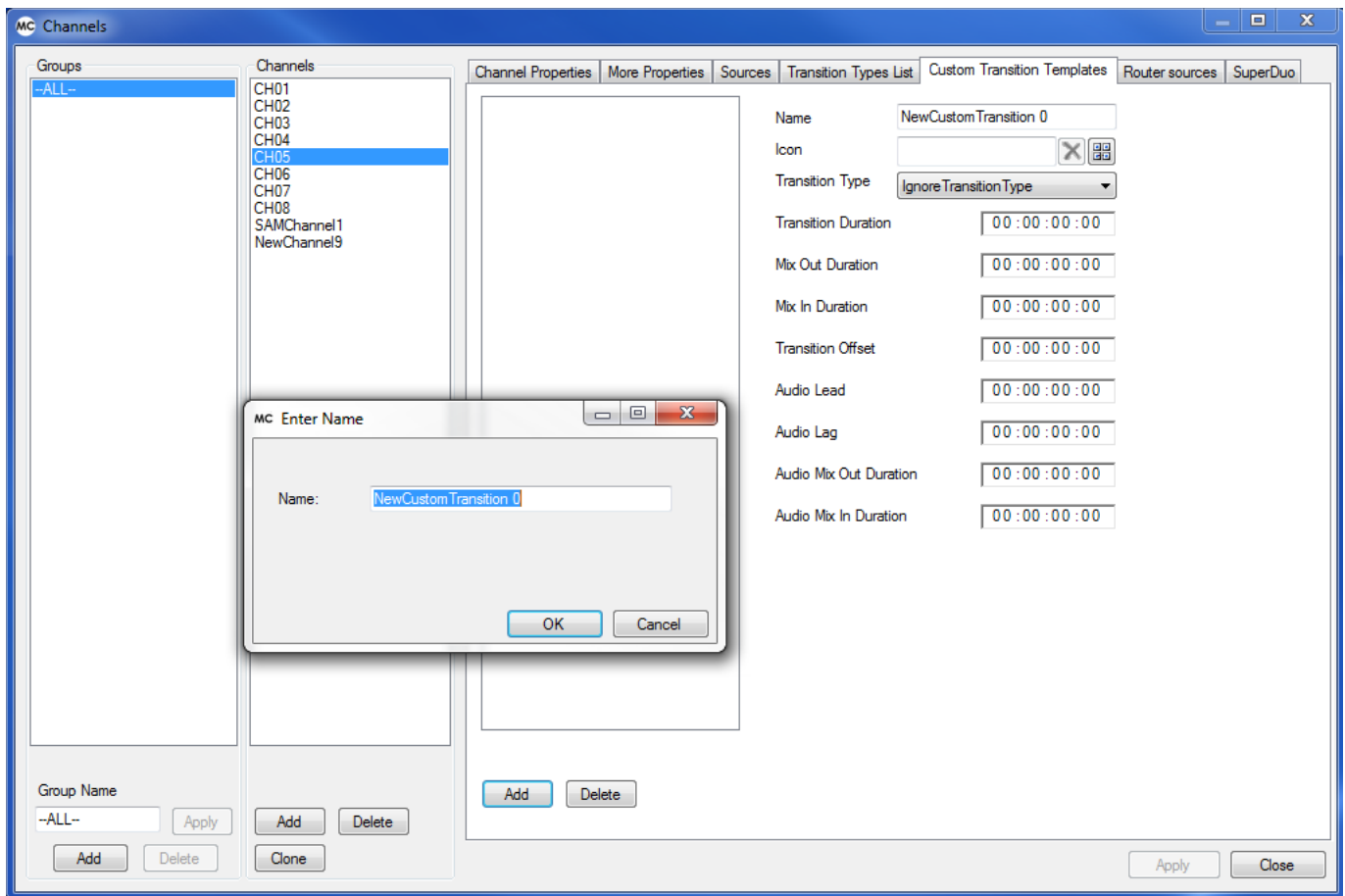


Figure 50 Channels Window: Custom Transition Templates Tab

Add a Custom Transition Template

1. On the Custom Transition Templates tab, click on **Add**.
The Enter Name window is displayed.
2. Type a name for the template and click on **OK** (the system creates a default name that can be overwritten).
3. Edit the properties as required (detailed below)

Delete a Custom Transition Template

1. Select the template from the list
2. Click On Delete.



When deleting a custom Transition Template no confirmation window is displayed.

Configuration Parameters

- Name

The name of the transition type.

- Icon

The icon that appears in the **Mix** field on the Editor and the Transition Type list on the Property Inspector. To select another icon, click on the button at the far right of the **Icon** field to display the Select Icon window. Double-click on the required icon. To remove the icon, click on the cross button.

- Transition Type

If the custom transition is to be based on an existing transition, then select this transition from the **Transition Type** list. Otherwise, select **Ignore Transition Type**.

- Transition Duration

The duration from the start of the fade out of the video of the previous event, to the end of the fade in of the video of the current event.

- Mix Out Duration

The 'mix out' occurs when an event fades out after being aired. The **Mix Out Duration** is the duration taken for the previous event's video to fade out completely.

- Mix In Duration

The 'mix in' occurs when an event starts to air. The **Mix In Duration** is the duration of the fade in of the video for the current event.

- Transition Offset

The offset from the start of the event to where the video starts fading in.

- Audio Lead

The offset from the start of the event to the point at which the audio starts fading in. Delayed fade in is known as 'late lead' and advanced fade is known as 'early lead'.

- Audio Lag

The offset from the start of the event to the point where the audio for the previous event starts fading out. Delayed fade out is known as 'late lag' and advanced fade out is known as 'early lag'.

- Audio Mix Out Duration

The 'audio mix out duration' is the length of the audio as an event fades out.

- Audio Mix In Duration

The 'audio mix in duration' is the length of the audio as an event starts.

7.4.6.6 Router Sources Tab

Map a router source to a number. Each router source in the system and on the Editor schedule has a name. Each name needs to be mapped to a number.

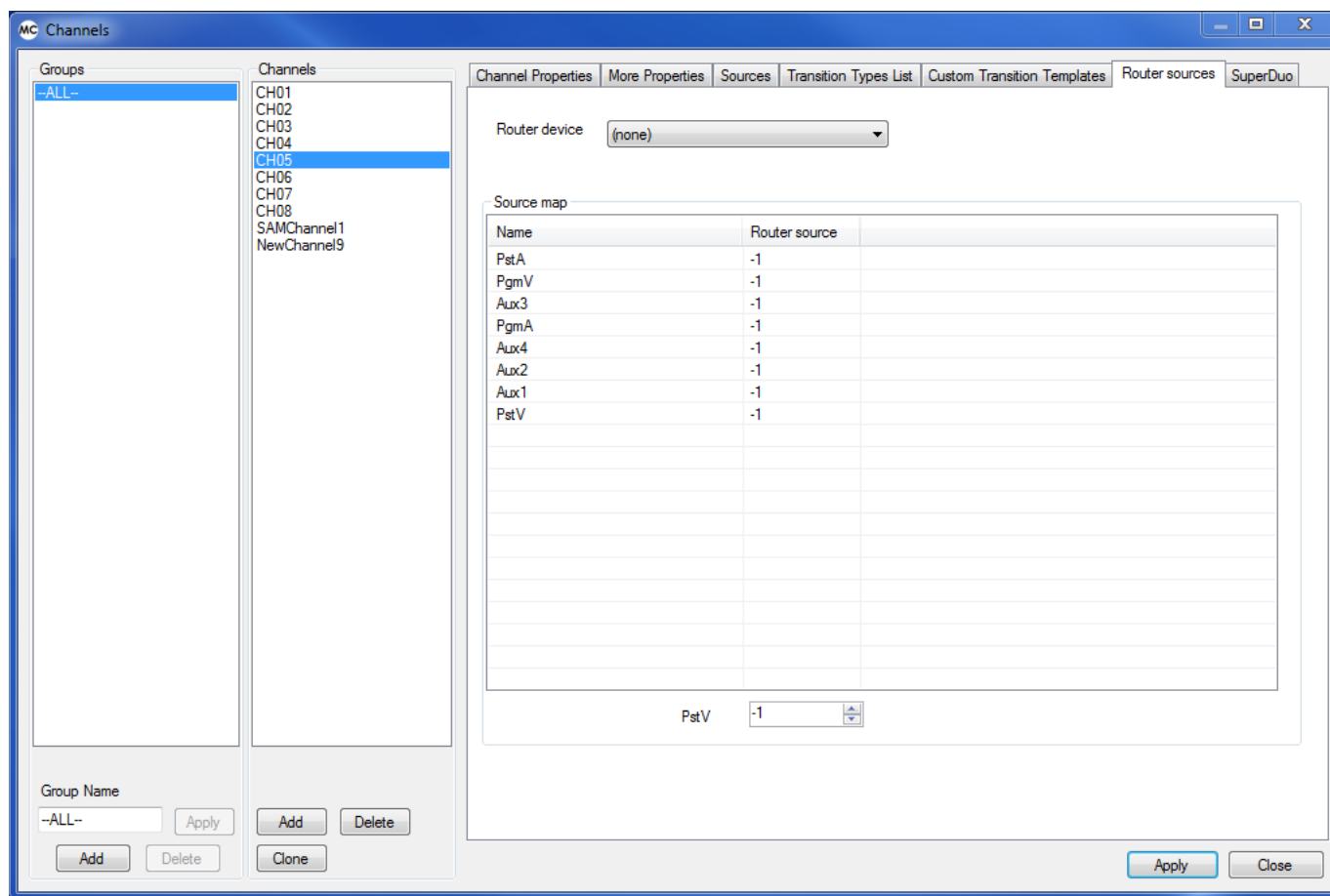


Figure 51 Channels Window: Router Sources Tab

To map a router source to a number:

1. From the Router Device drop-down list, select the required router source.
2. Enter the router source number in the field provided and click on **Apply**.

7.4.6.7 SuperDuo

SuperDuo is a legacy schedule synchronization application that has been superseded by Panoplay (refer to page 21).

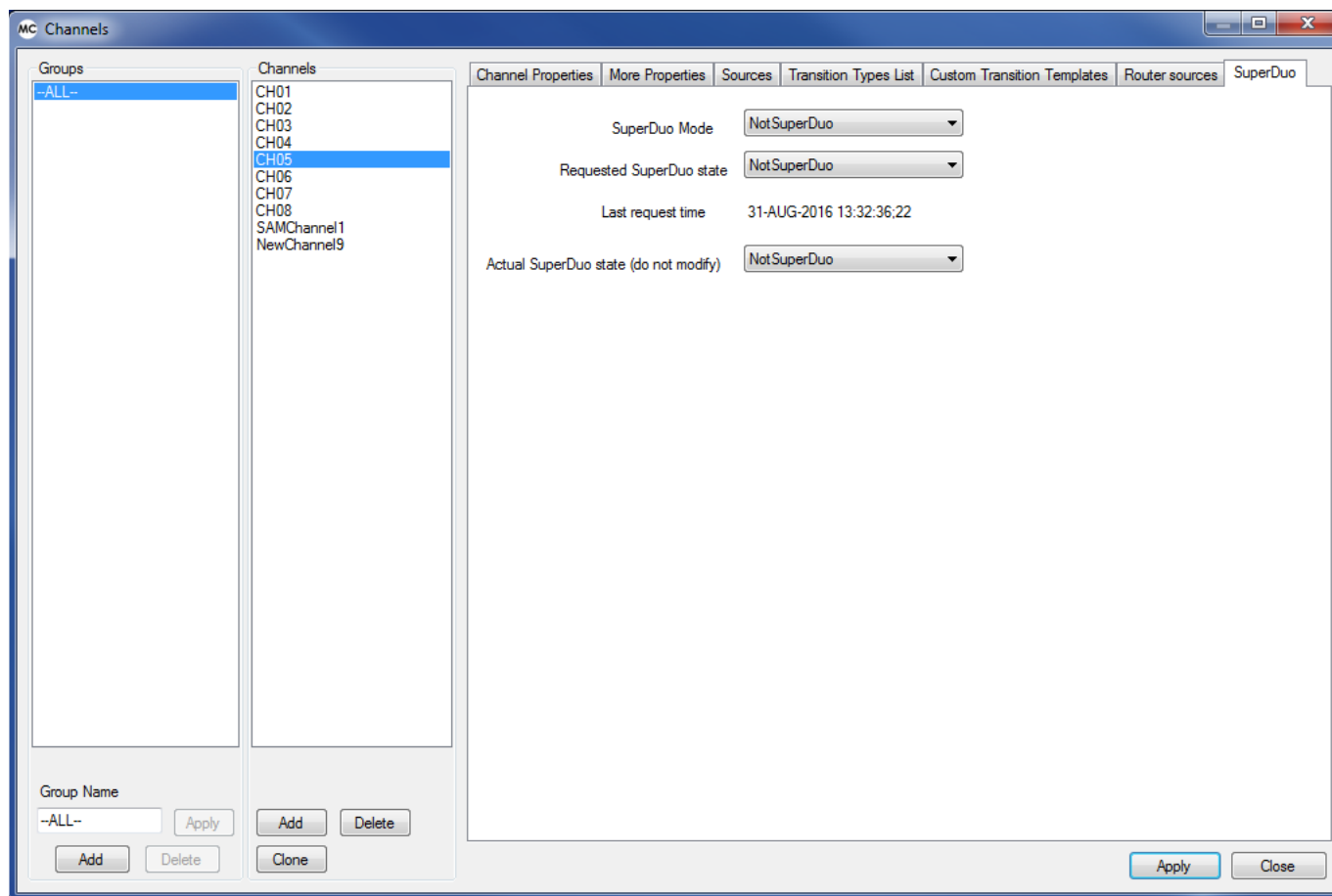


Figure 52 Channels Window: SuperDuo Tab

- SuperDuo Mode

- NotSuperDuo
- ChainA
- ChainB

- Requested SuperDuo State

- NotSuperDuo
- Unlinked
- Error
- AMaster
- BMaster

- Last Request Time

- <date> <time>

- Actual SuperDuo State (do not modify)

- NotSuperDuo
- Unlinked
- Error
- AMaster
- BMaster

7.5 Alarm Configuration

Create, delete, and modify system alarms.



On the Morpheus Configurator window toolbar, click on the **Configure Alarms** icon.

Name	Severity	State	Patches	Description
Bridge-Default Availability	Moderate	ClearedPendingAcknowledge	1	Not available
Bridge-Default Resilience	Mild	RaisedPendingAcknowledge	1	Reduced resilience
CH01 Auto	Severe	ClearedPendingAcknowledge	1	Automation is disabled
CH01 Hold	Mild	RaisedPendingAcknowledge	1	Channel is in hold
CH01 N+1	Moderate	Cleared	1	N+1 invoked for channel CH01
CH01 Overfilled	Severe	Cleared	1	Too many events loaded into CH01
CH02	Moderate	Cleared	1	Device connection problem
CH02 Auto	Severe	ClearedPendingAcknowledge	1	Automation is disabled
CH02 Hold	Mild	Cleared	1	Channel is in hold
CH02 N+1	Moderate	Cleared	1	N+1 invoked for channel CH02
CH02 Overfilled	Severe	Cleared	1	Too many events loaded into CH02
CH02\DSK.01	Moderate	Cleared	1	Device connection problem
CH02\DSK.02	Moderate	Cleared	1	Device connection problem
CH03	Moderate	ClearedPendingAcknowledge	1	Device connection problem
CH03 Auto	Severe	ClearedPendingAcknowledge	1	Automation is disabled
CH03 Hold	Mild	Cleared	1	Channel is in hold
CH03 N+1	Moderate	Cleared	1	N+1 invoked for channel CH03
CH03 Overfilled	Severe	Cleared	1	Too many events loaded into CH03
CH03\DSK.01	Moderate	ClearedPendingAcknowledge	1	Device connection problem

CH01 Hold

Description: Channel is in hold

Severity: Mild

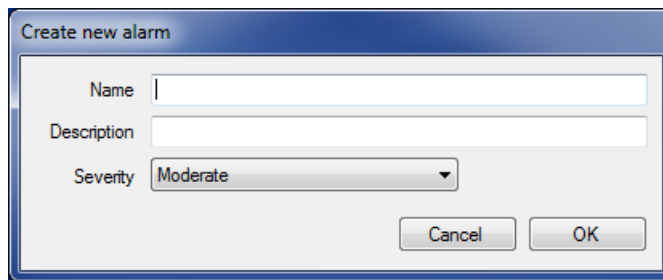
Buttons: Delete, Apply, New, Create Default Alarms, Acknowledge All, Delete All, Close

DEBUG: Abort XA

Figure 53 Alarms Window

7.5.1 Create an Alarm

1. On the main window, click on **New**. The Create New Alarm window is displayed.



The image shows a dialog box titled "Create new alarm". It has three input fields: "Name" (a text box), "Description" (a text box), and "Severity" (a drop-down menu with "Moderate" selected). At the bottom right, there are two buttons: "Cancel" and "OK".

Figure 54 Create New Alarm Window

2. In the Name field, give a unique name to the alarm and click on **Create**. If the same name has already been given to another alarm, then an error message is displayed.
3. In the **Description** field, enter a description for the alarm - this is a mandatory field.
4. From the **Severity** drop-down menu, select a degree of severity for the alarm from the following, then click on **Apply**:
 - Mild
 - Moderate
 - Severe

7.5.2 Create Default Alarms

7.5.2.1 Create Alarms for Channels

1. Click on **Create Default Alarms** - the Batch Alarm Creator window is displayed:

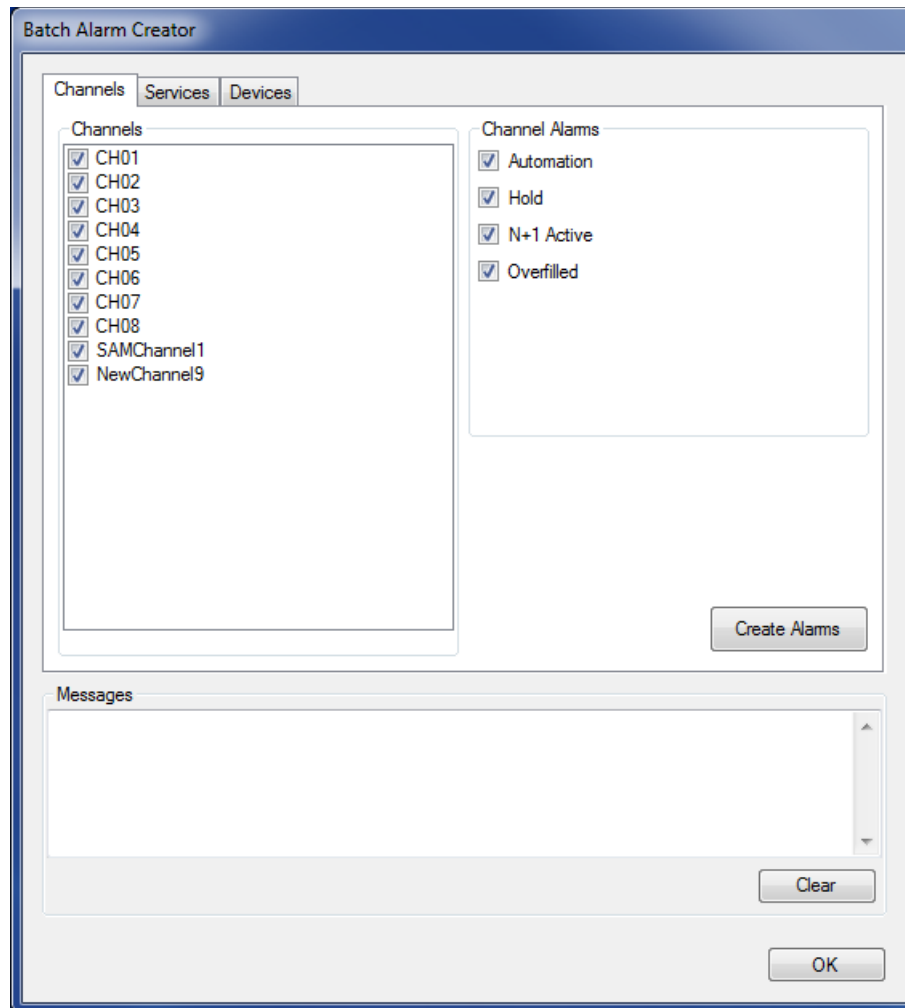
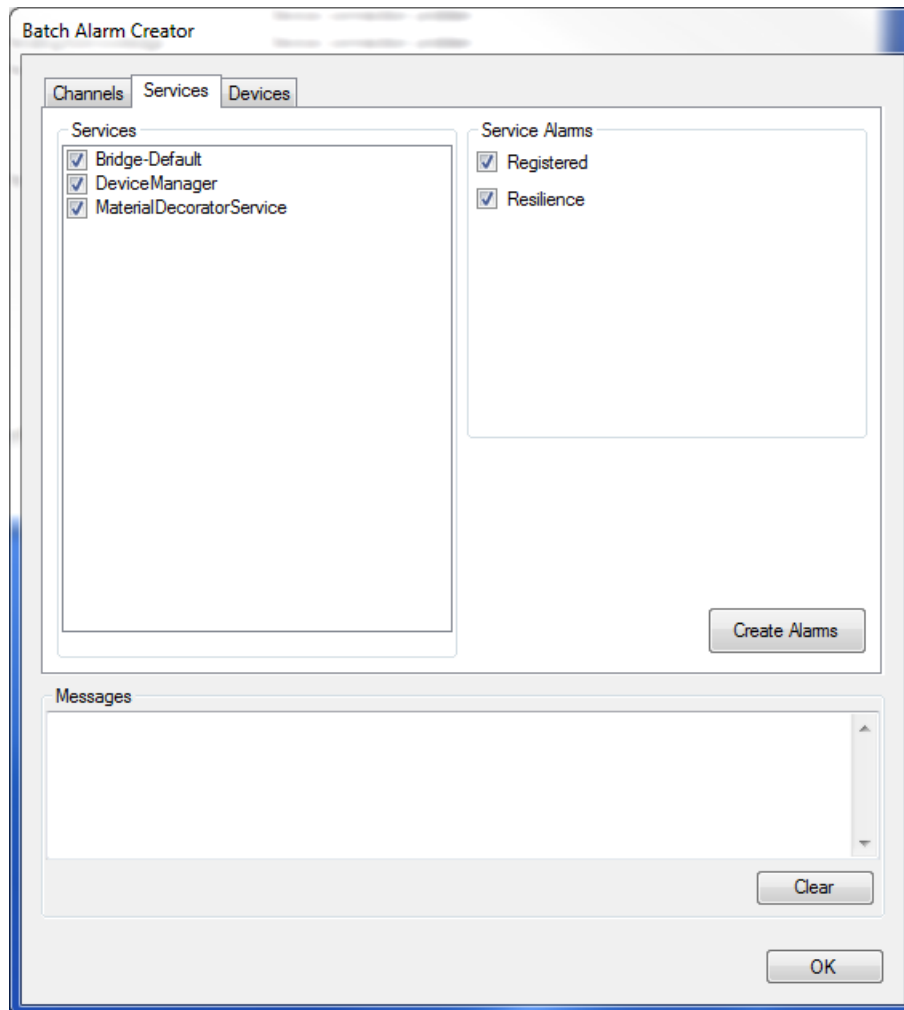


Figure 55 Batch Alarm Creator: Channels

2. On the Channels tab, select the following:
 - The channels for which alarms are to be generated (by default, all check boxes are ticked)
 - The channel alarms (alarm types) that will be generated for the selected channels. The following channel alarms are available:
 - Automation
 - Hold
 - N+1 Active
 - Overfilled
3. Click on **Create Alarms**. The new alarms appear on the Alarms tab of the Alarm Patches window (Figure 53).
4. Unless alarms are to be created for services and devices, click on **OK** to close the window.

7.5.2.2 Create Alarms for Services

1. Click on **Create Default Alarms** - the Batch Alarm Creator window is displayed:



2. On the Services tab, select the required services and the alarms to create for those services. Select from the following Services (by default, all check boxes are ticked):

- Bridge-Default
- DeviceManager
- MaterialDecoratorService

Select from the following Service Alarms (by default, all check boxes are ticked):

- Registered
- Resilience

3. Click on **Create Alarms**. The new alarms appear on the Alarms tab of the Alarm Patches window (Figure 53).

- Unless alarms are to be created for channels or devices, click on **OK** to close the window.

7.5.2.3 Create Alarms for Devices

- Click on **Create Default Alarms** - the Batch Alarm Creator window is displayed:

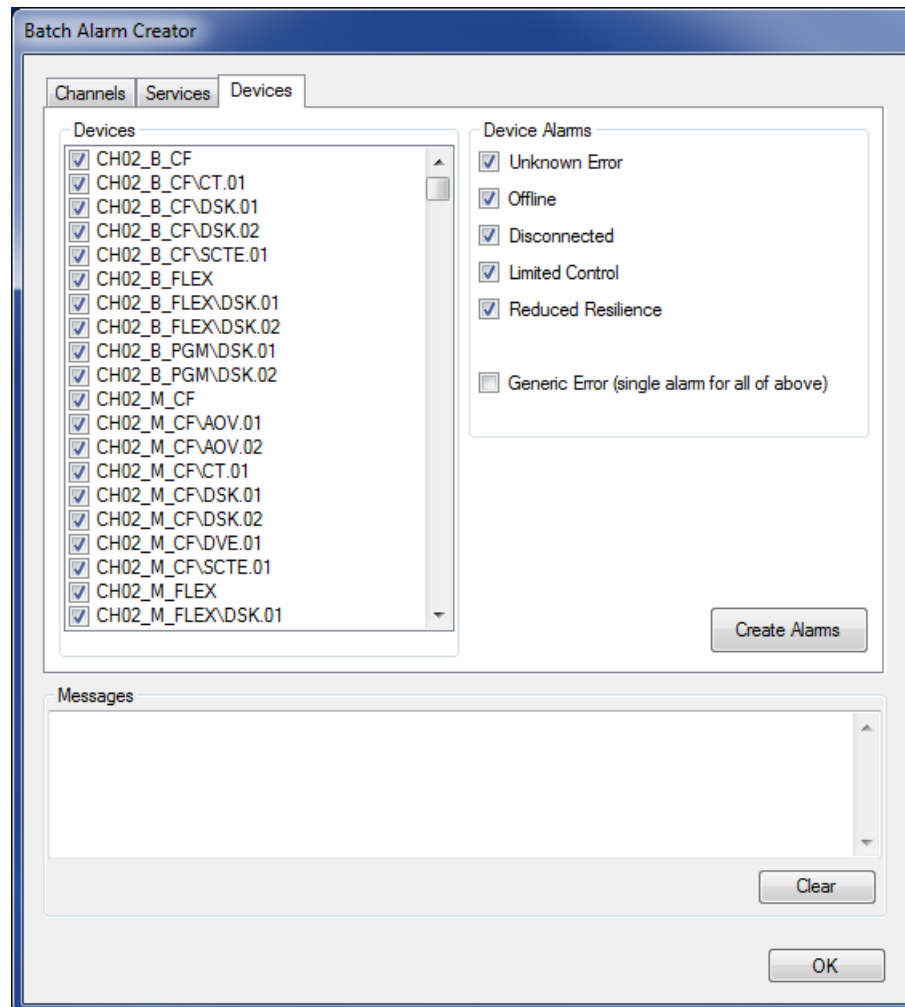


Figure 57 Batch Alarm Creator: Devices

- On the Devices tab, select the Devices, and the Device Alarms that will apply to them (all check boxes are ticked by default).

Select from the following Device Alarms (by default, all check boxes are ticked):

- Unknown Error
- Offline
- Disconnected
- Limited Control
- Reduced Resilience
- Generic Error (single alarm for all of above)

3. Click on **Create Alarms**. The new alarms appear on the Alarms tab of the Alarm Patches window (Figure 53).
4. Unless alarms are to be created for channels or services, click on **OK** to close the window.

7.5.3 Delete One or More Alarms

For a single alarm, click on the alarm to be deleted and then click on **Delete** - there is no confirmation window!

To delete all alarms and alarm patches, click on **Delete All** - a warning message is displayed, click on **Yes** to confirm or **No** to cancel.

7.5.4 Modify an Alarm

To modify an alarm:

1. Select the alarm to be modified.
2. Edit the **Description** and/or **Severity** fields as required (Figure 58) and click on **Apply**.

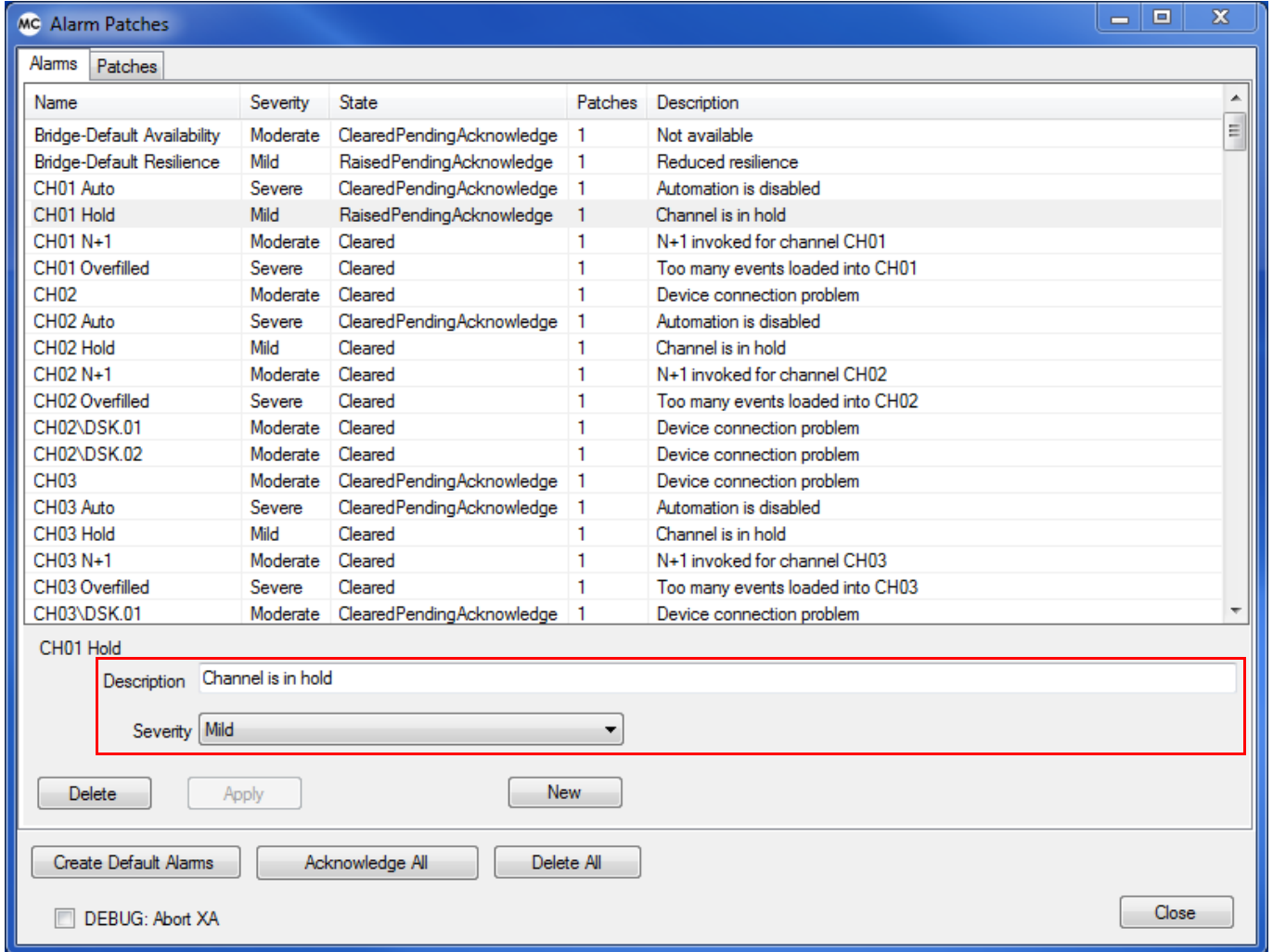


Figure 58 Modifying an Alarm

7.5.5 Create Alarm Patches

Alarm patches define specific fault conditions and the current system status by monitoring the EventStore. It is then possible to create an alarm and link it to the patch so that it is triggered when the fault condition or status is present. For example, a 'channel in hold' patch can be created, then create an alarm to respond to that patch. if the channel goes in hold, the alarm triggers.

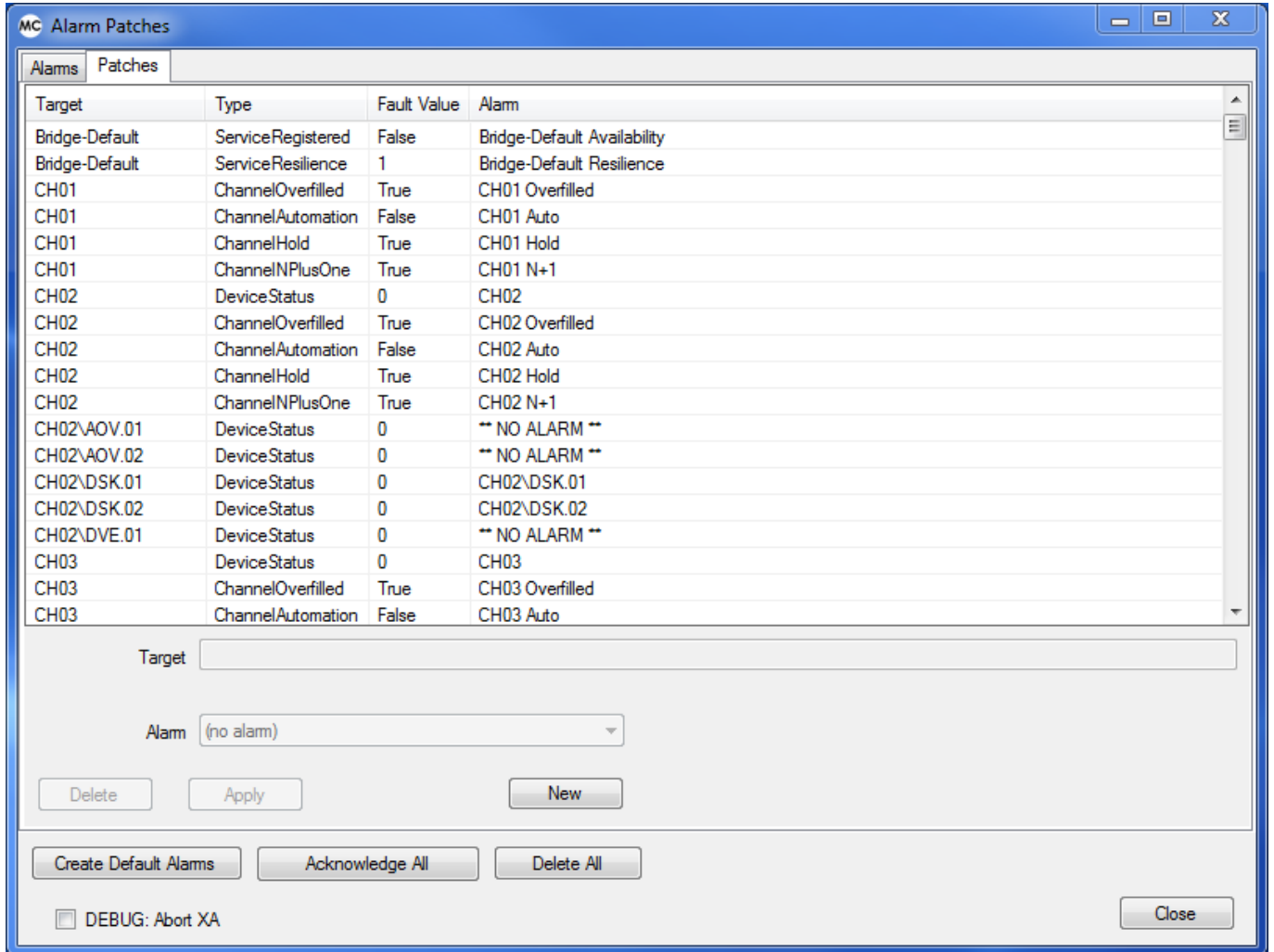


Figure 59 Creating Alarm Patches

Create a new patch:

1. On the Patches tab, click on **New**.
2. In the Kind field, select the condition type that is to be monitored in the EventStore :
 - Application
 - ApplicationServerStatus
 - ChannelAutomation
 - ChannelHold
 - ChannelNPlusOne
 - ChannelOverfilled
 - DeviceStatus
 - Server
 - ServerRegistered
 - ServerResilience
3. Enter a target channel for the patch, e.g. Channel1.

Note:

Use the correct spelling for the channel name as the system does not check that it is valid / exists.

4. Set the threshold for triggering an alarm in the **Fault value** field. For example, for ChannelHold, select the Asserted option in order to trigger an alarm when the 'in hold' status is true. Depending upon the Kind that has been selected, the Fault Value field is displayed in one of two ways:
 - Checkbox. 'Asserted'
 - Numerical value. Use the up and down arrows to set the value, and from the adjacent drop-down menu select from the following operators:
 - Equal
 - NotEqual
 - LessThan
 - LessThanOrEqual
 - GreaterThan
 - GreaterThanOrEqual
 - BinarAndIsNonZero
 - BinaryAndIsZero
5. Select an existing alarm to link to the patch.
6. Click on **OK**.

7.5.6 Modify a Patch

1. Click on the patch in the list
2. Edit the **Target**, **Fault value** or **Alarm** fields as required.
3. Click on **Apply**.

7.5.7 Delete One or More Alarm Patches

For a single alarm patch, click on the patch to be deleted and then click on **Delete** - there is no confirmation window!

To delete all alarm patches and alarms, click on **Delete All** - a warning message is displayed, click on **Yes** to confirm or **No** to cancel.

7.6 Import / Export

Configuration information from the EventStore should always be saved using the export function, for the following reasons

- A known working configuration can be restored in the event of a corruption of the live system
- Instead of reading configuration information from the Event Store, the Offline Editor uses the `current_system.xml` file, which therefore must be up to date with all changes (Chapter 2.1.8 Offline Editor)

These tasks are performed from the ImportExport window.



In the Morpheus Configurator window toolbar, click on the **Import/Export** icon.

The ImportExport window is displayed.

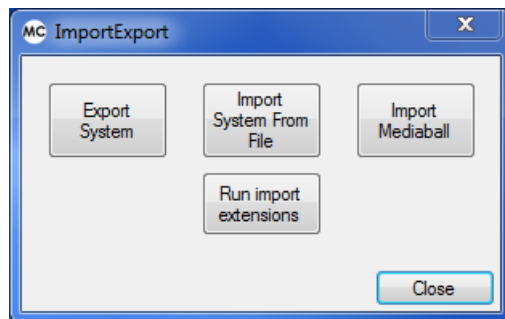


Figure 60 ImportExport Window

7.6.1 Export System

Saves the entire Morpheus system configuration to the following default files, using the data in the Event Store:

- `C:\EventstoreExport\current_system.xml`
- `C:\EventstoreExport\<yyyy-mm-dd>_<hh-mm-ss>_<system name>.xml`

Note: The existing `current_system.xml` file is always overwritten, the date-stamped copy is not.

Note: The filename can be changed to any name of choice, although it must have the extension `.xml`

7.6.2 Import System From File

Replaces the existing configuration with a previously saved system configuration. When selected, the following message is displayed:

*This will clear out all devices, channels and Event Types from the EventStore - click on **OK** to continue or **Cancel** to abort.*

The imported file must have a **.xml** extension, and the correct xml tags must be present in the file.

7.6.3 Import Mediaball

Opens Windows Explorer to allow browsing to a MediaBall previously saved as a **.xml** file for importing

7.6.4 System Import Extensions

Click on **Run import extension** on the Import/Export window in order to display the System Import Extensions Window.

On any tab, click on **Dismiss** in order to close the window.

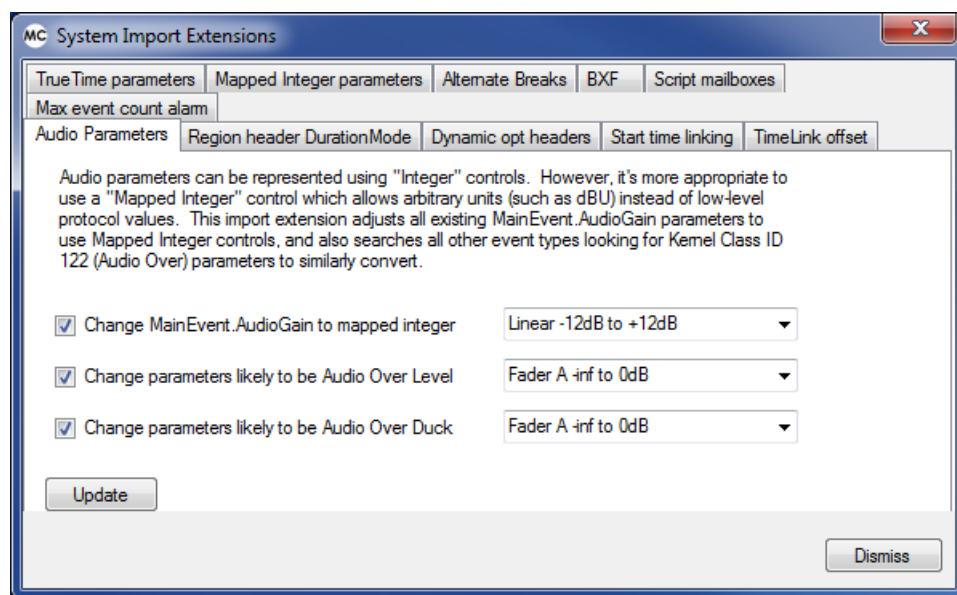


Figure 61 System Import Extensions

7.7 System Configuration

The EventStore Configuration window is used for setting general system functions.



To display the EventStore Configuration window, on the Morpheus Configurator window toolbar, click on the System Configuration icon.

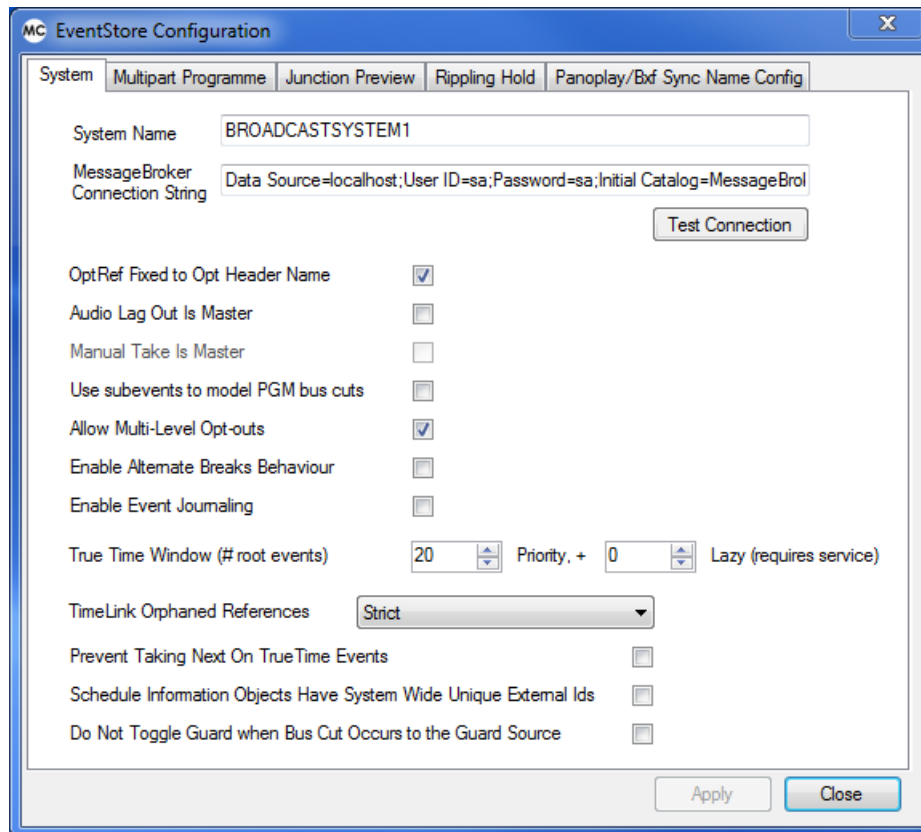


Figure 63 EventStore Configuration - System Tab

7.7.1 System Tab

- System Name

Enter a name for that uniquely identifies this Morpheus system.

- MessageBroker Connection String

Enter a connection string to enable the EventStoreService application to connect to the MessageBroker service. Use the following format:

Data Source=<host>;User ID=<user id>;Password=<pwd>;Initial Catalog=<bxm catalogue>

In order to test the connection string, click on Test Connection - an attempt will be made to connect to the MessageBroker service.

- OptRef Fixed to Opt Header Name

When selected, the **Opt Ref** and **Event Name** fields will be linked on the Property Inspector (refer to page 5). If the **Opt Ref** is changed then the **Event Name** will also change.

When cleared, if the **Opt Ref** field is changed then the **Event Name** field will not change.

- Audio Lag Out is Master

Audio lag is the offset from the start of an event to the point where the audio for the previous event starts fading out. Delayed fade out is known as 'late lag' and advanced fade is known as 'early lag'.

Audio lag at the end of an event can be one of the following:

- A property of the current event
- One of the many transition properties of the next event.

- Use Subevents to Model PGM Bus Cuts

If enabled, Subevents are created under an existing main event in order to detail the changes following a PGM bus cut.

The action of performing a PGM bus cut changes the on-air source outside of the schedule (for example, in order to break from the scheduled programme for a news flash).

- Allow Multi-Level Opt-Outs

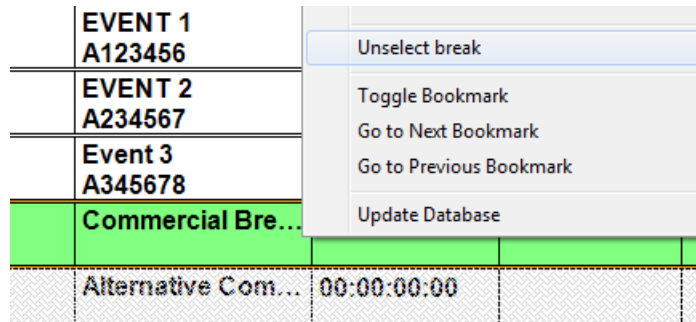
When selected, operators are allowed to add opt outs (refer to page 54) to other opt outs. For example, an opt header can be added as a child of another event (such as a region header).



- Enable Alternate Breaks Behaviour

When enabled, the scheduling of back to back commercial breaks (break headers with commercials attached) is enabled. When scheduled consecutively, one of the commercial breaks becomes disabled automatically.

Using the right-click menu, operators can disable the other break and then toggle between the enabled one and the disabled one.



In order to function, the boolean parameter 'SelectedBreak' must be added to all break header, opt header and region header Event Types, as follows:

After enabling Alternate Break Header behaviour, it is necessary to add the **SelectedBreak** parameter to all break header, opt header and region header Event Types, if not, the alternate break header behaviour function will not work.

To add the SelectedBreak parameter to the relevant Event Types, use the **Run import extensions** option.

Note: Before running this process, ensure that there are no break headers on the schedule.

1. On the Configurator, click on **Import/Export**.



The ImportExport window is displayed.

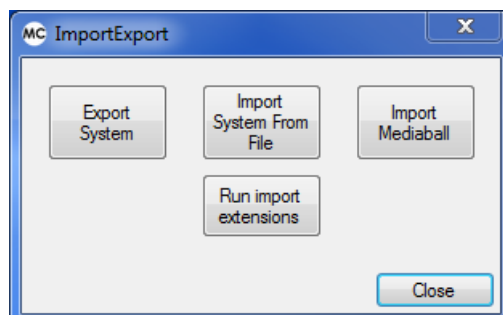


Figure 64 ImportExport Window

2. On the ImportExport window, click on **Run import extensions**.

3. Click on the Alternate Breaks tab.
4. Click on **Update**.

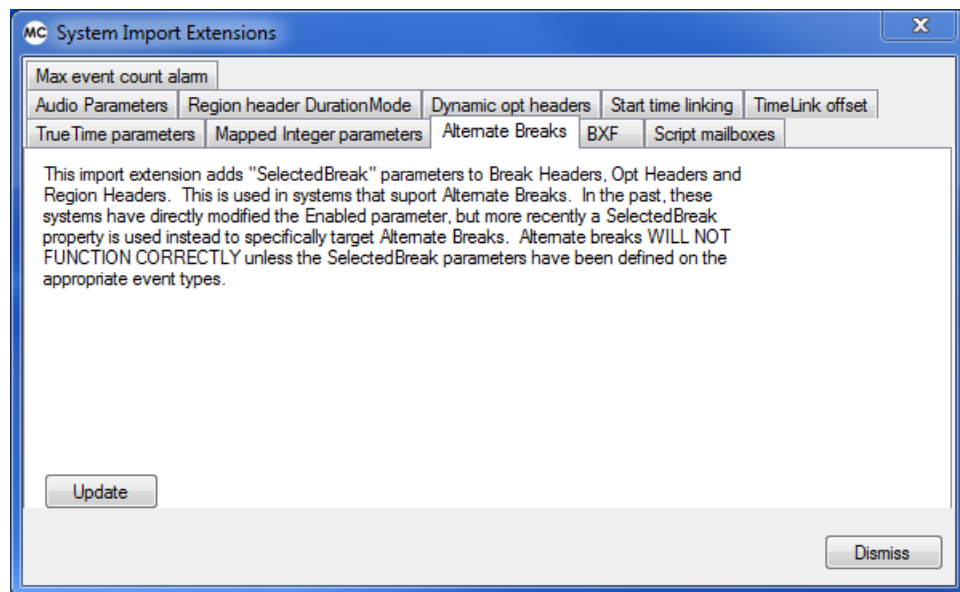
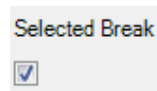


Figure 65 System Import Extensions: Alternate Breaks

A message displays the number of parameters that have been created.

After completing the above steps, the **Selected Break** property is displayed on the Property Inspector when a break header is added to the schedule.



The **SelectedBreak** parameter is displayed on the All Parameter Definitions tab for all relevant Event Types (refer to 'Event Type Parameters' on page 79).

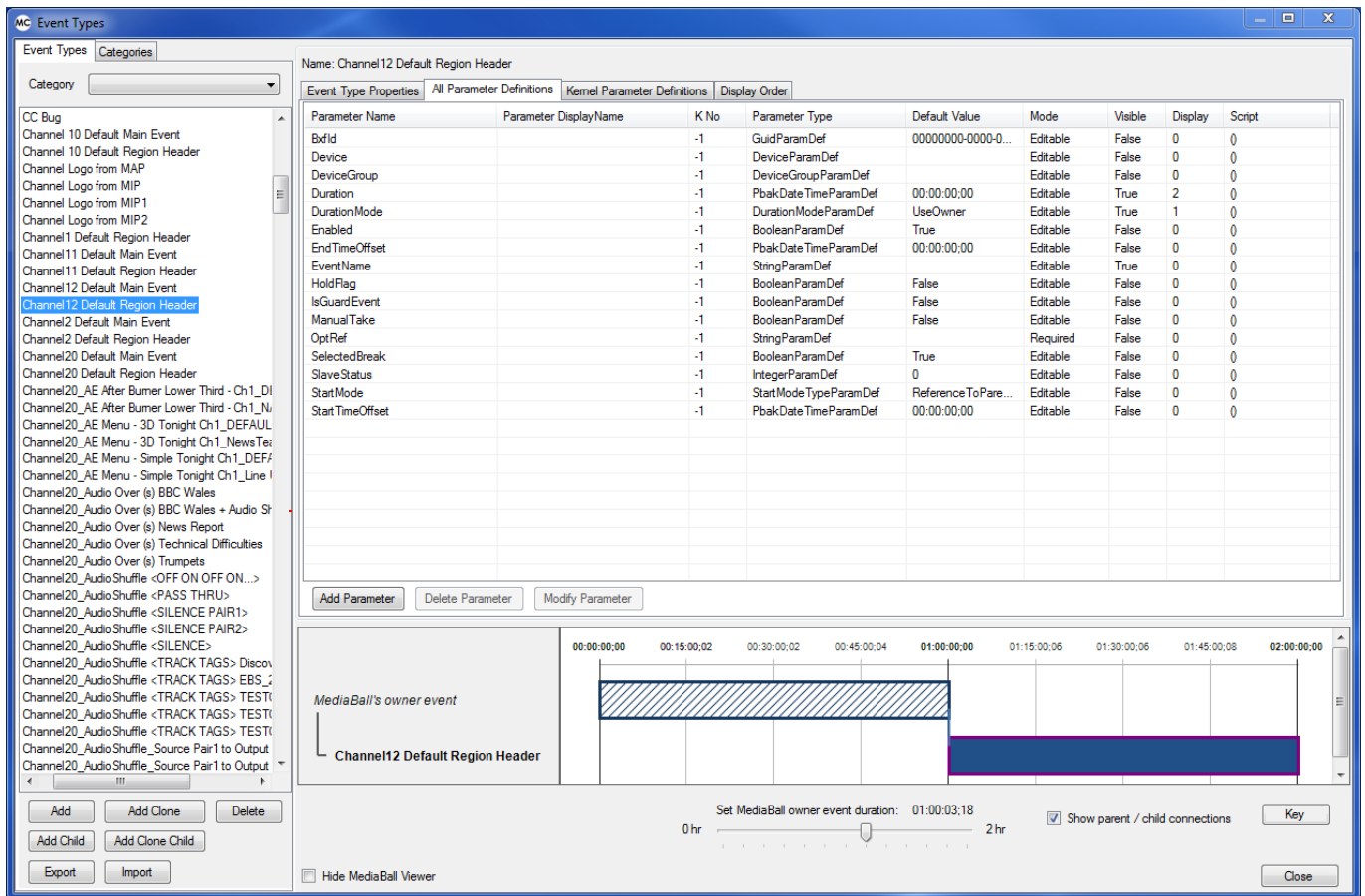


Figure 67 Adding the SelectedBreak Property

- Enable Event Journalling

Switches Event Journalling functionality on. By default, this option is disabled. For further information, refer to Section 13.12 Event Journal Collector Service.

- True Time Window (# root events)

Allows for 'True Time' - it applies if there is an absolute event on the schedule with a fixed start time. An absolute event is an event that is fixed and has no owner, so its start time is absolute.

As the start time approaches, the events between the on-air event and the true time event start to become disabled. When the time is reached, the event goes to air automatically and the events in the middle are skipped.

The number of root (parent) events is the number of events that can be disabled or 'skipped'. The number entered here counts top level events only, not children.

We recommend a maximum of 10 events in a large system. Using a high number of events causes a dramatic drop in automation performance.

In order to function, the boolean parameter 'TrueTime' must be added to all main event and break headers Event Types, as follows:

Note: Ensure that there are no main events or break headers on the schedule before running this procedure (Run Import Extensions).

1. On the Configurator, click on **Import/Export**.



The ImportExport window is displayed.

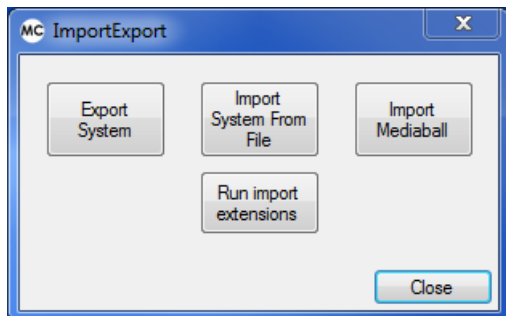


Figure 68 ImportExport Window

2. On the ImportExport window, click on **Run import extensions**.
3. Click on the TrueTime parameters tab.

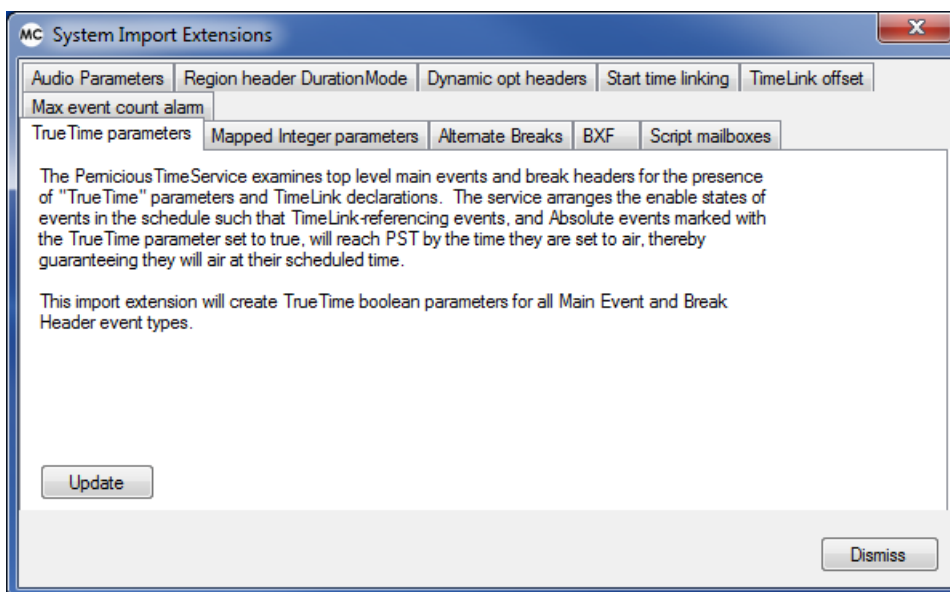
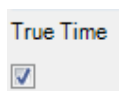


Figure 69 Adding the TrueTime Parameter

4. Click on **Update**. A pop-up window is then displayed to indicate the number of parameters that have been created.

After completing the above steps, the **True Time** property is displayed on the Property Inspector when a main event or break header is added to the schedule.



The **TrueTime** parameter appears on the All Parameter Definitions tab for all relevant Event Types (refer to 'Event Type Parameters' on page 79).

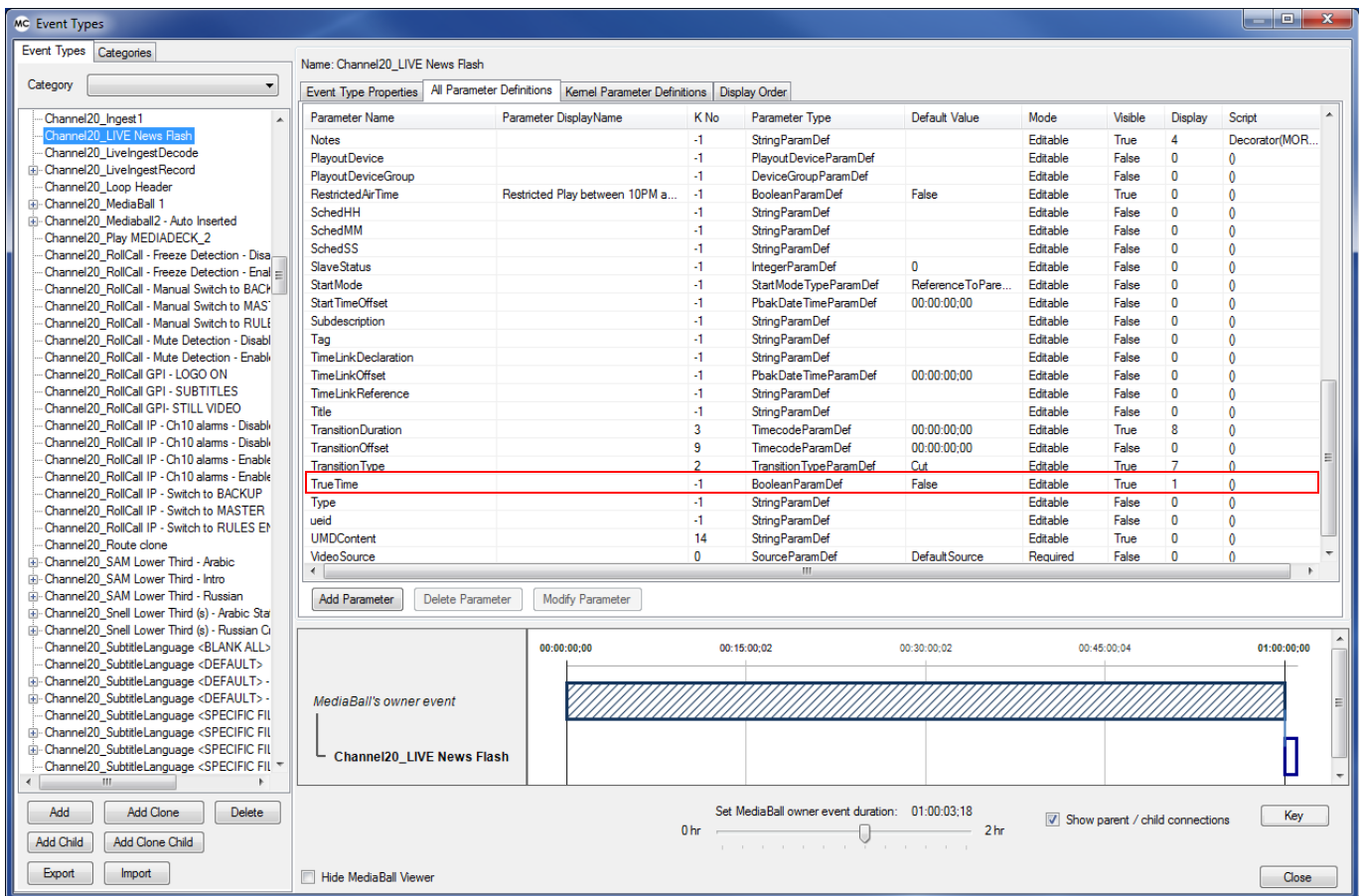


Figure 70 Event Types - True Time Parameter Definition

- TimeLink Orphaned References

The start times of events in two different channels can be linked using the **Time Link Declaration** and **Time Link Reference** fields on the Property Inspector (refer to page 5). If the start time of the declared event changes, the start time of the referenced event also changes.

This option describes how to deal with orphaned reference events which occur when the declaring event does not exist. The options are:

- **Strict** - reference events are disabled (also disables all child events)
- **Lazy** - reference events are left enabled and retain their last known start time. They are treated as an absolute event

Note:

For flexible channels, the system moves the time link master events to the N+1 channel so that it can take responsibility for all of the time declarations. When the N+1 channel is released, the system moves the time link declarations back to the original channel.

- Prevent Taking Next on TrueTime Events

Prevents a user from performing a Take Next on an event that has the TrueTime parameter set. This means that the TrueTime value and the scheduled start time for the event have a higher priority than the Take Next function. In order to perform a Take Next on the event, remove the TrueTime parameter.

When disabled, it is possible to Take Next on a TrueTime event only if it is preset, even if there are other events that it can enable and playout first.

7.7.2 Multipart Programme Tab

The 'Multipart Programme' options on this tab apply to the **Multipart Programme (MPP) ID** field on the Property Inspector (refer to page 5) that links segments of a programme (for example, a live event might be split by commercial breaks or a film by a news item). A multipart programme ID must be unique to a specific programme within a channel. Events marked with an MPP ID are not decorated with database in-points and durations. Durations are only updated when events are in hold (rippling) or when a Take Next action is performed.

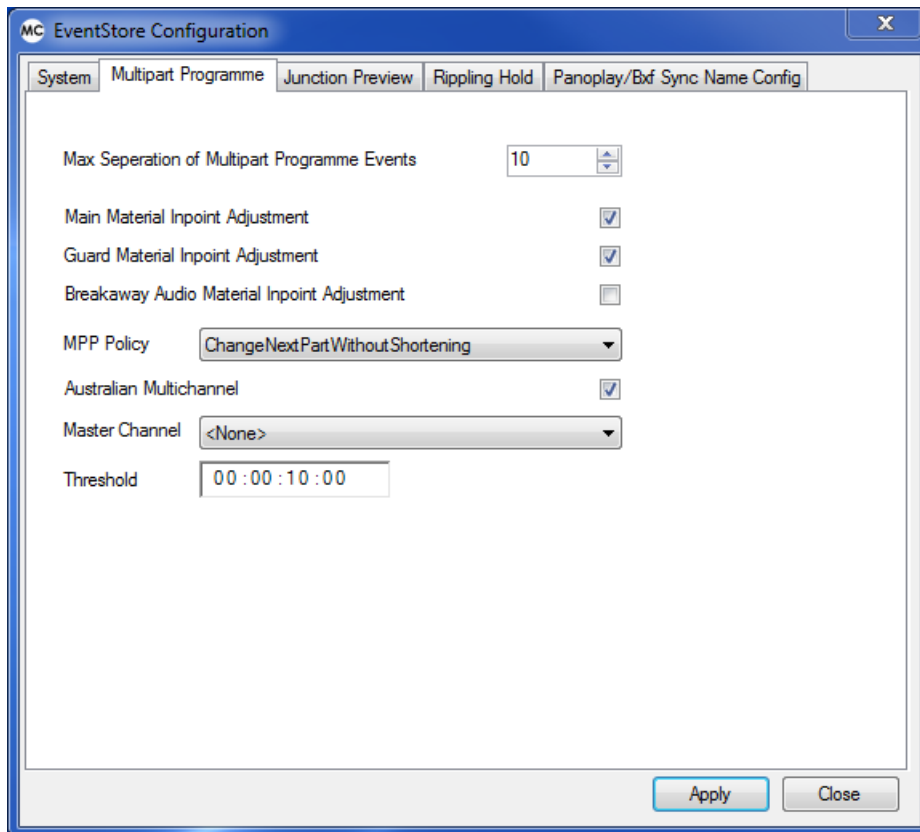


Figure 71 EventStore Configuration - Multipart Programme Tab

- Maximum Separation of Multipart Programme Events

The maximum time (in minutes) between two events that are to be linked by Multipart Programme IDs.

- MPP Policy

- **ChangeNextPart**

If a segment overruns or underruns, use this option in order to make the required adjustment to the duration of the next segment.

- **ChangeNextPartWithoutShortening**

If a segment underruns, this option allows the duration of the following segment to be increased. It also prevents the duration being reduced if the segment overruns.

- **ChangeOnwardFromNextPartWithThreshold**

If a segment overruns, this option allows the duration of the next segment to be reduced until it reaches the threshold setting (refer to 'Threshold' below), then reduce the duration of the following segment, and so on.

- **ChangeLastPart**

If a segment overruns or underruns, this option allows an adjustment to be made to the duration of the last segment in the Multipart Programme ID group.

- **ChangeBackwardsFromLastPartWithThreshold**

If a segment overruns, this option allows the duration of the last segment to be reduced until it reaches the threshold setting, followed by a reduction to the duration of the penultimate segment, and so on.

- Australian Multichannel

Tick the check box to enable 'rubber banding' (refer to page 646).

- Master Channel

Drop-down menu - select the channel that acts as the master channel for 'rubber banding'.

- Threshold

The minimum duration of any segment (the default is 30 seconds).

7.7.3 Junction Preview Tab

The **JUNC PREV** (Junction Preview) button on the Manual Intervention Panel (MIP) allows junctions to be previewed in order to ensure that transitions, for example, will play out as intended.

For information on the MIP, refer to Chapter 2.1.7 The Manual Intervention Panel (MIP).

Junctions can be previewed according to the resources available in the flexible channel. For details on the Flexible Channel, refer to Section 7.4.1 Channel Types).

JUNC PREV plays the beginning of one item and the end of the next. Use the **Run In** and **Run Out** fields to specify the required timecodes.

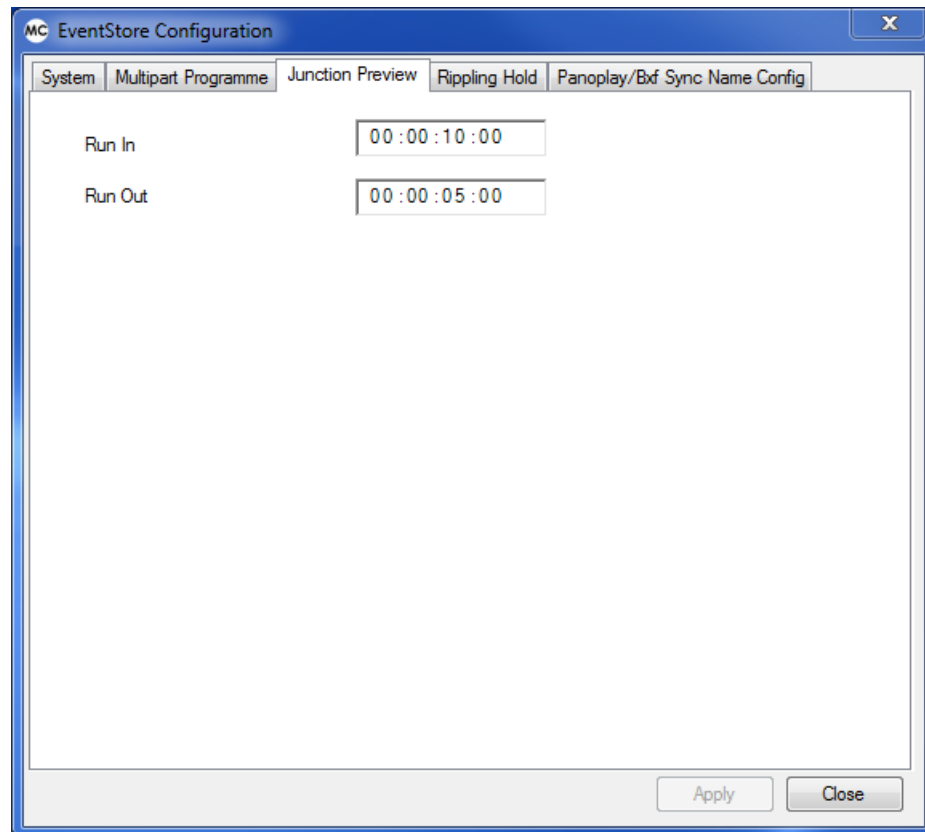


Figure 72 EventStore Configuration - Junction Preview Tab

7.7.4 Rippling Hold Options

Applying 'Rippling hold' to a schedule pauses the current event, allowing it to overrun - the start times of the follow-on events will therefore update continuously as they also ripple behind the current event.

In this situation, the start times of upcoming follow-on events (refer to page 644) cannot be established until the preset event is run manually. They update continuously (that is, they 'ripple through') as far as the next fixed event (refer to page 644) on the schedule.

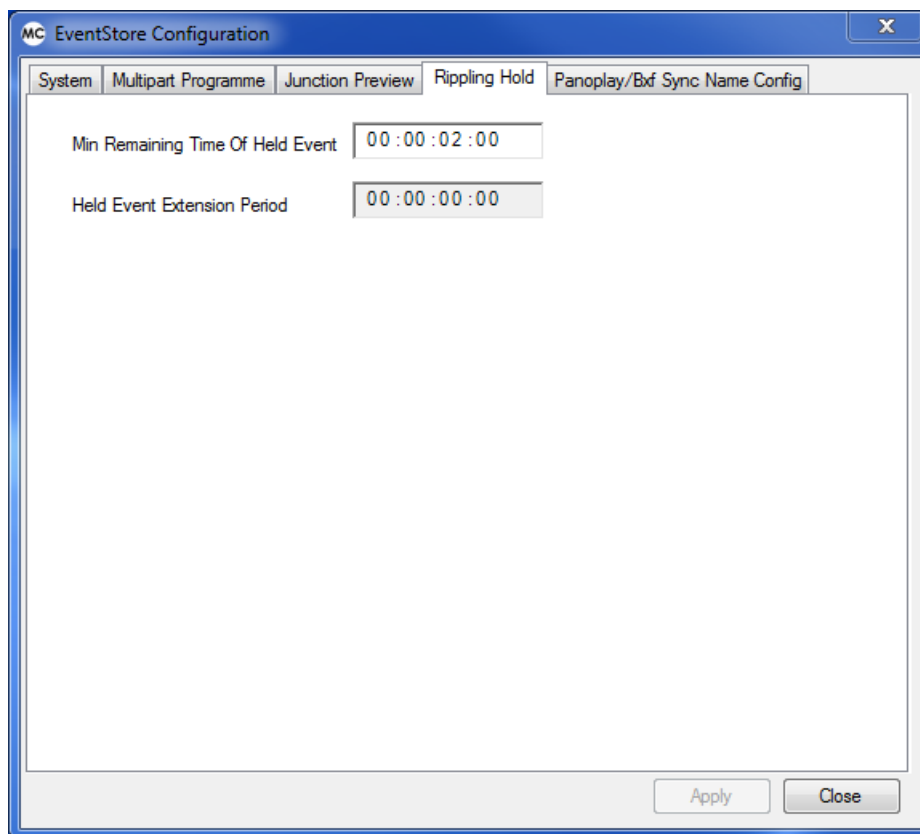


Figure 73 EventStore Configuration - Rippling Hold Tab

- Minimum Remaining Time of Held Event

Set a point at which an event is held before it reaches the end. For example, if this parameter is set to 00:00:02:00 for a 30 second event, then the event is held at a point 2 seconds before its end.

7.7.5 Other Tab

Options for the labelling of channels in order to describe their status when configured for Panoplay or BXF Tertiary Synchronisation.

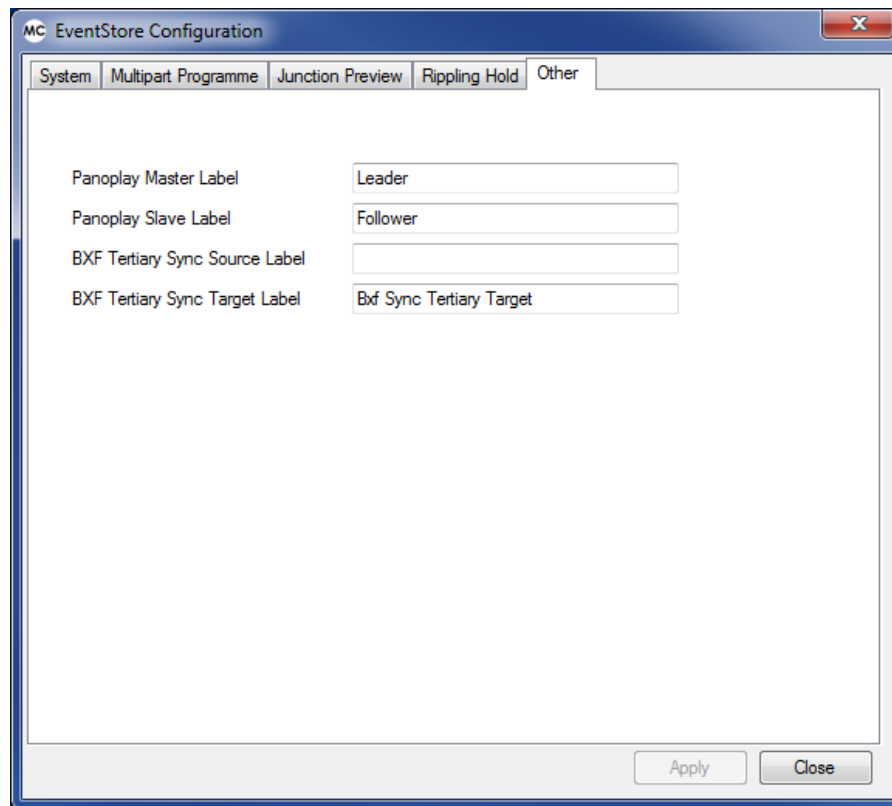


Figure 74 EventStore Configuration - Panoplay & BXF Tertiary Label Configuration

Panoplay System Naming Configuration

Change the names of the Panoplay systems.

Panoplay uses the default names of Leader and Follower for the primary and secondary systems - they appear in the Panoplay status indicator in the Editor, in the title bar window of the Editor, and optionally as a banner across the Editor display on the Follower system. Refer to Chapter 16.4 Panoplay Status and to the 'Panoplay Slave Banner Visible' checkbox in Chapter 13.1 Common Configuration Settings.

If alternative names are desirable, use the text boxes described below:

- Leader Name Change

Enter an alternative name for the leader (primary) system.

- Follower Name Change

Enter an alternative name for the follower (secondary) system.

BXF Tertiary Synchronisation Naming Configuration

- BXF Tertiary Synchronization Source

An optional label that is displayed across the schedule on the source channel that has been active in BXF Tertiary synchronisation.

- BXF Tertiary Synchronization Target

An optional label that is displayed across the schedule on the target channel in order to identify it has having been selected to be active in BXF Tertiary synchronisation.

The target channel will always be one of type 'Flexible'.

7.8 Application Configurations Tab

Displays the configurations for all Morpheus applications and allows them to be renamed, copied and deleted.



On the Morpheus Configurator window toolbar, click on the **Application Configurations** tab.

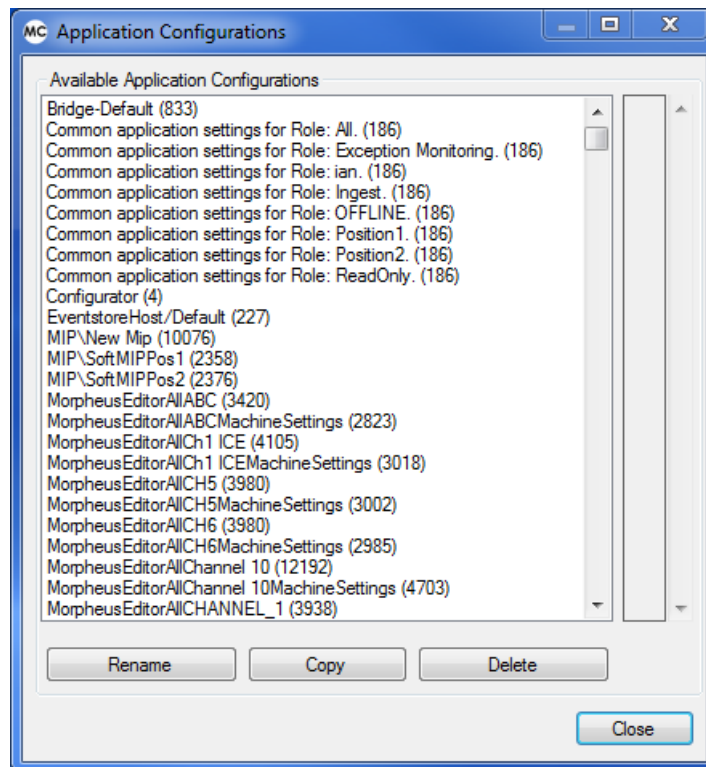


Figure 75 Application Configurations Window

7.9 Engineering Log Tab

The engineering log (refer to page 572) is a log for diagnostic purposes. Engineering logs can be created by the Eng Log Collector Host Shell Service (refer to page 211) and the Automation Database Reporter (refer to page 569).

Note: Scroll left to right in order to view all log entry fields.



On the Morpheus Configurator window toolbar, click on the **Engineering Log** tab

Index	Severity	Eventstore Time	External Time	Criteria
182491	Moderate	23-SEP-2016 11:55:13:01	23-SEP-2016 11:55:13:28	Device
182492	Moderate	23-SEP-2016 11:55:13:01	23-SEP-2016 11:55:13:28	Device
182493	Moderate	23-SEP-2016 11:55:13:01	23-SEP-2016 11:55:13:28	Device
182494	Moderate	23-SEP-2016 11:55:13:01	23-SEP-2016 11:55:13:28	Device
182495	Moderate	23-SEP-2016 11:55:13:01	23-SEP-2016 11:55:13:28	Device
182496	Mild	23-SEP-2016 11:55:31:00	23-SEP-2016 11:55:31:04	ChannelAffiliated, Event Channels=1
182497	Mild	23-SEP-2016 11:55:31:00	23-SEP-2016 11:55:31:04	Event
182498	Mild	23-SEP-2016 11:55:31:00	23-SEP-2016 11:55:31:04	Event
182499	Moderate	23-SEP-2016 11:55:31:00	23-SEP-2016 11:55:31:04	ChannelAffiliated, ManualIntervention
182500	Moderate	23-SEP-2016 11:55:31:00	23-SEP-2016 11:55:31:03	ChannelAffiliated, ManualIntervention
182501	Mild	23-SEP-2016 11:55:31:00	23-SEP-2016 11:55:31:04	ChannelAffiliated, Event Channels=1
182502	Moderate	23-SEP-2016 11:57:34:00	23-SEP-2016 11:57:34:01	ChannelAffiliated, Channel Channels=
182503	Moderate	23-SEP-2016 11:59:32:01	23-SEP-2016 11:59:32:01	ChannelAffiliated, Channel Channels=
182504	Mild	23-SEP-2016 11:59:32:01	23-SEP-2016 11:59:32:01	Event

Rider	Filter	Next Index
Ch1AsRun-Channel1	ChannelAffiliated, ManualIntervention, Channel, Event Channels=1	182503

Log size: 250

Figure 76 Engineering Log

7.10 Configurator Tool Bar Menus

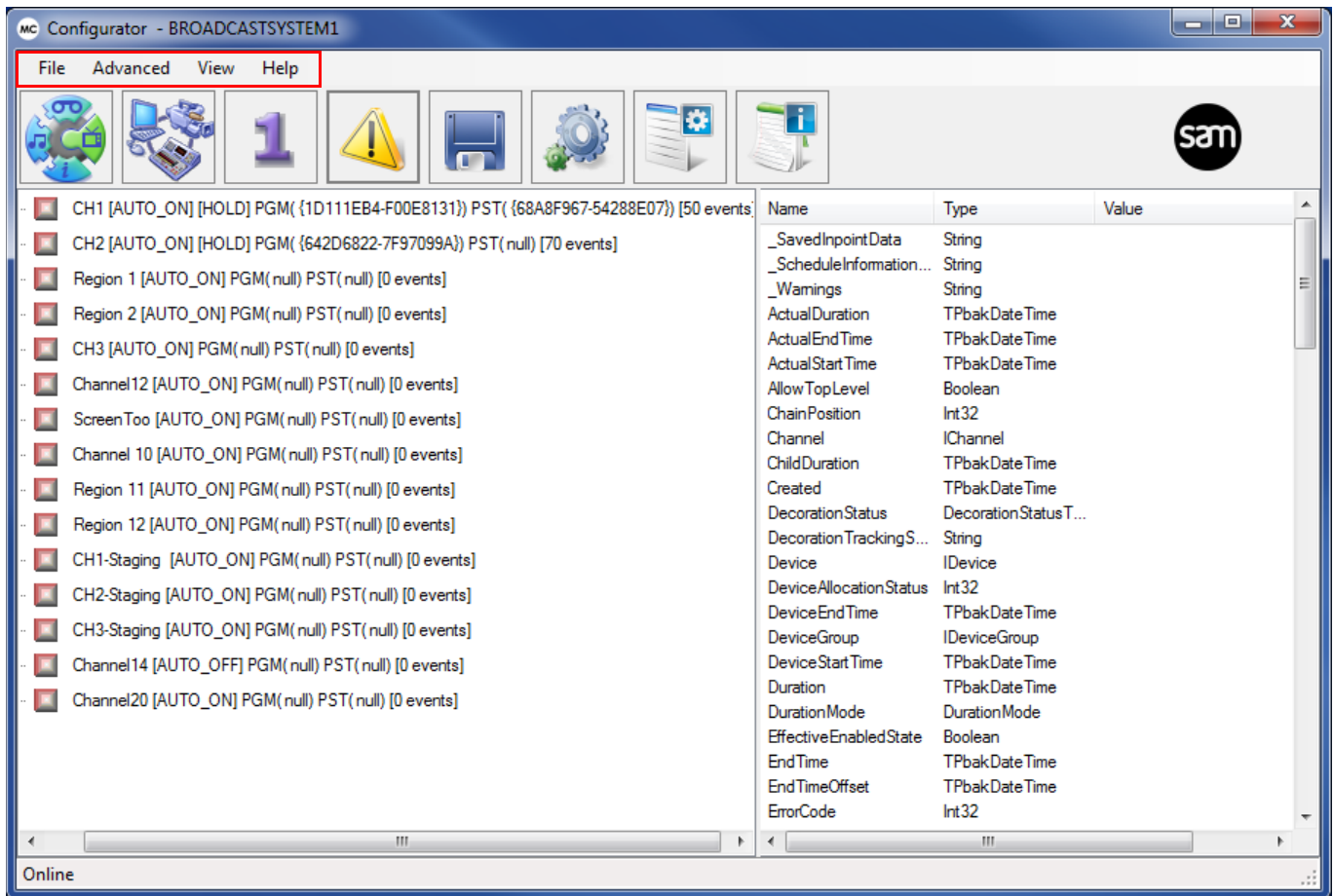


Figure 77 Configurator Tool Bar

7.10.1 File Menu Options

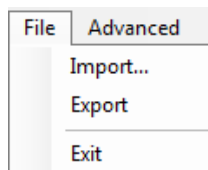


Figure 78 Configuration File Menu

7.10.1.1 Import/Export

Import/export the **current_system.xml** file (refer to 'Import/Export' page 131).

Import performs the same action as clicking **Import System From File** in the ImportExport window.

Export performs the same action as clicking **Export System**.

7.10.2 Advanced Menu Options

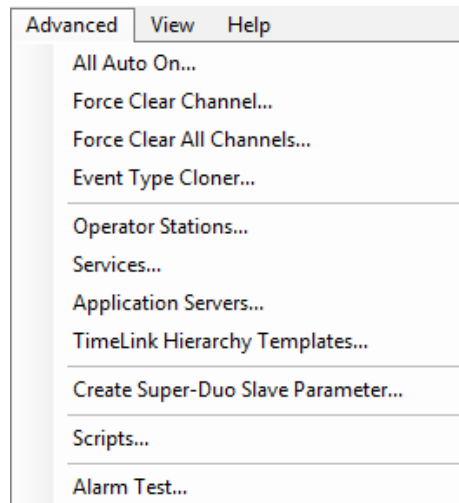


Figure 79 Configuration Advanced Menu

7.10.2.1 All Auto On

Switches automation on for all channels. Switching automation on enables the commands to the playout devices while leaving the schedule running.

7.10.2.2 Force Clear Channel / Force Clear All Channels

- Force Clear Channel

Clears all events, including the on-air event and past events, from the channel selected in the Morpheus Configurator window.

- Force Clear All Channels

Clears all events from all channels in the Configurator. A confirmation window is displayed.



Use these options with caution. If the Bridge is connected when either of these options is selected, all event information is deleted from the device controller(s).

7.10.2.3 Event Type Cloner

Create a batch of new Event Types based on existing Event Types (refer to 'Event Types' on page 52).

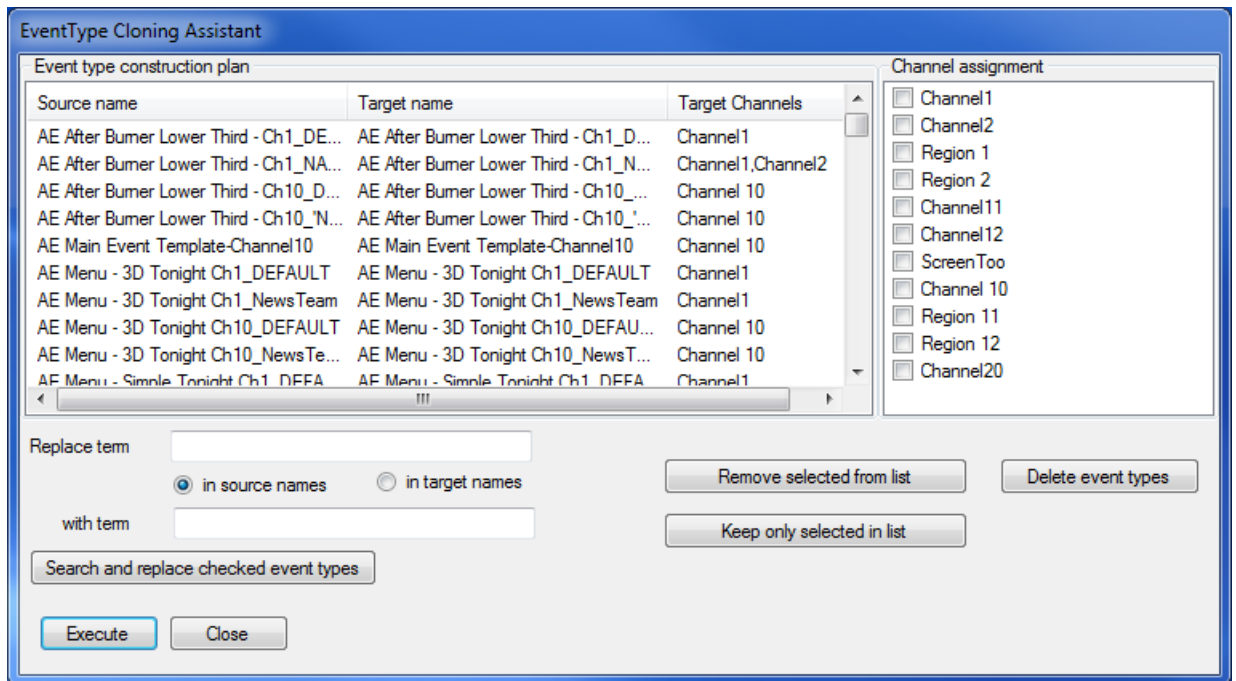


Figure 80 Event Type Cloner Window

1. Select all Event Types to clone.
2. Under **Channel assignment**, select the channels in which to create the cloned Event Types.
3. In the **Replace term** field, type the term to be replaced (appears in the cloned Event Type).

Note: The field is case sensitive - type the term exactly as it appears in the Event Type name.

4. Select **in source names** - replaces the term in the Event Type that is being cloned with the new term in the cloned event.
5. In the **with term** field, type the term that is to appear in the cloned Event Type name.

The following image shows that the name 'Event #' has been replaced with 'My Event #' to create cloned events My Event 1-3. 'Event' has been typed in the **Replace term** field and 'My Event' in the **with term** field.

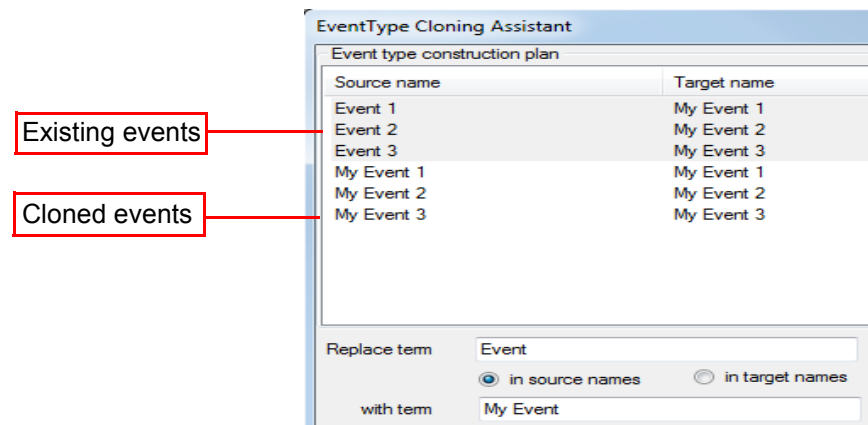


Figure 81 Event Type Cloning Assistant

- To clone the Event Type(s), click on **Search and replace checked Event Types**.
The term is replaced in the **Target name** field - the EventType itself is not renamed.

Note:

Before cloning the Event Types, the target name can be changed. Type the existing target name term in the **Replace term** field and select **in target names**. Enter the new term in the **with term** field. Click on **Search and replace checked Event Types**.

- To clone the event(s), click on **Execute**.
The new Event Types appear at the bottom of the list.

- Remove Selected From List

Hiding Event Types on the List

Select the Event Types to hide and click on **Remove selected from list**.

Note:

Event Types are not deleted.

- Keep Only Selected in List

Displaying Selected Event Types

Customise the display of the list of Event Types by applying a filter

Select the relevant Event Types and click on **Keep only selected in list**.

- Delete Event Types

Select the Event Types to delete and click on **Delete Event Types**.

7.10.2.4 Operator Stations

The EventStore uses 'operator stations' to identify the channel that an operator is viewing on the workstation. Operator stations can be used for various tasks in Morpheus.

For example, they can change the video routed to the monitor so that the video on the wall matches the channel the operator is working on.

When an operator station has been configured, it can be selected in the Editor and Timeplane (refer to 'Machine Specific Settings' on page 262).

Name	Router dest
Aux1	-1
PstA	-1
Aux2	-1
Aux3	-1
PgmA	-1
Aux4	-1
PgmV	-1
PstV	-1

Figure 82 Operator Stations Window

Add an Operator Station

1. From the Operator Stations window, click on **Add**.
2. Enter a name for the operation station in the field provided.
3. Select the router device, current channel and PMap device.
4. Select the required destination map and enter the required value in the field provided.
5. Click on **Save**.

The operator station is added to the list.

Delete an Operator Station

1. Select the operator station to delete.
2. Click on **Delete**.

Edit an Operator Station

1. Select the operator station to edit.
2. Make the changes as required and click on **Save**.

7.10.3 Services

Displays the Service registry window, showing running services - selected service entries can also be deleted as required using the **Delete Service Entries** button.

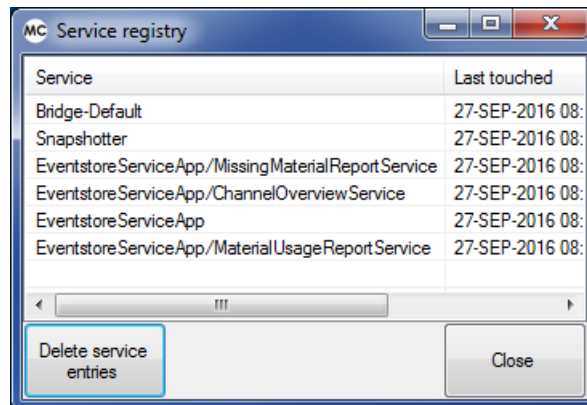


Figure 83 Service Registry Window

7.10.3.1 Application Servers

Configure and enable Application Servers. For details on the role of application servers, refer to Chapter 9. Application Server.

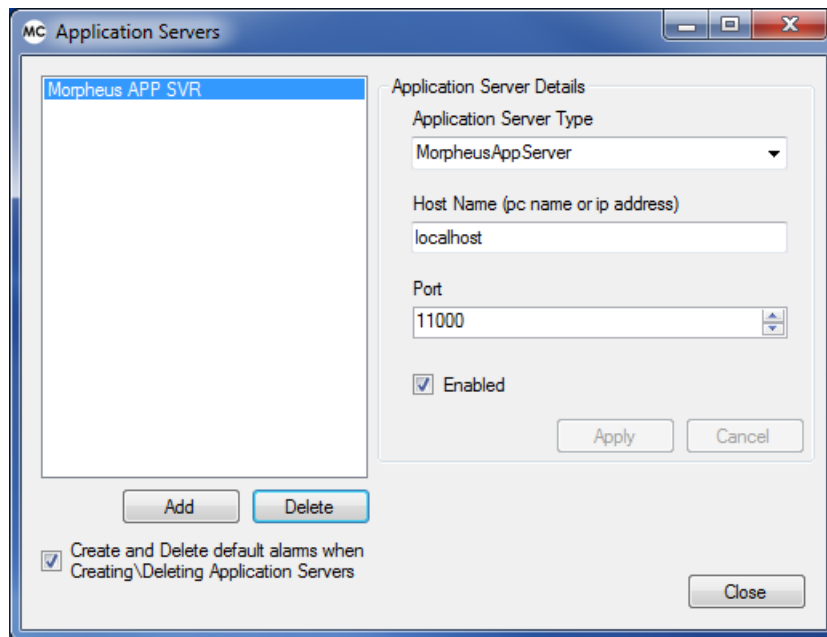


Figure 84 The Application Servers Window

Note: If default alarms are to be added to the Alarm Patches window when creating or deleting application servers, select the **Create and Delete Default Alarms When Creating\Deleting Application Servers** check box. Examples are 'The availability of Application Server "[name]" is unknown' and 'The Application Server "[name]" is unavailable'.

Create an Application Server

1. Click on **Add**.
2. Enter the name of the application server and of the host machine and click on **OK**.
3. Select the required **Application Server Type**.
4. Enter the required **Port** number.

Note: The port number must be unique.

5. To enable the application server, select **Enabled**.
6. Click on **Apply**.

Delete an Application Server

1. Select the application server to delete.
2. Click on **Delete**.

7.10.4 TimeLink Hierarchy Templates

Note: Use on the advice of Grass Valley engineering only.

Provides a method of configuring formal time linking relationships between channels (in a template) that the user can then apply to a schedule. When there are many time link declarations and references in a large schedule, it is sometimes possible to inadvertently create an invalid relationship between the 'master' and 'slave' events. Creating a hierarchy template prevents this situation and provides a visual overview of the current time link relationships.

To create a new template:

1. Click on **Create/Copy**.
2. Enter a new name for the template in the Name field.
3. Click on **Save** - the editing window is now displayed in the right-hand panel.
4. In the editing window, right-click and select a channel.
5. The channel name appears in the editing panel. Click on the channel so that it turns green and becomes the master channel that contains the time link declarations.
6. Right-click and select another channel (the 'slave' channel that contains the time link references).
7. The channel appears in the editing panel as a child of the 'master' channel.
8. Continue creating the hierarchy as required. To delete a channel, right-click in the editing panel and select the delete option for the channel.
9. Once the hierarchy is complete, click on **Save** - the template is now accessible in the Editor from the **Tools -> Timelink hierarchy** menu option. Also refer to the Editor configuration option 'Allow active timelink hierarchy template to be changed' in Section 13.1 Common Configuration Settings for further information.

Example Hierarchy

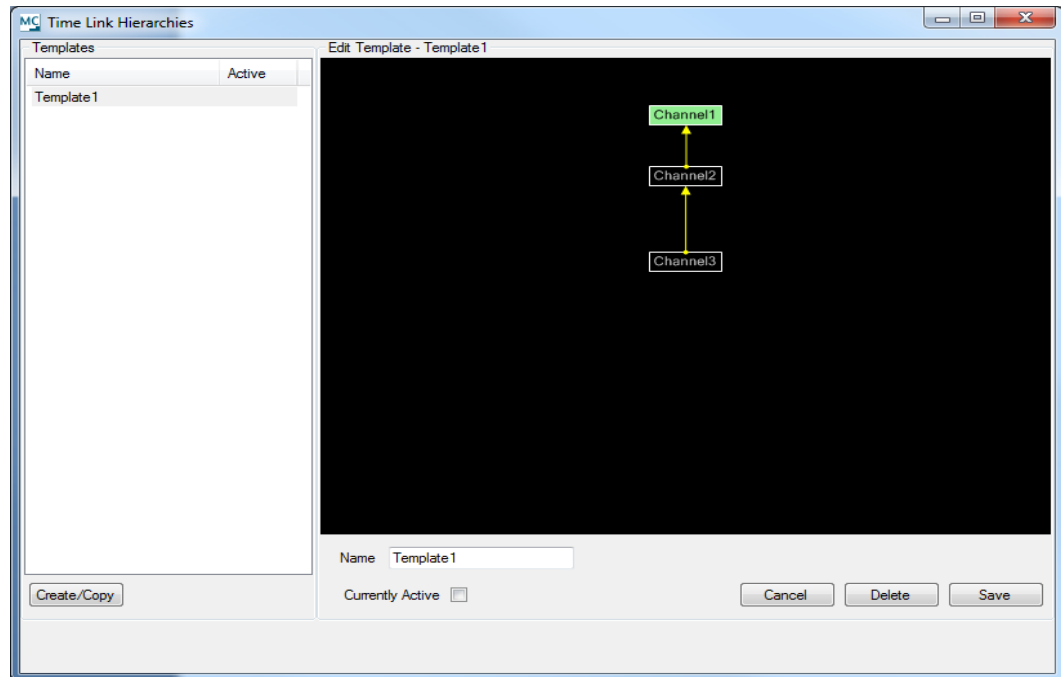


Figure 85 Example Time link hierarchy template

7.10.5 Create Super-Duo Slave Parameter

SuperDuo is a legacy schedule synchronization application that has been superseded by Panoplay (refer to page 21).

7.10.6 Scripts

Create scripts for use with the Morpheus Access Panel - a hardware panel consisting of buttons that can be configured to provide MIP functionality.



Figure 86 Example Morpheus Access Panel

The panel uses the Serial MIP driver that is fundamentally the same as the standard MIP driver, with the following main differences:

- The panel is connected using RS422 (not GPIs),
- Multiple MIPs can be bound to the same panel.

For further information on this option, please contact a Grass Valley representative.

7.10.7 Alarm Test

Opens a window displaying a list of alarms and the alarm scroller.

Acknowledge one or more alarms by using the right-click menu.

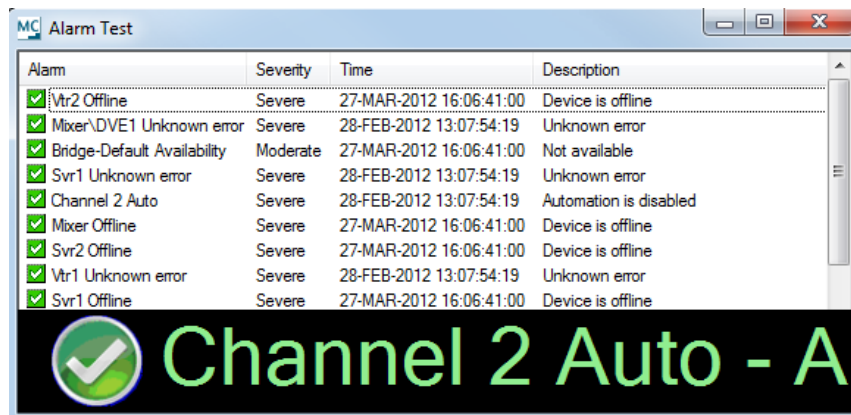


Figure 87 The Alarm Test Window

7.11 Right-Click Menu Options

Right-click the events area on the left of the Configuration window to display the following menu:

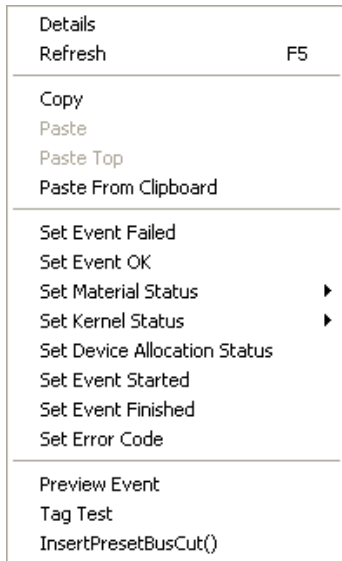
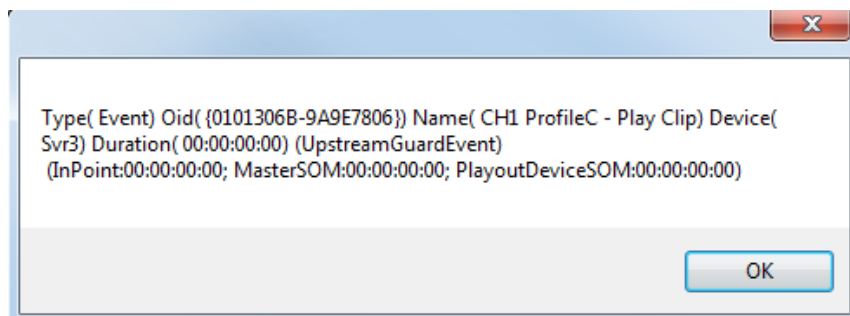


Figure 88 Right-Click Menu

7.11.1 Details

Opens a window displaying the details for the selected event:



Note: The same window can be displayed by double-clicking on the event.

In order to add default alarms to the Alarm Patches window whilst application servers are being created or deleted, select the **Create and Delete alarms when Creating\Deleting Application Servers** check box.

Examples

The availability of Application Server <name> is unknown

The Application Server <name> is unavailable

7.11.2 Refresh

Updates the Configurator with any changes that have been made (for example, it shows any new Event Types that have been added) and expands all the channels and events.

7.11.3 Copy / Paste / Paste Top

- Copy

Duplicates a single event. Select the Event and click on **Copy**.

- Paste

Copy an event to a position in between two others. Select the event above the required position in the schedule and click on **Paste**.

- Paste Top

Paste an event to the top of the schedule. Click on **Paste Top** in order to copy an event either to the top of the schedule.

7.11.4 Set Event Failed

Marks the event on the Editor schedule as having failed, and places a red barrel in the **Main** status column of the Morpheus Editor.

7.11.5 Set Event OK

If an event has been marked as having failed, this option resets its status to 'OK' and places a green barrel in the **Main** status column of the Morpheus Editor.

7.11.6 Set Material Status

These options apply to material events, and change the barrel indicators in the **Main** column on the Morpheus Editor schedule to indicate the status of events, as follows:









Status	Status Barrel	Description
Unknown		Marks the event as having a status of 'unknown'.
ExistsOnRequiredServer		The event exists on the selected server.
ExistsOnOtherDevice		The event exists in the Morpheus media management database but is on a different device.
DoesNotExist		The event's material ID does not exist in the Morpheus media management database.
NoValidInstances		The material ID exists but there are no valid instances of this event.
TransferRequestPosted		A transfer request has been posted.
TransferRequestInProgress		A transfer request is in progress.
TransferRequestFailed		The transfer request has failed.

Table 3 Set Material Status Options

7.11.7 Set Kernel Status

Note: For test purposes only.

7.11.8 Set Event Finished

Finishes an event - the event is greyed out and becomes a past event.

7.11.9 Set Error Code

Places an error code on the Property Inspector (refer to page 5) for the payout Event Type. For example:

Error Code	Definition	Description
1116	Too late to execute moment	One of the components of an event has a start time that has already passed.

Table 4 Set Error Code

Enter the required code in the Value field and click on **Accept**.

7.11.10 Preview Event

Preview of material events. Complete the parameters as required, click on **Apply** and then click on **OK**.

7.11.11 InsertPresetBusCut ()

Inserts a preset bus cut onto the schedule.

8. EventStore Test

FOR GRASS VALLEY ENGINEERING USE ONLY

The EventStore test shares most of its functions with the Configurator, although some are unique to it - these are detailed in this chapter.

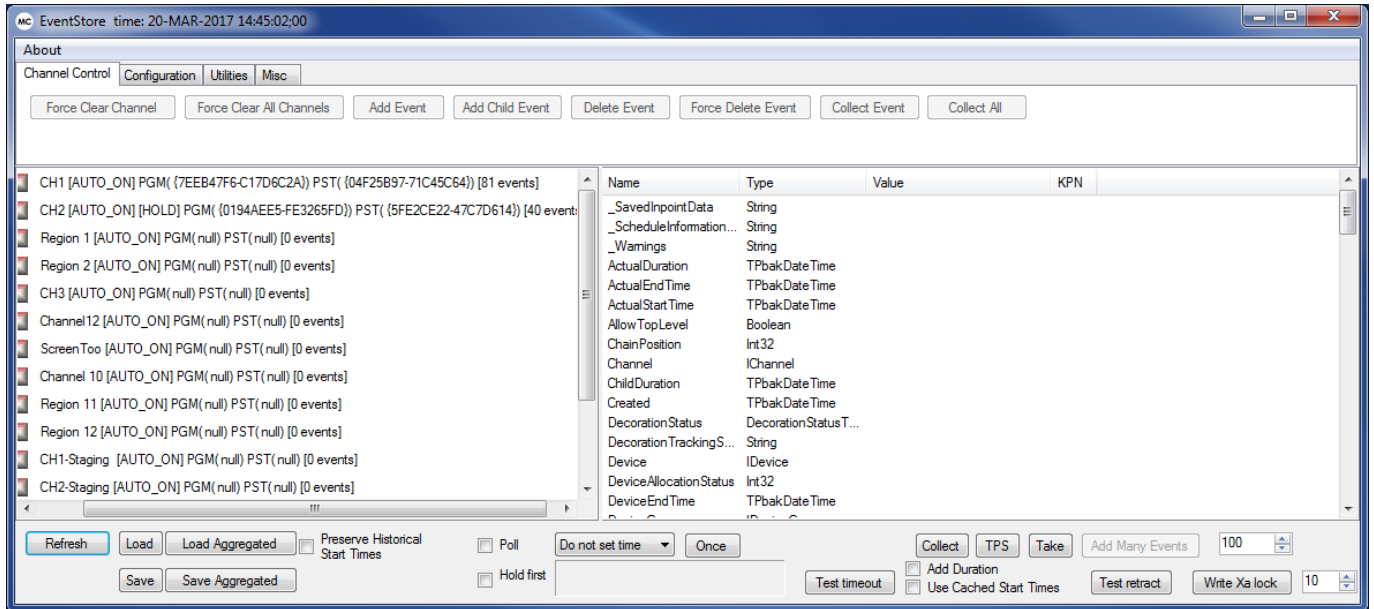


Figure 89 EventStore Test

8.1 Next Transition for Bridge

A monitoring tool designed to provide an indication of a safe window of time within which maintenance tasks can be performed on controller cards and the Bridge, without causing disruption to the system.

For each selected channel, a visual countdown to the next main event transition is displayed, with the closest next transition reproduced in a larger font in the top left-hand side of the window, alongside which are the names of the associated channel and the PST main event. The colour of the countdown changes according to the configured threshold:

- Green - countdown outside of the threshold (considered safe)
- Red - countdown within the threshold (considered threatening to the stability of the system)

8.1.1 Configuring Next Transition for Bridge

1. On the 'Misc' tab, click on **Next Transition For Bridge** - the Time to Next Transition (TNT) window is displayed (Figure 90).

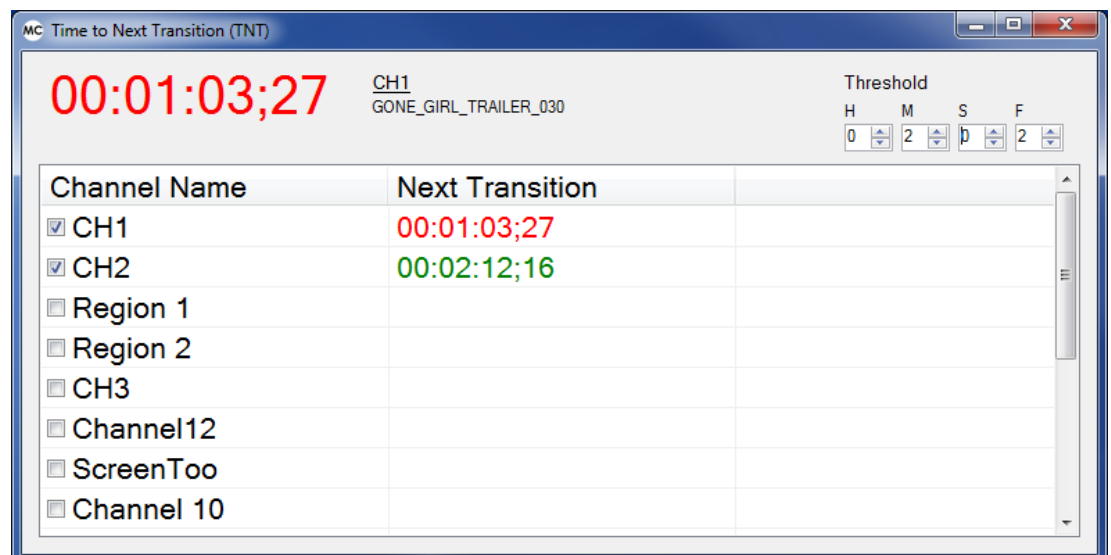


Figure 90 Time to Next Transition Window

2. Using the spin controls in the top right-hand corner, configure a safety threshold in hours, minutes, seconds, and frames, equal to the amount of time, ahead of the end of the PGM event (the next transition), before which it is considered safe to reconnect controller cards to the Bridge.

The default threshold is 2 minutes.

3. Tick the checkboxes against those channels to monitor - a countdown to the end of the PGM event on each channel is displayed in the Next Transition column.

9. Application Server

The Application Server allows the Editor and Host Shell Services applications to communicate with the Morpheus media management database (refer to page 588).

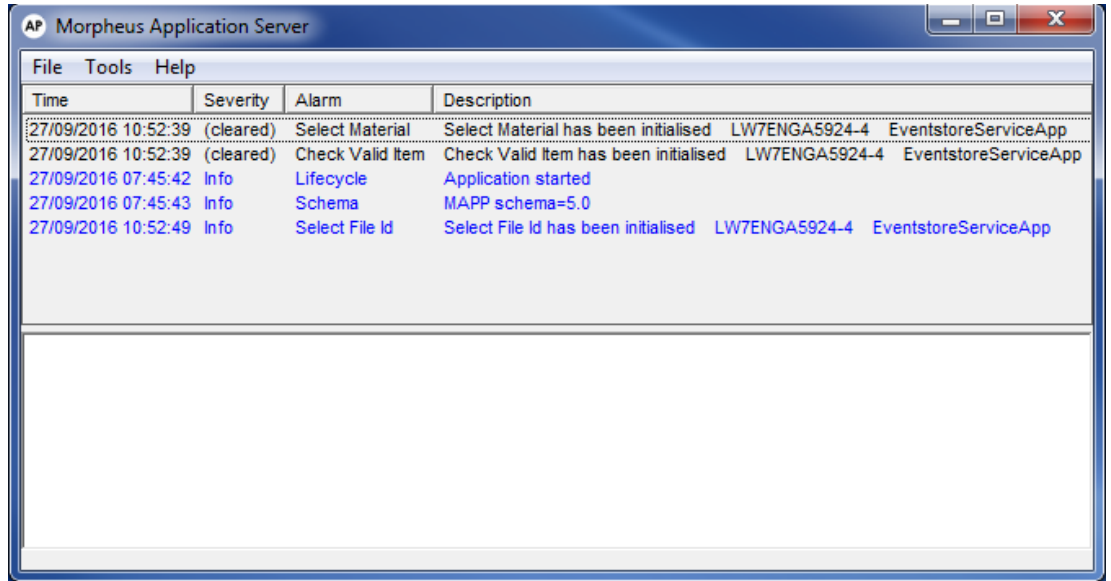


Figure 91 Morpheus Application Server Window

The Editor requires the Application Server for Palette and manual queries.

The decorators within Host Shell Services collect the missing values from the database to populate empty fields in the EventStore.

Note: The decorator services are Live Record Decorator (refer to page 234), Lock Decorator (refer to page 235), Material Decorator (refer to page 236) and Morpheus DB Decorator (refer to page 246).

9.1 Adding and Enabling Application Servers

Application Servers need to be enabled before they can be used. Application Servers can be added, configured and enabled using the Configurator (refer to page 50).

To enable application servers from the Configurator, select **Advanced > Application Servers** (refer to 'Application Servers' on page 154).

9.2 Configuration

To configure the Application Server, click on **Tools** on the tool bar and select **Configuration** from the drop-down menu,

9.2.1 Settings Tab

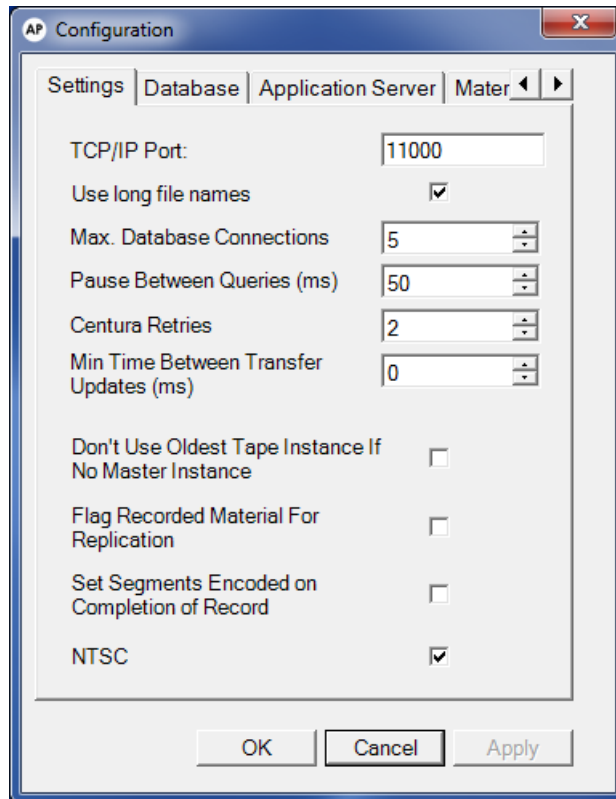


Figure 92 Application Server Configuration - Settings Tab

- TCP/IP Port

Enter the required TCP/IP Port number.

- Use Long File Names

Tick the check box in order to allow the use of long file names. Long file names are set using the Long File IDs column (refer to page 600) in the Instance table (refer to page 597) of the Morpheus media management database.

- Max Database Connections

Enter the maximum number of database connections required.

- Pause Between Queries (ms)

Enter the amount of time, in milliseconds, to pause between queries.

- Centura Retries

The number of times that automation attempts to connect to the Centura database (for earlier versions of Morpheus that used the Centura database).

- Flag Recorded Material For Replication

When selected, Morpheus triggers the 'Replications Rules' in the Media Management Application Server (refer to page 626) when it creates live record material.

- NTSC

Sets the Application Server to be part of an NTSC system.

9.2.2 Application Server Tab

Credentials required for logging onto the Media Management Application Server.

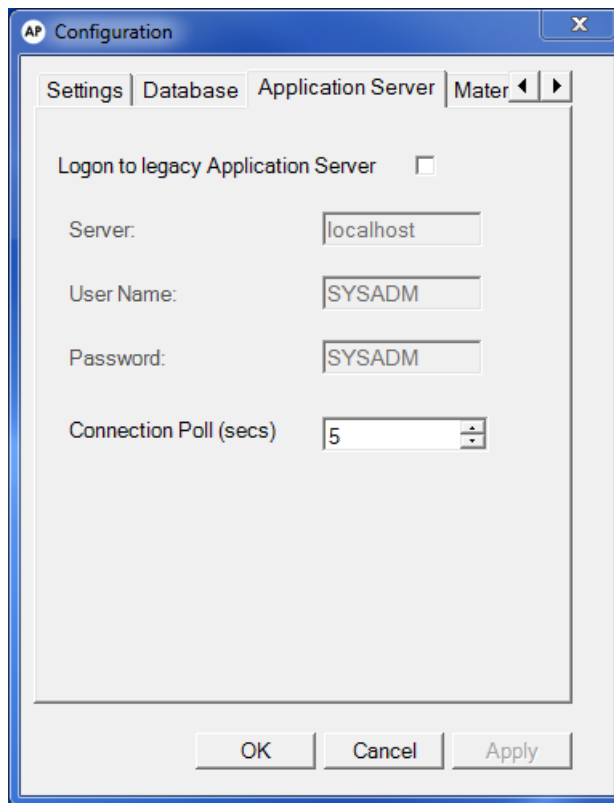


Figure 93 Application Server Configuration - Application Server Tab

- Logon to Legacy Application Server

When selected, this runs the Media Management Application Server (refer to page 626), provided media management (refer to page 615) is in use and the Transfer Decorator service is activated (refer to page 266).

10. Pbak (Automation Kernel)

Pbak is the automation kernel. It is the real time operating system (On Time), its configuration and the Grass Valley software combined with it that runs on the device controller card(s) (refer to page 12).

10.1 Pbak.exe

Pbak.exe is a copy of the executable file on a device controller card, compiled to run on a Windows PC. It is possible, if necessary, to use the PC COM ports as device controllers for certain types of broadcast equipment.

Note: As Pbak.exe is not time accurate, it is only recommended for non critical tasks.

10.2 Pbak Deployment Tool

Pbak Deploy is a utility for copying **.RTB** and **.DAT** files onto a compact flash disk for use by the device controller cards.

RTB files can only be copied onto the compact flash drive using Pbak Deploy - it is not possible to copy them directly to the drive. It is not, however, mandatory to use Pbak Deploy in order to copy the .dat files.

Using Pbak Deploy, Pbak.dat (see below) can be edited, either on the source drive or on the compact flash disk.

Note: Compact flash disks must be formatted FAT from within Windows before use. The recommended type is Sandisk.

10.2.1 Pbak.dat

Each device controller card has a **pbak.dat** configuration file that is loaded from the compact flash drive at boot-up. The pbak.dat file holds all configuration settings for the card to enable it to communicate with the broadcast devices connected to it.

10.2.2 Pbak.rtb

Each card has a copy of the operating system and proprietary code combined into one executable file, **pbak.rtb**.

10.2.3 Installation

In order to run the deployment tool, it is necessary to register the **PbakConnect.dll** file, as follows:

1. Browse to the folder containing the Pbak Deploy files.
2. Run **setup.bat** to register the **PbakConnect.dll** file.

Note: The **bootdisk.exe** file should be in the same folder as **PbakDeploy.exe**.

10.2.4 Starting the Pbak Deployment Tool

From the Pbak Deploy folder, run PbakDeploy.exe.

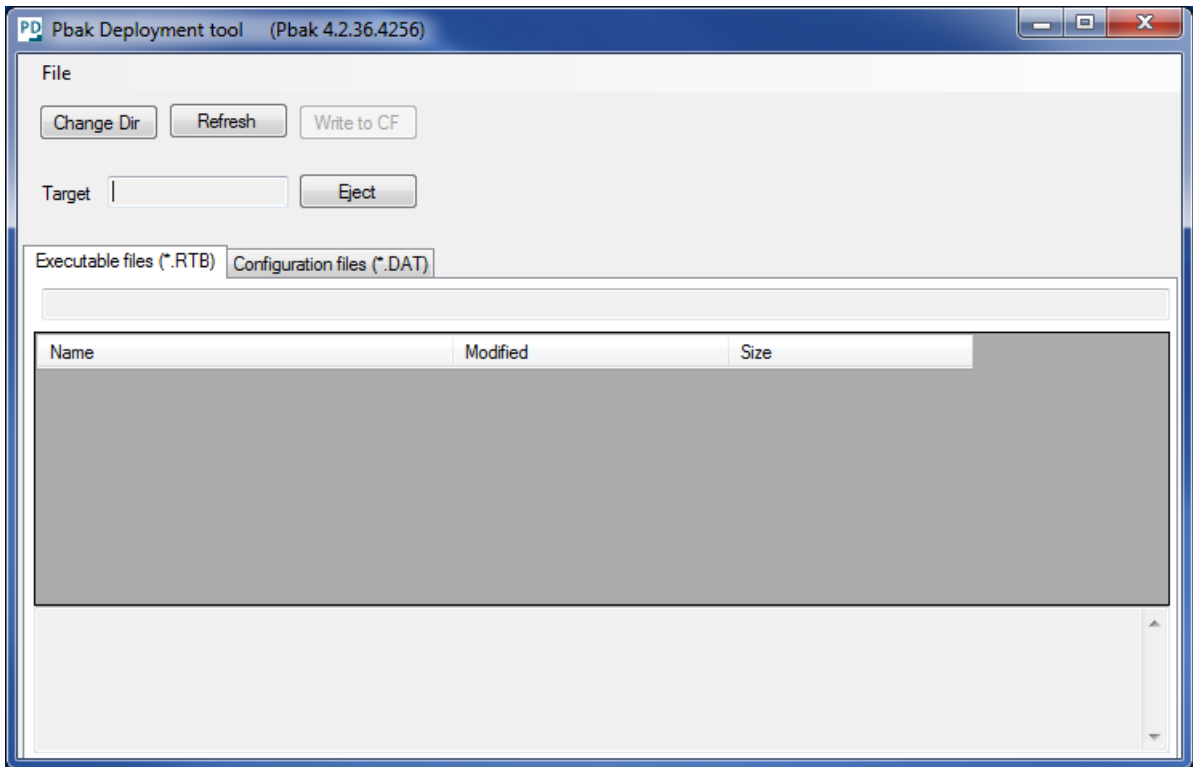


Figure 94 Pbak Deployment Tool

10.2.5 Configuring the Pbak Deployment Tool

1. Initially, the flash drive and the paths for the .rtb and .dat files must be configured, and then the files must be written to the drive (refer to 'Using Pbak Deploy' on page 172).

On the Pbak Deployment Tool, select File>Configuration - the Settings window is displayed.

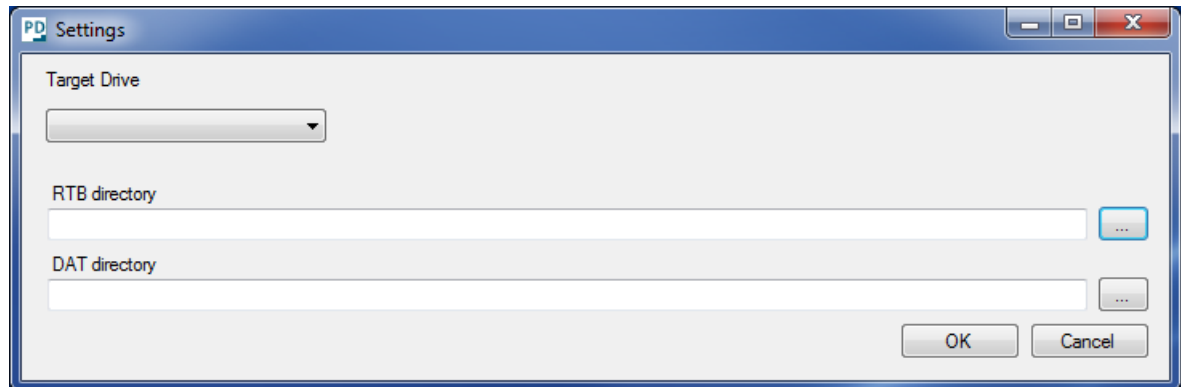


Figure 95 Pbak Deployment Tool Settings

2. From the **Target Drive** drop-down menu, select the drive containing the CF (Compact Flash) card to configure.
3. If required, select the **Show Makedisk progress** check box in order to display a window that provides diagnostic information from the 'MakeDisk' application as it runs (for diagnosing issues with the CF card).
4. In the **RTB directory** field, type or browse to the path containing the .RTB file.
5. In the **DAT directory** field, type or browse to the path containing the .DAT file.
6. If the On Time tools are installed on the PC, use the **On time tools directory** field to enter the path containing **bootdisk.exe**. If bootdisk.exe is located in the same folder as **Pbak Deploy.exe**, then this field can be left blank.

10.2.6 Using Pbak Deploy

The Pbak Deployment Tool window has two tabs, one for .RTB files and another for .DAT files.

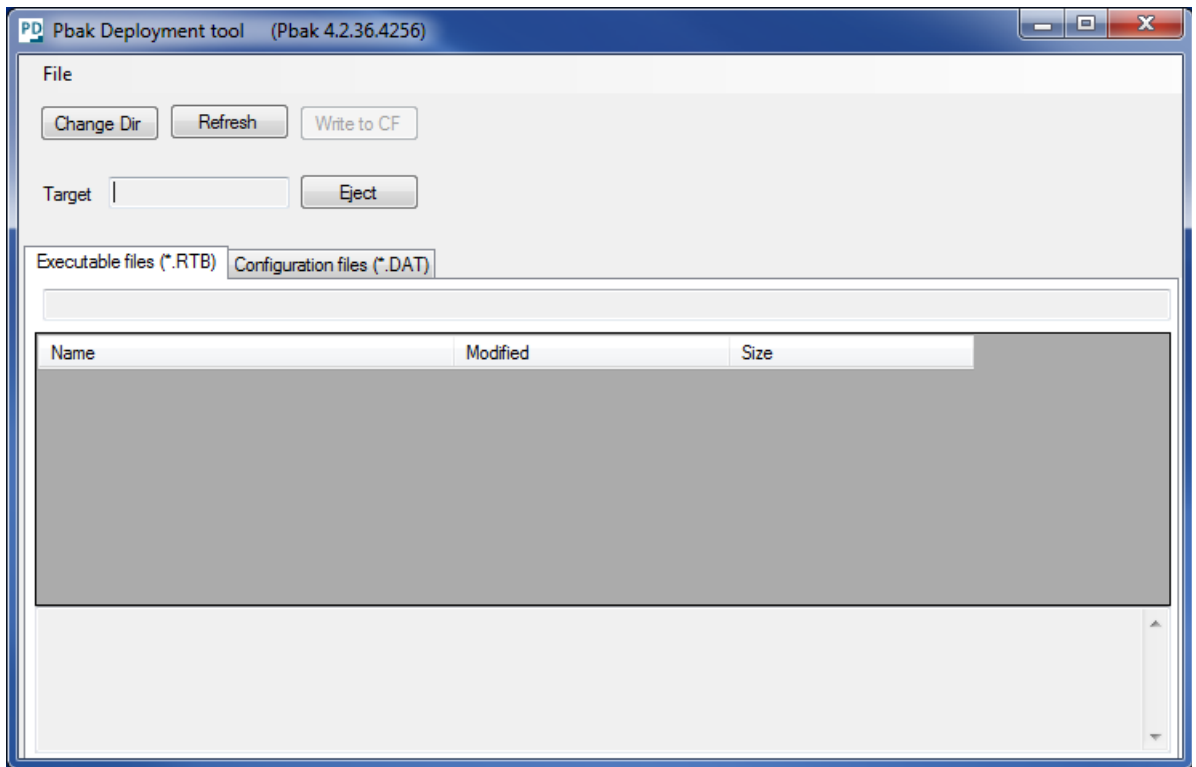


Figure 96 Pbak Deployment Tool

- Change Dir

Change the directory in order to view alternative RTB and DAT files on their respective tabs.

The directories can also be changed from the Settings window (refer to 'Configuring Pbak Deploy' on page 1710).

- Refresh

Refreshes the list of files displayed on the tabs.

- Write to CF

RTB files: writes the currently selected RTB file to the target drive and makes the target disk bootable.

DAT files: copies the currently selected DAT file to the target drive and renames it to **Pbak.dat**. If the **For debug build** check box is selected then the file is copied to the folder **\Debug** on the target, otherwise it is copied to the **\Release** folder.

- For Debug Build

DAT files only. Tick the check box if a DAT file should be downloaded for use when running Pbak under the debugger - configuration files tab only.

- Target / Eject

Eject the target disk. Click on **Eject** before removing the compact flash card from its socket, otherwise any pending file writes may not complete correctly.

Edit Source: Edit the selected DAT file on the PC - configuration files tab only.

Edit Target: Edit the selected DAT file on the target drive - configuration files tab only. If the **For debug build** check box is selected then the **\Debug\Pbak.dat** file is opened otherwise **\Release\Pbak.dat** is opened.

10.3 Kernel Logs

Information on PBAK log files.

10.3.1 Kernel As-Run Log

The 'kernel as-run log' is a text file log containing all instructions executed by the kernel.

The current file is KernelAsRun.log and is stored in C:\Morpheus\Logs - it is backed up daily to the file KernelAsRun.log.<date>

10.3.2 Kernel Diagnostics Log

The 'kernel diagnostics log' is a file, created by the kernel. It contains a record of kernel activity for all controller cards. It is transferred periodically to the Bridge PC normally every ten minutes.

The current file is KernelDiags.Log, in C:\Morpheus\Logs - it is backed up daily to the file KernelDiags<date>.log

10.4 Kernel Class ID

Event parameters in the EventStore are tagged as being required by the kernel according to the 'kernel class ID' in the device configuration. The kernel class ID is a three digit number that provides Morpheus with the additional parameters relating to a device. These are known as the 'kernel parameters'.

The kernel class ID and kernel parameters can be configured using the Configurator (refer to page 50).

To configure the kernel class ID, click on **Configure Devices** on the Configurator window. Use the **Supported Kernel Class IDs** option on the Properties tab.

To configure the kernel parameters, click on **Configure Events** on the Configurator window. Use the Kernel Parameters Definition tab for the required Event Type (refer to 'Event Type Parameters' on page 79).

10.5 Type ID

The 'type ID' is a three digit code stored against the device name in the device controller configuration file, **pbak.dat** (refer to page 169). It is associated with a device type such as a server, VTR or mixer, and defines the driver that the kernel should use in order to communicate with that device. The type ID requires specific parameters to be sent from the Bridge (refer to page 242) in the right order. In effect it sets the kernel class ID. The following table shows a list of type IDs.

Type ID	Device Type
220	GPIControlledDevice
221	MIP
301	Test Device
305	SimulatedMixer
350	SAMDecoder
402	SonyVtr
403	PinnacleIOPort
405	TektronixIOPort
406	OmneonIOPort
501	Mixer
503	DSK
220	AudioOver
505	DVE
506	PixelPower
507	TxSwitcher
610	Switcher
802	Sonifex
803	Aston Motif
807	LogoMotion
810	Subtitler
820	Vizrt
844	Dalet
848	VistekArc
853	Publitrionic

Table 5

10.6 Pbak Utility (Pbak Test Utility)

The Pbak Utility (Pbak Test Utility) provides the ability to read and edit the kernel registry and to back up and restore pbak.dat files (refer to page 169).

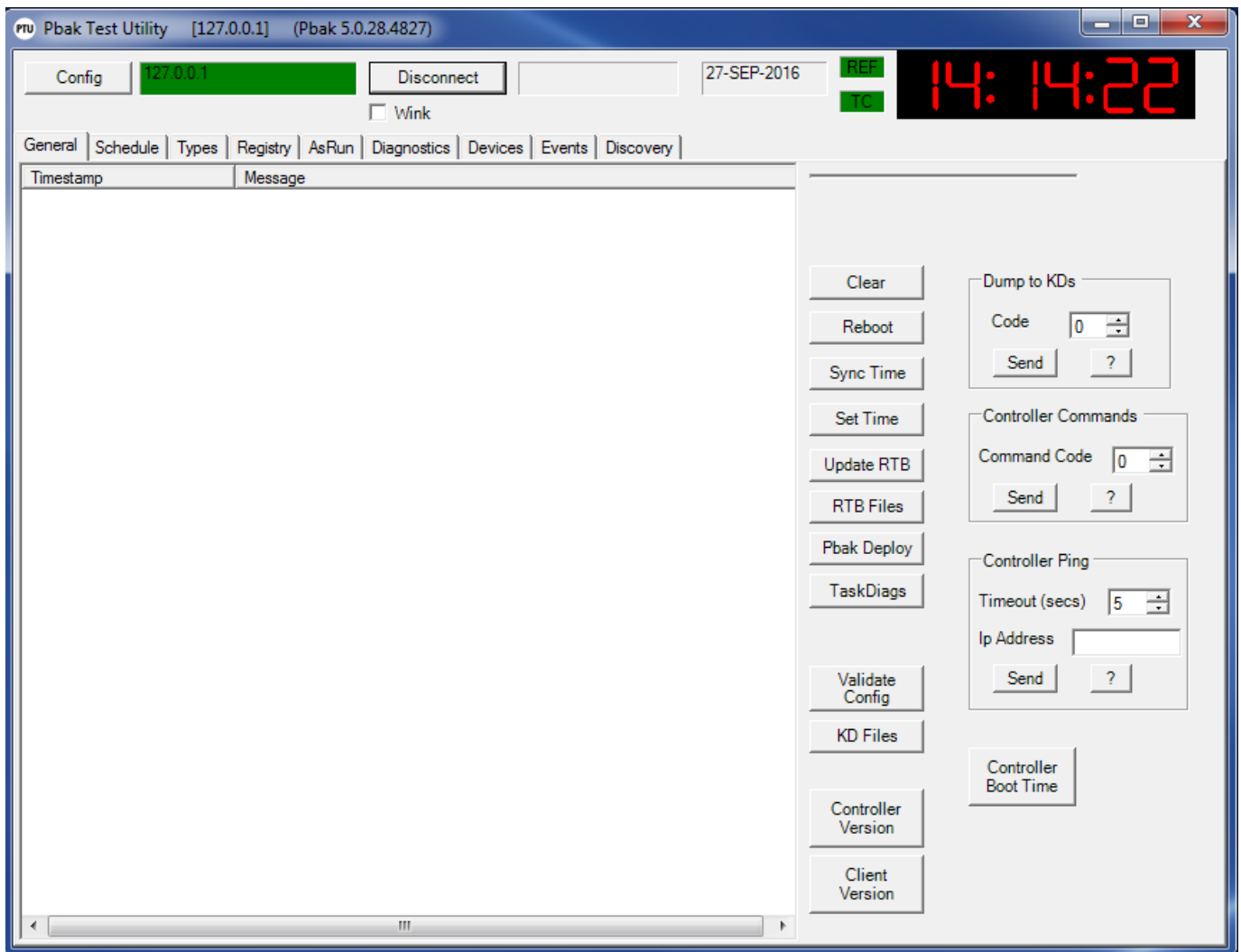


Figure 97 Pbak Test Utility

Note: In order to use the Pbak Utility, the IP address of the device controller card is required to provide connectivity (refer to Section 10.6.1 Device Controller Card IP Address).

10.6.1 Device Controller Card IP Address

The IP address can be added in one of two ways:

- Using an Application Startup Switch on the Shortcut

1. Right-click on the Pbak Utility shortcut in the Morpheus Shortcuts folder, and select properties from the displayed menu. The Pbak Utility Properties window will be displayed.
2. Click on the Shortcut tab. Add the IP address to the target application path using the /a switch, as shown in the example:

```
C:\Morpheus\x86\PbakUtility.exe /a <IP address>
```

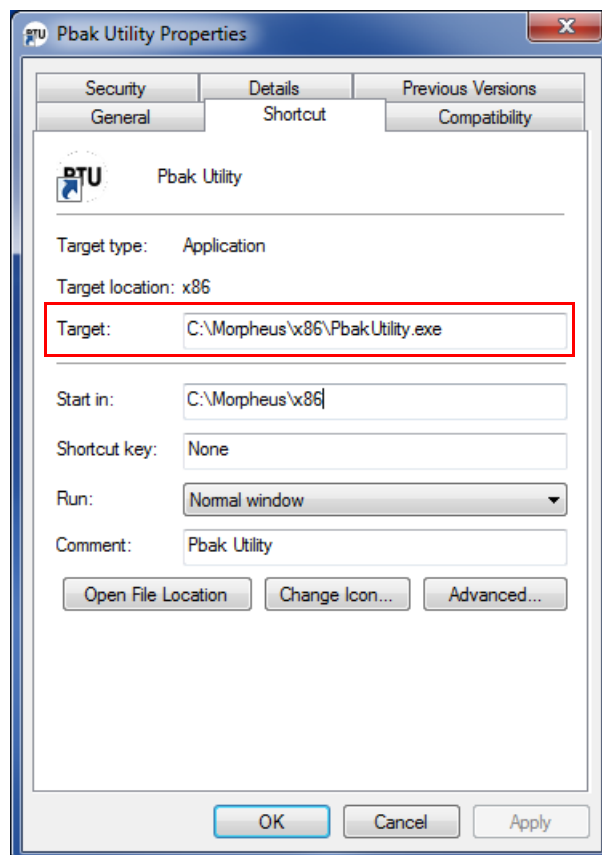


Figure 98 Adding the Pbak IP Address to the Shortcut

- Using the Pbak Test Utility Config Page

1. On the Pbak Test Utility window, click on **Config**. The Configure the Current Task window is displayed.

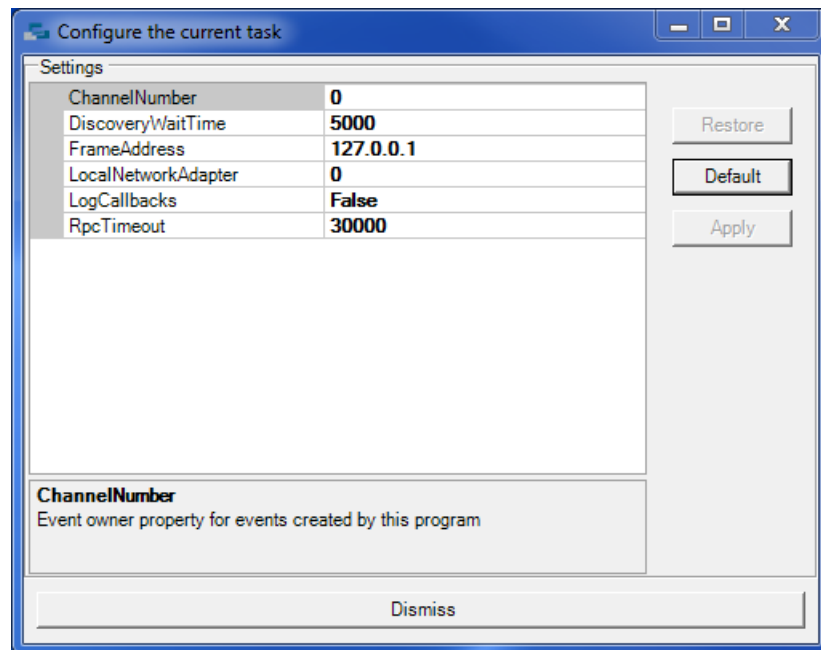


Figure 99 Entering the Pbak IP Address

2. Enter the IP address into the FrameAddress field, and click on **Apply**.

10.6.1.1 Connecting to the Device Controller Card

In order to connect to the device controller card, click on the **Connect** button on the Pbak Test Utility window. If the connection is successful, the IP address field will gain a green background, otherwise it will be coloured red.

10.6.2 General Tab

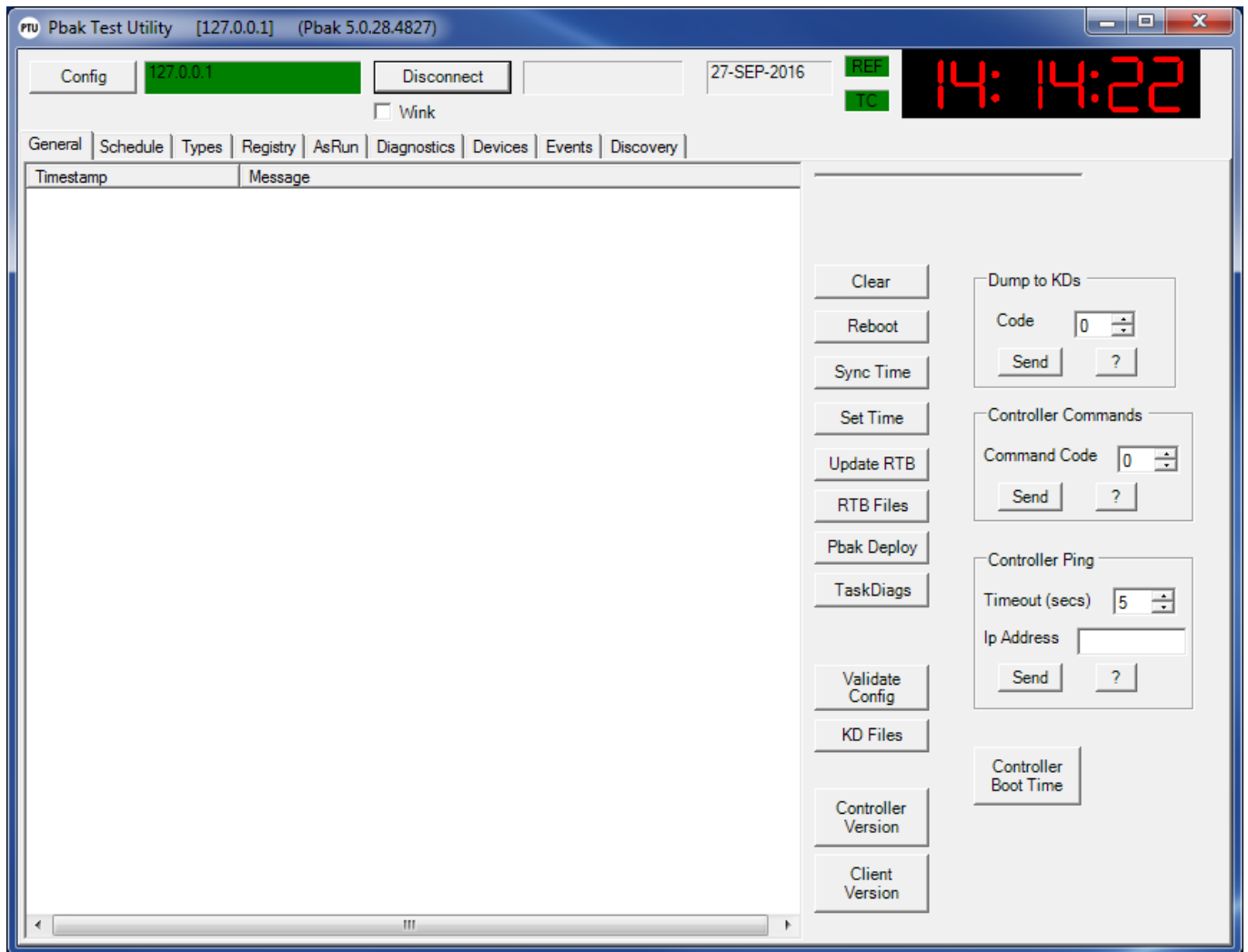


Figure 100 Pbak Test Utility - General Tab

- Reboot

Reboots the connected controller card.

- Sync Time

Synchronizes the PC time with the device controller card time.

- Set Time

Displays the Set Controller Time window.

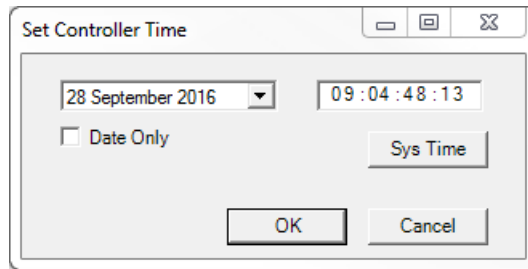


Figure 101 Pbak Test Utility - General Tab - Set Controller Time

Set the kernel date and time or, alternatively, use system time by clicking on the **Sys Time** button.

- Update RTB

Upload a new version of **pbak.rtb** (refer to page 169).

Important: before using **Update RTB**, ensure that no device control commands are imminent as this parameter disables the controller card.

Click on **Update RTB** to display the Upload Executable to Controller window. Browse to, and then open the required file.

After the new file has been uploaded, the device controller card should reset; if not, use red reset button.

- RTB Files

A login screen is displayed - enter the username and password and click on **Connect**.

- TaskDiags

Displays the Task Diagnostics window - displaying internal tasks that are running on the card.

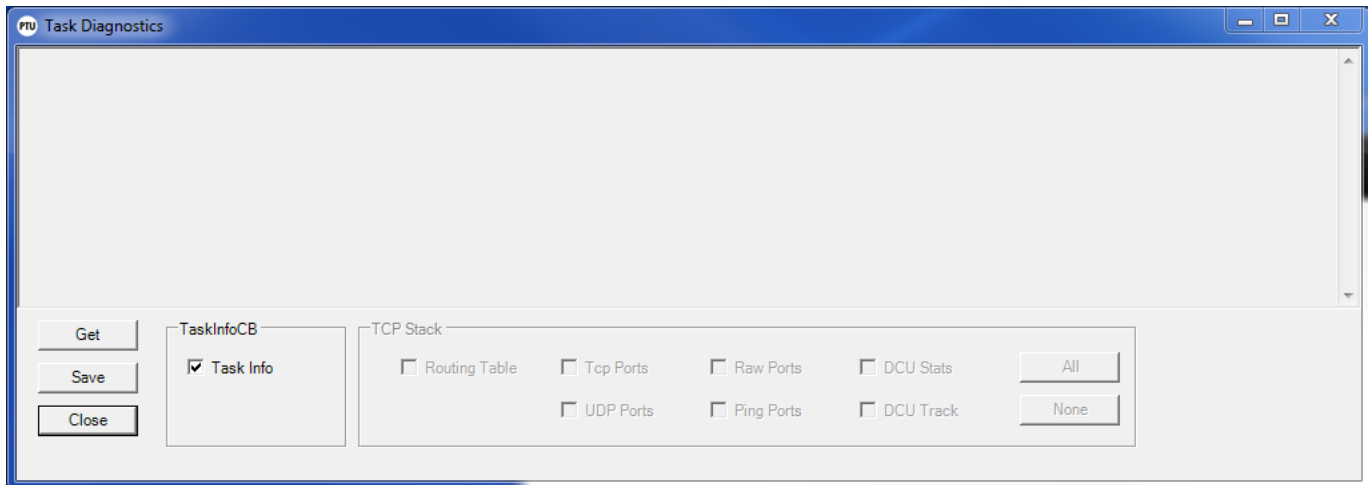


Figure 102 Task Diagnostics Window

- Validate Config

Checks the validity of the PBAK configuration.

If valid then the message 'Configuration OK' is displayed on a pop-up window.

- KD Files

Kernel Diagnostics files.

A login screen is displayed - enter the username and password and click on **Connect**.

- Controller Version

Displays the current RTB version on a pop-up window.

- Client Version

Displays the current PbakConnectAssy version on a pop-up window.

- Dump to KDs

Logs specific information to the Kernel Diagnostics.

Enter a value to indicate the nature of the information that is to be logged:

0 = RPC client information

1 = controller boot time

The ? button displays help text.

- Controller Commands

In development - not currently supported.

- Controller Ping

Send an ICMP Echo Request (ping) from the controller to a specified IP address. Optionally, set a timeout value (seconds): the amount of time that the controller will wait for an ICMP Echo Reply from the target device (the default is 5 seconds).

The ? button displays help text.

10.6.3 Schedule Tab

Create kernel events directly for test purposes.

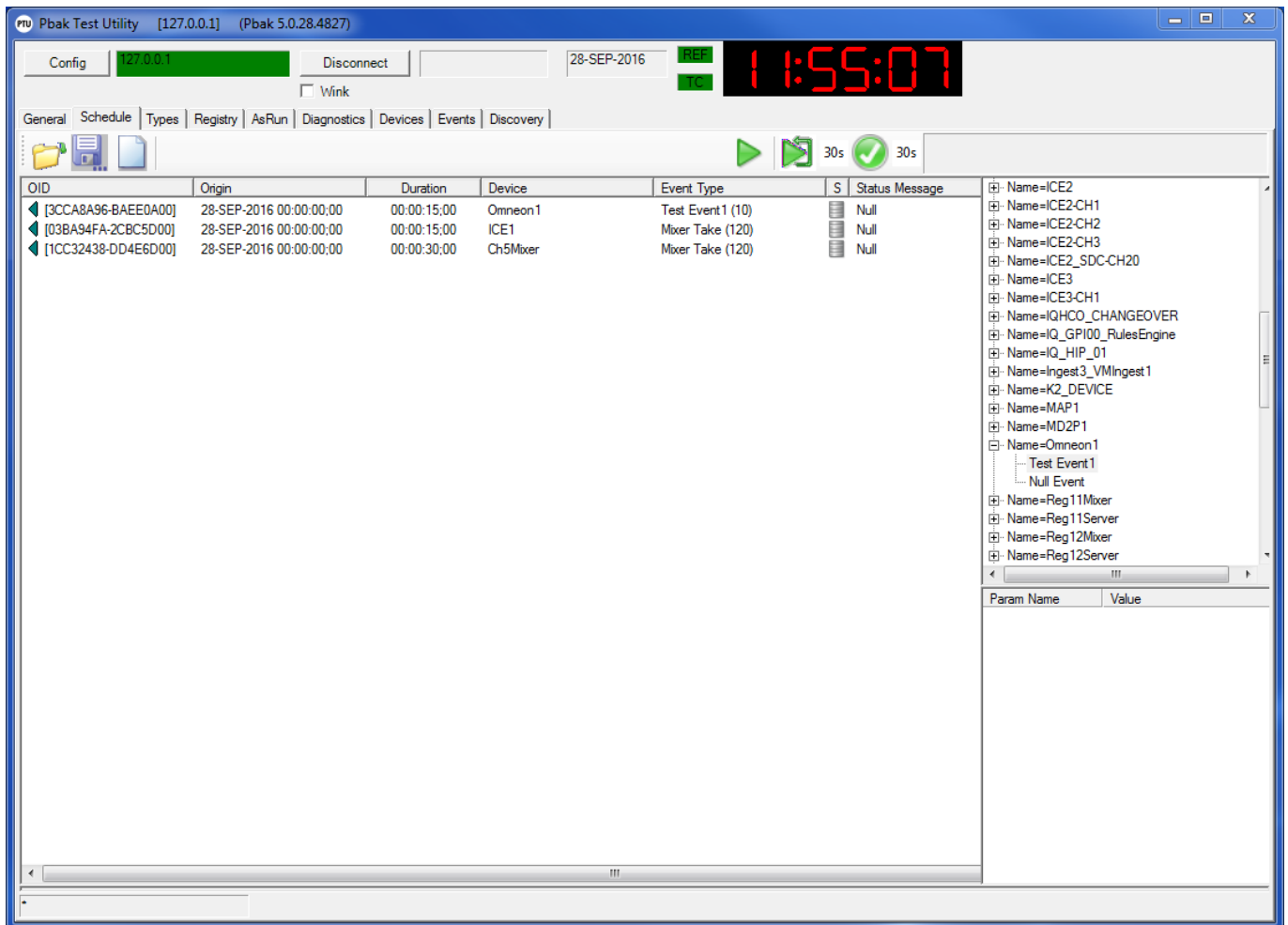


Figure 103 Pbak Test Utility - Schedule Tab

- Load an Existing Schedule File



- Save the Schedule to Disk



Opens a file browser - select a location to save the schedule.

- Create a New Schedule

Note: This action will clear any existing events.

- Run the Schedule from the Selected Event**- Start / Stop Playing the Entire Schedule Repeatedly**

To the right of the icon, add a delay, in seconds between the repeated play of the schedule (default is 30 seconds).

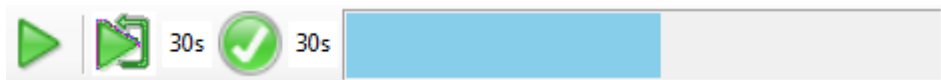
- Start / Stop the Simple Validation Service

All events in the schedule are repeatedly validated in a loop.

To the right of the icon, add a delay, in seconds between the repeated validation of the events (default is 30 seconds).

Progress Bar

Progress is displayed for each event in turn.



10.6.3.1 Create a New Kernel Event

1. From the list in the upper right pane of the Pbak Test Utility window, expand a Kernel Event Type and double click on the required event - the Create or Edit an Event window is displayed (Figure 104).

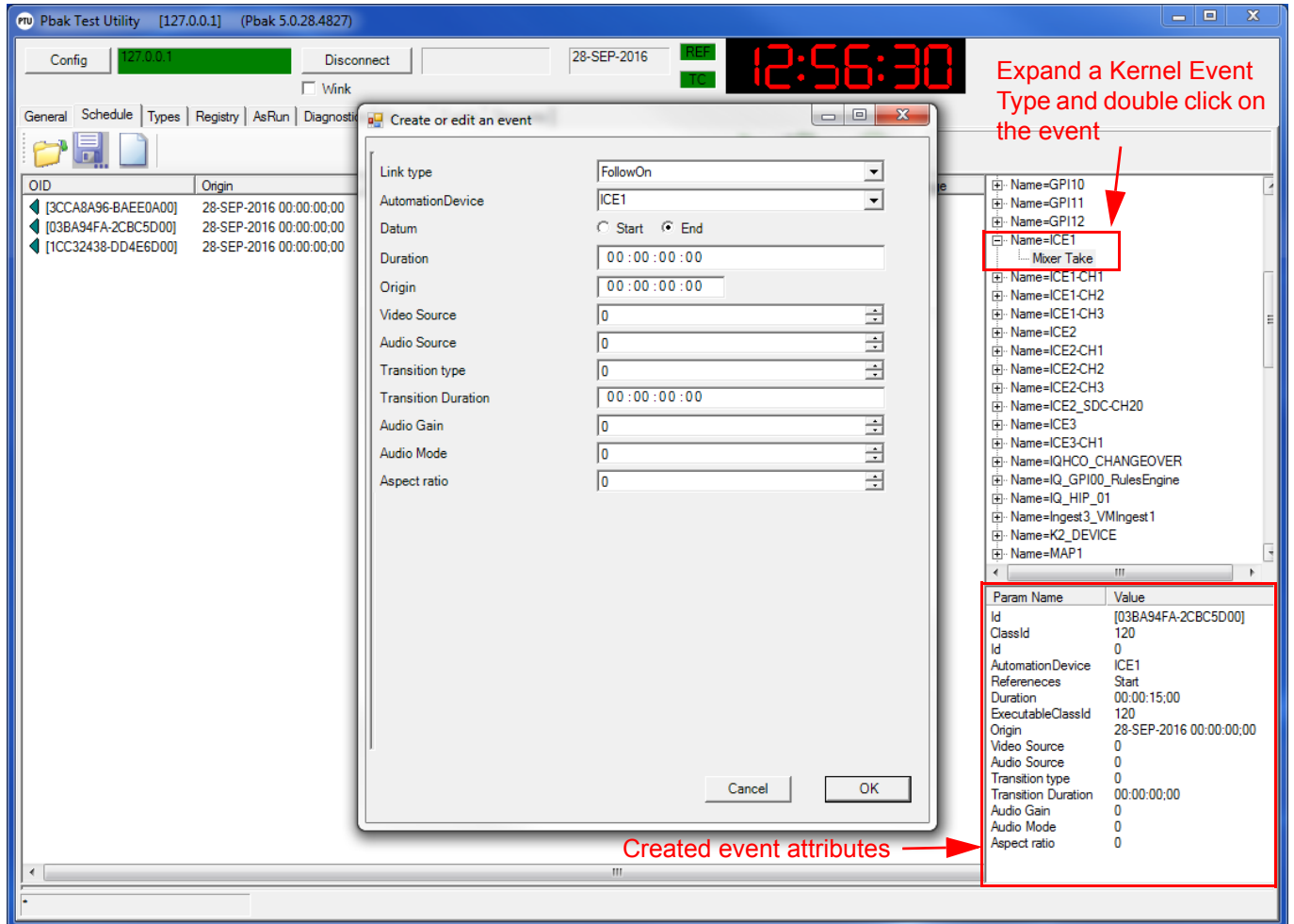


Figure 104 Pbak Test Utility - Create a Kernel Event

3. Configure the event parameters and click on **OK** - the Event is created and displayed in the central pane. Right click on a created event in order to display its attributes in the bottom right-hand pane.

10.6.3.2 Manipulating Events in the Created Events List

Right-click on a created event to display a drop-down menu of options (Figure 105).

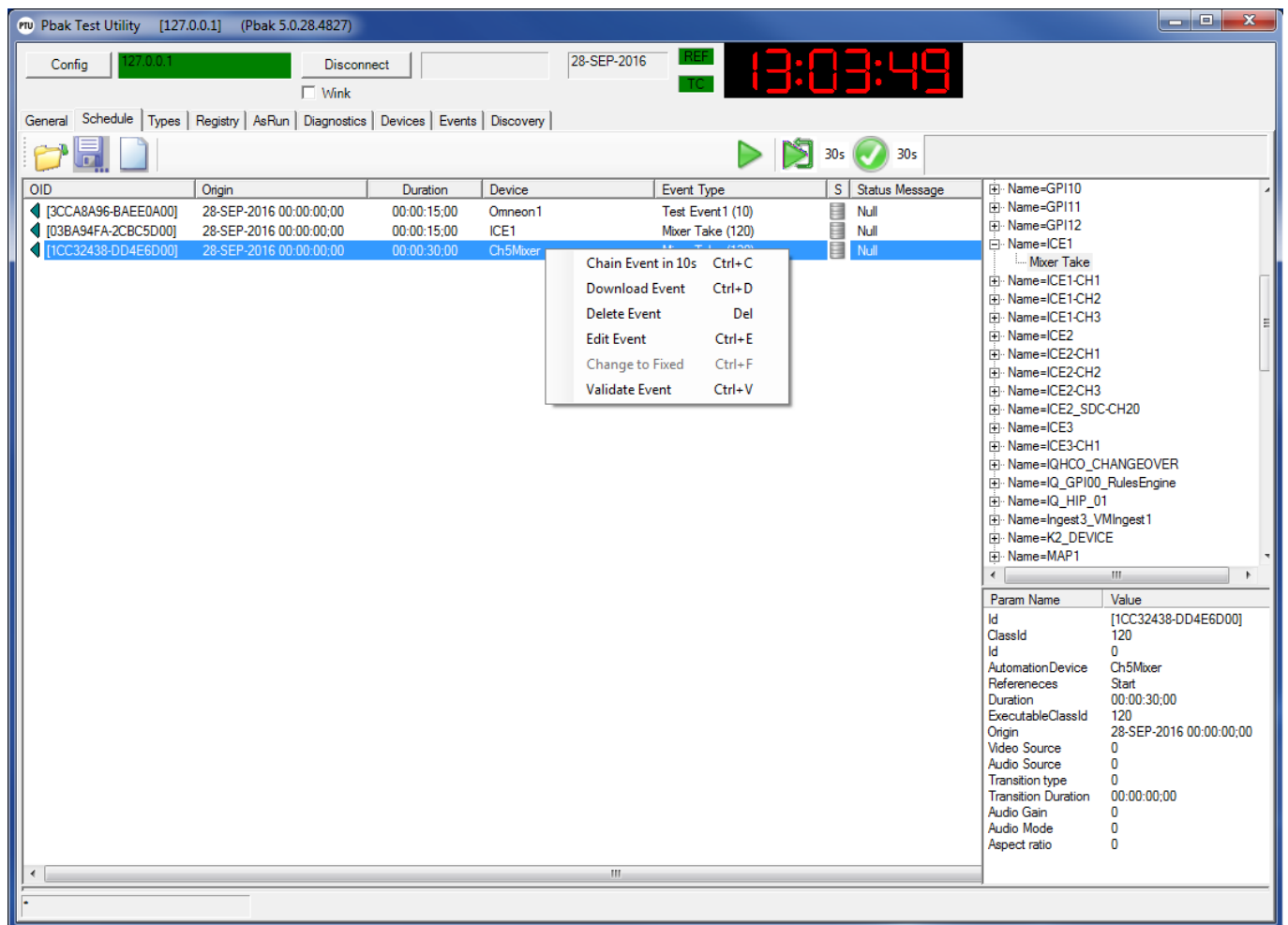


Figure 105 Pbak Test Utility - Manipulating Events

- Chain Event in 10s

A chain is a number of events that run one after the other.

This function will schedule the start time of the chain for 10 seconds from the time that it was selected.

- Download Event

Download data for the selected event to the controller card, ready for execution.

- Delete Event

Delete the selected Event - a confirmation window is displayed

- Edit Event

Double-click on a created event to display the Event Edit window (Figure 106).

All of the configuration parameters are described in Section 10.6.3.1 Create a New Kernel Event.

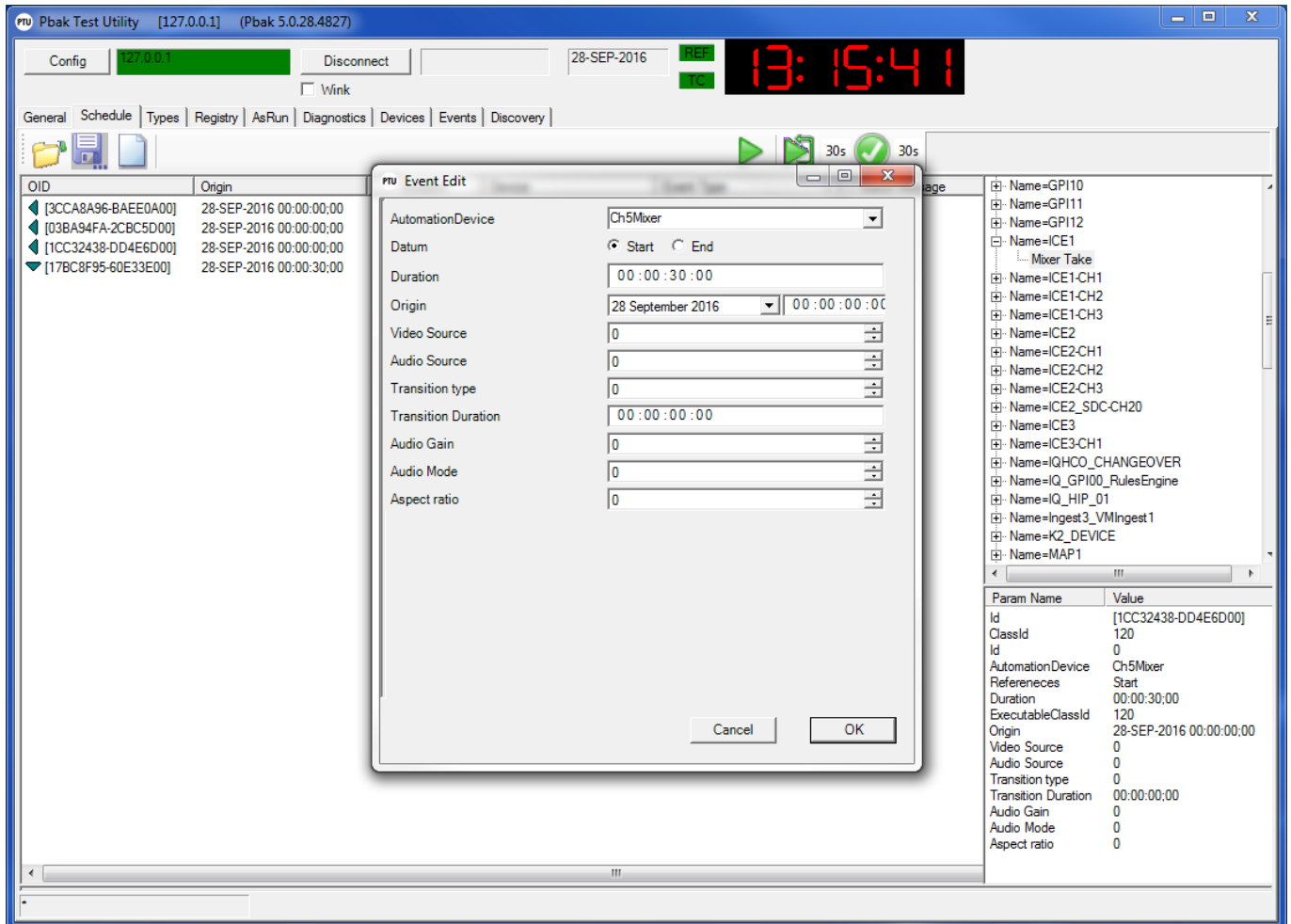


Figure 106 Pbak Test Utility - Edit a Kernel Event

- Change to Fixed

Fix the selected event - a confirmation window is displayed.

- Validate Event

Display the last error message.

10.6.4 Types Tab

View, create and edit device types.

Note:

Modification to these configurations is not recommended - contact a Grass Valley representative for advice.

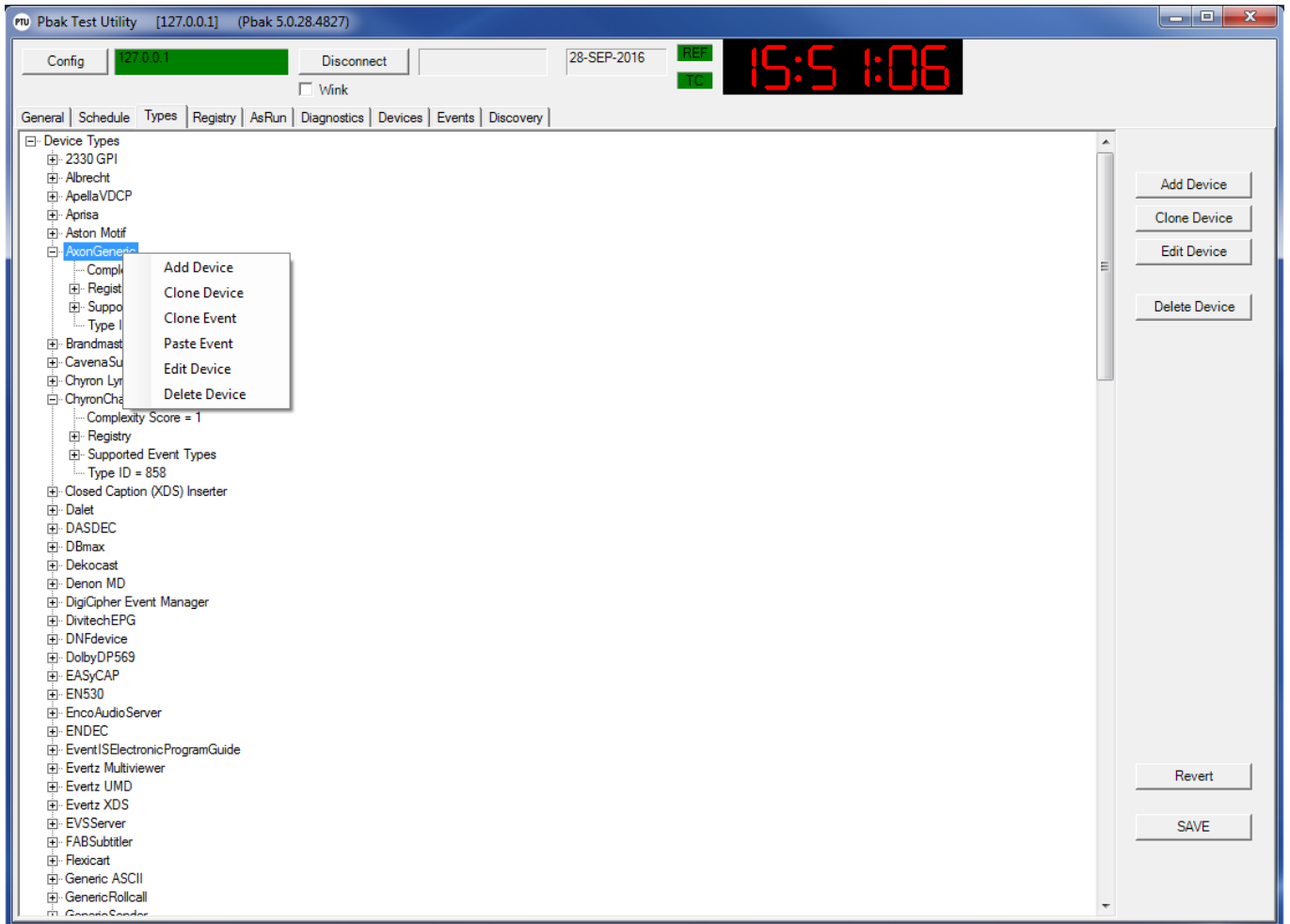


Figure 107 Pbak Test Utility - Types Tab

Right click on an existing device type to display a drop-down menu with the following functions (Figure 107):

- Add Device

For details of the configuration parameters, refer to Section 10.6.4.1 Add a Device

- Clone Device

For details of the configuration parameters, refer to Section 10.6.4.2 Clone a Device

- Edit Device

For details of the configuration parameters, refer to Section 10.6.4.3 Edit a device

- Delete Device

For an explanation of the function, refer to Section 10.6.4.4 Delete a Device

10.6.4.1 Add a Device

Click on **Add Device** in order to display the Device Configuration Window.

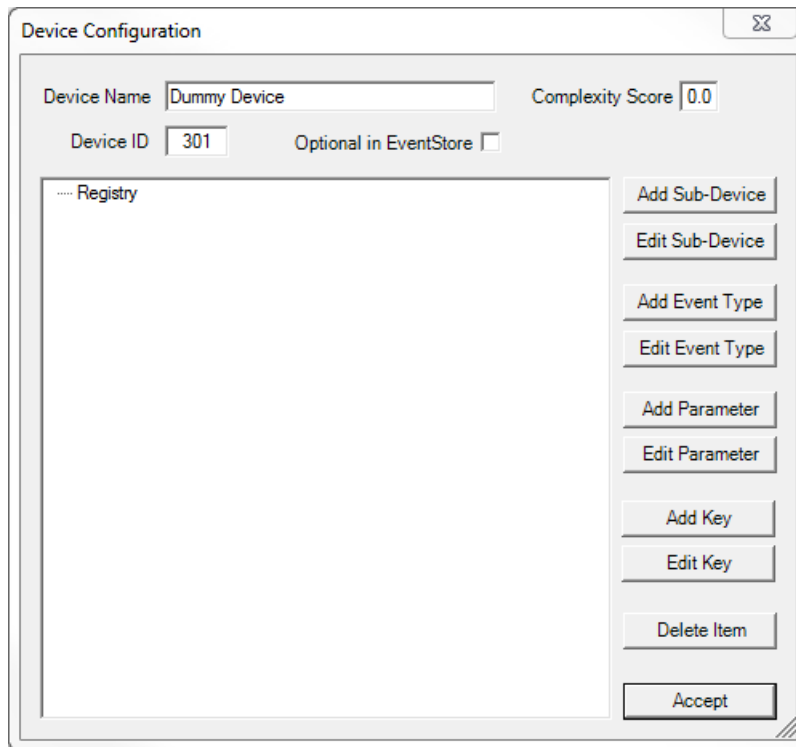


Figure 108 Pbak Test Utility - Device Configuration Window

- Add Sub-Device

Opens the Sub-Device Configuration window (Figure 109).

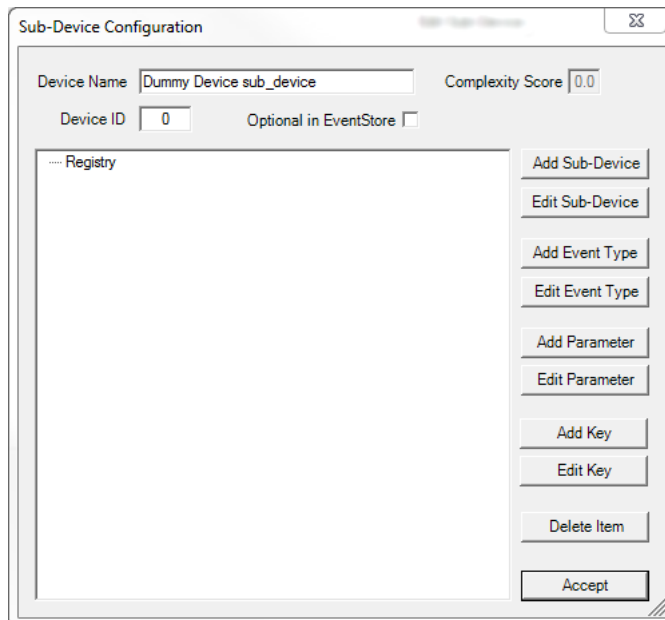


Figure 109 Pbak Test Utility - Sub-Device Configuration Window

The configuration parameters are identical to those for adding a device, as described in this sub-section.

10.6.4.2 Clone a Device

Replicate an existing device.

Select the device to clone and click on **Clone a Device** - the Device Configuration window is displayed, pre populated with the attributes of the original device with the following exceptions:

- The original name is prepended with the word 'Clone' (e.g. the original device 'Dalet' is renamed to 'CloneDalet')
- A device ID of 9999 is allocated to the device
- A complexity score of 0.0 is allocated to the device

All configuration parameters are identical to those described in Section 10.6.4.1 Add a Device

10.6.4.3 Edit a device

Select the device and click on **Edit Device**.

All configuration parameters are identical to those described in Section 10.6.4.1 Add a Device

10.6.4.4 Delete a Device

Select the device and click on **Delete Device** - a confirmation window is displayed.

10.6.4.5 Revert

Returns all configurations to the last saved version - as long as any adds / clones / edits / deletes have not been saved then they will all be removed.

10.6.5 Registry Tab

The Registry tab allows Pbak registry settings to be configured and applied.

Copy and paste device driver configurations into the driver Configuration tree.

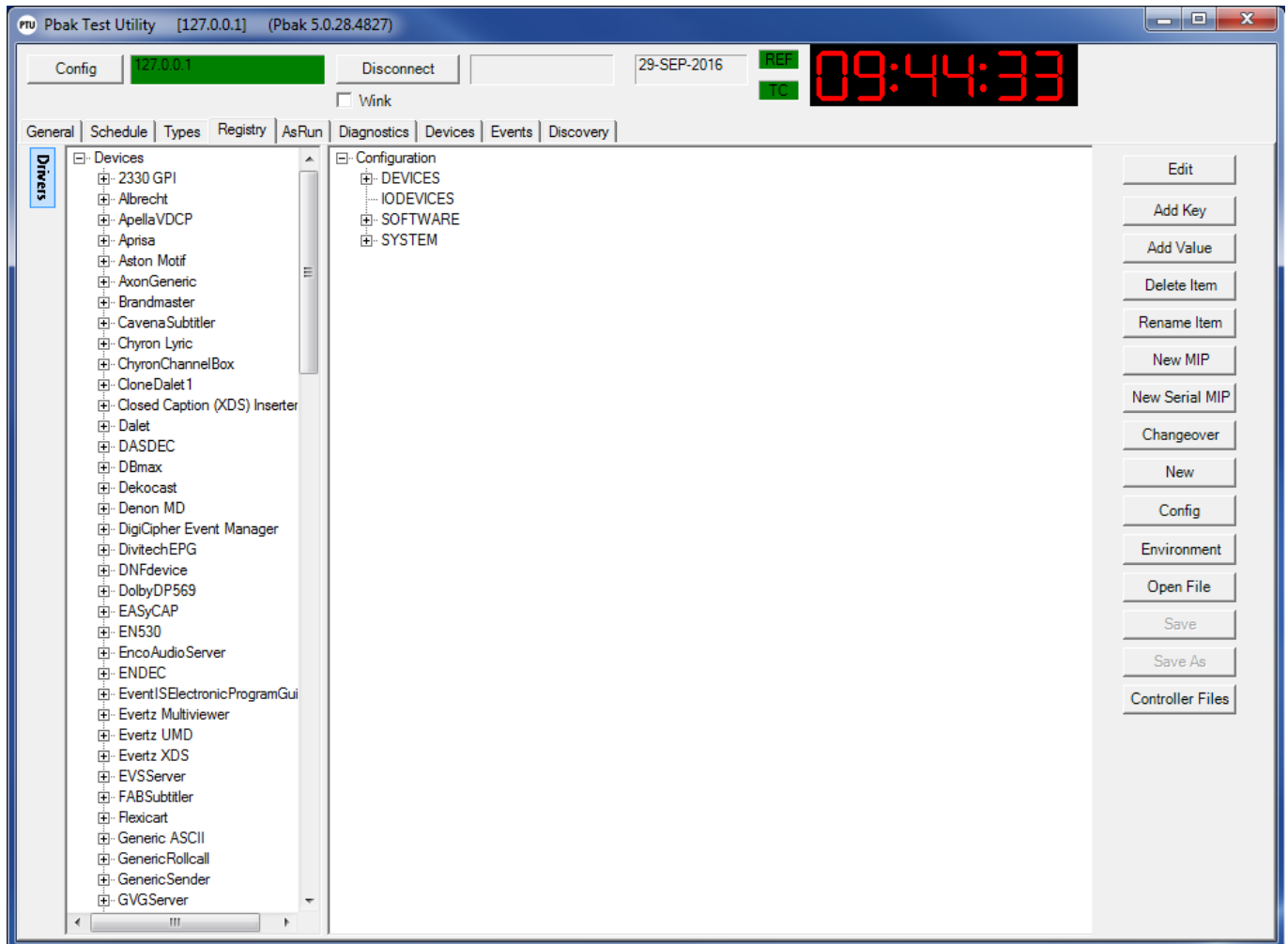


Figure 110 Pbak Test Utility - Registry Tab

10.6.5.1 Viewing Configuration Parameters

Drivers

Click on the text **Drivers** in the left margin of the window in order to open / close the Drivers pane.

<

Configuration Tree (driver Configuration)

Click on the **Config** button in order to open the Configuration tree.

Load the configuration of the chosen card.

Environment Tree (environment variables)

Click on the **Environment** button in order to open the Configuration tree.

Load the variables found in the system.

10.6.5.2 Using the Right Click Menu Systems

A right click menu system is available on the Drivers pane and in both the Configuration and Environment tree views - the Drivers pane only supports the copy function.

- New Key

Add a new key into the Configuration or Environment trees.

Click on a node in the tree (which may also be a key), then right click and select **New Key**. The Add Key window is displayed - enter a name for the new key and click **OK** to finish.

- New Parameter

Click on a key, then right click and select **New Parameter** from the pop-up menu. The NewParameterValueDlg window is displayed (Figure 111).

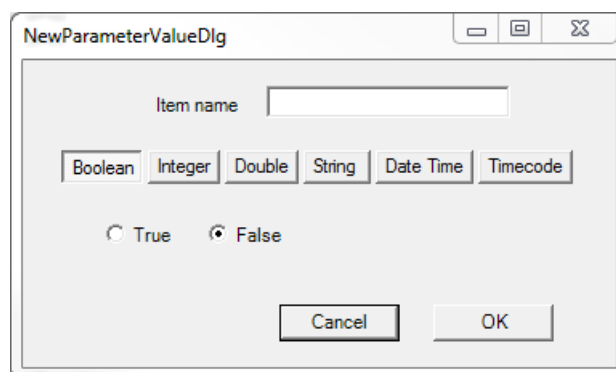


Figure 111 Add a New Parameter

Enter a name for the new parameter, then click on a parameter type and add the required value. Click **OK** to finish.

- Edit Parameter

Edit a key parameter.

Click on the parameter and select **Edit Parameter** from the pop-up menu - the Edit Value window is displayed. Both the value and the parameter type can be modified. Click on **OK** to finish.

- Delete

Delete an key or a parameter.

Click on a key or a parameter, then right click and select **Delete** from the pop-up menu - a confirmation window is displayed.

- Rename

Rename a key or a parameter.

Click on an key or a parameter, then right click and select **Rename** from the pop-up menu - the Rename window is displayed. Enter a new name and click on **OK** to finish.

- Copy / Paste

Copy From the Device Driver Pane into the Configuration Tree

Click on a device driver, then right click and select **Copy** from the pop-up menu in order to then right click again to **Paste** into the driver Configuration tree pane (Figure 112).

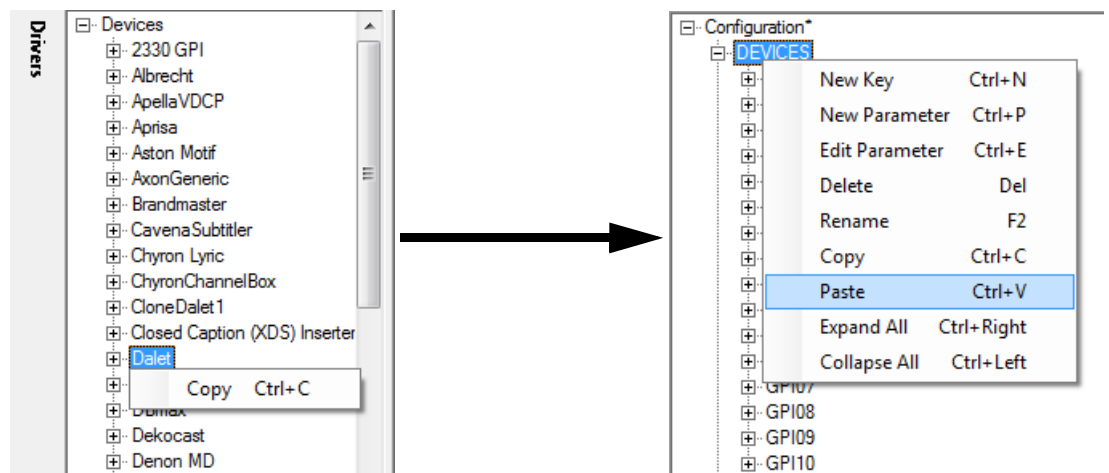


Figure 112 Copy a Driver Configuration into the

Note:

If the same device driver name is copied and pasted more than once into the same branch, all copies are renamed automatically using the following format: Copy(x)_of_<driver name>, where (x) is a number that increments with every copy.

Copy Within a Tree

Select a key, right click and select Copy. Select another key, right click and select Paste. The key, including all of its parameters, is copied to the chosen destination.

Note: Copying between the Configuration and Environment trees is not supported.

- Expand All

Expand all branches below the selected key.

- Collapse All

Collapse all branches below the selected key.

10.6.5.3 Using the Registry Function Buttons

- Edit

Edit the value of a key.

Click on the key in order to select it and click on **Edit**. The Edit Value window is displayed, defaulted to the appropriate data type (Figure 113). Change the value as required.

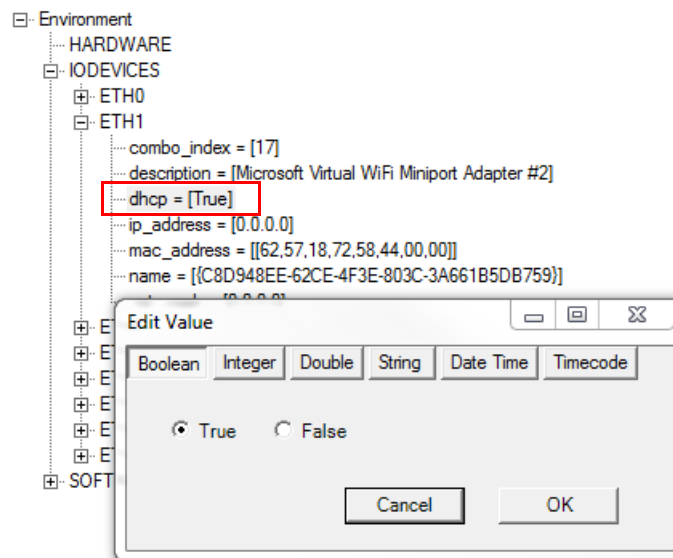


Figure 113

- Add Key

Add a new key into the Configuration or Environment trees.

Click on a node in the tree (which may also be a key), then click on **Add Key**. The Add Key window is displayed - enter a name for the new key and click **OK** to finish.

- Add Value

Add a new parameter and its value

Click on a key, then click on **Add Value** from the pop-up menu. The NewParameterValueDlg window is displayed (Figure 111).

Enter a name for the new parameter, then click on a parameter type and add the required value. Click **OK** to V.

- Delete Item

Delete a key or a parameter.

Click on a key or a parameter, then click on **Delete Item** - a confirmation window is displayed.

- Rename Item

Rename a key or a parameter.

Click on a key or a parameter, then click on **Rename Item** - the Rename window is displayed. Enter a new name and click on **OK** to finish.

- New MIP / New Serial MIP

Create a configuration for a new hardware Manual Intervention Panel (MIP), using standard illuminated buttons, or add a configuration for a serial MIP using a 6711 button panel with soft legending and a RS422 connection.

Click on a branch in either the Configuration or Environment tree, normally DEVICES, then click on **New MIP** - the New Mip Form is displayed ().

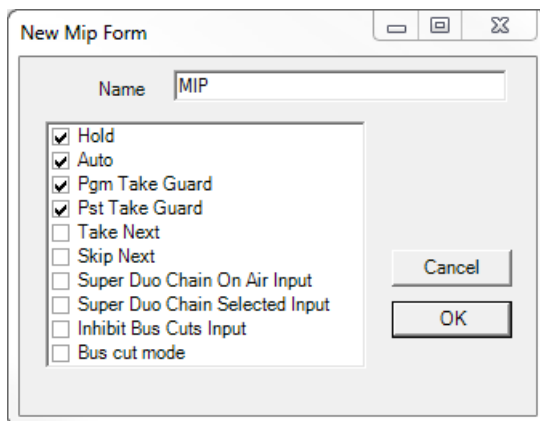


Figure 114 Pbak Test Utility - Edit Value

Note: Unless the branch selected is DEVICES, a message is displayed warning the the chosen location for the MIP is unusual, prompting whether to continue or abandon the action.

Allocate the required functions to the MIP by ticking the appropriate text boxes, and click **OK** to finish.

The new MIP is added to the tree as a Key, fully populated with the selected parameters.

- Changeover

If the selected card has a failover partner, this action creates a registry file for the partner card.

1. Click on Changeover in order to display the Create Registry for Changeover Partner window (Figure 115).

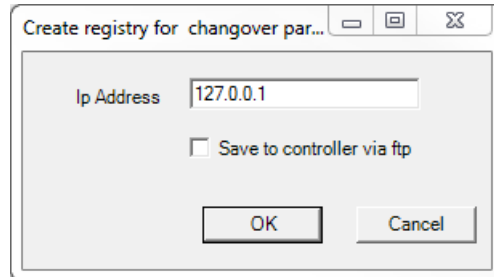


Figure 115 Pbak Test Utility - Create Registry for Changeover Partner

2. **IP address**: enter the IP address of the card
3. Click in **OK**. Windows Explorer is opened - select a location for the registry file and click on **Save**.

- New

Create a new registry file.

- Config

Load the configuration of the chosen card.

Load the Configuration tree into the pane.

- Environment

Load the variables found in the system.

Load the Environment tree into the pane.

- Open File

Click on Open File to open Windows Explorer...

Load any available PBAK registry file for editing.

- Save

Save as a .dat file to the default location in the MorpheusSchedules folder.

- Save As

Opens Windows Explorer in order to save as a particular file type in a non-default location.

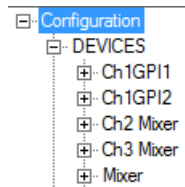
- Controller Files

Opens an authentication window - enter a valid username and password and click on **Connect**.

10.6.5.4 Configuring Drivers

The Drivers pane, to the left, provides the means of adding device drivers to the registry.

1. Click on the text 'Drivers' in the left margin of the window in order to view the library of driver configurations (the configurations are read from the **MorpheusConfiguration.xml** file in C:\Morpheus).
2. Expand the **DEVICES** item on the **Configuration** tree.



3. Drag & drop the required driver from the **Drivers** pane into the main registry pane.

The ConfigureDriverForm window is displayed, displaying the parameters (refer to page 201) and keys (refer to page 202) required for the configuration of the driver.

Note: Mandatory parameters are selected automatically and are read-only. Grey cells are read-only.

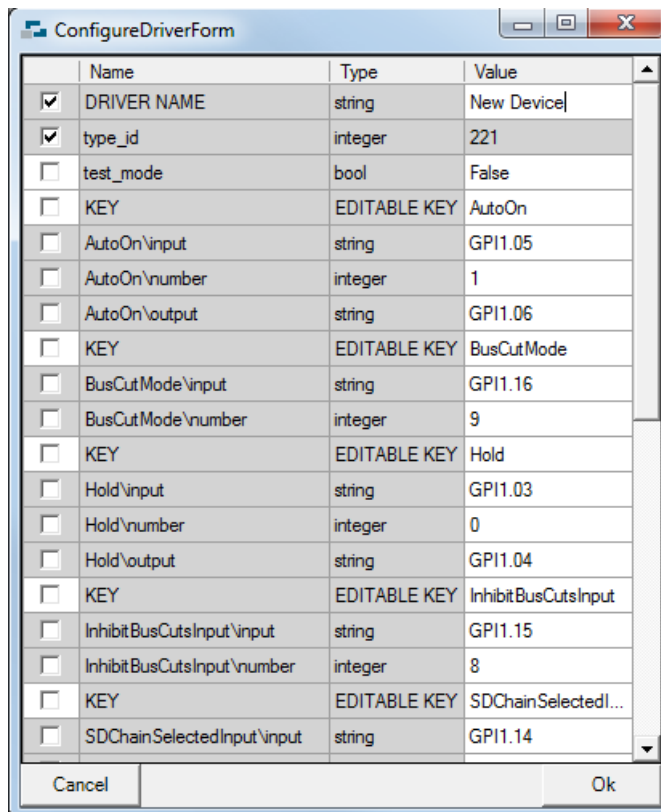


Figure 116 Pbak Test Utility - Configure Driver Form

4. Select the check boxes for the parameters that are to be added to the registry.
5. Complete the window as required and click on **OK**.

The device driver is added to the bottom of the **DEVICES** pane

10.6.5.5 Parameters

Some parameters are specific to a particular transport type, e.g. serial or TCP, and are mutually exclusive

In Figure 117, the *serial_device* parameter check box is ticked indicating that serial comms related parameters (*rs232* and *connect_as_controller*) are configurable - the TCP related parameters (*ip_port*) are not configurable as they are greyed out.

	Name	Type	Value
<input checked="" type="checkbox"/>	DRIVER NAME	string	Imagestore
<input checked="" type="checkbox"/>	type_id	integer	703
<input type="checkbox"/>	prepare_time	timecode	00:00:04:00
<input type="checkbox"/>	preroll	timecode	00:00:00:00
<input type="checkbox"/>	margin	timecode	00:00:01:00
<input checked="" type="checkbox"/>	serial_device	string	?
<input type="checkbox"/>	true_preview	bool	True
<input type="checkbox"/>	baud_rate	integer	57600
<input type="checkbox"/>	num_aovs	integer	0
<input type="checkbox"/>	easykey	bool	False
<input type="checkbox"/>	default_channel	integer	1
<input type="checkbox"/>	ip_address	string	?
<input type="checkbox"/>	ip_port	integer	5006
<input type="checkbox"/>	rs232	bool	False
<input type="checkbox"/>	connect_as_controller	bool	True
<input type="checkbox"/>	KEY	UNEDITABLE KEY	Functions
<input type="checkbox"/>	Functions\num_layers	integer	0
<input type="checkbox"/>	Functions\postroll	timecode	00:00:00:00
<input type="checkbox"/>	KEY	UNEDITABLE KEY	Dve

Cancel Ok

Figure 117 Pbak Test Utility - Configure Driver Form

To allow TCP parameters to be configured, the *ip_address* check box would have to be ticked - the serial comms related parameters would then not be editable.

10.6.5.6 Keys

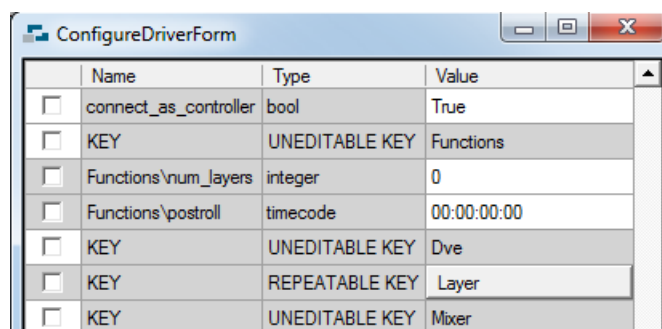
There are two types of key:

- Uneditable
- Repeatable

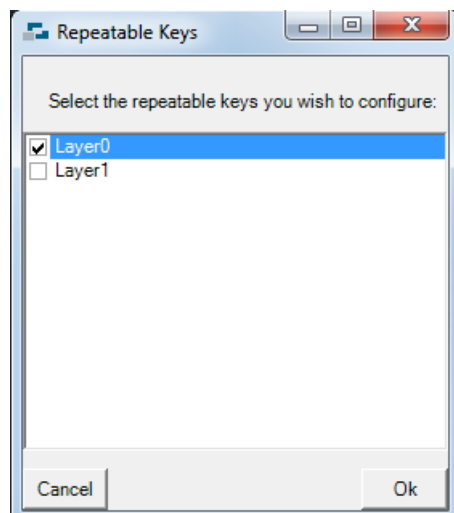
Repeatable keys can be entered into the registry more than once. The name of each key ends with a number that must be within a specified range.

To configure a repeatable key:

1. Click the **Layer** button in the **Value** column.



The Repeatable Keys window is displayed:



2. Select the repeatable keys to be configured and then click on **OK**.

10.6.6 As Run Tab

Display raw data from the kernel as run log (refer to page 174).

- To display the data, click on **Get**.
- To save the data to a text file, click on **Save**.
- To clear the data from the tab, click on **Clear**.

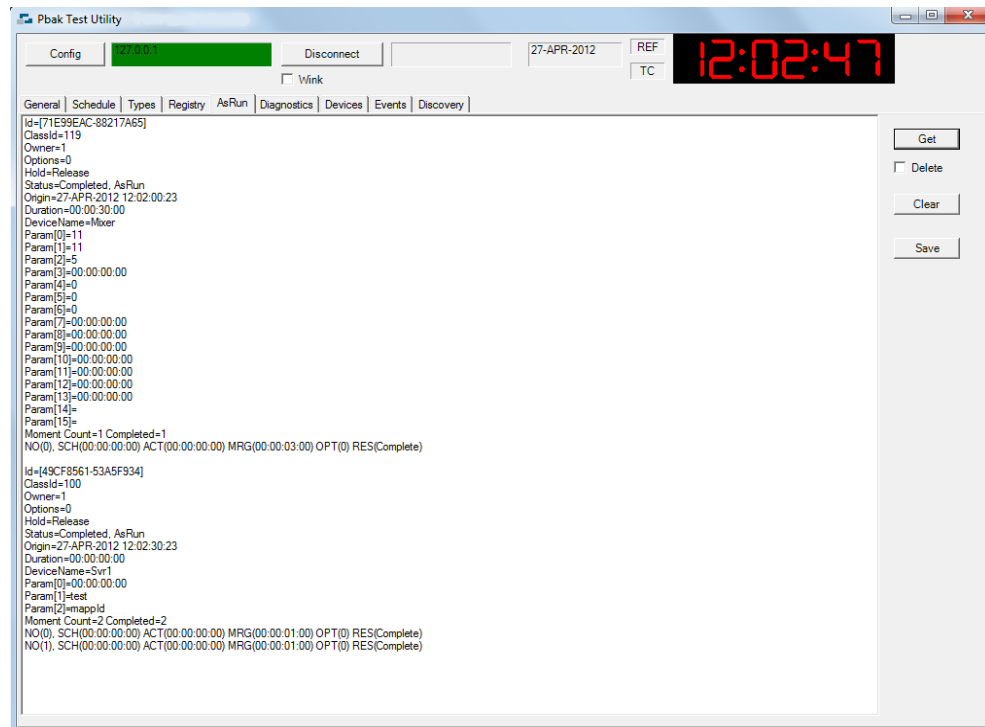


Figure 118 Pbak Test Utility - AsRun Tab

10.6.7 Diagnostics Tab

Display data from the kernel diagnostics log (refer to page 174).

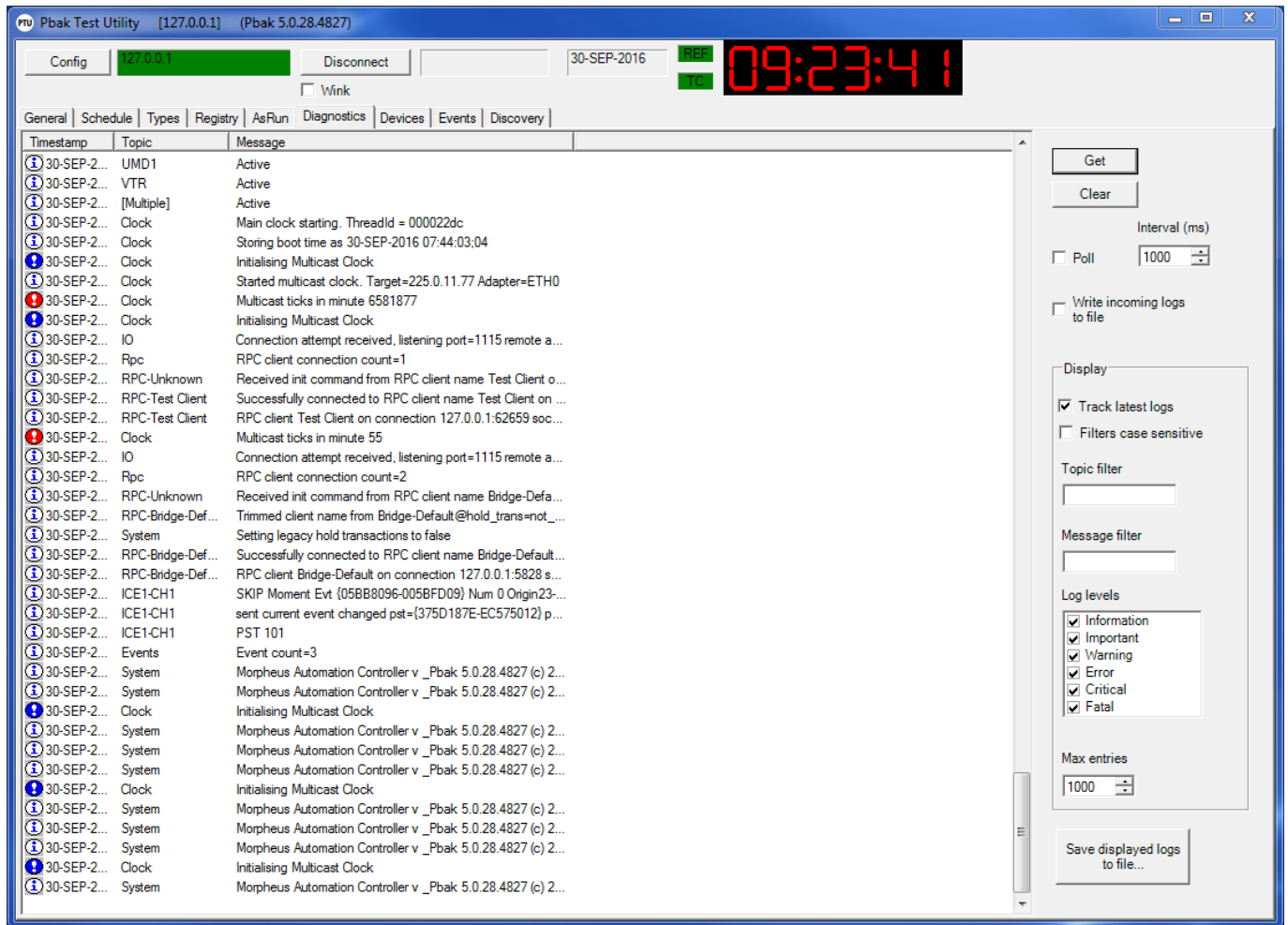


Figure 119 Pbak Utility - Diagnostics Tab

- Get

Load the Kernel diagnostic log into the main pane.

- Clear

Clear the log.

- Poll / Interval

Periodically update the display according to the configured interval (ms).

- Save Displayed Logs to File

Save the displayed logs to a text (.txt) file - opens Windows Explorer in order to select a location for the saved file.

Display Section**- Track Latest Logs**

Holds the vertical scroll bar at the bottom of the window so that the latest logs are always in view.

- Filters Case Sensitive

Set the entries for Topic Filter and Message Filter as case sensitive.

- Topic Filter

There are three columns on the Diagnostics window: Timestamp, Topic, and Message.

When applied, only the topic that matches the entry for this filter will be displayed.

- Message Filter

When applied, only the message that matches the entry for this filter will be displayed.

- Log Levels

Tick the checkboxes in order to select the messages to be displayed, according to their severity level.

- Max Entries

Set the maximum number of logs that should be displayed.

Note:

The Topic, Message, and Log Level filters only operate on new logs, not on those that were generated before the filters were applied.

10.6.8 Devices Tab

The left hand pane shows all configured devices and their connection status. A green tick means that a response has been received from the device. A red exclamation mark means that no response has been received.

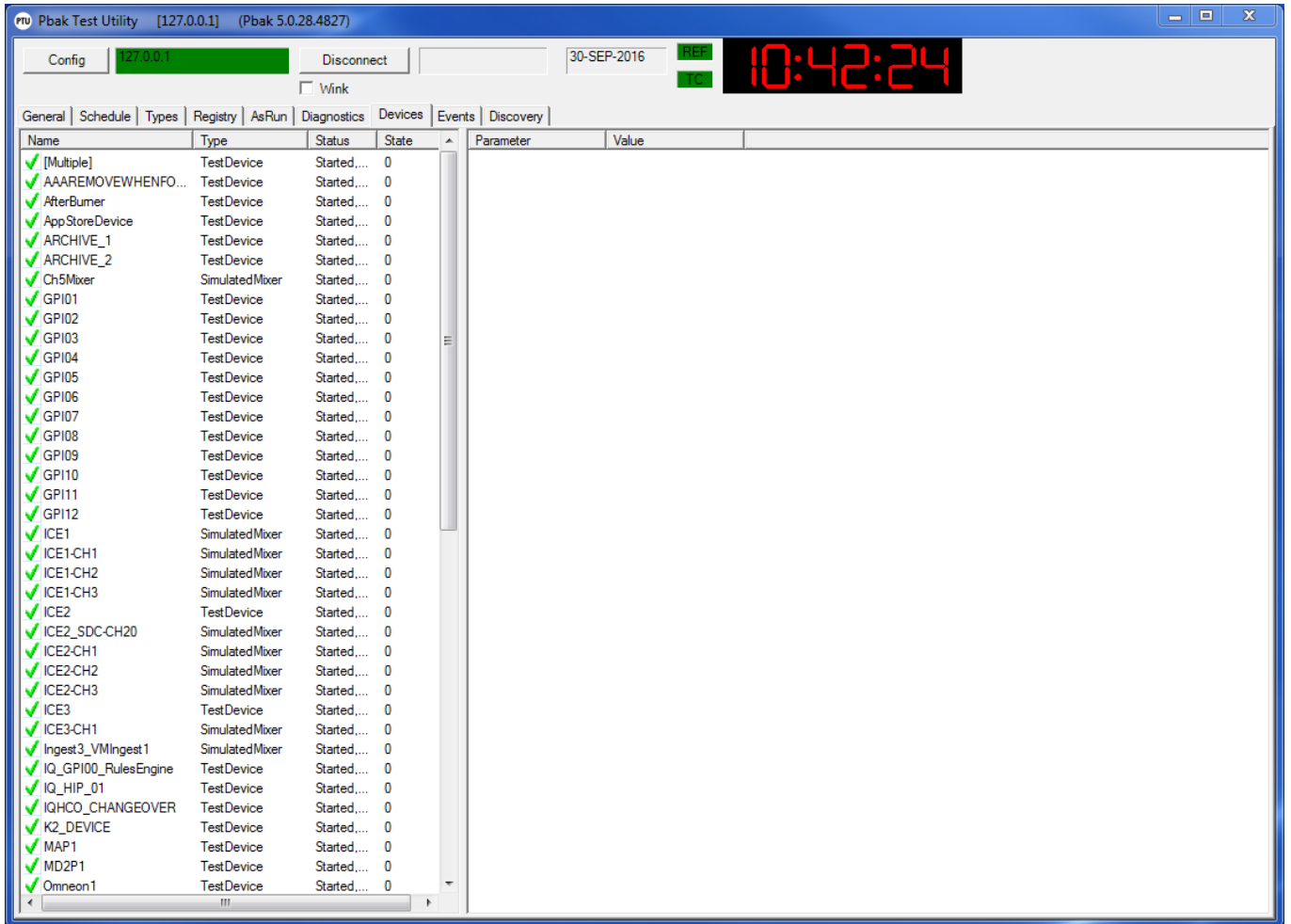


Figure 120 Pbak Utility - Device Tab

Click on a device in order to display its configured parameters and values.

10.6.9 Events Tab

Displays information relating to kernel events.

In the Origin column, click on an event in order for its configuration details to be displayed in the lower pane.

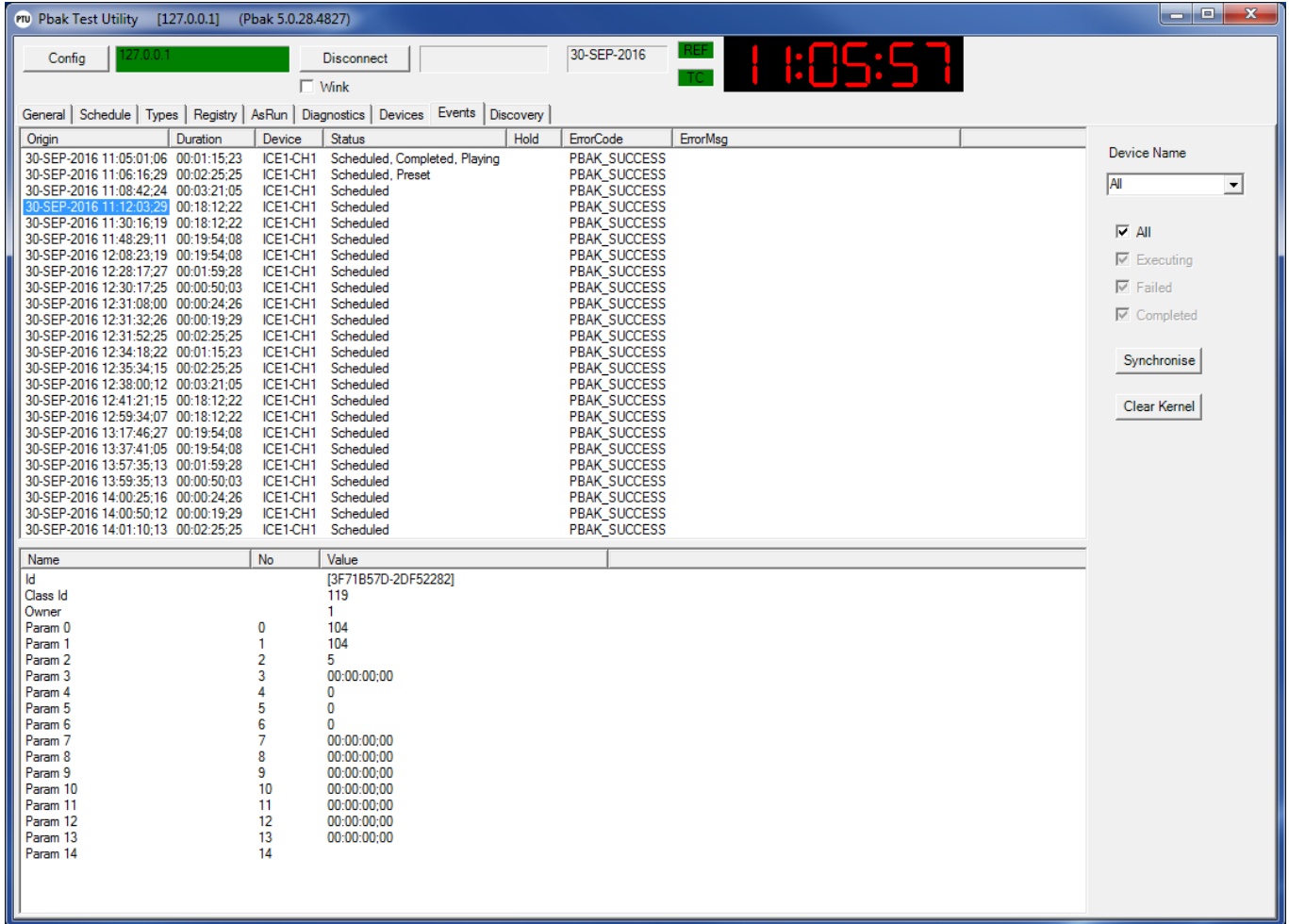


Figure 121 Pbak Utility - Events Tab

- All

Display all events.

Tick the check box in order for all event types to be displayed - click on Synchronise to refresh the display.

- Executing

Display executing events.

Tick the check box in order to display executing events (un-tick 'All' first), and then click on Synchronise to refresh the display - can be used with either the Failed or Completed filters.

- Failed

Display failed events.

Tick the check box in order to display failed events (un-tick 'All' first), and then click on Synchronise to refresh the display - can be used with either the executing or Completed filters below.

- Completed

Display completed events.

Tick the check box in order to display completed events (un-tick 'All' first), and then click on Synchronise to refresh the display - can be used with either the executing or Failed filters below.

- Synchronise

Refresh the display.

- Clear Kernel

Clear all events from the Kernel - a confirmation window is displayed.

10.7 Pbak Manager Utility (Controller Management Utility)

Pbak Manager Utility displays all of the configured device controller cards (refer to page 12) in the system. Whereas Pbak Utility only operates on one card at a time, Pbak Manager operates on multiple cards simultaneously.

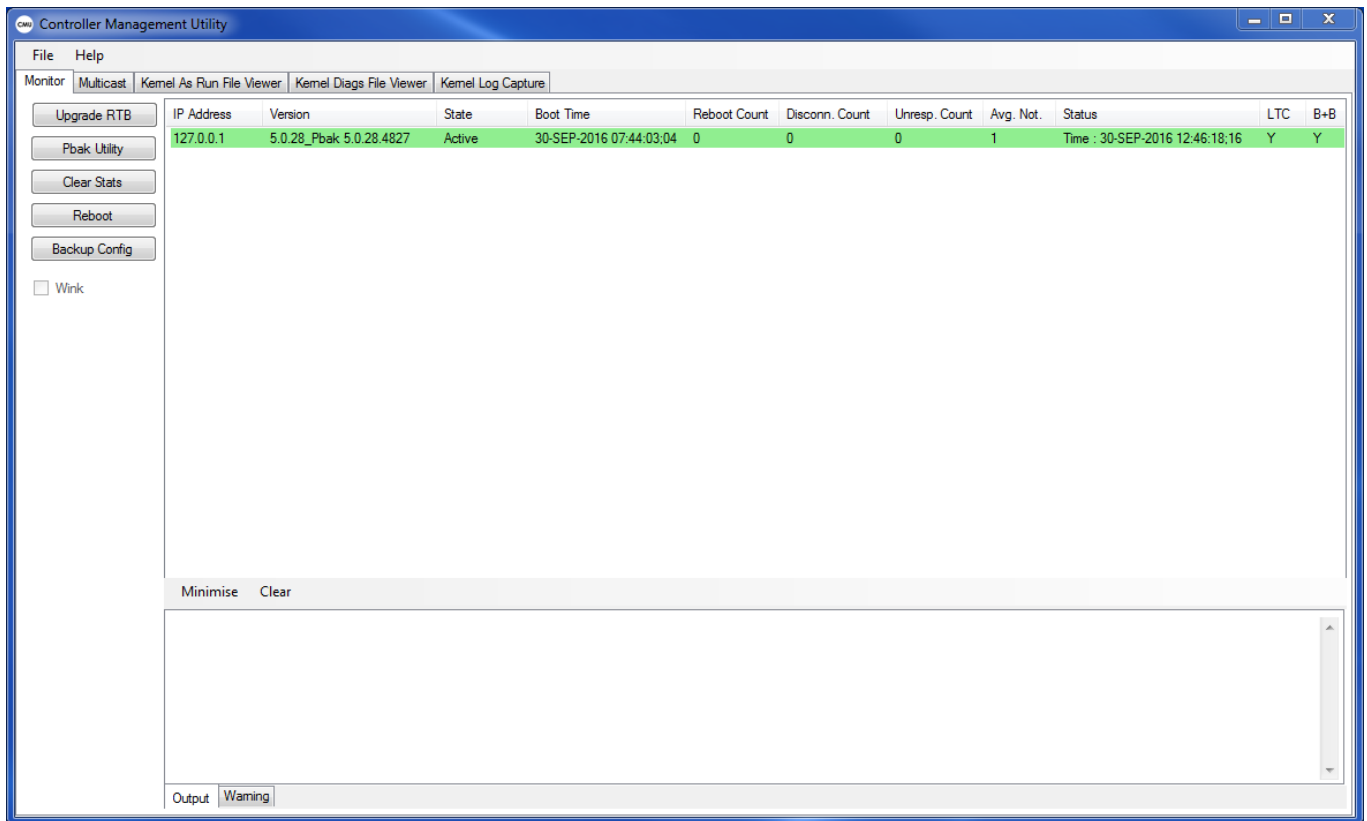


Figure 122 Pbak Manager Utility

Connected cards are highlighted in green, and disconnected cards are highlighted in red; unresponsive cards are highlighted pink.

10.7.1 Configure the Pbak Manager Utility

On the menu bar, click on **File>Configuration** - the Configuration window opens.

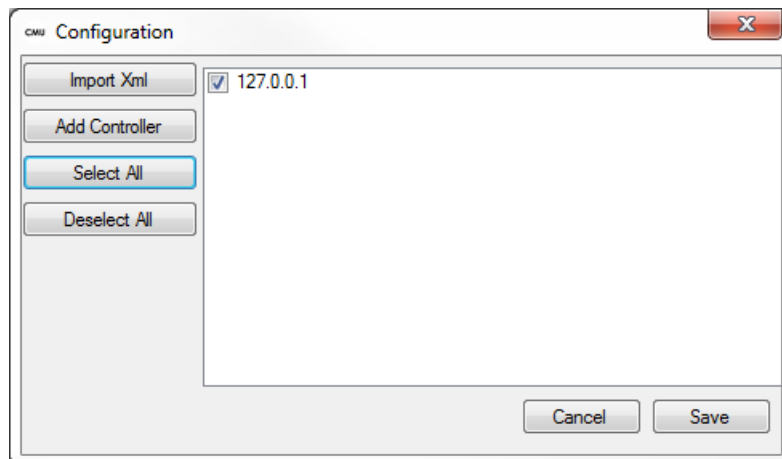


Figure 123 Controller Management Utility - Configuration Window

- Import Xml

Import a saved system configuration file into the Pbak Manager Utility - the default file imported is `current_system.xml`

Windows Explorer is opened to allow browsing to the required file.

- Add Controller

Manually add an additional controller - the Add Controller window is displayed. Enter the IP address of the controller click **Accept** - the controller appears in the Configuration window.

- Select All / Deselect All

Select or deselect all controller IP addresses in the window.

10.7.2 Monitor Tab

- Upgrade RTB

Upload a new version of **pbak.rtb**, the real-time operating system residing on the device controller card.



This function will disable the controller card - it is therefore important to ensure that there are no device control commands that are imminent.

Click on **Update RTB** - Windows Explorer is opened in order to select the RTB file.

After the new file has been uploaded, the device controller should reset - if not, use the red reset button.

- Pbak Utility

Opens the Pbak Test Utility for the selected card - refer to Section 10.6 Pbak Utility (Pbak Test Utility).

Click on the card in order to select it, then click on **Pbak Utility**.

- Clear Stats

Clear the stats for the Disconn. Count and Unresp. Count fields.

The Disconn. Count and Unresp. Count fields display the number of times the card has disconnected or become unresponsive due to reboots, typically when the card has been upgraded.

- Reboot

Reboot the selected card.

- Backup Config

Copies the .dat files (refer to page 169) from the cards onto a local drive.

1. Click on the required card, then click on **Backup Config**.

The following warning message is displayed:

*.dat backup will cause the system's performance to be momentarily degraded.
Would you like to proceed?*

2. A browser window is opened - select the location for the copied file and click on **OK**.

The following naming format is used for the file:

<card IP address>.dat

10.7.3 Multicast Tab

Displays all of the cards in the system that are generating clock signals, providing visibility of the clock status, and making it possible to establish whether any of the cards are out of sequence.

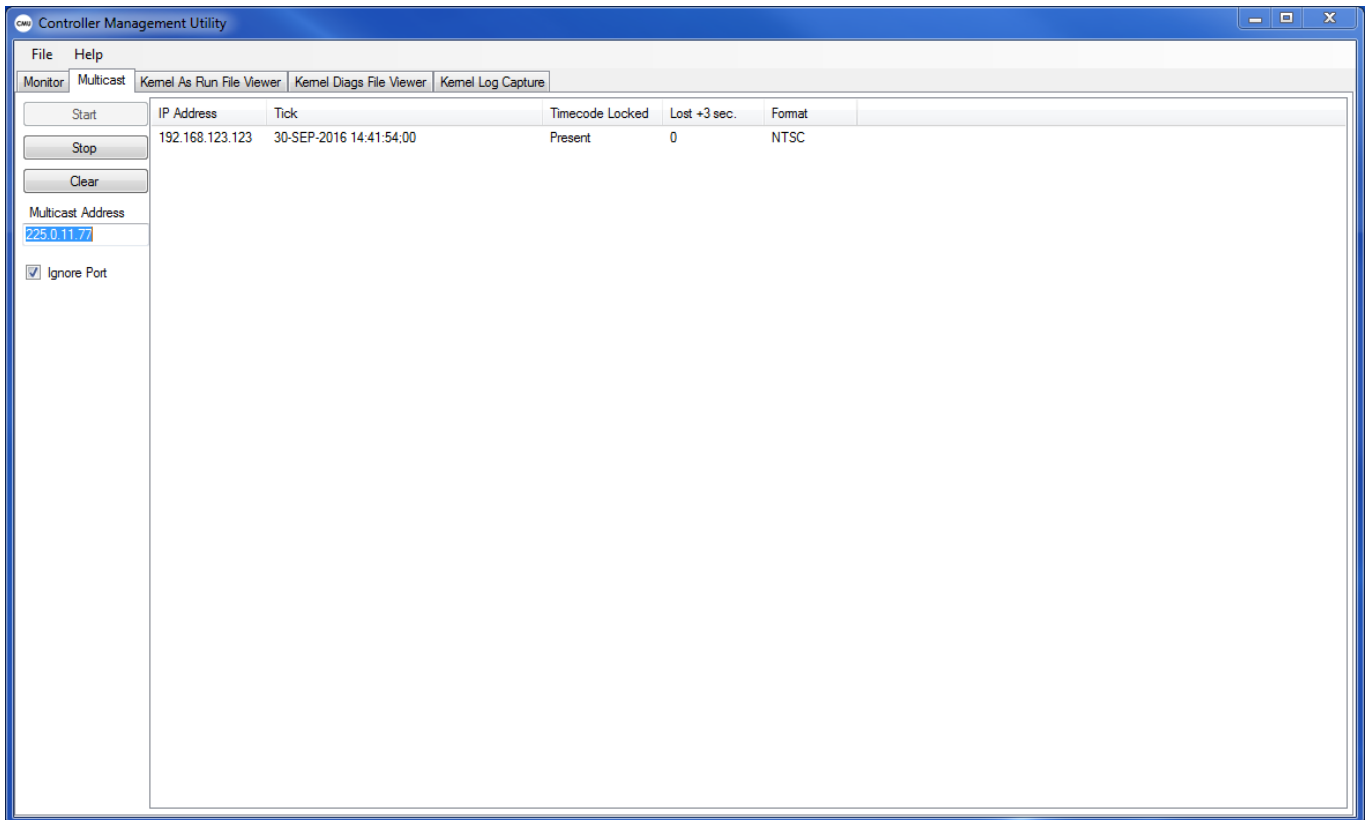


Figure 124 Controller Management Utility - Multicast Tab

- Multicast Address

The multicast address on which to listen for clock signals.

- Start

Listen for clock signals on the defined multicast address

- Stop

Stop listening for clock signals.

- Clear

Clear the discovered clock signal generators from the window.

10.7.4 Kernel As Run File Viewer Tab

View information from a kernel AsRun log (refer to page 174).

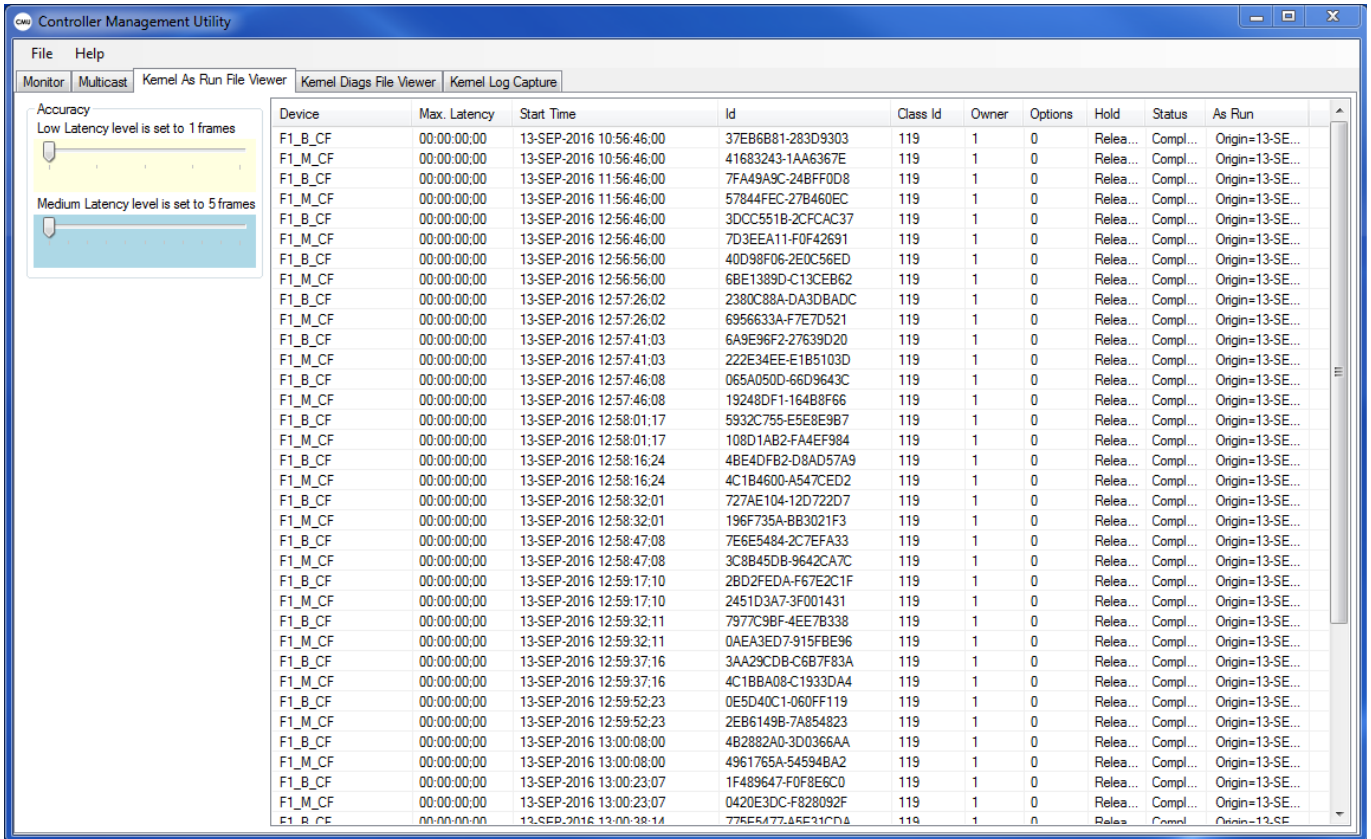


Figure 125 Pbak Manager Utility - Kernel As Run Tab

1. Open the folder that contains the kernel as run logs.

The default location is C:\Morpheus\Log

Kernel as run log files are named according to the following format:

KernelAsRun.log.yyy-mm-dd

2. Click, hold and drag an as run log file onto the central pane of the Kernel As Run File Viewer tab. The file will load - a progress bar is displayed.

Accuracy Sliders

The **Accuracy** sliders allow the selection of events with an error margin, for example, events that were late.

10.7.5 Kernel Diags File Viewer Tab

The Diags Viewer tab allows the viewing of information from a selected kernel diagnostics log (refer to page 174).

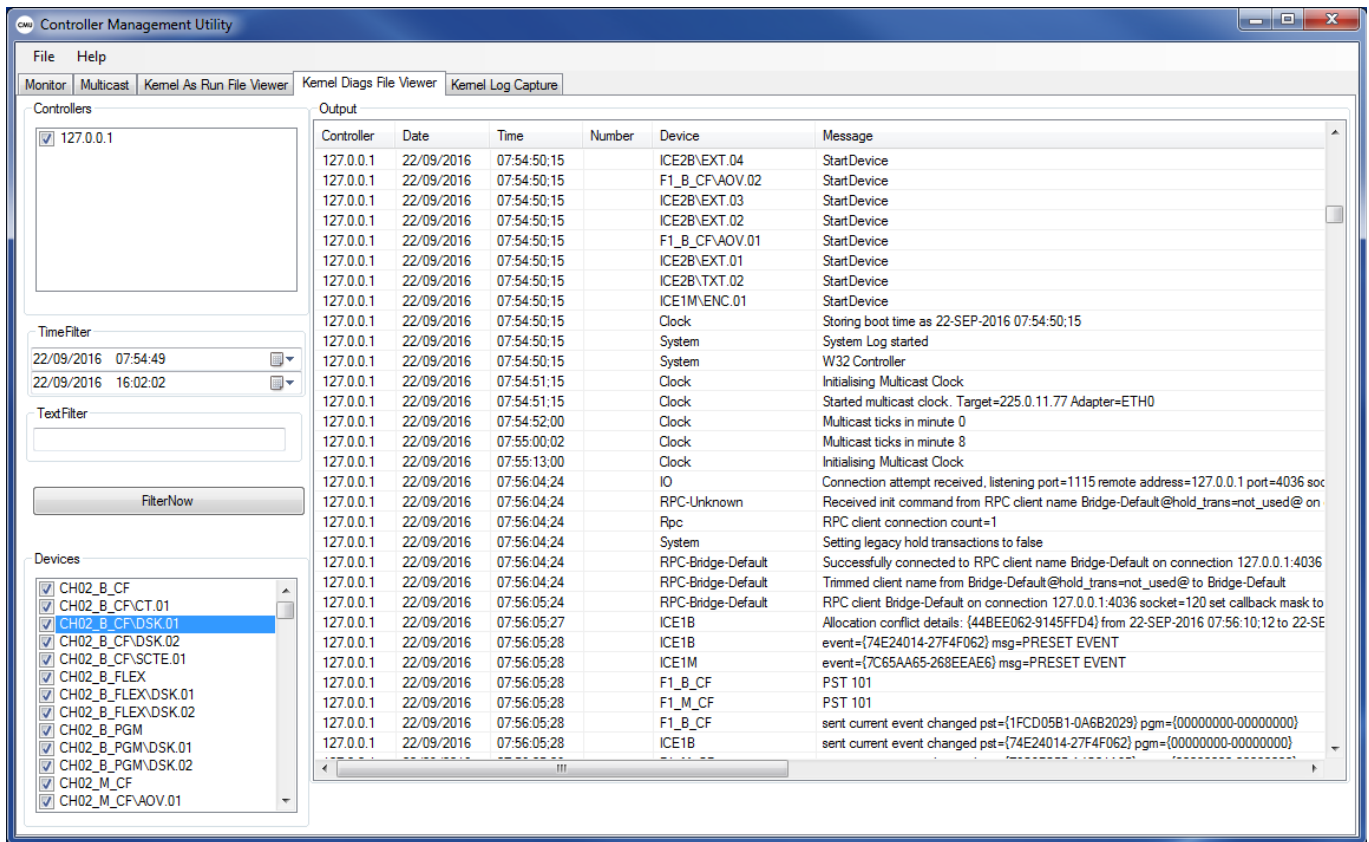


Figure 126 Pbak Manager Utility - Diags Viewer Tab

1. Open the folder containing the kernel diagnostics log.
 The default location is C:\Morpheus\Logs
 Kernel diagnostic log files are named according to the following format:
 KernelDiags.log.yyy-mm-dd
2. Click, hold and drag a kernel diagnostics log file onto the central pane of the Kernel Diags File Viewer tab.
3. By default, all events are displayed. Use the filters to personalise the view. Refer to 'Filters' below. To update the display, click on **Filter Now**.

10.7.5.1 Filters

- Controllers

Select the controllers for which log entries are to be displayed.

All controllers are selected by default - un-tick the check boxes against controllers for which the logs entries are not to be displayed, then click on **FilterNow**.

- TimeFilter

Select a period of time within which to display log entries - only those log entries that have a timestamp that falls within the selected period are displayed. The dates and times selected must match those between the first and last log entries, if not a message is displayed that indicates the current valid time-span.

By default, the system sets the start and end dates / times in order that the first and last log entries that exist are displayed.

Use one of the following methods of setting the start and end dates / times, then click on **FilterNow**:

- Over-type the existing dates and times directly
- Click on the planner icon against the start and end dates / times and select a date, or click on the **Today** link at the bottom of the calendar in order to to select the current day. Only the date is set, the time must be overwritten manually.

- TextFilter

Match text against the *Message* field of the log entries. Not case sensitive.

Click on **FilterNow** in order to activate the filter.

- Devices

Select the devices for which log entries are to be displayed.

All devices are selected by default - un-tick the check boxes against devices for which the logs entries are not to be displayed, then click on **FilterNow**.

10.7.6 Kernel Log Capture Tab

Capture Kernel Diagnostics and As Run logs from controllers in order to retain a record of the system in the event of a playout failure.

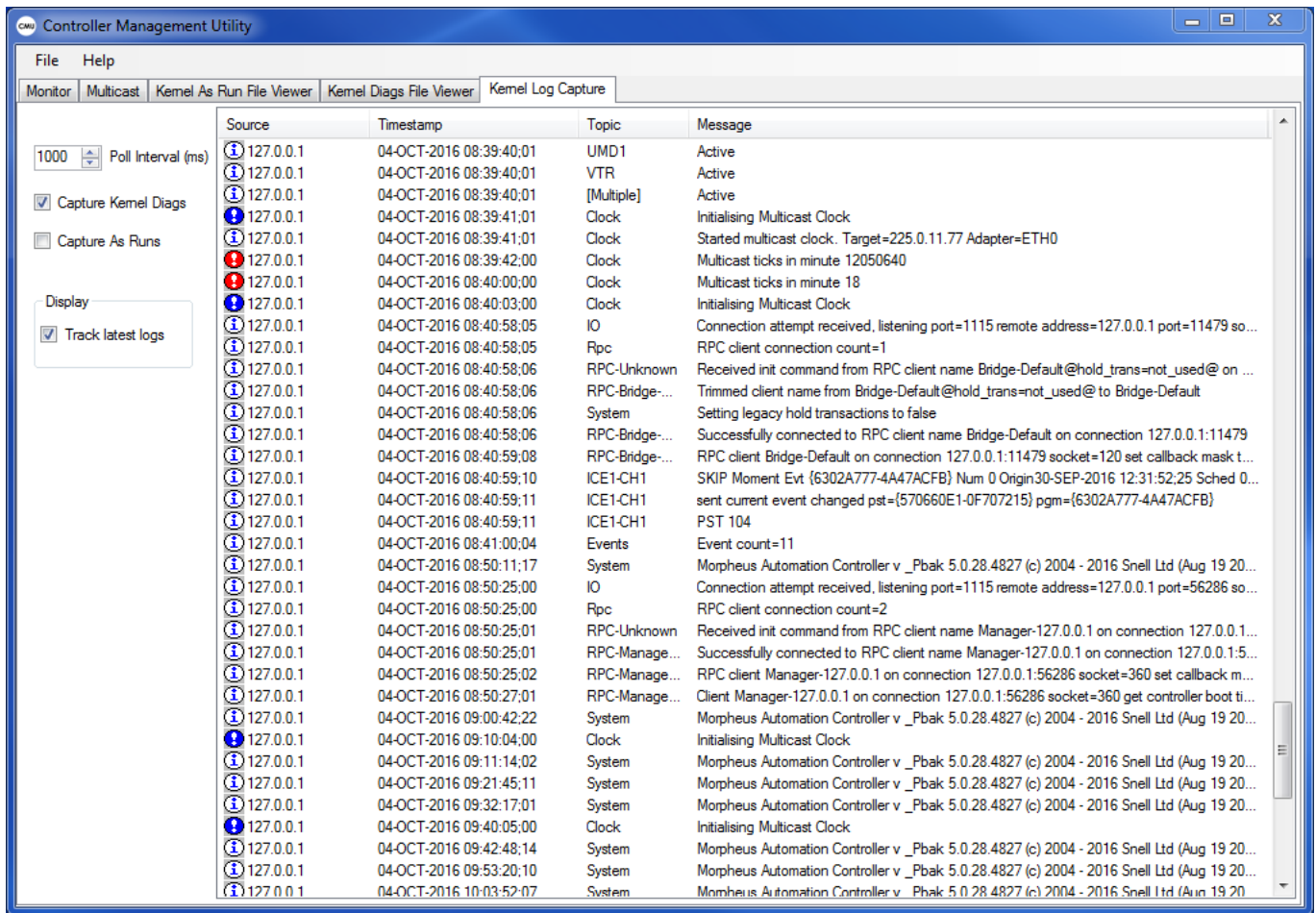


Figure 127 Pbak Manager Utility -Kernel Log Capture Tab

The Poll interval determines the frequency at which the utility checks the controllers.

- Capture Kernel Diags

Tick the check box in order to display the kernel diagnostic information

- Capture As Runs

Tick the check box in order to display the As Run information.

11. The Equalizer

The Equalizer application communicates with both the Morpheus EventStore and any configured Pbak controllers or ICE devices and establishes that they are compatible. It also provides notification of any inconsistencies and contains tools to rectify those inconsistencies.

The Equalizer creates devices in the EventStore that match the names of the corresponding drivers on the Pbak cards - it also verifies the following:

- Kernel Class IDs are compatible
- Pbak driver names do not exist on more than one card
- Both cards of a dual controller have the same drivers and configuration

On startup, the application performs the following actions:

- Connects to Rescale using the specified multicast address in order to access the EventStore. The Equalizer only supports connection to a single EventStore.
- Reads the Bridge controller configuration to identify the cards that it needs to connect to, including those that are single controllers, dual controllers, and ICE units. The Bridge application does not have to be running in order to use The Equalizer.
- Reads the MorpheusConfiguration.xml file and uses the Pbak parameter information from it in order to create Event Types. It also produces the list of devices on the left hand side of the Card configuration form (refer to Sectionr 11.5.3 Configure Cards).

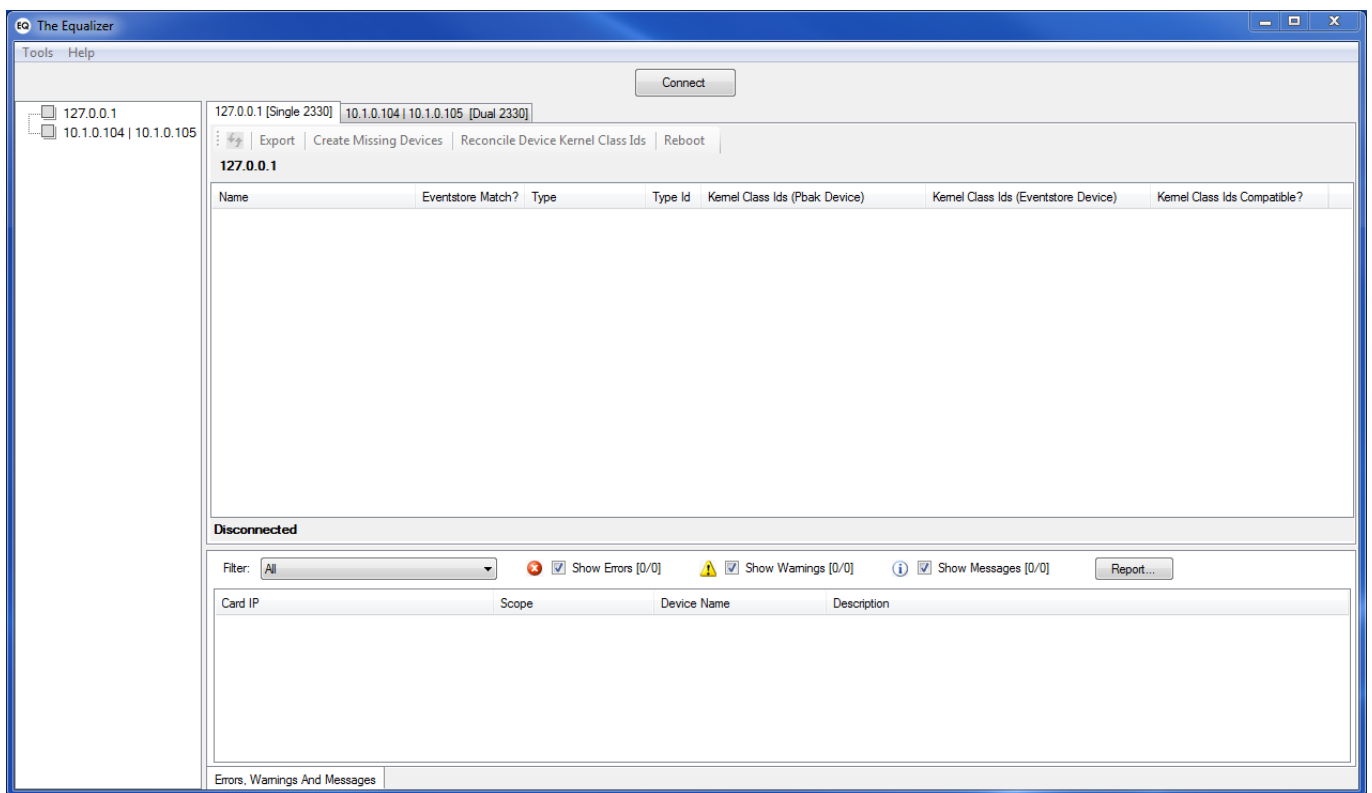


Figure 128 The Equalizer

11.1 Connecting to the Pbak Controllers

Upon starting, the application reads the Bridge configuration in order to obtain the list of Device Controller cards, and creates a tab for each card as shown in Figure 128. To connect the application to the Device Controller cards, click on the **Connect** button.

The following information is displayed at the top of each tab:

- On the left hand side of the application is a tree view of the controllers. Each node indicates the status of the controller. A grey square icon indicates that the controller is not connected. Alternatively, the colour (green, yellow or red) indicates the most serious level of error detected for a device on that controller (refer to Section 11.3 Understanding Errors, Warnings and Messages).
- IP address of the controller card (or pair of IP addresses for a dual card)
- The type of connected device - Single 2330 for a single controller, Dual 2330 for a dual controller, and ICE for an ICE unit
- The controller version number
- The state of the controller card - active or inactive
- Buttons to refresh the Pbak drivers on the controller card display, to export the card's configuration and also to reboot the card - refer to Section 11.2 Working with Pbak Controllers
-

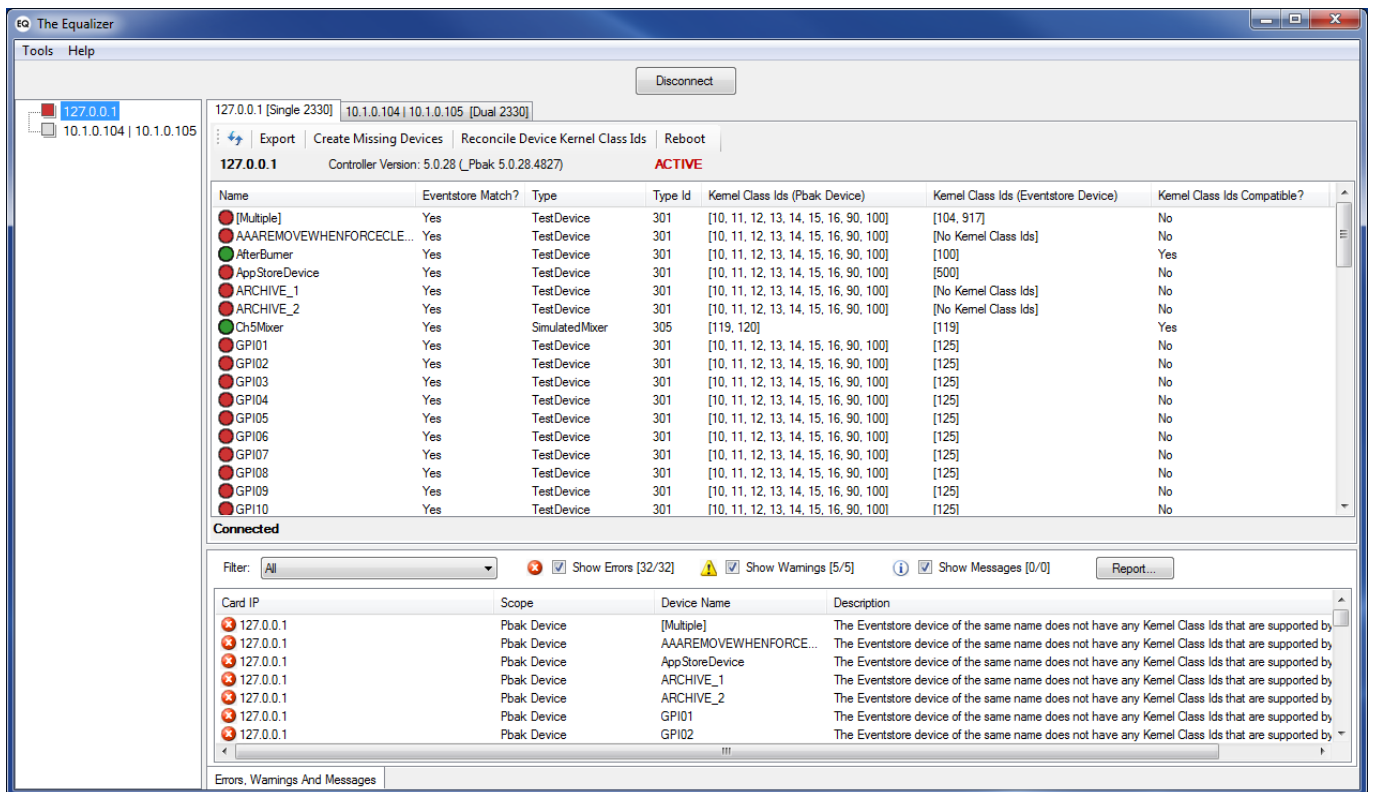


Figure 129 The Equalizer - Connected State

The following information is displayed within the main window, for each controller:

Name: the name of the Pbak device

For each device a 'traffic light' status is assigned to the driver:

Green: Kernel Class Ids are compatible - all of the Eventstore Device Kernel Class Ids match some or all of the Pbak Device Kernel Class Ids (there may be additional Pbak Device Kernel Class Ids assigned to the Pbak Device).

Yellow: Kernel Class Ids are partially compatible - one or more of the Eventstore Device Kernel Class Ids match some of the Pbak Device Kernel Class Ids.

Red: Kernel Class Ids are not compatible - none of the Eventstore Device Kernel Class Ids match the Pbak Device Kernel Class Ids.

Eventstore Match?: the listed Pbak device matches one that is configured in the Eventstore.

Type: the device type, e.g. mixer, video player.

Type Id: a three digit number that identifies the driver that is required by the kernel in order to communicate with this Pbak device - it specifically identifies the type of device, such as a server, VTR, or mixer.

Kernel Class Ids (Pbak Device): a three digit number that identifies a function that is required by the Pbak device from the driver - it associates the Pbak device with parameters that are used by the Eventstore.

Kernel Class Ids (EventStore Device): a three digit number that identifies a function that is configured for the device in the Eventstore - they should match at least one or more of those that are configured for the Pbak device.

Kernel Class Ids Compatible?: as indicated by the traffic light status in the Name column above. Yes = green, Partially = yellow, No = red.

Note: Dual controllers are displayed within a single tab - the two instances are displayed side by side to allow simple comparison.

11.2 Working with Pbak Controllers

The Equalizer provides the following functionality for cards:

- Refreshing the list of Pbak Drivers
- Exporting card configuration
- Creating missing devices in the EventStore
- Reconciling devices with the EventStore
- Rebooting the cards

These options are available on each tab as shown below:

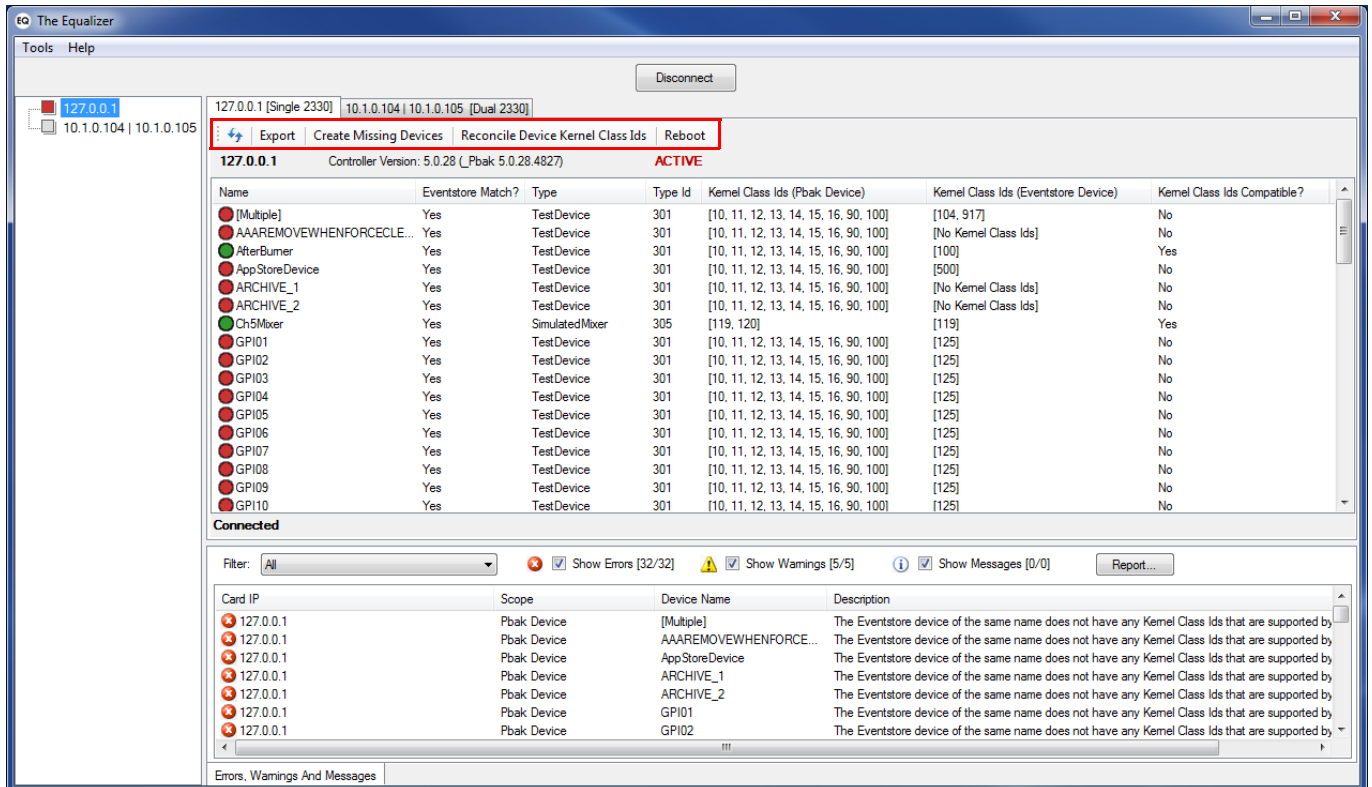


Figure 130 The Equalizer - Card Options

11.2.1 Refreshing the List of Pbak Drivers

Click on the refresh icon in order to refresh the view of Pbak drivers for the card. It is not necessary to click on the icon after The Equalizer performs an operation (such as renaming a Pbak driver or creating an EventStore device).

However, if a device is created or modified in the Configurator application, then The Equalizer is not aware of these changes and, therefore, a refresh of a card's Pbak drivers is necessary.

Note: The Equalizer can also be used to create a new EventStore device for a Pbak driver or edit an existing device so it is not necessary to use the Configurator to perform these functions.

11.2.2 Exporting Card Configuration

Clicking on the **Export** button for a card exports the card's configuration in XML format to the selected location.

11.2.3 Create Missing Devices

Clicking on the **Create Missing Devices** button displays the Create Missing Devices form as shown below:

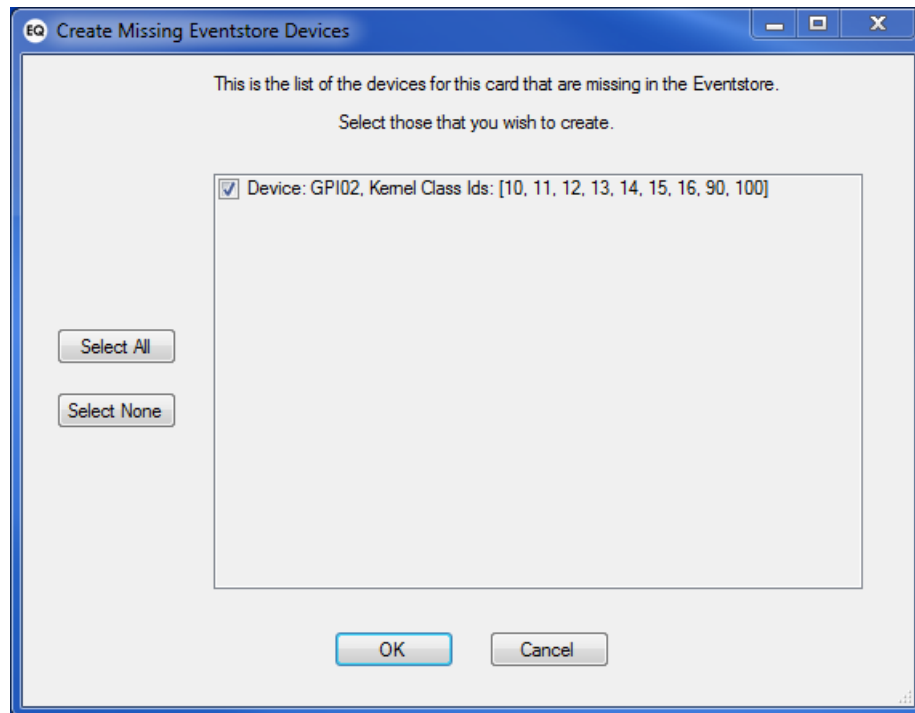


Figure 131 The Equalizer - Create Missing Devices Form

Listed are all of the Pbak drivers on the card that do not have an EventStore device of the same name. The devices are all selected by default but can be deselected / reselected by the user either one at a time or by clicking on the **Select None** or **Select All** buttons.

Clicking **OK** creates EventStore devices of the same names as the selected Pbak drivers. Each created EventStore device is also assigned the same Kernel Class as its Pbak driver therefore making the EventStore device compatible.

Once the devices are created, the Pbak drivers on the card appear in the Equalizer main window with an Eventstore Match status of 'Yes'.

11.2.4 Reconcile Devices

Click on the **Reconcile Devices** button for a card in order to display the Reconcile Devices form, as shown below:

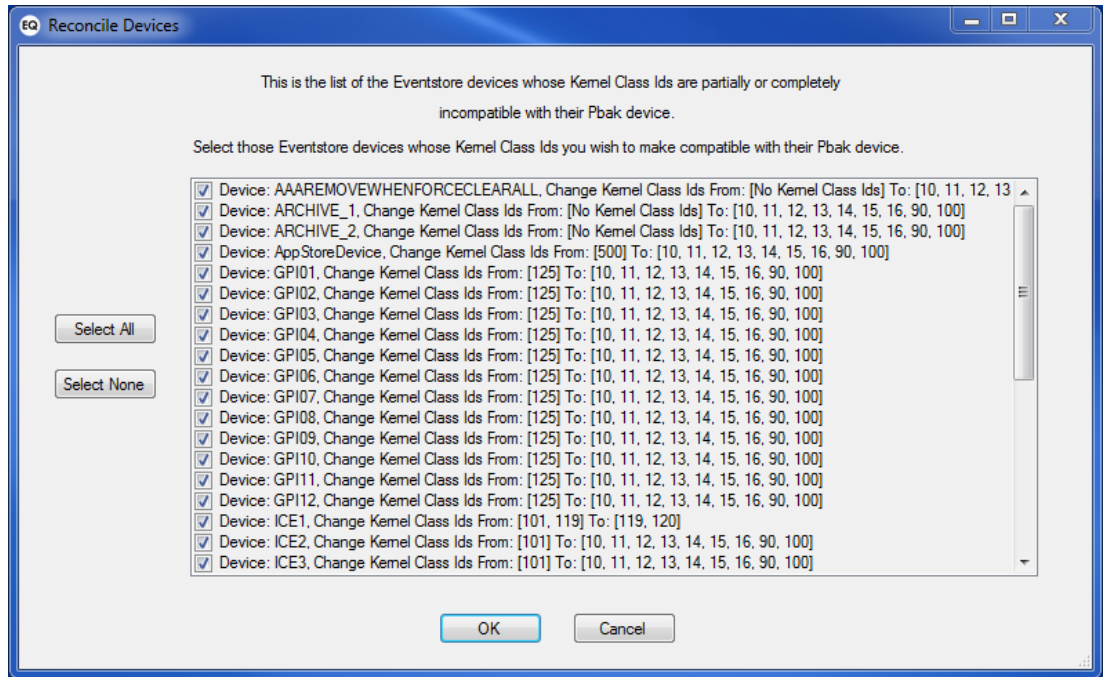


Figure 132 The Equalizer - Reconcile Devices Form

Listed are all of the Eventstore devices that are configured as Pbak devices but whose allocated Kernel Class Ids are either partially or completely incompatible with them. They are all selected by default but can be deselected / reselected either one at a time or by clicking on the **Select None** or **Select All** buttons. Click on **OK** to set the Kernel Class Ids of the selected EventStore devices to those of their corresponding Pbak drivers.

11.2.5 Reboot card

Clicking on the **Reboot** button for a card reboots that card. The user must confirm the action.

11.3 Understanding Errors, Warnings and Messages

The lower half of the application is dedicated to all Errors, Warnings and Messages identified by the application for the controllers.

Above the Errors, Warnings And Messages is a panel containing controls for:

- Filtering messages that are displayed by the application
- For independently showing or hiding Errors, Warnings and Messages
- A summary of the current number of each message type

The Equalizer automatically performs checks on the controllers and reports any errors in the 'Errors, Warnings And Messages' area:

- **Errors** are identified by a red circular icon with a white cross
- **Warnings** are identified by a yellow triangle icon containing an explanation mark
- **Messages** are identified by a grey circle icon containing the letter 'i' as indicated by the checkboxes in the status panel

Errors, Warnings and Messages generated by The Equalizer are listed below:

Error, Warning or Message	Description	Resolution
Error	The Pbak Driver Does Not Have An Eventstore Device With The Same Name	Select 'Create Eventstore Device For This Pbak Driver' or Select 'Rename This Pbak Driver To The Name Of An Eventstore Device' (not possible for an ICE) or Select 'Rename An Eventstore Device To The Name Of This Pbak Driver'
Error	The Eventstore Device Of The Same Name Has One Or More Kernel Class Ids But The Pbak Driver Has None.	Select 'Edit Eventstore Device' and specify one or more Kernel Class Ids for the Device that are supported by the corresponding Pbak driver or Select 'Reconcile Eventstore Kernel Class Ids With Pbak' to set the Kernel Class Ids of the Eventstore device match those of the Pbak device. Select 'Rename This Pbak Driver To The Name Of An Eventstore Device'
Error	The Pbak Driver Exists On More Than One Controller	Use the Controller Config form to remove the device from the appropriate cards.
Warning	The Eventstore Device Of The Same Name Has One Or More Kernel Class Ids That Are Not Supported By The Pbak Driver.	Select 'Edit Eventstore Device' and specify one or more Kernel Class Ids for the Device that are supported by the corresponding Pbak driver or Select 'Reconcile Eventstore Kernel Class Ids With Pbak' to set the Kernel Class Ids of the Eventstore device match those of the Pbak device.
Warning (Dual Controller)	The Pbak Driver Does Not Exist On Card: <Card IP address> [of a dual controller]	Use the Controller Config form to add the driver to the card that is missing the Pbak driver.
Warning (Dual Controller)	<Card1 IP address> is version X but <Card2 IP address> is version Y [of a dual controller]	Install the correct version of the controller software on one or both cards of the dual controller.
Warning (Dual Controller)	Value mismatch: <Key value> = X in <Card1 IP address> and <Key value> = Y in <Card2 IP address> [of a dual controller]	Use the Controller Config form to correct the key value mismatch (unless of course the values are meant to be different!)

Table 6 The Equalizer: Errors, Warnings and Messages

Error, Warning or Message	Description	Resolution
Warning (Dual Controller)	Key X found in <Card IP address> only [of a dual controller]	Use the Controller Config form to ensure that there are no keys present on one card and not the other.
Warning (Dual Controller)	Key SYSTEM\changeover_enabled is FALSE on <Card IP address> [of a dual controller]	Use the Controller Config form to set the value of key SYSTEM\changeover_enabled to TRUE.
Message	The Pbak Driver's TypeId Does Not Exist In MorpheusConfiguration.xml. Hence No Event Types Can Be Created For It.	Ensure that the correct version of MorpheusConfiguration.xml is being used by the application.

Table 6 The Equalizer: Errors, Warnings and Messages

11.4 Resolving issues

The Equalizer provides tools to resolve several of the most common Errors and Warnings using a context menu that is displayed when right-clicking on a device entry in the uppermost pane (Figure 133).

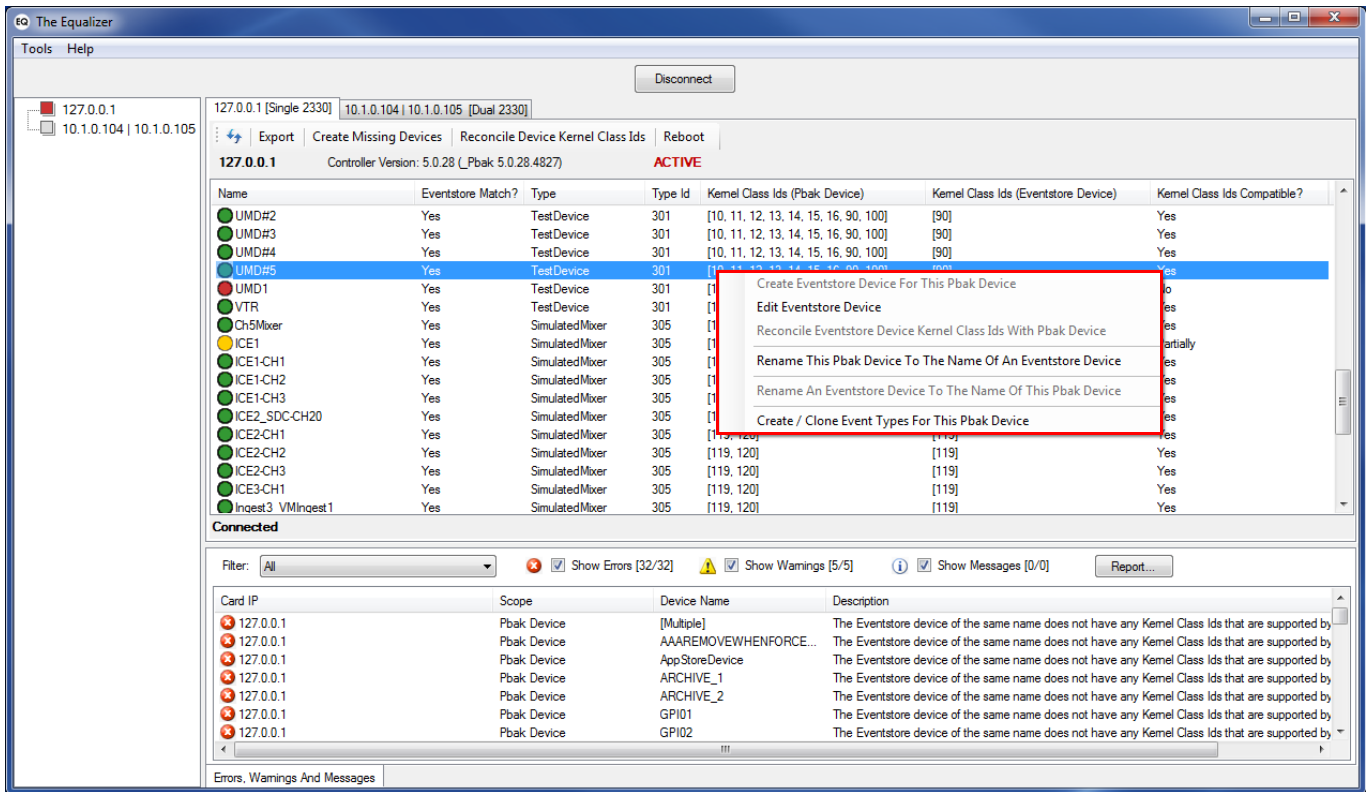


Figure 133 The Equalizer - Problem Resolution Tools

11.4.1 Create Eventstore Device For This Pbak Device

This menu item is enabled when no EventStore device has been configured for an existing Pbak device has the same name as the selected Pbak driver. Selecting this option creates an EventStore device to match the selected Pbak device. In addition, the Kernel Class IDs of the EventStore device are set to be the same as those supported by the Pbak device.

When the EventStore device is created, the Device form from the Configurator application is displayed with the new device already selected to allow further configuration if required.

11.4.2 Edit Eventstore Device

This menu item is enabled when the selected Pbak device has a matching entry in the Eventstore - selecting this option displays the Device form from the Configurator application with the device already selected in order to allow configuration changes.

11.4.3 Reconcile Eventstore Kernel Class Ids With Pbak Device

This menu item is enabled when the selected entry is one where the Eventstore device is configured with at least one Kernel Class ID that is not configured for the Pbak driver.

Click on this menu item to set the Kernel Class Ids of the EventStore device to match those of the Pbak device.

11.4.4 Rename This Pbak Device To The Name Of An Eventstore Device

Rename a Pbak device to that of an existing Eventstore device.

This menu item is only enabled if the following apply:

- The controller is not an ICE
- The selected Pbak device is not a sub device - sub-device portions of names are fixed
- The selected device name is in the card's Registry

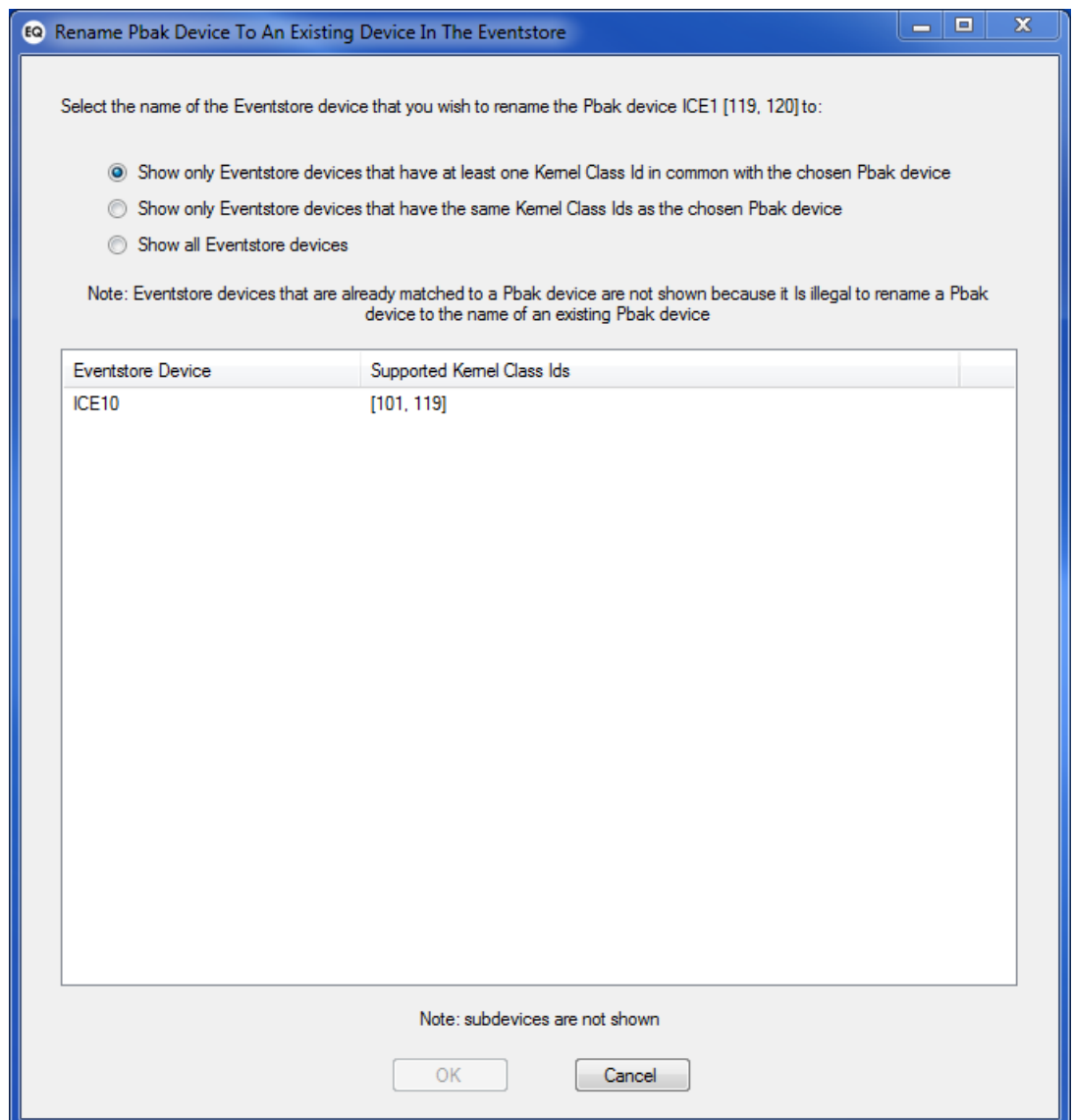


Figure 134 The Equalizer - Rename a Pbak Device

If the selected Pbak device has the same name as an existing EventStore device, then an alert is displayed requesting confirmation of the action. Clicking the menu item displays the 'Rename Pbak Driver To An Existing Device In The Eventstore' form (Figure 134).

The listed EventStore devices will have at least one Kernel Class ID that matches a Kernel Class ID list of the selected Pbak device.

Select an existing EventStore device that is not already matched to a Pbak device. Three options are available to filter the displayed Eventstore devices, as follows:

- Show only EventStore devices that have at least one Kernel Class ID in common with the chosen Pbak driver
- Show only EventStore devices that have the same Kernel Class IDs as the chosen Pbak driver
- Show all EventStore devices

Click on the EventStore device that the selected Pbak Device will be renamed to - a confirmation window is displayed. If the Pbak driver has any sub devices, only the device part of their name is also renamed.

Note:

It is possible that the registry for the card already has an entry corresponding to the new device name. In this case, the renaming of the Pbak driver fails and an error message is displayed. Use the Card configuration form to modify the card's registry by renaming or deleting the relevant key.

11.4.5 Rename An Eventstore Device To The Name Of This Pbak Device

This menu item is enabled only if there is no EventStore device (or sub device) with the same name as the selected Pbak device - click on the menu item to open the Eventstore device renaming window (Figure 135).

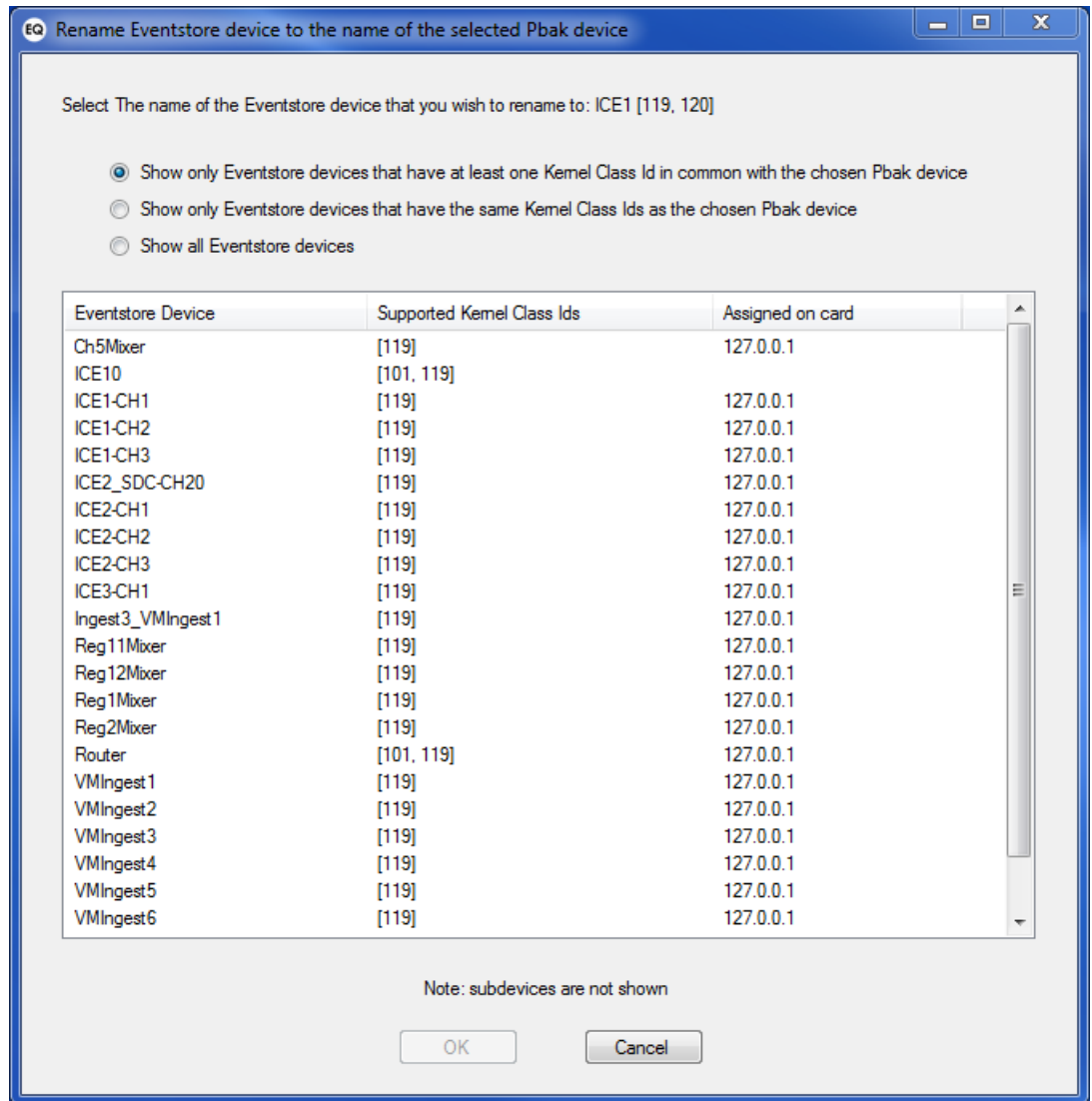


Figure 135 The Equalizer - Rename an EventStore Device

The listed EventStore devices will have at least one Kernel Class ID that matches a Kernel Class ID of the selected Pbak device. The IP address of the controller card is only displayed if an Eventstore device has a matching Pbak device configured.

This form is similar to the 'Rename Pbak Driver To An Existing Device In The Eventstore' form described on page 227, providing the same three options for filtering the displayed Eventstore devices:

- Show Only Eventstore Devices That Have at Least One Kernel Class Id In Common with the Chosen Pbak Driver.
- Show Only Eventstore Devices That Have the Same Kernel Class Ids as the Chosen Pbak Driver
- Show All Eventstore Devices

Click on the EventStore device that will be renamed to that of the selected Pbak device - a confirmation window is displayed.

11.4.6 Create / Clone Event Types

The Equalizer also allows the user to create or clone Event Types for a Pbak device that has a corresponding EventStore device. This menu item is enabled when an EventStore device of the same name as the selected Pbak device exists in the EventStore. Creating an Event Type using The Equalizer allows the user to select the appropriate Pbak kernel parameters.

When selected, the 'Create Or Clone Event Types For Pbak Device' form is displayed (Figure 136):

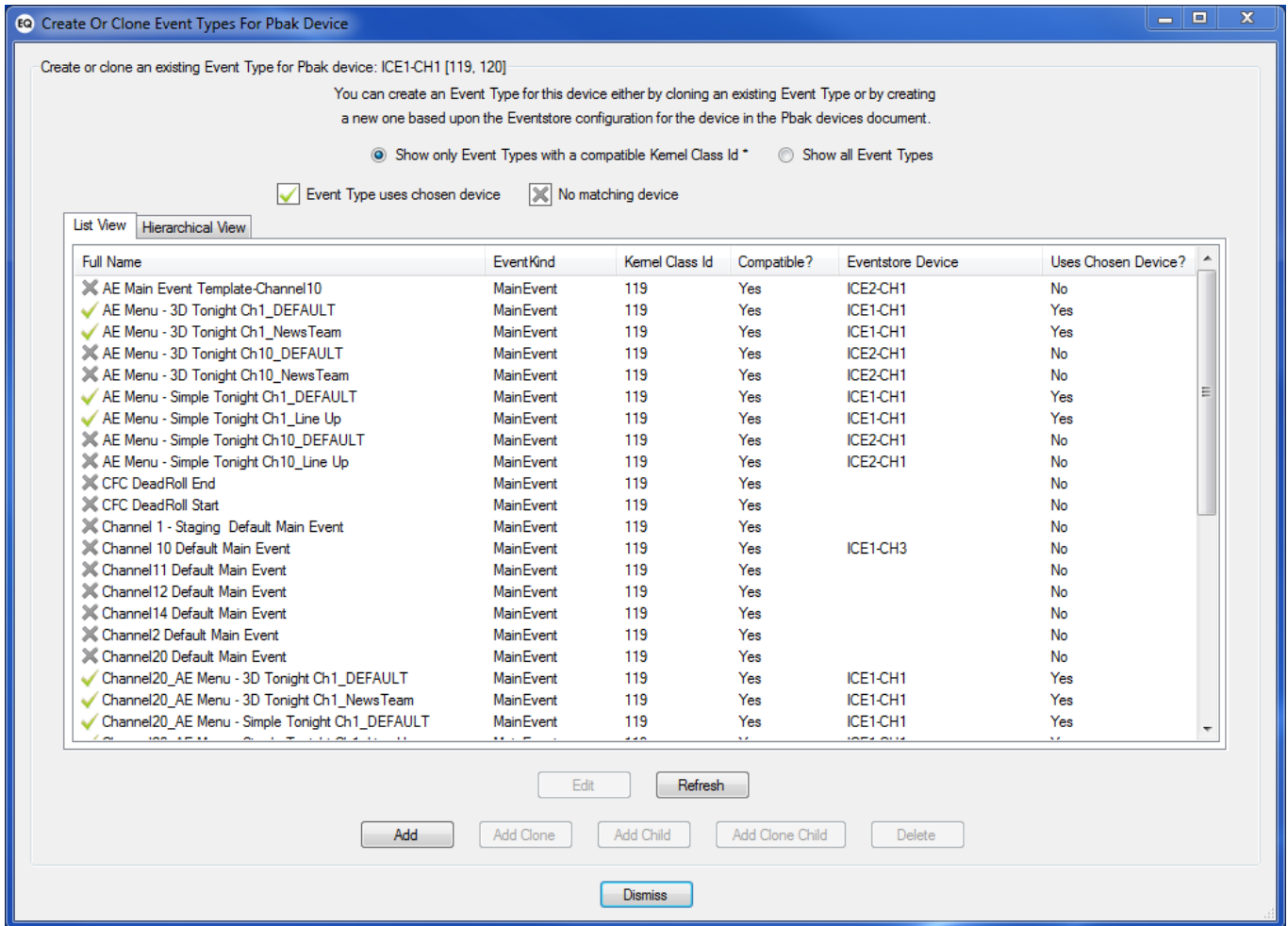


Figure 136 The Equalizer - Create / Clone Event Types Form

There are two tabs:

- List View - a display of event types from the Eventstore in alphabetical order
- Hierarchical View - a display of events and their Subevents in a tree structure in alphabetical order

Above the tabs are two options:

- Show only Event Types with a Compatible Kernel Class Id

Displays only those event types that exist both as Pbak devices and Eventstore devices that also have one or more matching Kernel Class Ids.

- Show all Event Types

Show all event types regardless of any matching Kernel Class Ids.

An icon is displayed alongside each entry in the views to indicate the following:

- This event type currently uses the device selected in the Equalizer.
- This event type does not use the device selected in the Equalizer.
- This event type currently uses a sub-device of the one selected in the Equalizer (applicable to Hierarchical View only).

Function Buttons

- Refresh

Update the window with any entries following relevant system changes.

- Delete

Delete the currently selected event type - a confirmation window is displayed. This function is also available in the menu that is displayed when

- Dismiss

Close the window.

11.4.6.1 Edit (an Event Type)

Click on an Event Type then click on **Edit** to open the Event Types window of the Configurator - refer to Chapter 7.2 Event Type Configuration for further information.

11.4.6.2 Add (an Event Type)

Click on **Add** to Start the 'Add an Event Type' wizard in order to create a new event type for the device selected in the Equalizer. Follow the instructions provided in the wizard (Figure 137).

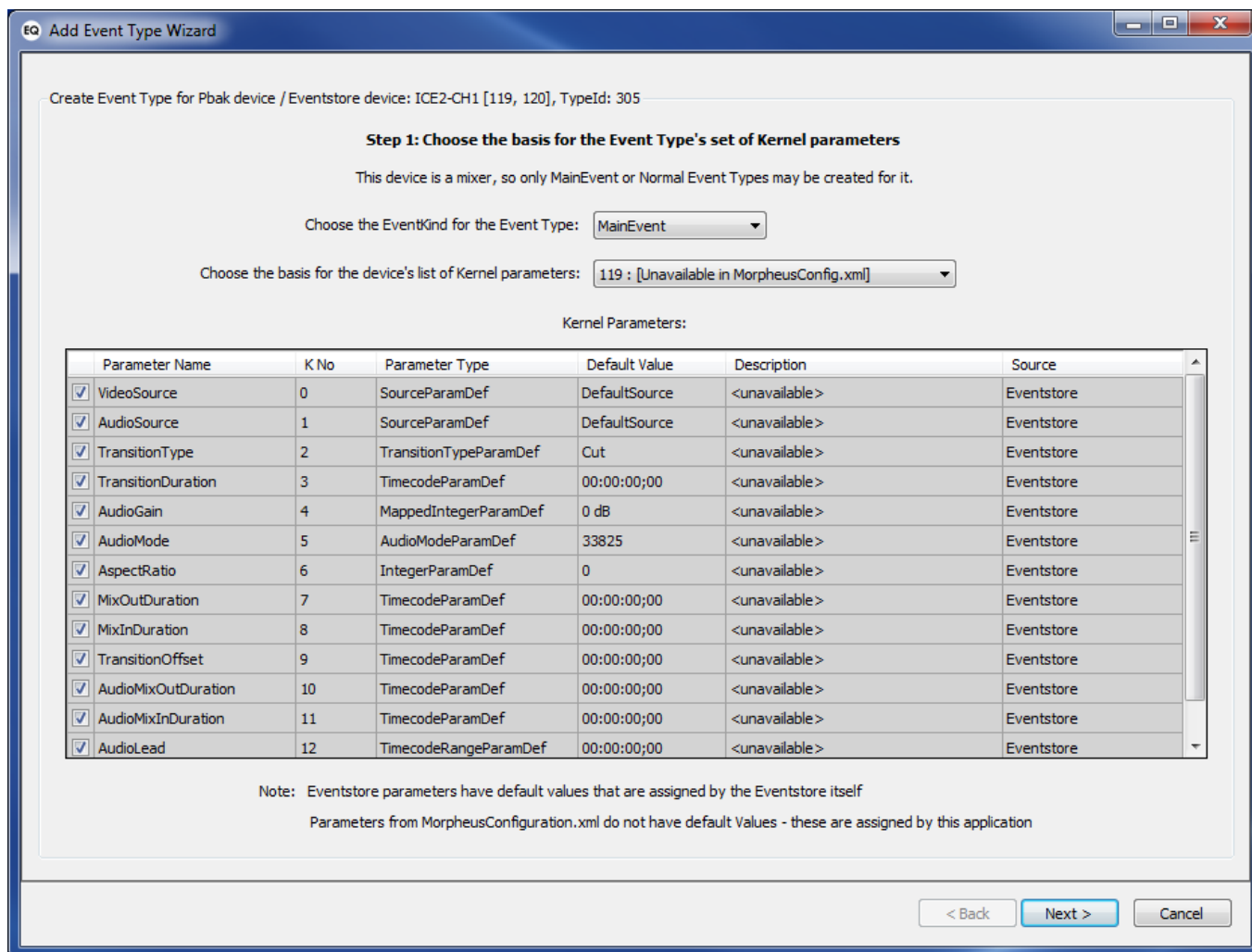


Figure 137 The Equalizer - Add Event Type Wizard

Note: It is not possible to create an Event Type for a Pbak driver if MorpheusConfiguration.xml has not been loaded, the selected Pbak driver's Type ID is not contained within MorpheusConfiguration.xml or the selected Pbak driver does not have any Kernel Class IDs.

11.4.6.3 Add Clone (Event Type)

1. Select an event type from the list and perform one of the following actions:
 - a) Click on **Add Clone**, or
 - b) Right click on the event and select **Add Clone** from the drop-down menu
The 'Choose a Name for the Cloned Event Type' window is displayed.
2. Use the default name for the clone or change as required, then click on **OK**.
3. Use the check boxes to choose whether to assign the device, selected in the Equalizer, to the new event type, and whether or not to assign one of the Kernel Class Ids from that device to the cloned event type.
4. Click on **OK** to finish or **Cancel** to discard the clone.

All parameters can be changed at a later time by selecting the new clone and clicking on Edit, or by using the Configurator.

11.4.6.4 Add Child (Event Type)

Click on **Add Child** to Start the 'Add an Event Type' wizard in order to create a new event type for the device selected in the Equalizer. Follow the instructions provided in the wizard (Figure 137).

11.4.6.5 Add Clone Child Event Type

1. Select an event type from the list and perform one of the following actions:
 - a) Click on **Add Clone**, or
 - b) Right click on the event and select **Add Clone** from the drop-down menu
The 'Select Event Type to Copy From' window is displayed.
2. From the drop-down menu, select the event type from which parameters will be copied from. If attempting to add main event parameters as a child of the selected main event, an error message is displayed and the action is not allowed.
3. Use the check boxes to choose whether to assign the device, selected in the Equalizer, to the new event type, and whether or not to assign one of the Kernel Class Ids from that device to the cloned event type.
4. Click on **OK** to finish or **Cancel** to discard the clone. The cloned child event is now visible in the Hierarchical View Tab of the 'Create or Clone Event Types for Pbak Device'.

All parameters can be changed at a later time by selecting the new clone and clicking on Edit, or by using the Configurator.

11.5 Global Functions

Functions of the Equalizer that are applicable system wide are available via the Tools menu (Figure 138):

- Create Localized Configuration
- Event Types: Event Type Analysis and Create Dual ICE Event Type
- Reboot Cards
- Configure Cards
- System Architecture Diagram
- Export System.xml

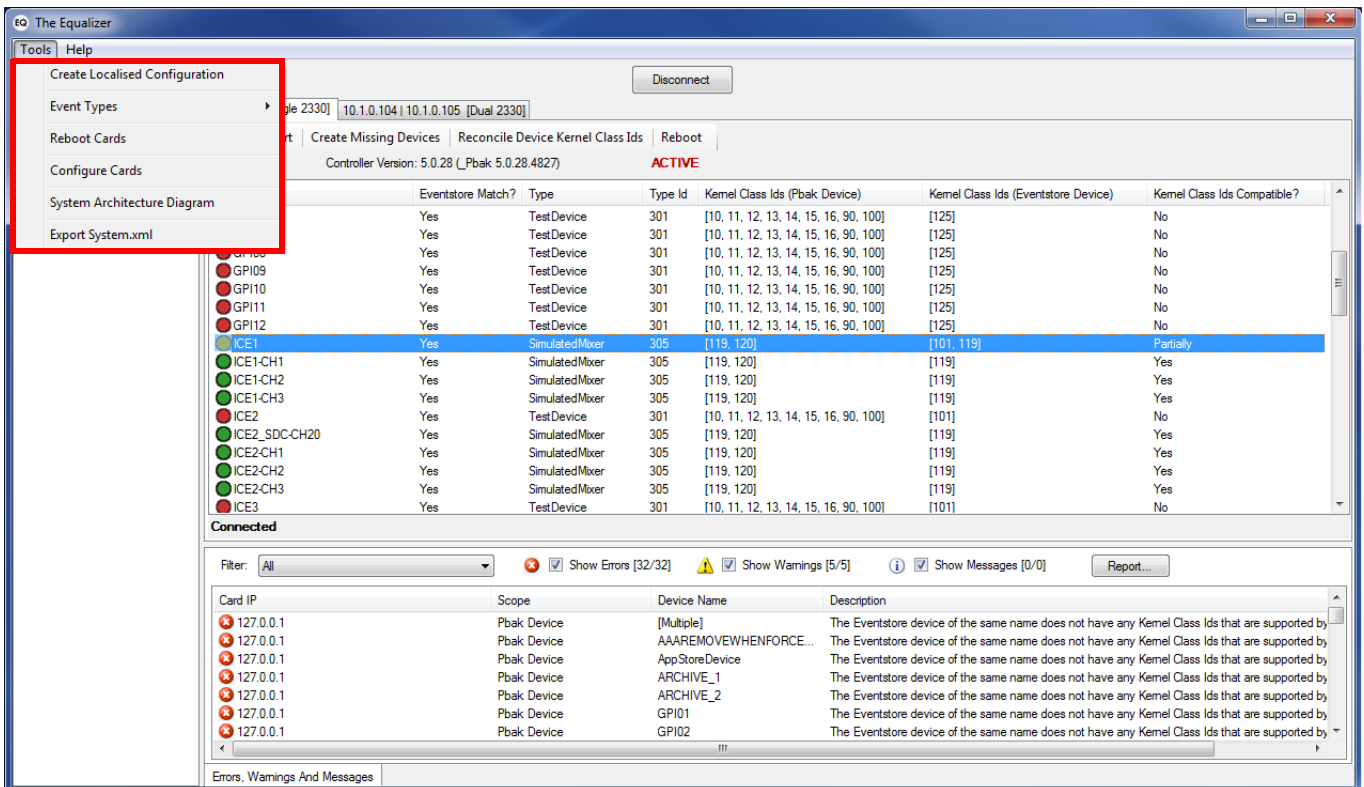


Figure 138 The Equalizer - Global Functions

11.5.1 Event Types

11.5.1.1 Event Type Analysis

Provides an overview of the entire system. Click on the **Event Types Analysis** button in order to view a list of the Pbak drivers, their EventStore device names, and the Event Types that use them (if any).

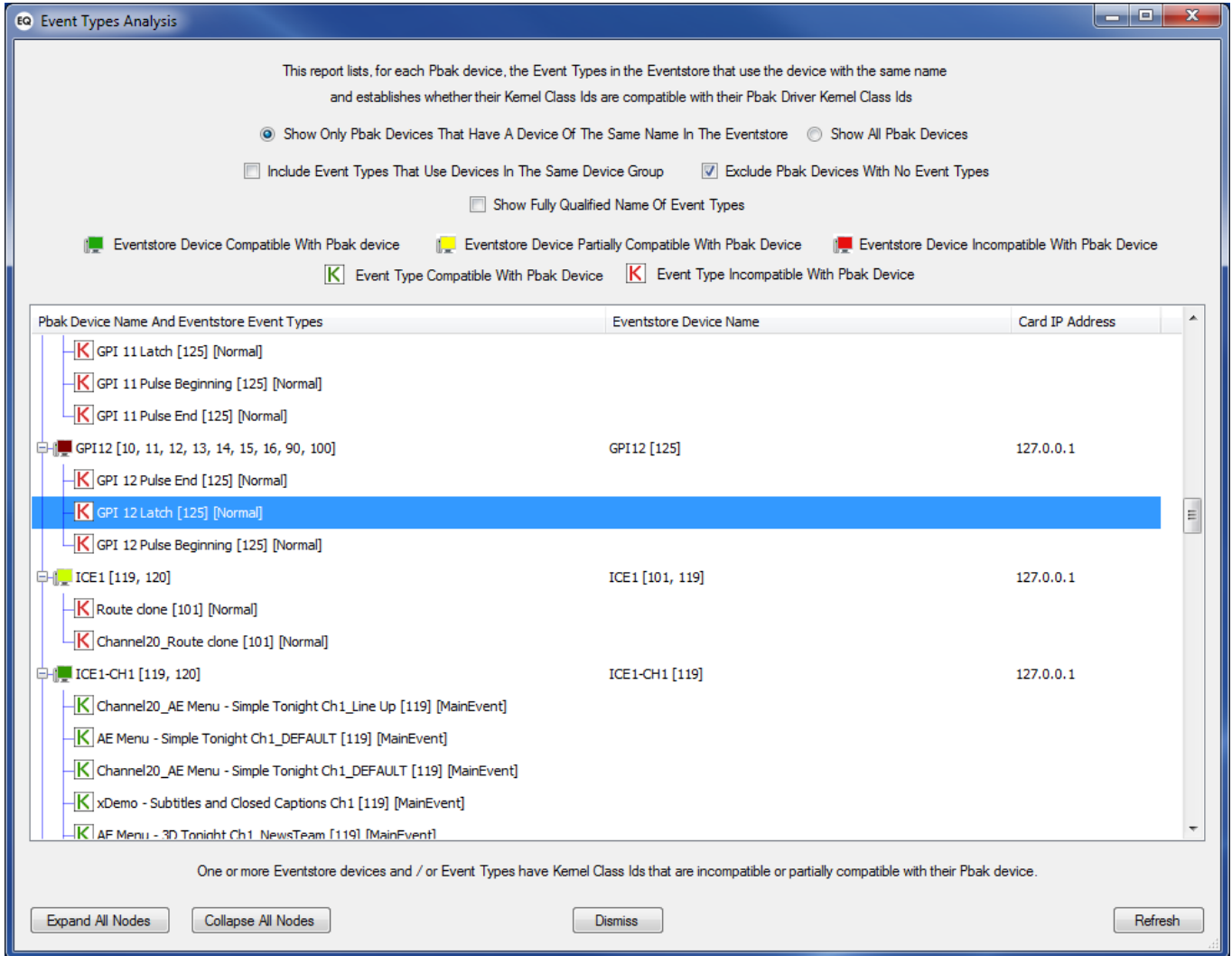


Figure 139 The Equalizer - Event Types Analysis

Filter Options

Two radio buttons at the top of the form indicate whether to list only those Pbak devices that have corresponding devices in the EventStore, or, to list all Pbak devices regardless of whether they have a corresponding EventStore device.

Below the radio buttons, there are two further options:

- **Include Event Types That Use Devices In The Same Device Group** - for each Pbak device, only those Event Types that directly use the EventStore device of the same name are listed. However, some configurations dynamically allocate an Event Type to a device that belongs to a device group if specified in the Event Type's 'DeviceGroup' parameter. If this feature is enabled, all additional Event Types that use a device in the same Device Group are also listed.

Configuration Options

Right-click on a Pbak driver or Event Type and select an option in order to:

- **Reconcile EventStore device Kernel Class IDs with Pbak:** this feature is only available if one or more of the Kernel Class IDs do not belong to those of the Pbak driver
- **Edit EventStore device** - opens the Configurator's devices form
- **Set Kernel Class ID to Pbak Device Kernel Class ID** - set the Kernel Class ID to one of the IDs of its Pbak driver
- **Edit Event Type** - opens the Configurator's Event Types form

11.5.2 Reboot Cards

The user can reboot one or more cards by clicking on the **Reboot Cards** button and selecting individual card(s) to be rebooted as shown below:

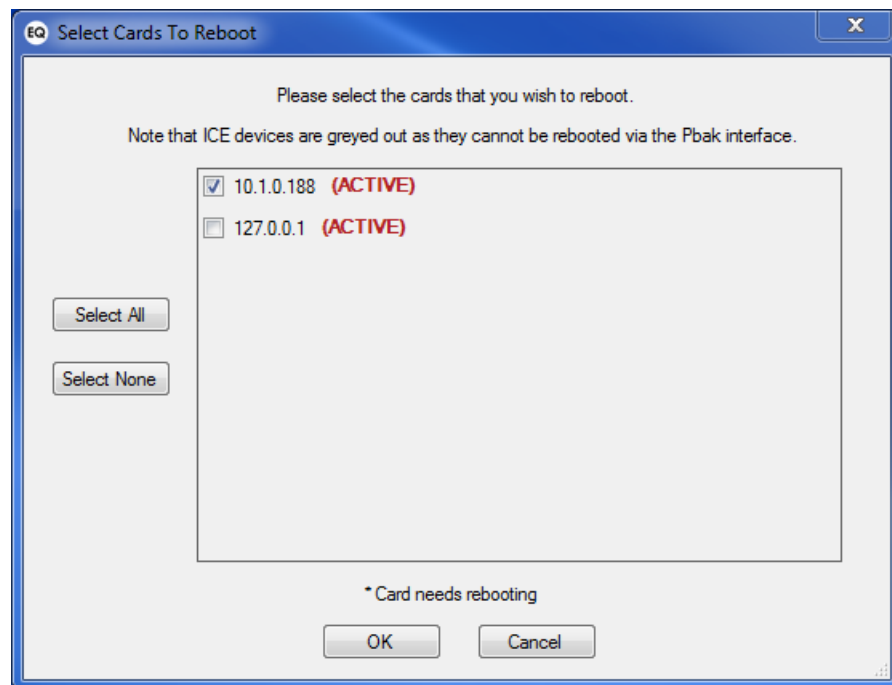


Figure 140 The Equalizer - Reboot Cards

Dual controllers are shown as a pair of checkboxes on a row. The form also indicates the cards that are active - buttons allow the user to select and deselect all cards. Any cards that are not connected are greyed out and cannot be selected.

Click **OK** to reboot the card(s) or **Cancel** to close the window without saving the settings.

11.5.3 Configure Cards

The Equalizer provides the ability to configure multiple Pbak Device Controller cards simultaneously using the **Configure Cards** button - click to generate the following form:

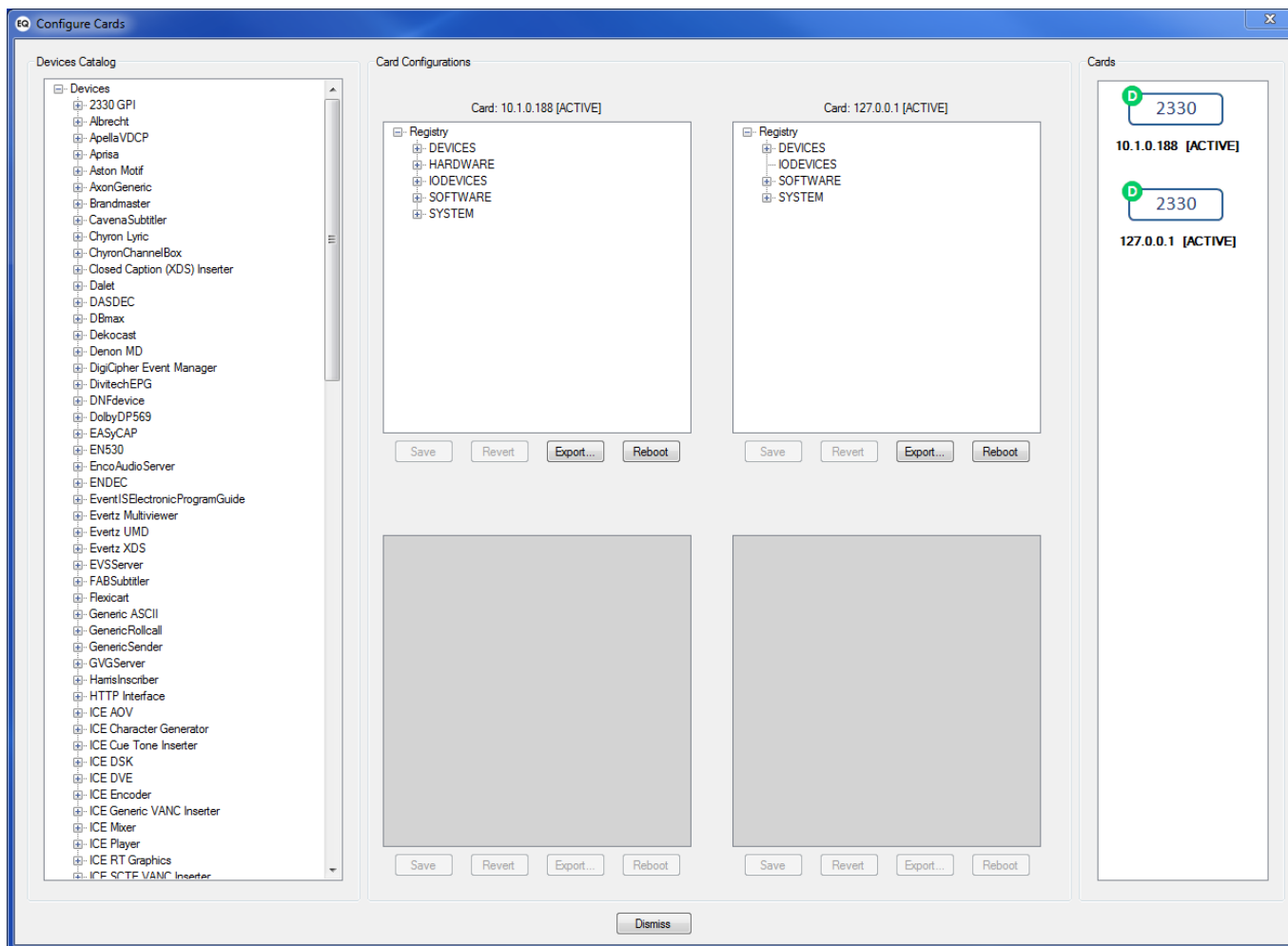


Figure 141 The Equalizer - Configure Cards

In the central portion of the form are four 'registry configuration' windows, each of which can contain the registry configuration of a card. When the form is opened, these windows display the registries of the cards in the order of their configuration in the Bridge. A dual card occupies two windows; either the upper pair, or the lower pair.

Note: The registry cannot be obtained for ICE units, it is not, therefore, possible to configure ICE units using this form

The right hand panel lists the configured cards as icons. If a card's configuration is displayed, then its icon is shown with a green circular icon containing a white letter 'D'.

In order to show the registry configuration of a card that is not currently being displayed, click on a card icon that does not have the green 'D' icon and drag it to one of the available registry configuration windows. If this action replaces an existing registry configuration in the window (and if that configuration has been changed but not saved), the user is prompted to save or discard the changes. If the replaced configuration is one card of a dual card then both cards of the dual card are removed.

11.5.3.1 Dual Cards

A dual card can only be dragged to the upper left or lower left registry configuration window. In the case of dual cards, each configuration occupies its own window, and a yellow bar and a 'Duplicate Actions Across Cards' checkbox is displayed - if ticked, every action (New Key, New Parameter, Edit Parameter, Delete, Rename and Paste) is duplicated on the other card, if possible. If such an action is not possible, for example if a key is renamed on one card that does not exist on the other card, then the user is informed.

The dual card windows contain left and right arrow buttons to allow the configuration of one card to be overwritten by the other. Click on the left arrow button in order to copy the entire configuration from the right hand card onto the left hand card - the configuration on the left card will be deleted, although IP address, port and legacy port values are preserved if they exist. Click on the right arrow button in order to copy the entire configuration from the left hand card onto the right hand card.

11.5.3.2 Modifying Registry Settings

To modify the registry settings of a card, right-click on the card and select one of the available menu options. The available options are: New Key, New Parameter, Edit Parameter, Delete, Rename, Copy and Paste. Expand All and Collapse All refer to expanding the selected node.

Registry items can be moved or copied from one card to another. For example, a device can be transferred from one card to another by ensuring that the registries of both cards are displayed and then selecting and dragging the registry entry for the device from the source registry window to the destination registry window.

On the left hand side of the form is a list of the devices in the MorpheusConfiguration.xml file. Any of these devices can be dragged onto any occupied registry window. A configuration window is displayed that allows the user to specify the configuration of the device.

Each registry configuration window has the following buttons: **Save**, **Revert** and **Export...** and **Reboot**. The **Save** and **Revert** buttons become active when the configuration of a card is changed.

The options are:

- **Save** - save the currently displayed registry to the card.
- **Revert** - undo any changes made since the last save.
- **Export...** - save the configuration of a card as an XML file. This button is active only when there are no unsaved changes. A **Save As...** window is displayed to prompt the user to enter a filename.
- **Reboot** - reboot the controller in order to make active the changes to the registry.

Currently, an ICE machine cannot have its registry settings edited. If an ICE is dragged onto a registry window, the words 'Registry unavailable' appear in the registry window and its **Save**, **Revert**, **Export...** and **Reboot** buttons are inactive.

11.5.4 System Architecture Diagram

Select this menu option in order to display the controller cards, and their characteristics on a network diagram.

Note: In order to be displayed, controller cards must be in a connected state.
ICE's are not displayed.

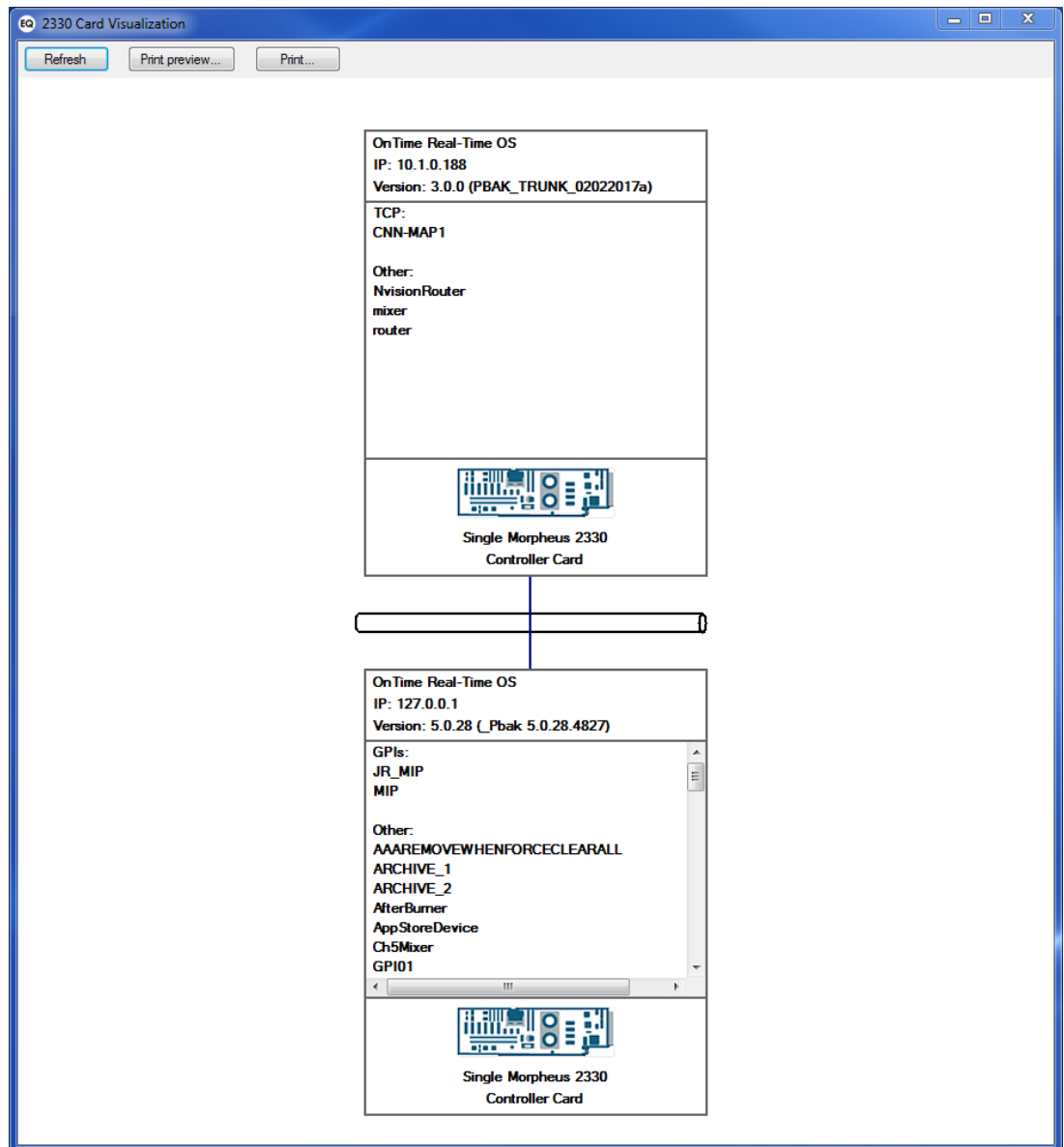


Figure 142 The Equalizer - Card Visualization

Note: All devices are listed by their type and individual name: GPI's, serial devices, TCP / UDP devices, and others (where a device does not fall into any of the previous categories).

- Refresh

Update the display.

- Print Preview and Print

View how the document will appear once it is printed.

- Print...

Send the document to a printer.

11.5.5 Exporting the Current System

Export and save the current_system.xml - it can be subsequently imported into the Configurator application.

Click on **Export System.xml** in order to save the file to the default location of C:\EventstoreExport.

12. The Bridge

The Bridge is an application that synchronizes the EventStore with the device controller cards (page 12). It usually runs on the principal EventStore PC.

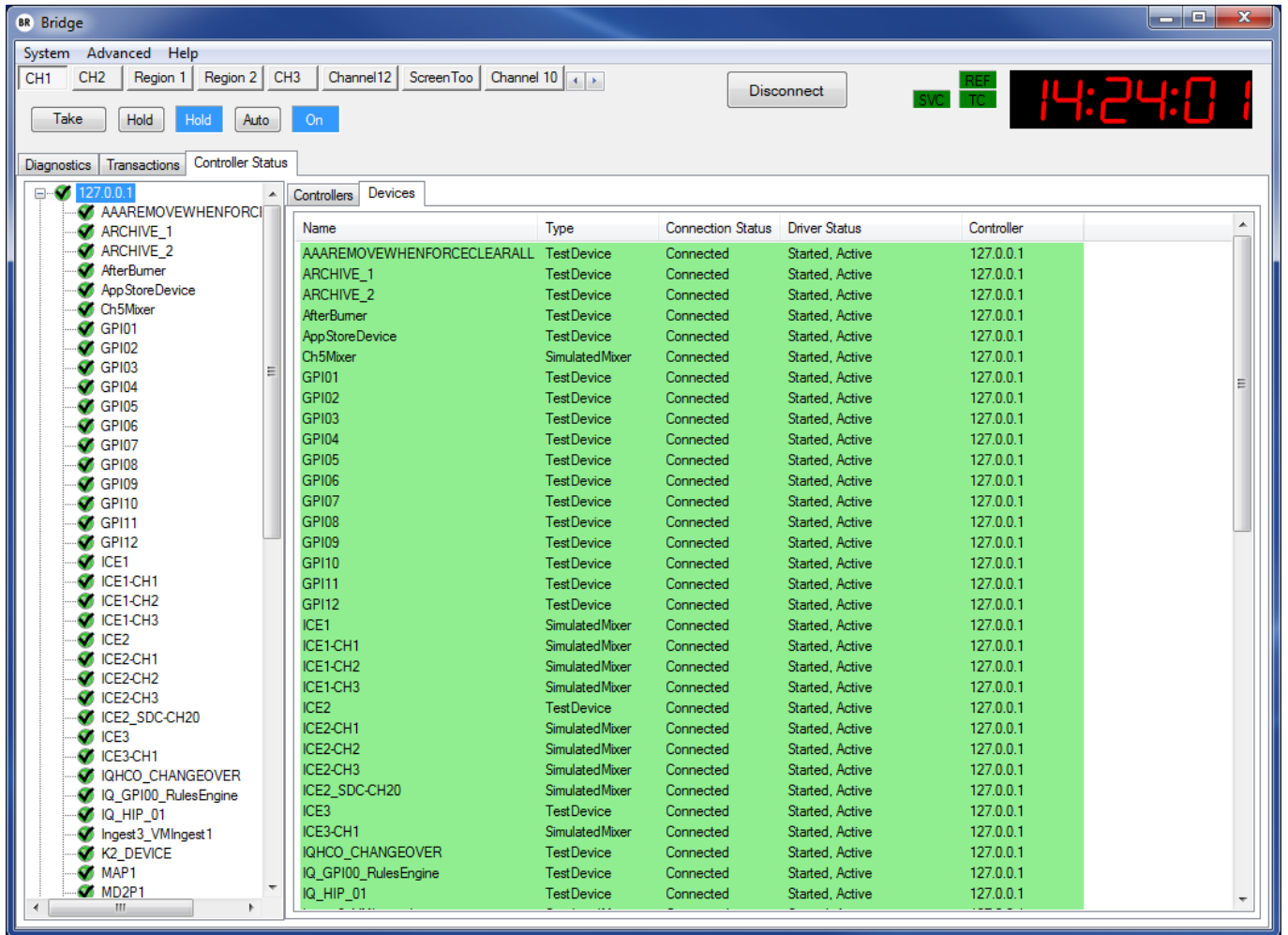


Figure 144 The Bridge Window

When events are added, deleted and updated on the Editor schedule, they are changed to 'kernel transactions' and sent to the respective device controllers (via devices connected to the cards).

The Bridge forwards events from the EventStore to the kernel (refer to page 169) or whichever controller card has the correct device connected to it, looking ahead in time according to the 'event look ahead' setting (refer to 'Event Look Ahead' on page 243).

If the Bridge is shut down, the controller card(s) or ICE units (refer to the note below) continue to run the schedule for the duration of the look ahead window. Manual intervention is not possible in this case.

The Bridge directs EventStore data to the controller card that is connected to the device for the event.

Note: Where Grass Valley video servers are in use, they are not controlled by a device controller. The Bridge communicates directly with the video server using a driver that appears in the Bridge configuration as an alternative to device controllers. An IP address has to be specified.

12.1 Event Look Ahead

The Event Look Ahead is the period of time and the minimum number of events that the Bridge uses to 'look ahead' when pre-loading event data into the device controller cards.

The event look ahead ensures output continuity during testing, upgrades or network failures.

The time and number of events are set in the Bridge configuration using the 'Execution Window' and 'LookAheadEvent Count' channel settings (refer to Section 12.7.1 Bridge Configuration Options).

For details on configuring the Bridge, refer to Section 12.7 Bridge Configuration.

The event look ahead settings depend on a number of factors including the complexity of the schedules, the number of ports used per card, the presence or otherwise of devices (refer to page 645) and the need to allow enough time for a successful system restart.

Certain functions, such as Rippling Hold, involve significant processor power, and the main reason for limiting the event look-ahead is to avoid overloading the device controller cards. For details on Rippling Hold, refer to Chapter 7.7.4 Rippling Hold Options.

On the schedule, a grey barrel in the Main status column designates an event that falls outside of the look ahead period, and indicates that there is no response from the Bridge (refer to Figure 145). The Bridge cannot provide status information until event data has been loaded into the kernel (refer to page 169), which will not occur until the event comes within the event look ahead.

Note: The Transfer Decorator service has its own look ahead setting (refer to page 266).

Start Time	Title	Duration	Mix	Main	Source
11:14:25;13	ON-AIR EVENT A123456	00:08:11;01			Server1 HDOMN1
11:14:25;13	ON-AIR EVENT A123456	00:08:11;01			Server1 HDOMN1
11:22:44;27	PRESET EVENT A234567	00:50:09;00			Server1 HDOMN1
12:12:53;27	EVENT 3 A345678	00:50:45;10			Server1 HDOMN1
13:03:39;09	EVENT 4 A456789	00:49:14;00			Server1 HDOMN1
13:52:53;07	EVENT 5 A567890	00:56:07;12			Server1 HDOMN1
14:49:00;21	EVENT 6 A678901	00:51:33;02			Server1 HDOMN1
15:40:33;21	EVENT 7 B123456	00:50:07;18			Server1 HDOMN1
16:30:41;09	EVENT 8 B234567	01:04:09;26			Server1 HDOMN1
17:34:51;05	EVENT 9 B345678	02:25:17;22			Server1 HDOMN1
20:00:08;27	EVENT 10 B456789	00:04:18;24			Server1 HDOMN1

Figure 145 Events Outside the Look Ahead Period

12.2 Functions of the Bridge

The Bridge provides the following functionality:

- Ensure that the device controller card(s) are updated with event data, looking ahead a specified time.
- Discard event parameters that are not required by the device itself, for example the event title is not required by a video server.
- Direct event data to the device controller in order to allow it to connect to the device specified in the event.
- Receive timecode (refer to page 632) from device controllers, and to forward it to the EventStore.
- Prioritize event data forwarded to the device controllers.
- Receive device status information from device controllers and update the Event Store accordingly.

12.3 Bridge Clock

The Bridge clock always displays the EventStore time with no offsets applied. The following buttons appear to the left of the clock:

- **REF** - indicates that a valid video reference signal is being fed into the system, for example NTSC or PAL.
- **TC** - indicates that a valid Time of Day timecode (refer to page 635) is being fed into the system.
- **SVC** - a service lamp that, when lit, identifies the active Bridge in a multi-bridge system.

12.4 Connecting to the EventStore

To connect to the EventStore, click on **Connect**.

12.5 Bridging Channels

The Bridge can be configured to bridge selected channels only using channel buttons at the top left of the Bridge window.

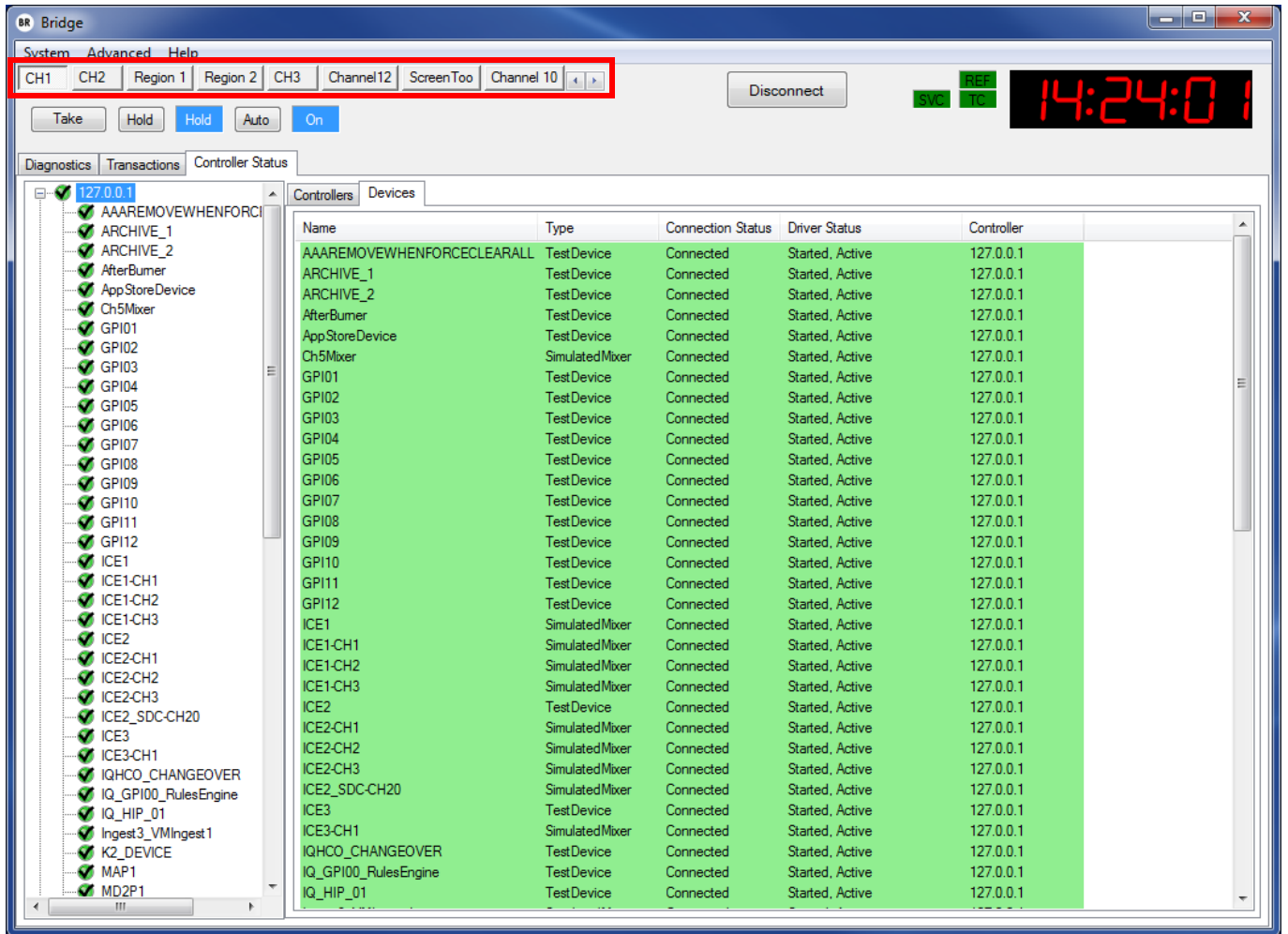


Figure 146 Channels on the Bridge

Clicking a channel button applies any channel-specific actions to that channel only.

If no channel buttons appear at the top left of the Bridge window, it is likely that no **current_system.xml** file has been imported (refer to 'Import/Export' on page 131).

Take, Hold, and Auto (automation on/off) functions are available in the Bridge and apply to the selected channel. These are provided as an aid to testing and are not intended for operational use.

The Bridge clock appears at the top right of the screen.

12.6 Bridge Tabs

12.6.1 Diagnostics Tab

Click on **Go** in order to display a log of recent activity.

Note: Caution should be exercised when using this function as channels can be taken off-line.

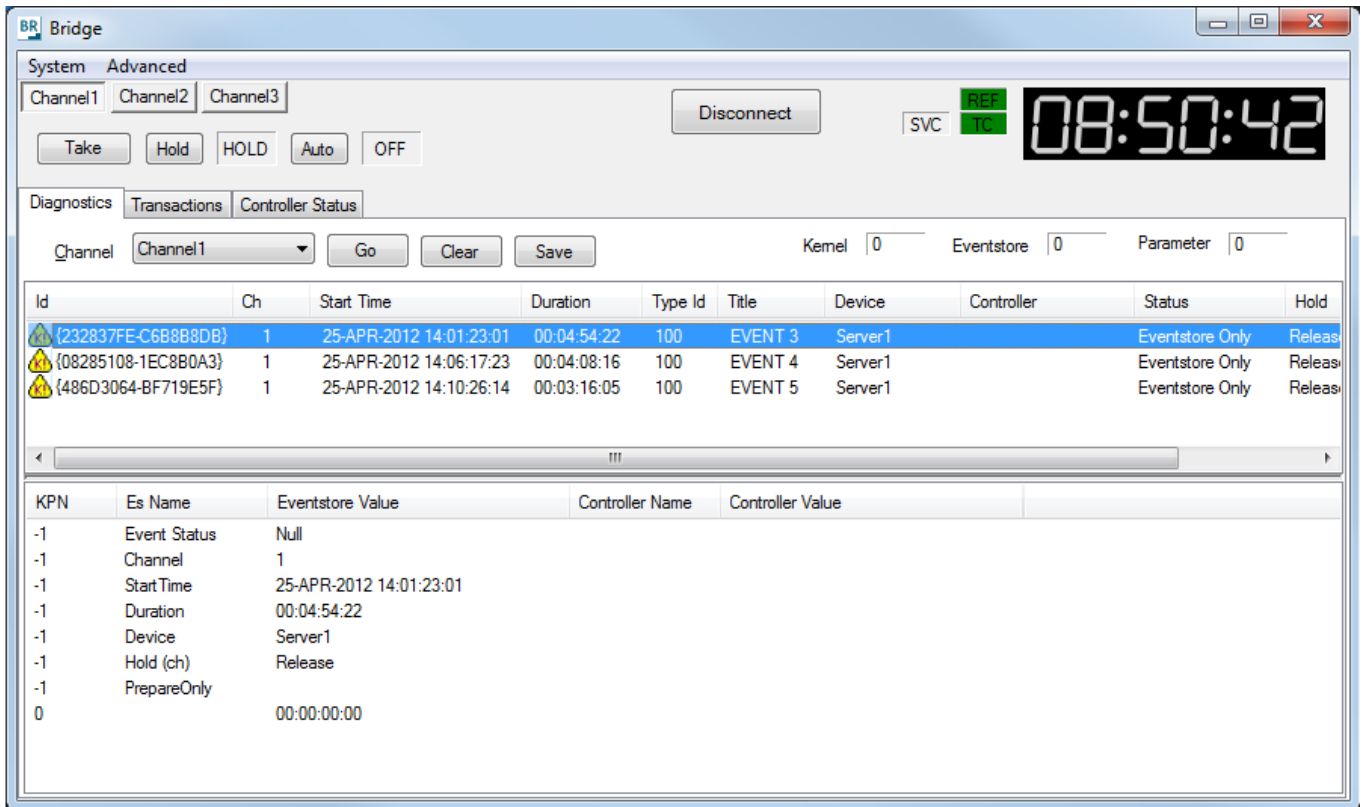


Figure 147 Bridge Diagnostics Tab

The upper pane of the Diagnostics tab displays all commands sent to device controller cards - this is useful for following the sequence of commands sent to a device as an aid to fault-finding.

To save the log, click on **Save** - Windows Explorer is opened (by default, the log is saved as a text file in C:\Morpheus).

To clear the log, click on **Clear**.

12.6.2 Transactions Tab

View events that are synchronized across the controllers and the EventStore.

For Grass Valley use only.

12.6.3 Controller Status Tab

The pane on the left hand side of the Controller Status tab lists those controllers that are configured. The status of each is indicated by either a green tick or a red exclamation mark.

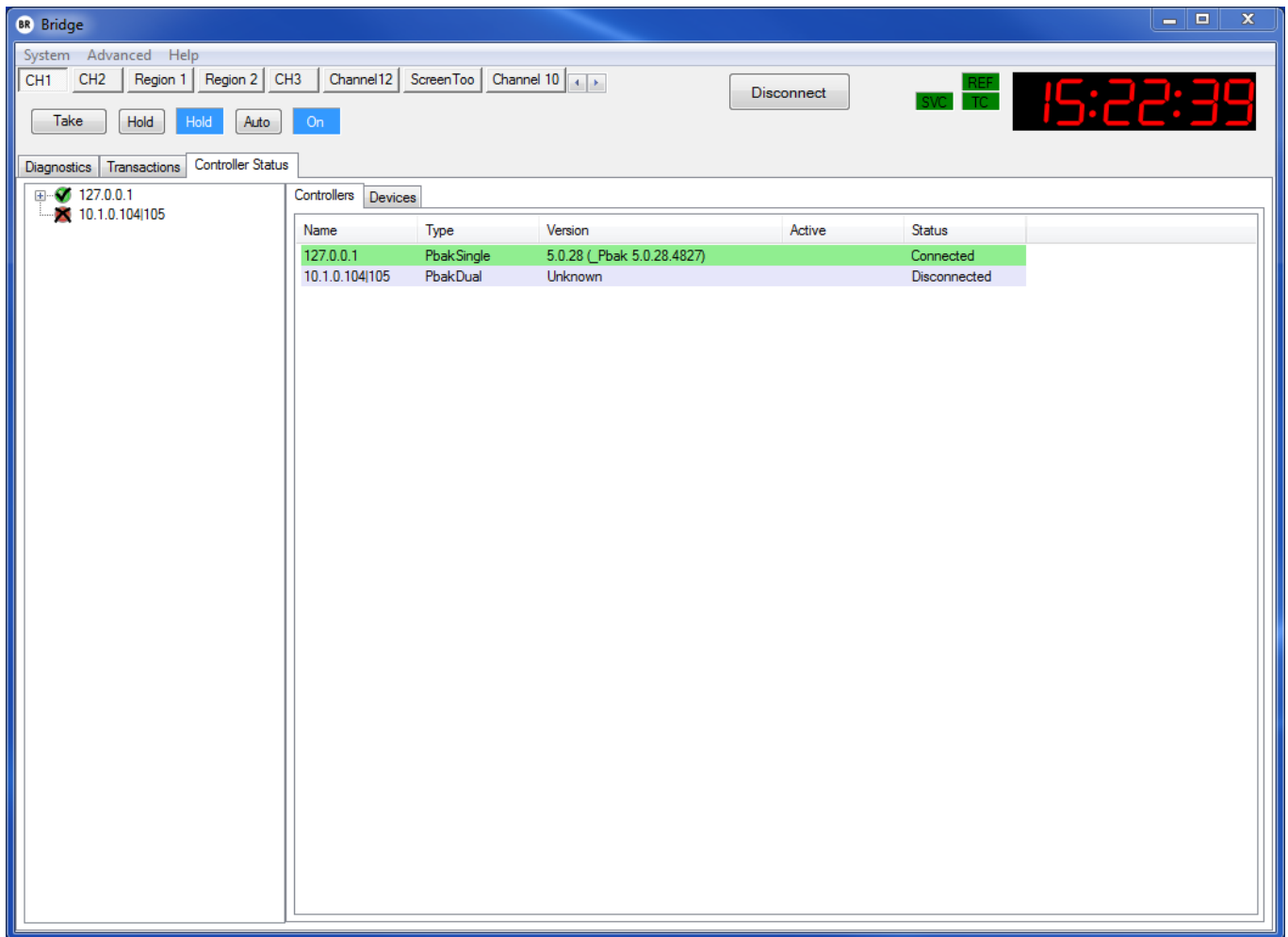


Figure 148 Bridge Controller Status > Controllers Tab

A green tick means that a response has been received from the device. A red exclamation mark means that no response has been received.

To display the parameters and status of controllers and devices, click on the required controller in the left hand pane and then click on either the Controllers or Devices tab.

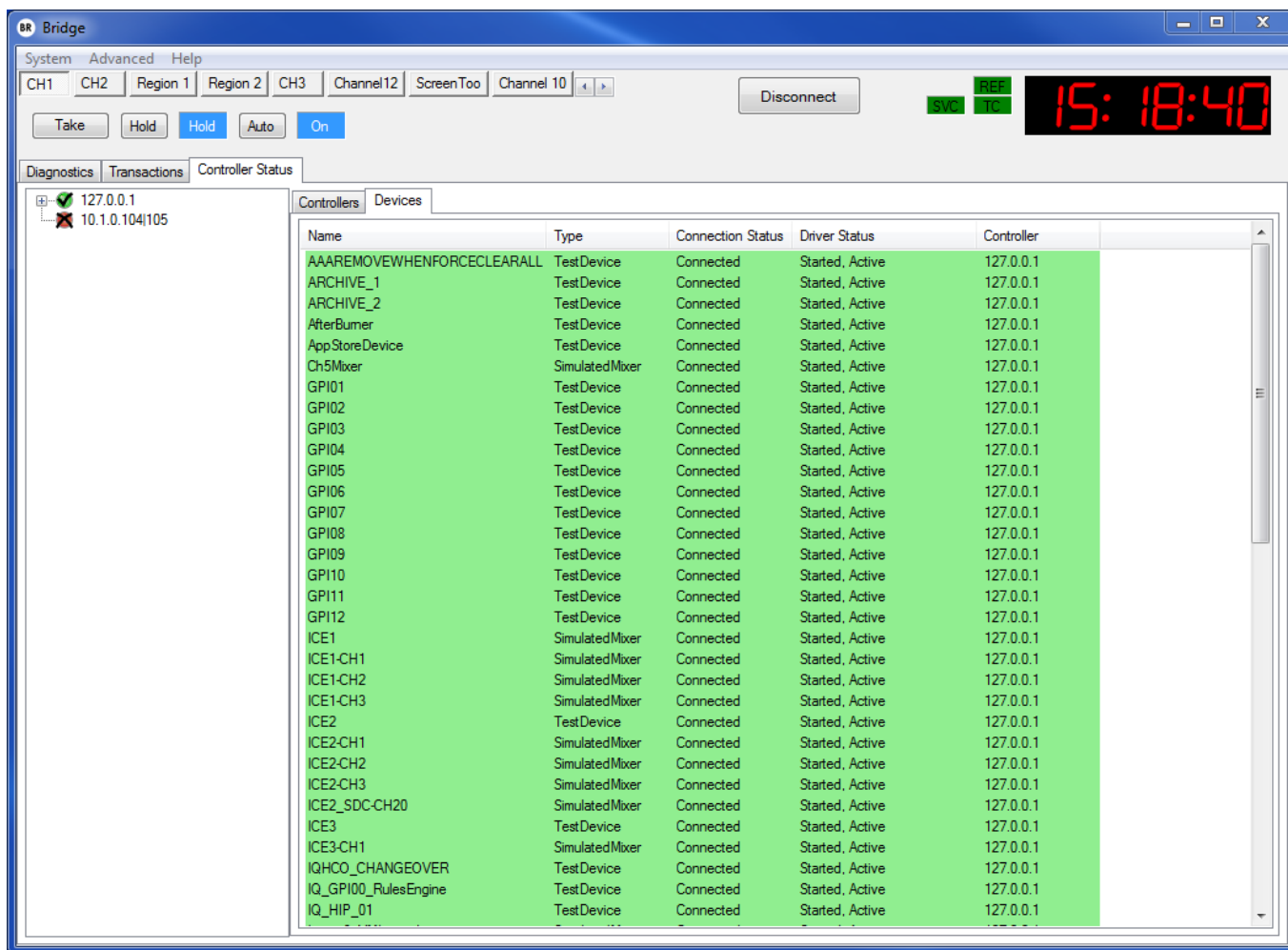


Figure 149 Bridge Controller Status > Devices Tab

12.7 Bridge Configuration

Configure Bridge parameters by selecting **System** from the menu bar followed by **Configuration**. The Bridge Configuration window is displayed.

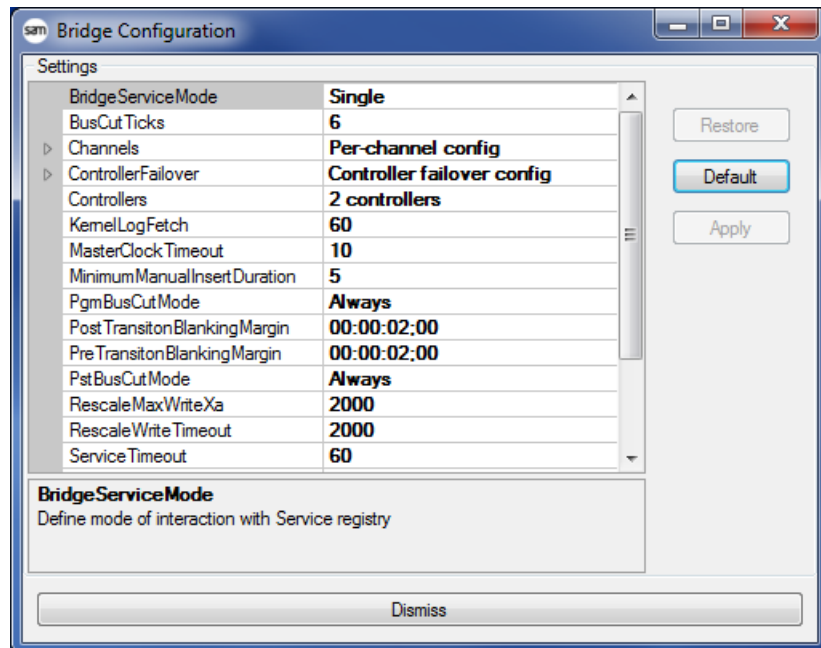


Figure 150 Bridge Configuration Window

Settings that are configurable are either shown in bold type or have blank fields; some settings have a tree-like structure, so it may be necessary to click on an arrow alongside them in order to reveal the configurable parameters. Clicking on a configurable parameter will provide one of two editing possibilities:

- If an arrow for a drop-down list appears in the parameter field, select an option from those available.
- If no drop-down list arrow appears, the parameter can be entered into the blank field or simply overwritten if there is an existing entry.

All Bridge configuration settings are described in Section 12.7.1 Bridge Configuration Options.

When a parameter has been changed, the word **MODIFIED** appears to the right of the window to alert the engineer to the fact that changes have not yet been saved.

To save changes, click on the **Apply** button - the word **MODIFIED** disappears (this only saves the changes, it does not actually apply them). To apply changes, the Bridge application will need to be restarted, as follows:

1. Close the Bridge Configuration window - a window will appear requesting confirmation that the changes are to be applied.

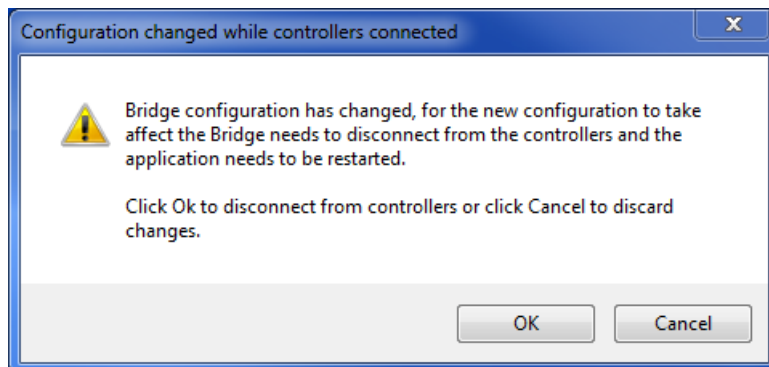


Figure 151 Bridge Configuration Change Confirmation Window

2. Click on **OK** to confirm, or **Cancel** to discard the changes.
3. The message *RESTART REQUIRED - CONFIGURATION CHANGED* will be written on the Bridge title bar, and a further window is displayed stating "The Bridge application needs to be restarted" - click on **OK** to acknowledge.
4. Shut down the Bridge application by clicking on **System** on the menu bar, and selecting **Exit**.
5. Restart the Bridge application.

Other functions that can be used in the Bridge Configuration window are as follows:

- **Restore** - restore all changed fields to their previous settings.
- **Default** - return all fields to their default settings.
- **Dismiss** - close the window without applying any changes.

12.7.1 Bridge Configuration Options

The following options are available:

- BridgeServiceMode

Defines how the Bridge interacts with the service registry. The Bridge has three service modes:

- **Multiple:** for resilience purposes, a redundant pair of Bridges can be run. Use 'Multiple' to run the Bridge in dual redundant mode, with a failover Bridge partner.

Note: the nature of the Bridge function means this is never essential - the Bridge can be restarted if required, with no more than a short interruption to the bridging process.

- **Single:** allows only one Bridge to provide a service (will not permit a redundant pair).
- **None:** prevents the current instance of the Bridge from providing the bridging service.

- BusCutTicks

Delays the execution of a manual bus cut. One tick is equal to 100ms. Enter the required number of bus cut ticks.

- Channels

Configure Bridge settings for each channel. Expand the Channels option and then expand the channel name.

- **Bridge:** select **True** or **False**. True bridges the channel to hardware.
- **ExecutionWindow:** the length of the event look ahead time (refer to 'Event Look Ahead' on page 243). Enter the time in hh:mm (hours:minutes) - a typical setting is one hour.
- **IQOnAirTriggerCommand:** the Bridge can detect an OnAir trigger from an IQ device. To add notifications of any changes to the OnAir command status to the channel's AsRun log, set this option to the Command ID for the property in the IQ device that holds the name of the current video output (for example, the IQH-CO30 card uses the Command ID '6630' for the name of the current video output).
- **IQOnAirTriggerDeviceName:** the device driver name of the iq card.
- **IQOnAirTriggerOutputName:** the name given to the video output that this channel represents on the IQ/RollCall device, for example, Master or Backup.
- **LateExecutionMargin:** prevents events that are later than this margin from being downloaded. Enter the margin in minutes and seconds.
- **LookaheadEventCount:** the minimum number of events that the Bridge uses to look ahead when loading event data into the device controller card(s) (refer to 'Event Look Ahead' on page 243). It is typically in the range 20-100. The lowest allowed number is 10.

- **MipDevice:** enter the name of the channel's Manual Intervention Panel (refer to page 5) which must match the name entered in the registry in the Pbak Utility. Refer to 'Adding an External MIP to the PBak Configuration' on page 640.
- **PgmBusMonitor:** enter the name of the programme bus monitoring device.

- **Controllers**

Shows the number of controller cards present (use two controllers for a redundant pair). Click on the value field to display the ellipsis button.



Click on the ellipsis button in order to display the ControllerConfig Collection Editor window. To add a controller card IP address, click on **Add** and then enter it into the Address field. Also enter the driver name in the field provided.

To remove an address, select it and then click on **Remove**.

- **KernelLogFetch**

The interval between fetches for the kernel transaction log. Enter the interval in seconds. The default is 60.

- **MasterClockTimeout**

The amount of time that can elapse with no clock ticks before the Bridge attempts to become the clock master.

- **MinimumManualInsertDuration**

The minimum duration of a manual insert, in seconds. If the default event duration is lower than this figure, the Bridge setting takes priority.

- PGMBusCutMode

A 'PGM bus cut' occurs when an operator changes the on-air source without scheduling it (for example, breaking away suddenly from a programme for a news flash). Each option is described below.

- **Always:** this value links to the **Use subevents to model PGM bus cuts** System Configuration setting. To access this setting, from the Configurator, click on the **System Configuration** toolbar button. Refer to 'Configurator' on page 50. If this option is selected, **Always** inserts a Subevent in the schedule below the Programme event to reflect the source change. This is the recommended mode.

If the **Use subevents...** check box is cleared, a new main event with the Program bus source is inserted in the schedule. Programme bus cuts on the mixer are passed to automation, appear in the schedule and are then placed in the as-run log (refer to page 569).

- **Never:** PGM bus cuts on the mixer are not forwarded to automation, they do not appear in the schedule and they are not placed in the as-run log.
- **Use GPI:** PGM bus cuts on the mixer may be passed to automation, depending on the state of a GPI input, normally connected to a button on the hard MIP that is pressed to prevent the bus cut being detected by automation. Refer to 'GPI' on page 636.
- **Always with Sub Event:** operates in the same way as the 'Always' option above.
- **Ignore:** All source changes on the preset bus are ignored and no modifications to the schedule occur.

- PostTransitionBlankingMargin / PreTransitionBlankingMargin

The blanking margin is a small amount of time before and after a main bus transition. Bus cuts are not processed during the blanking margin.

Enter the margin in **hh:mm:ss:ff**. (hours:minutes:seconds:frames).

- PstBusCutMode

Select the required mode for a preset bus cut.

- **Always:** inserts a default main event into the preset position on the schedule.
- **Never:** updates the preset audio and video sources with the newly selected sources on the mixer preset bus.
- **Use GPI:** allows use of the preset bus as a preview bus - this mode is used in conjunction with a Manual Intervention Panel (MIP). Refer to page 5.

A GPI (refer to page 636) on the Manual Intervention Panel is allocated for roaming the preset bus so that when this GPI is asserted all preset bus cuts are ignored. If this GPI is not asserted the preset source is updated in the same way as the Never mode.

- **Always with Sub Event:** not supported.
- **Ignore:** all source changes on the preset bus are ignored and no modifications to the schedule occur.

- RescaleMaxWriteXa

The rescale maximum write duration.

- RescaleWriteTimeout

The amount of time it takes the Bridge to carry out a transaction before it times out.

- ServiceTimeout

The Bridge service timeout in seconds. The Bridge must be restarted in order to register the change. Enter 0 to disable service withdrawal.

- StatusUpdateTicks

The delay in writing status updates to the EventStore. One tick is equal to 100ms.

- SystemClockMode

Determines how the Bridge drives the EventStore clock. This is usually set to **Multicast**. Make a selection from the following options:

- **Multicast**: the system clock is maintained by means of UDP multicast ticks (refer to page 35) from at least one device controller (usually two or three).
- **TCP Locked**: the system clock is maintained by means of TCP clock ticks from a card that has been configured to do so in its pbak.dat.
- **TCPAny**: the system clock is maintained by means of TCP clock ticks from a card chosen by the Bridge on start-up.
- **None**: for Grass Valley development use only.

- SystemTimeToTimecode

Set to either **True** or **False**. True periodically sets the computer clock to match the incoming timecode. This is updated every five minutes.

- TransactionTimeout

The transaction timeout period, in seconds, within which all controllers are expected to have completed their transactions. Otherwise they are resynchronized.

12.8 The Advanced Menu

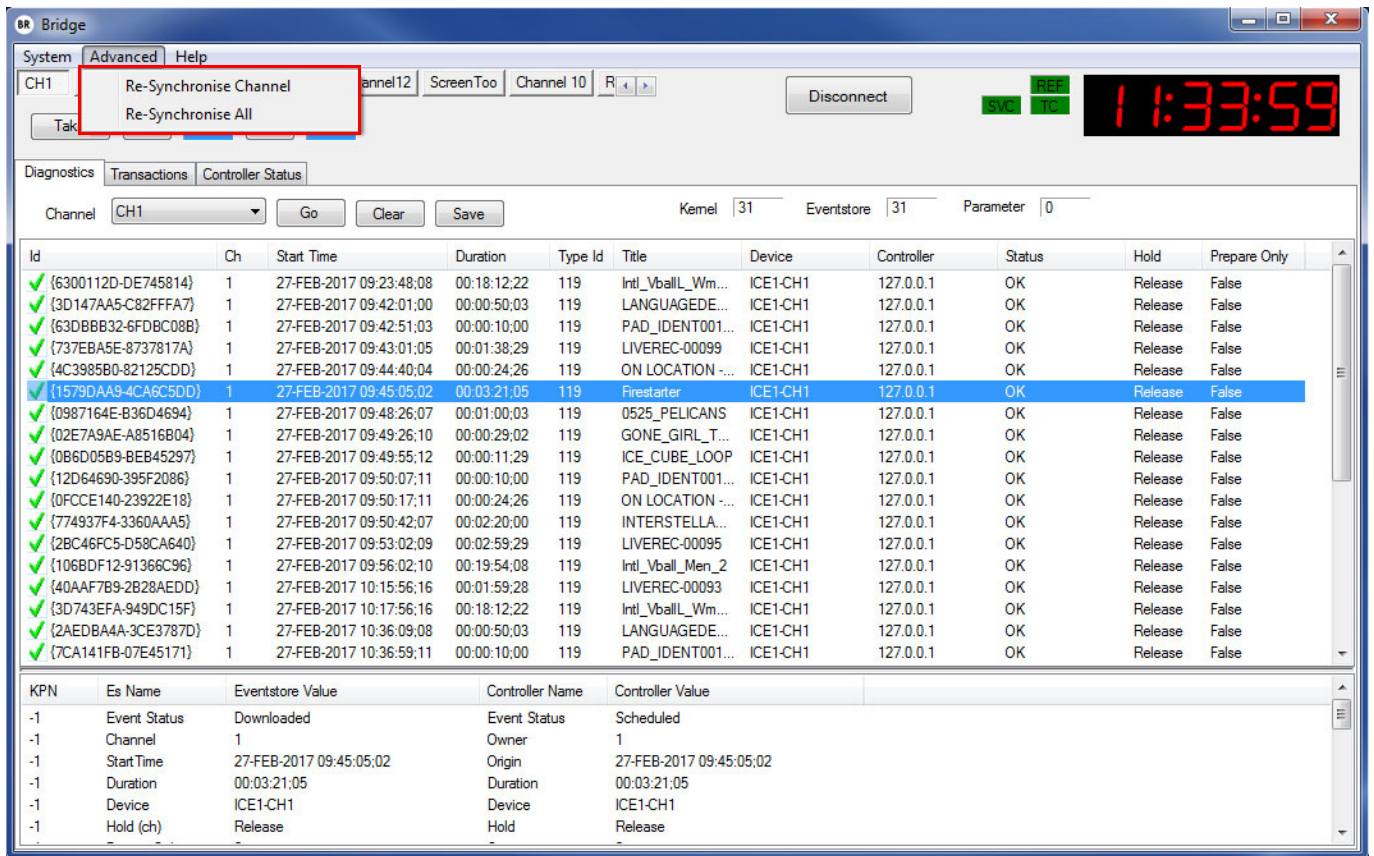


Figure 152 The Bridge Advanced Menu

- Re-Synchronise Channel

Download scheduled events from the chosen channel to the device controller, overwriting events that are currently in the device controller.

- Re-Synchronise All

Identical to Re-Synchronise Channel, above, but applies to all channels.

Note: The **Re-Synchronise Channel** and **Re-Synchronise All** options should only be used if there are serious errors on a channel.

13. Editor Configuration

The Editor **Configuration** window contains the parameters that set up access to, and the presentation of, the on air schedule.

Note: The functionality of the Editor is described in detail in the Morpheus Operators manual.

To access the **Configuration** window:

1. Start the Editor application. The 'Role Login' window will appear.
2. In the case of a new installation of Morpheus, if a personalised role has not yet been created / allocated then log in using the default role **All** and default the password **qw**.
3. From the Menu Bar, select **Tools > Configuration**, or click on the **Configuration** icon on the Toolbar.



4. Enter the 'Editor Configuration' password when prompted (default = **qw**) - if this is an existing installation, the password may have been changed by an administrator. The Editor Configuration Window is displayed.

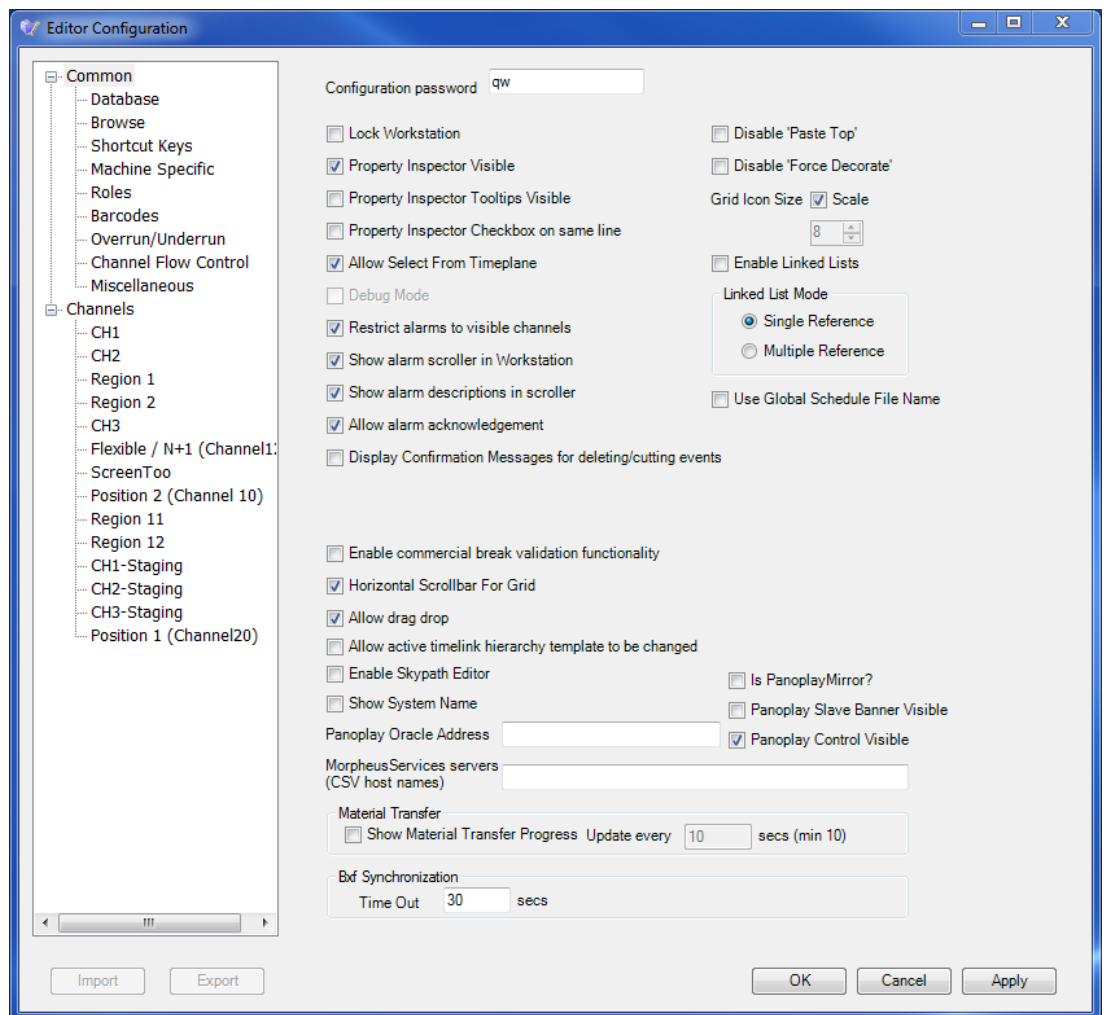


Figure 153 The Editor Configuration Window

13.1 Common Configuration Settings

To display the common configuration settings, select **Common** from the left hand pane of the **ConfigForm** window. Each of the settings is described below.

- Configuration Password

Apply a password to the Editor configuration function (or change an existing password). If the ConfigForm window is opened, a window is displayed prompting for the password. The default configuration password is 'qw'.

- Lock Workstation

Disables many of the toolbar buttons and some of the menu options. It also prevents changes being made to fields on the Property Inspector (refer to page 5).

- Property Inspector Visible

Tick the check box to in order to display the Property Inspector on the Editor window.

- Property Inspector Tooltips Visible

When enabled, this function displays the contents of a Property Inspector text field in the form of a tooltip when the user hovers over the field using the mouse. This feature improves the legibility of long fields.

- Allow Select From Timeplane

When selected, if a user double-clicks on an event in the Timeplane (refer to page 23), the event will be selected in the Editor.

- Restrict Alarms to Visible Channels

For channels that are not displayed on the channel bar, prevent alarms from appearing each time a change is made.

- Show Alarm Scroller in Workstation

Tick the check box to in order to display an alarm scroller at the bottom of the Editor window.

- Show Alarm Descriptions in Scroller

Tick the check box in order to scroll the alarms on the alarm scroller (refer to 'Show alarm scroller in Workstation' above).

- Allow Alarm Acknowledgement

When enabled, if double-clicking on the status bar, an Alarms window is displayed. Right-clicking on an alarm in this window displays a menu providing the function to acknowledge one or more alarms.

To allow the acknowledgement of alarms, tick the **Allow alarm acknowledgement** check box.

To prevent operators from acknowledging alarms, clear the check box.

- Display Confirmation Messages for Deleting / Cutting Events

Tick the check box to display a confirmation window when operators choose to delete or cut events.

- Disable 'Paste Top'

Disable the 'Paste Top' feature on the Editor context (right-click) menu. Allows one or more events to be moved or copied to a position immediately after the on-air event.

- Disable 'Force Decorate'

Disable the 'Force Decorate Events' feature on the Editor context (right-click) menu. Allows a user to return a property to its original value after it has been changed manually.

- Use Global Schedule Filename

Within the same Morpheus system, it is useful to be made aware of the name of the schedule that was last loaded onto a channel - this feature posts the name of that schedule in the bottom left-hand corner of the online Editor.

There are two modes:

- Local (disabled): the name of the last schedule that was loaded locally, on a per editor / per channel basis. This is the default mode.
- Global (enabled): the name of the last schedule that was loaded from any Editor, on a per channel basis

The last loaded schedule is defined as any of the following:

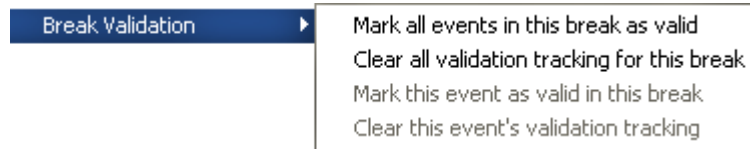
- One that has overwritten the current loaded schedule following the use of the Replace Schedule function
- One that has been added to the current loaded schedule following the use of the Append Schedule function
- One that has been renamed following a Save As instruction.

The schedule name is updated dynamically upon the most recent change.

- Enable commercial break validation functionality

Enables a verification process to ensure that each commercial in a break header is valid within its context before being played out. Refer to Section 13.32 Schedule Validation Service for further information.

When enabled, the following actions are added to the commercial break right-click menu on the Editor window:



- Horizontal Scrollbar For Grid

When enabled, a horizontal scroll bar is added into the Editor window - if the visible columns exceed the width of the screen the horizontal scroll bar appears thus allowing all columns to be viewed.

- Allow Active Timelink Hierarchy Template to be Changed

Allows timelink hierarchy templates on the schedule. The new function is displayed on the **Tools** menu as **Timelink Hierarchy**. Refer to Section 7.10.4 TimeLink Hierarchy Templates for further information.

- Enable Skypath Editor

For Grass Valley use only.

- Panoplay Oracle Address

Panoplay is a Morpheus application that allows channels on separate systems to be synchronized. Follower channel systems can be modified to be the same as Leader channel schedules. Enter the Panoplay Oracle address here.

For information on Panoplay, refer to Chapter 16. Panoplay

- Is PanoplayMirror?

On a mirrored Panoplay system, a mirror cannot become the Leader. When selected, this function disables the 'Become Leader' button on the Workstation. Refer to Chapter 16.4 Panoplay Status for further information.

- Panoplay Slave Banner Visible

Display the configured name of the Follower system as a banner across the Editor grid in order to clearly indicate its status. Refer to Chapter 7.7.5 Other Tab for information on configuring the names.

- Panoplay Control Visible

When **Panoplay Control Visible** is selected, PanoPlay buttons are displayed in the bottom left of the screen to allow switching between Leader, Follower and Un-Synchronized.

- MorpheusServices Servers (CSV host names)

Used for the collection of information from other systems.

- Material Transfer: Show Material Transfer Progress

Displays a bar in the main column on the Editor schedule to indicate the percentage of the material that has been transferred.

- Material Transfer: Update every

Sets the frequency with which Morpheus updates the material transfer status.

- Show Thumbnails

Creates a Thumbnail column on the Editor and displays a thumbnail for each item of material that exists in the configured Momentum system.

- **Update Every**

Enter a value that defines the frequency with which Morpheus updates the thumbnails.

13.2 Database Configuration Settings

The Database option applies to the search results area in the Palette (refer to page 5). Limit the number of rows displayed when a user searches for material.

To display the database settings, select **Database** from the left hand pane of the ConfigForm window.

Enter the maximum number in the **Maximum Result Set** field.

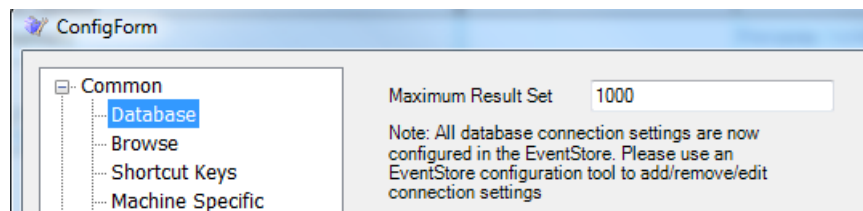


Figure 154 Editor Configuration - Database Settings

13.3 Browse

The 'Browse' function provides a thumbnail (a still frame) of the video content in the schedule on the Editor window. Clicking on the thumbnail allows a user to preview the scheduled video content before going to air.

The parameters in the **Editor Configuration > Browse** page allow the system to supply the thumbnails from a video storage device (such as a video server or an ICE) for broadcast quality, high resolution video clips, and/or from Momentum (if installed) for proxy clips (typically low resolution versions of the clips available from the video storage device).

Important: The Browse function is dependant upon Microsoft 'Desktop Experience' being installed. For installation instructions, refer to the Desktop Experience Overview at <https://technet.microsoft.com>

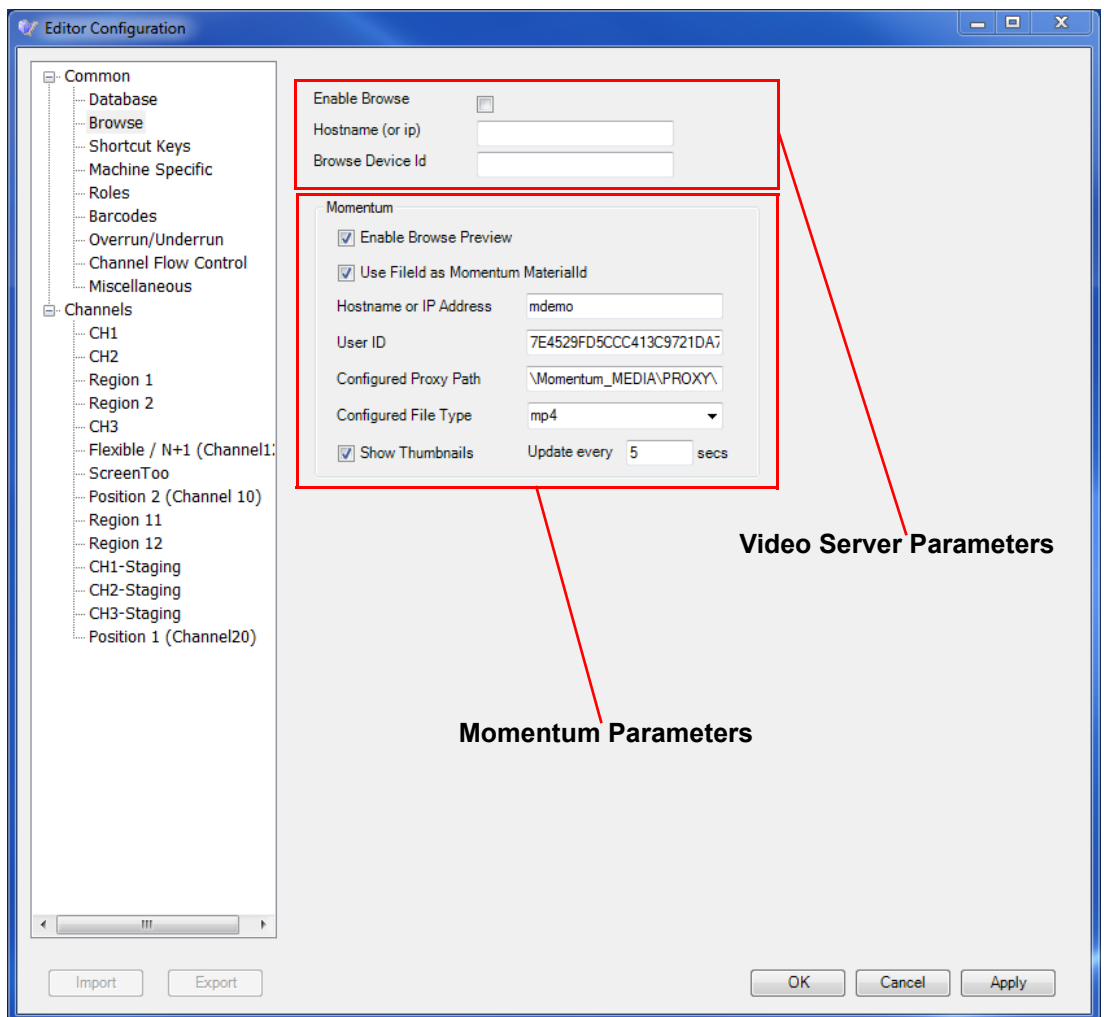


Figure 155 Editor Configuration - Browse Function

The configuration fields are divided into two sections:

13.3.1 Video Server Parameters

- Enable Browse

Tick the checkbox to allow browsing to a video server - not required for browsing to Momentum.

- Hostname (or IP)

Enter the unique computer name or IP address of the server on which the high resolution video clips are stored.

-Browse Device Id

Enter the device ID of the video server [named in 'Hostname (or IP)' above] - it must match a device ID that exists in the Configurator (Configurator > Devices > Device ID).

13.3.2 Momentum Parameters

- Enable Browse Preview:

Tick the checkbox to allow browsing of thumbnails and low resolution proxy clips on the Momentum system.

- Use FileId as Momentum MaterialId

Morpheus can be configured with both a FileId and a Material Id for the same media file, whereas Momentum uses only a MaterialId - tick the checkbox to force the MaterialID in Momentum to be the value of the FileId in Morpheus (the checkbox is greyed out unless The 'Enable Browse Preview' box has been ticked).

- Hostname or IP Address

Enter the unique computer name of the Momentum system, or its IP address.

- User ID

Enter a valid user ID, matching one that is already configured in the Momentum system.

- Configured Proxy Path

Enter the fully qualified path name of the folder containing the required low resolution files - it must match the path configured in Momentum. Note that many proxies can be configured within Momentum, each containing different files.

- Configured File Type:

The supported file types are **mp4** or **mov** - select one or the other from the drop-down menu

- Show Thumbnails

Tick the checkbox in order for thumbnails to be displayed in the Thumbnail column of the Morpheus Editor.

- Update Every n Secs

Specify the frequency at which the thumbnails displayed in Morpheus should be updated following thumbnail display changes in Momentum. The default is 10 seconds.

Note: In order to avoid any performance issues, it is recommended that the value of Update 'Every n Seconds' is set to the lowest acceptable frequency.

Note: The viewing of thumbnails within the Morpheus Editor is NOT dependent upon a Material ID being available on the playout server - this means that Momentum will still provide the thumbnail from the proxy database despite the actual material being unavailable for broadcast.

13.4 Shortcut Keys Settings

Shortcut keys are assigned to some Morpheus Editor commands, for example, **CTRL+ALT+C** to clear a current channel or **CTRL+D** to add a default event. The **Shortcut Keys** configuration function allows assigned shortcut keys to be change or removed.

To display the shortcut key options, select **Shortcut Keys** from the left-hand pane of the ConfigForm window.

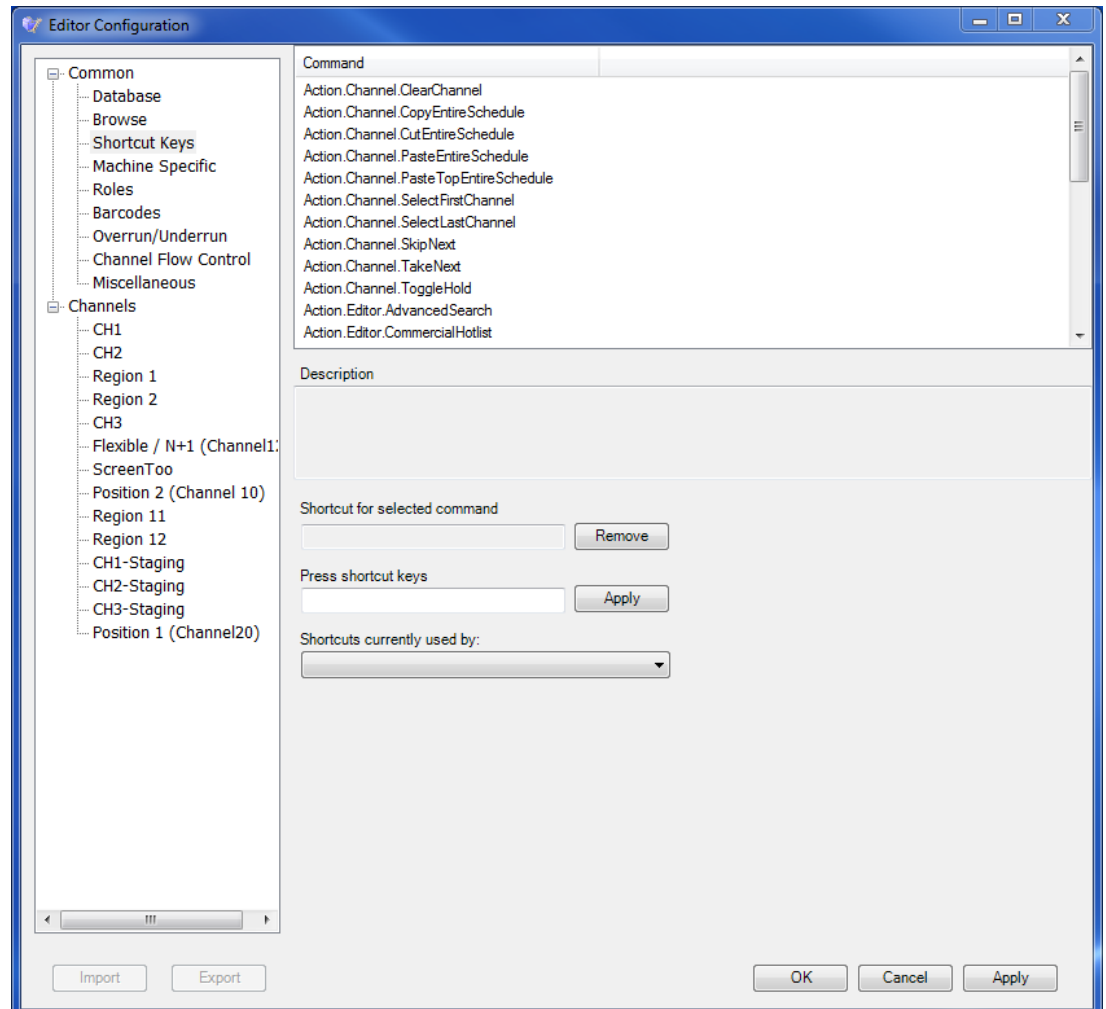


Figure 156 Editor Configuration - Shortcut Keys Settings

13.4.1 Assigning Shortcut Keys to a Command

1. Select the relevant Morpheus Editor command from the **Command** list.
The shortcut keys assigned to the selected command appear in the **Shortcut for selected command** field.
2. Click on **Remove** to remove the shortcut keys.
3. To enter a new shortcut key combination, click on the **Press shortcut keys** field and press the relevant keys on the keyboard.
For example, to assign **CTRL+ALT+S, P**, hold down the **CTRL** and **ALT** keys whilst pressing **S**. Release all keys then press **P**.
4. Click on **Apply**.

Note:

If the key combination entered is assigned to another command, then this command is displayed in the **Shortcuts currently used by** field.

13.5 Machine Specific Settings

The EventStore uses 'operator stations' to determine the channel that an operator is viewing on their workstation. Operator stations can be used for various tasks in Morpheus. For example, they can change the video routed to the monitor so that the video on the wall matches the channel the operator is working on.

An operator station first needs to be configured, (refer to 'Creating an Operator Station Name' below) then it can be selected in the Editor and Timeplane (refer to page 23).

To display the machine settings option, select **Machine Specific Settings** from the left-hand pane of the ConfigForm window.

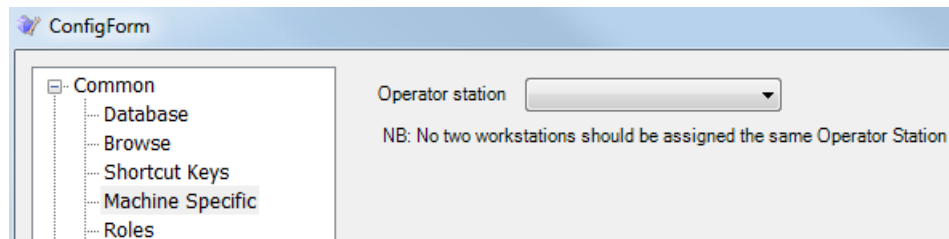


Figure 157 Editor Configuration - Machine Specific Settings

13.5.1 Creating an Operator Station Name

Before linking the Timeplane and Editor, ensure an operator station name has been created for the operator station.


1. Start the Configurator (refer to page 50).
2. From the **Advanced** menu, select **Operator Stations** to display the Operator Stations window.
3. Any existing operator station names appear on the list at the left of the window.
4. Click on **Add** and enter a name for the operation station in the field provided.
5. Select the router device, current channel and PMap device.
6. Select the required destination map and enter the required value in the field provided and click on **Save**.

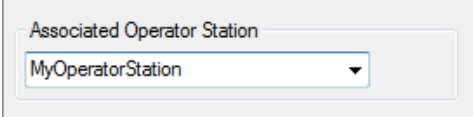
The operator station is added to the list.

13.5.2 Selecting an Operator Station Name for the Editor

On the Machine Specific Settings Editor configuration screen, select the required station name from the **Operator Stations** list and click on **OK**.

13.5.3 Selecting an Operator Station Name for the Timeplane

1. In the Timeplane application, display the Configuration window in either of the following ways:
 - From the **Edit** menu select **Config**.
 - On the Timeplane toolbar, click on the **Configuration** icon. 
2. On the Appearance tab for the required channel, select the required **Associated Operator Station** and click on **Save**.



The image shows a screenshot of a software interface. It features a light gray rectangular box with a thin border. Inside the box, at the top, is the text 'Associated Operator Station'. Below this text is a white rectangular dropdown menu with a thin blue border. The dropdown menu contains the text 'MyOperatorStation' and a small black downward-pointing arrow on the right side.

13.6 Roles

A role is a configured set of permissions and restrictions that are applied to a login account. Options that are not relevant for one user are disabled, yet the same options may be enabled for another user. Many roles can be created, each tailored to the requirements of different users (mainly operators), for example:

- Configure some channels to be visible, and others not.
- Disable some buttons on the toolbar.
- Enable and disable buttons on the Manual Intervention Panel (MIP), refer to page 5.
- Enable MediaBalls (page 53).
- Change the color of events to indicate the type of event, any warnings.

13.6.1 Displaying the Role Settings

From the left hand pane of the 'Editor Configuration' window, select **Roles**.

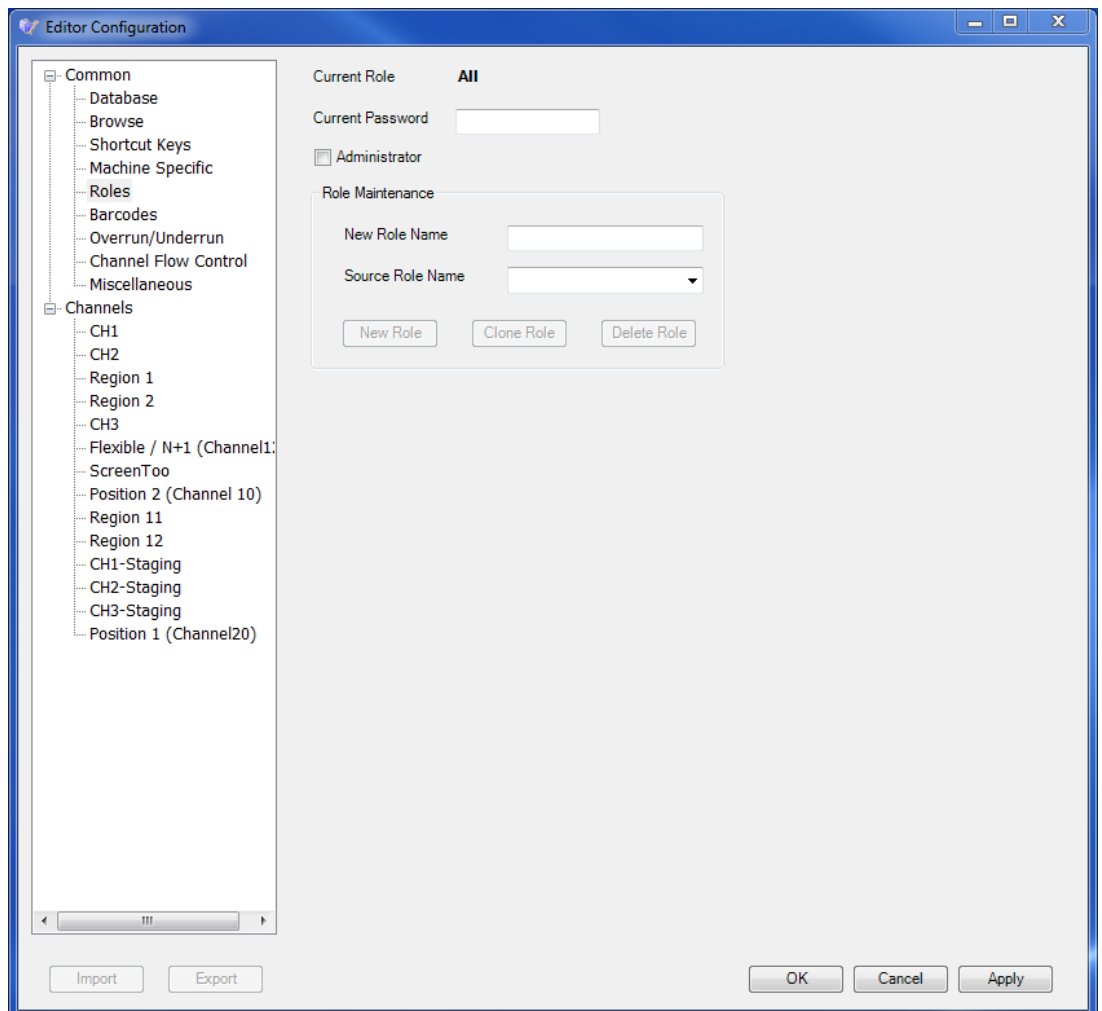


Figure 158 Editor Configuration - Role Settings

13.6.2 Creating a Role

Select a method of creating a role from one of the two options below.

13.6.2.1 'New' Role

A completely new role has only default settings - for example, many of the toolbar buttons are greyed out, the column widths need setting to display the column contents, and the Property Inspector fields (refer to page 5) are read only.

1. From the left-hand pane of the ConfigForm window, select **Roles**.
2. In the **New Role Name** field, type a name for the role.
3. Click on **New Role**.

13.6.2.2 Cloned Role

The permissions and restrictions of an existing role are copied into a new role, with a new name - simplifies role creation when a new role requires only a few changes over an existing one. To clone a role:

1. From the **Source Role Name** list, select a role on which to base the new one.
2. In the **New Role Name** field, type a name for the role and click on **Clone Role**.

13.6.2.3 Administrator (option)

Allows events on the schedule to be hidden according to the user role. Selecting this option displays events on the schedule and in the palette if the Visibility property for the Event Type on which they are based is set to 'Visible to Administrators'.

Note: The Event Type does not appear in the Property Inspector as a Subevent whether or not this option is selected

This option applies to all operators who are members of the current role. Refer to the Visibility parameter in Chapter 7.2.2 Event Type Properties for further information.

13.6.3 Deleting a Role

To delete a role:

1. From the **Source Role Name** list, select the role to delete.
2. Click on **Delete Role**.

13.6.4 Selecting a Different Role

To switch from one role to another:

1. From the Menu Bar select **File > Change Role**.
The Role Login window is displayed.
2. From the **Role name** list, select the required role.
3. When prompted, enter the password associated to the role and click on **OK**.

13.6.5 Setting Role Permissions and Restrictions

The setting or changing of permissions and restrictions associated with a role can only be performed when logged in to the Editor using that role - these tasks are not performed using an administrators account.

1. Start the Editor.
2. Log in:
 - a) Directly, using the role name for which permissions and restrictions are to be set, or
 - b) If already logged in to another role, switch roles to the one for which permissions and restrictions are to be set (Section 13.6.4 Selecting a Different Role).
3. From the Menu Bar, select **Tools > Configuration**, or click on the **Configuration** icon on the Toolbar.



4. Enter the 'Editor Configuration' password when prompted - this level of password protection prevents operators from changing their role permissions and restrictions. The Editor Configuration Window is launched.
5. Read through the remainder of this chapter for details on the configurable permissions and restrictions.

13.7 Barcodes

To display the Barcodes options, select **Barcodes** from the left-hand pane of the ConfigForm window.

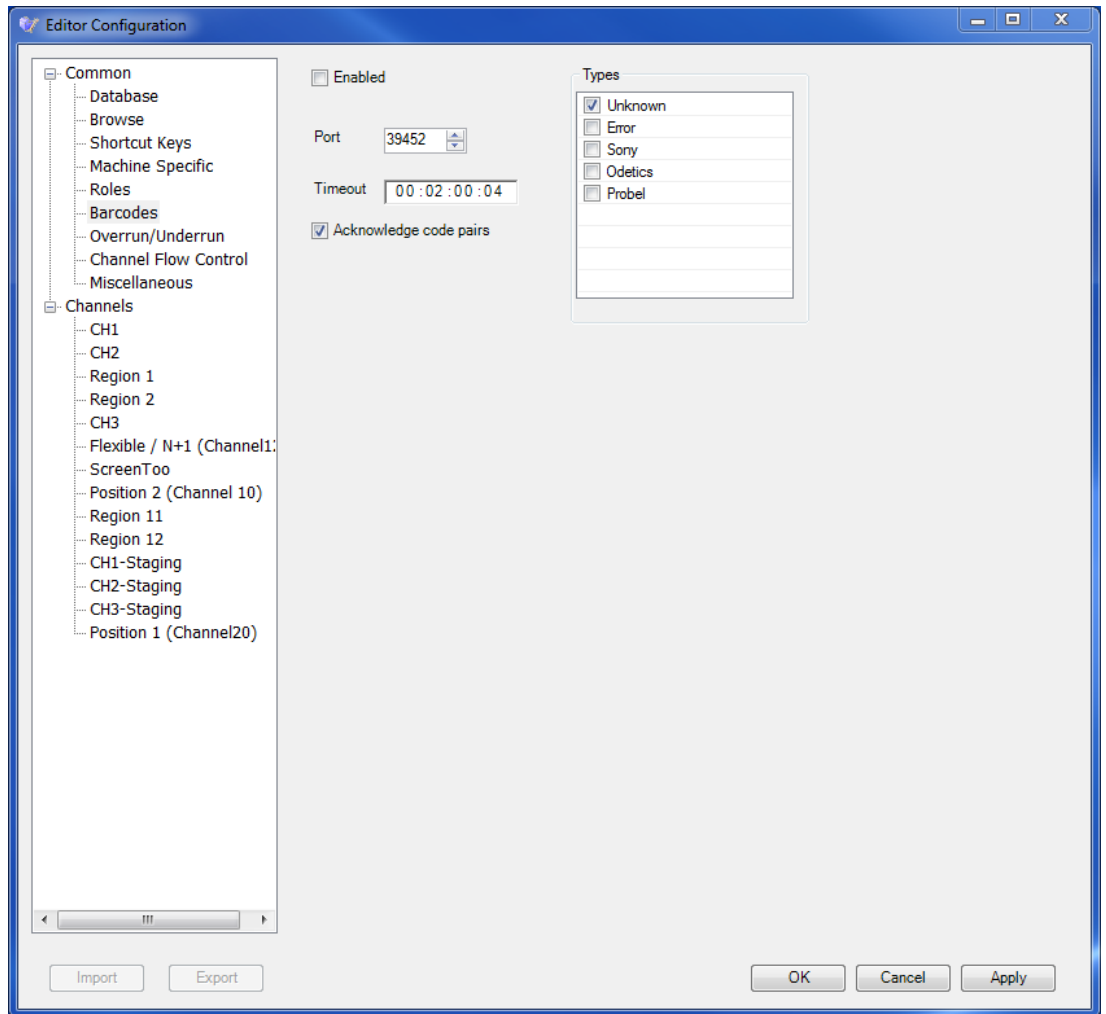


Figure 159 Editor Configuration - Barcodes Settings

Some of the settings are described in the table below.

Function	Description
Enabled	Enables barcodes.
Port	Enter the port number for the barcode reader.
Timeout	Enter the required timeout setting. The default setting is 00h02m00s00f.
Types	To enable specific equipment types, select the relevant check boxes.

Table 7 Barcode Settings

13.8 Overrun / Underrun

To display the Overrun / Underrun options, select **Overrun / Underrun** from the left-hand pane of the ConfigForm window.

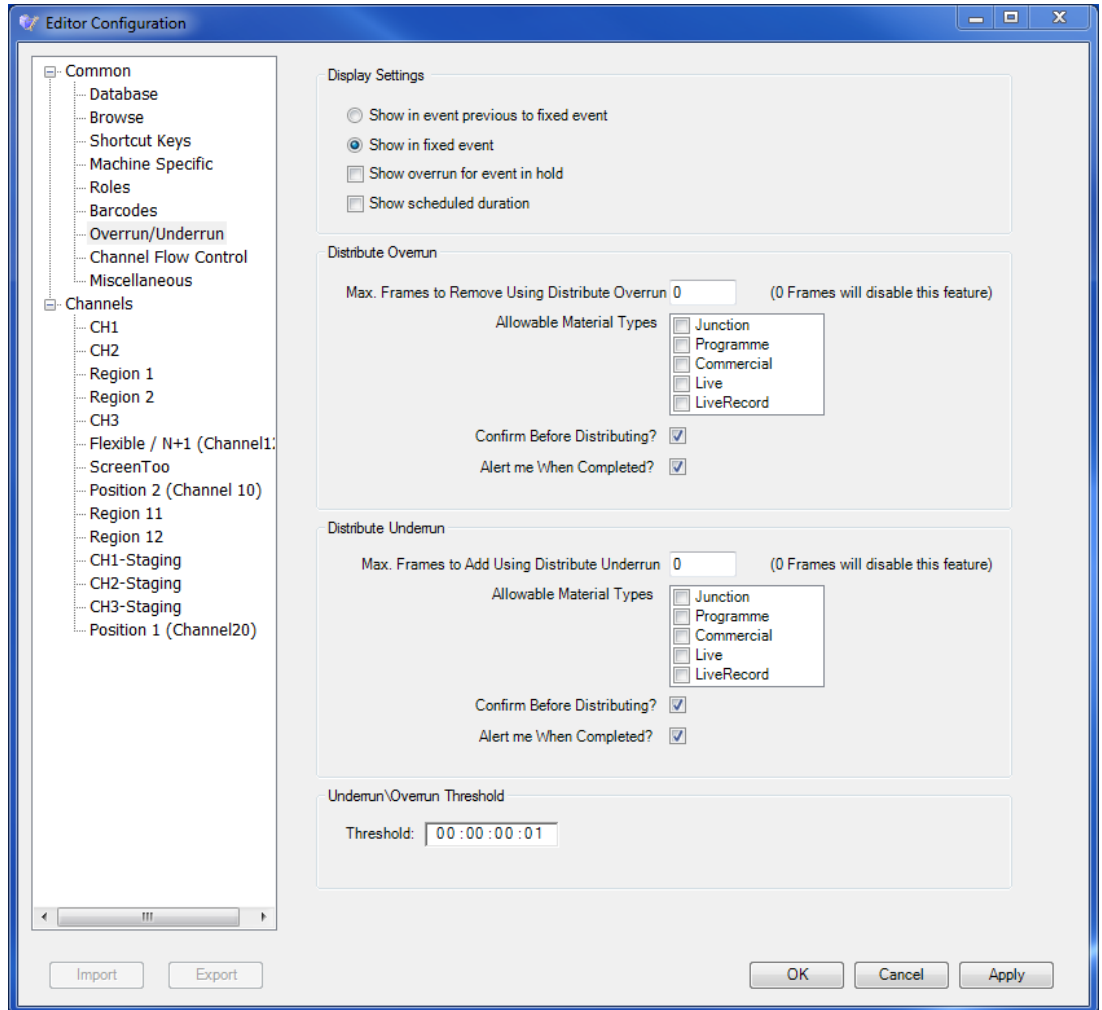
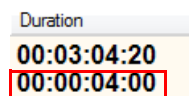


Figure 160 Editor Configuration - Overrun / Underrun Settings

Over and under runs can occur when there is a fixed event (refer to page 644) on the schedule:

- An ‘over run’ occurs when the fixed event is scheduled to begin during the previous event.
- An ‘under run’ occurs when the previous event is scheduled to end earlier than the fixed event’s start time.

When an over or under run occurs, a second timecode is displayed in the **Duration** field on the Editor schedule, below the event’s duration.



This indicates one of the following:

- How much material needs to be removed, in the case of an over run.
- How much material needs to be added, in the case of an under run.

13.8.1 Distributing Overrun / Underruns

Allows the user to correct any overruns / underruns in a schedule using the **Distribute overrun** function on the Editor right-click context menu. If an event is overrunning, the user selects this function and the system proceeds to find a list of candidate events and corrects the over or underrun by making a set of small adjustments to the durations of these selected events.

In the case of an overrun or underrun due to a fixed or timelink slave event, this is all the events in the main event chain from the point of the overrun or underrun to the previous event that is either fixed, timelink slave or has started.

In the case of an overrun or underrun caused by a fixed duration break header, the set of candidates is all the events in the header. In either case, only material types that are configured as available for distributed overrun or underrun are available as candidates to be clipped or extended.

If there are insufficient candidate events to correct the over or underrun, a window is displayed to indicate the current over or under run and the maximum correction that can be made. For example:

Overrun of 00:00:00;10 cannot be distributed over 6 events. The maximum correction that can be made is 00:00:00:06. Do you wish to continue? [Yes] [Cancel]

13.8.2 Configuring Overrun / Underrun Behavior

13.8.2.1 Display Run Settings

Specify whether over/under runs are indicated in the **Duration** field for the fixed event or for the event that precedes it.

Each function is described in the table below.

Function	Description
Show in event previous to fixed event	Indicates an under or overrun in the Duration column of the event prior to the fixed event.
Show in fixed event	Displays an under or overrun in the Duration column for the fixed event.
Show overrun for event in hold	Applies when the on air event is on hold and overruns. When selected, the amount by which the event has overrun appears as a white timecode above the event's red countdown progress bar in the Duration column. When the event has been released from hold the overrun value is no longer relevant and is removed.
Show scheduled duration	Enable to display the scheduled duration in the event of an event underrunning or overrunning. If this function is clear, Morpheus shows the currently adjusted duration. In both cases, the amount of time added or subtracted for the event is displayed below the event duration.

Table 8 Over Run/Under Run Settings

13.8.2.2 Distribute Overrun

Configure the parameters and the user experience for any overruns as follows:

- **Max. frames to remove using Distribute Overrun** - enter the maximum number of frames to remove from each eligible event. If this value is 0 (zero) then the Distribute Overrun feature is disabled.
- **Allowable Material types** - only the selected material types are clipped. If this list is empty then the Distribute Overrun feature is disabled.
- **Confirm before distributing** - presents the user with a confirmation window before the overrun is redistributed.
- **Alert me when completed** - presents the user with a completion window after redistributing the overrun.

13.8.2.3 Distribute Underrun

Configure the parameters and the user experience for any underruns as follows:

- **Max. frames to remove using Distribute Underrun** - enter the maximum number of frames to add to each eligible event. If this value is 0 (zero) then the Distribute Underrun feature is disabled.
- **Allowable Material types** - only the selected material types are extended. If this list is empty then the Distribute Underrun feature is disabled.
- **Confirm before distributing** - presents the user with a confirmation window before the overrun is redistributed.
- **Alert me when completed** - presents the user with a completion window after redistributing the underrun.

13.8.2.4 Underrun/Overrun Threshold

Sets a minimum amount of time below which Morpheus ignores any underrun or overruns. For example, if the event is due to underrun/overrun by more than the configured value, the event background changes to the color configured for Underruns/Overruns in the Colours tab. If an event is due to underrun/overrun by less than the configured value, the event does not change color. The default value is 1 frame.

13.9 Channel Flow Control-Join In Progress (CFC-JIP)

A procedure that recreates a specified section of a schedule from a Source Channel onto a Staging Channel in order to allow for interruptions to the on-air source, whilst providing the capability of resuming scheduled time. This feature allows for the following:

- A program to overrun
- Switching to an unscheduled live event
- Preserving a section of a live schedule from the contingency of possible or necessary change
- Modification of the live schedule on the Source Channel, and the resumption of original events at their scheduled time, when appropriate
- Modification of a section of the schedule off-air on a Staging Channel, and to subsequently overlay it back onto the Source Channel for broadcast as an alternative to the scheduled events

Events on the Staging Channel continue to run at scheduled time without being broadcast, i.e. they are Dead-Aired, allowing for the original schedule to be rejoined as follows:

- At the point at which it would have been had there been no interruptions.
- Using alternative events

There are two mechanisms:

Channel Flow Control (CFC)

Source and Staging Channel coordination, Dead-Roll and Take Live functions.

Join In Progress (JIP)

The Rejoin function.

Note: JIP is a function of CFC.

The following CFC-JIP functions are available:

- **Dead-Roll**

The preservation of a Show, or of the events within a designated period of time in the schedule, from a Source Channel onto a Staging Channel.

The time span of a Dead-Roll can be selected: 30, 60, 90 minutes, or for the duration of the currently selected Show.

Note: A Dead-Roll can start at any time, either during the PGM event or from the start time of any other event in the future. However, a Dead-Roll cannot end mid way through an event, i.e. when selecting a fixed duration of 30, 60, or 90 minutes, the final event in the Dead-Roll Set will be the last one that will finish before the end of the selected duration. For example, if a Dead-Roll of 30 minutes is selected to start on an event that has a duration of 20 minutes, then the next event must have a duration of 10 minutes or less in order to be included in the Dead-Roll.

- **Take Live**

An event of fixed duration is inserted into the current schedule and the source is immediately switched to a preconfigured alternative, thereby delaying the scheduled events. A Deadroll is performed concurrently by the system for a default duration as defined by the value of the Deadroll Window.

The intended purpose of this feature is to interrupt the schedule with a live event.

For configuration details refer to Section Take Live Configuration.

Note:

The Dead-Roll and Rejoin processes are manual, requiring an Operator to select the section of schedule to preserve on the Staging Channel, and the point at which a Rejoin takes place (if any).

- **Rejoin**

The Join In Progress - the process of using the Staging Channel for one of the following purposes:

- To resume the broadcast of original events at scheduled time.
- To override the original events with a modified schedule.

13.9.1 CFC-JIP Intended Environment

Any broadcast system where channel flexibility combined with schedule preservation are required, such as in the following examples:

- The on-air schedule is required to be periodically interrupted
- An event is required to overrun
- Changes to sections of the on-air schedule are required, for broadcast if and when necessary

Note:

CFC-JIP states (Dead-Roll, Take Live, Rejoin etc.) are persisted across separate Operator Stations.

13.9.2 CFC-JIP Terminology

This section provides brief definitions of the common terms used throughout CFC-JIP - refer to later sections for their technical applications.

Source Channel

The active channel, running the on-air schedule.

Origin Event

The original events on the Source Channel, identifiable from their OIDs.

Staging Channel

The isolated channel on which the Dead-Roll is performed. A Dead-Roll consists of either a number of events, or a show, selected from the Source Channel. A Staging Channel is bound to a single Source Channel, and it can operate in exactly the same way, except that no events on a Staging Channel will ever go to air.

Note:

It is not possible to load a schedule directly onto the Staging Channel outside of the CFC-JIP process.

A Dead-Rolled schedule on the Staging Channel may be modified if either Dynamic Rejoin modes are intended to be used for the Rejoin (refer to Section 13.9.3 Rejoin Modes) - any modification to the part of the schedule on the Source Channel that has been Dead-Rolled will be overwritten upon a Rejoin.

Dead-Roll

The mechanism by which the chronology of a schedule is preserved by running a matching set of events from a Source Channel on a Staging Channel. Events in the schedule on the Staging Channel are not broadcast. The duration of a Dead-Roll is selectable from a set of predefined options:

- An entire 'Show'
- 30, 60, or 90 minutes of the schedule

Refer to the Morpheus Operator's Manual.

Take Live / Take Live All

A function that is designed to interrupt the current event on the Source Channel by inserting a live event into the schedule from an alternative source - a Take Live can be performed on the selected channel (that which is currently in view in the Editor) or on multiple channels simultaneously by performing a Take Live All.

- A Dead-Roll is performed on the current 'Show' and the system 'Takes into' the live event. The duration of the live event inserted into the Source Channel schedule is preconfigured, although this is a nominal value only- the PST event is set to Manual Take, therefore the live event has the Hold flag set
- The duration of the Dead-Roll is preconfigured
- Resume the schedule at a selected point in time during the live event by performing a Rejoin within the Rejoin Timeframe.

Rejoin

The Join In Progress. Events from the Dead-Roll Set on the Staging Channel provide the means of resuming the original schedule at the point at which it would have been had it not been interrupted, and in accordance with the selected Rejoin mode. The nature of the Rejoin can be selected:

- Single Rejoin - applies only to the selected channel
- Group Rejoin (gang Rejoin) - applies to multiple channels



Regardless of the selected Rejoin Mode, a Rejoin is only possible for the duration of the Dead-Roll.

Rejoin Timeframe

Applies to all Rejoin modes.

The current duration of the Dead-Roll Set within which a Rejoin is possible. The Rejoin Timeframe extends from the PGM on the Staging Channel to the end of the Dead-Roll Set. The Rejoin Timeframe diminishes as events on the Staging Channel are Dead-Aired.

Modifying the Dead-Roll Set

If events on the Staging Channel are altered following the Dead-Roll, then the Rejoin Timeframe will change according to the duration of those events - in this case, only the dynamic rejoin modes are supported. Due to its nature, a Mapped Rejoin must not be attempted if events on the Staging Channel have been modified. If the Dead-Roll Set has been modified, once a Rejoin is performed the Dead-Roll End Marker on the Source Channel can no longer be used as a time reference against the original schedule time.



Regardless of the selected Rejoin Mode, a Rejoin is only possible for the duration of the Dead-Roll.

Channel Flow Control (CFC)

The mechanism that uses the Source / Staging Channel pair to perform the Dead-Roll, Take-Live and Rejoin functions.

Dead-Roll Set

The group of events that have been Dead-Rolled on the Staging Channel prior to a Rejoin Instruction (whether or not one occurs).

Dead-Airing

The action of running a schedule on a Staging Channel without broadcasting the events.

Rejoin Calculation

The procedure that assesses the candidacy of the event that will lead in the rejoin process, based upon the state of the playout device(s), the length of the Bumper that will precede the Rejoin Event, and the remaining duration of the candidate event.

A candidate Rejoin Event can only be a Main Event.

For details on the Rejoin Calculation, refer to Section 13.9.4 The Rejoin Calculation.

Counterpart Event

A duplicate of an Origin event, appearing on the Staging Channel in the Dead-Roll Set, and on the Source Channel following a dynamic mode Rejoin.

Natural Rejoin Event

The event on the Staging Channel that is PGM at the point of a Rejoin Instruction - it is *expected* to lead in the rejoin process, ahead of the Rejoin Calculation result finding it an acceptable candidate.

Candidate Event

Any Origin Main Event on the Source Channel at, or after, the point of a Rejoin. The events are evaluated in turn, and in scheduled order, by the Rejoin Calculation, for the purpose of nominating the Calculated Rejoin Event.

Calculated Rejoin Event

The Main Event that has been selected by the Rejoin Calculation as the candidate to lead in the rejoin process - depending upon the selection criteria of the Rejoin Calculation, any Candidate Event (including the Natural Rejoin Event) could be selected.

Note:

Unless there are very short events in the schedule, it is likely that the Calculated Rejoin Event will be either the PGM or the PST event on the Source Channel.

Rejoined Event

The first event to air on the Source Channel after the Bumper Event, following a Rejoin.

Preserved Event

An event that is identified when a Dead-Roll Set has not yet fully expired and a Preserved Rejoin Instruction is issued. It describes Origin Events on the Source Channel that are within the boundaries of the Rejoin Timeframe; they are subsequently disabled by the system and displaced to a position below the events copied from the Staging Channel, in between the first Dead-Roll End Marker (copied from the Staging Channel) and the last Dead-Roll End Marker (the original Source Channel End Marker). As Origin Events, they can be enabled if required in order to replace the Counterpart Events copied from the Staging Channel (in which case the Counterpart Events should be disabled).

Residual Event

An Origin Event that was included in Dead-Roll and will remain on the Source Channel after a Rejoin has been performed in the following situations:

- When an event has overrun on the Source Channel
- When the duration of the Rejoin Timeframe has been purposefully reduced (for example if one or more events have been deleted from the Dead-Roll Set)
- A combination of an overrun on the Source Channel and a reduction in the duration of the Rejoin Timeframe

The number of Residual Events present on the Source Channel will depend on the states of the Source and Staging Channels at the point of the Rejoin, such as:

- The remaining duration of the Rejoin Timeframe
- The duration of the Source Channel event overrun

Note:

Residual Events will only be present when a dynamic rejoin mode is used (Override or Preserved)



In most cases, it will be desirable to manually delete all Residual Events following a Rejoin - this is particularly relevant if scheduled time is to be resumed on the Source Channel.

For detailed information on the dynamic rejoin mode, refer to Section 13.9.3.2 Override Mode and Section 13.9.3.3 Preserved Mode.

Bumper Event

The event that is inserted by the CFC to be broadcast on the Source Channel schedule, ahead of the Rejoined Event, in order to inform the end viewer that the scheduled events are about to resume. The Bumper Event could be a logo, graphic, or a clip from an evergreen source.

Rejoin Delay

A fixed amount of time used in the Rejoin Calculation to allow for the following:

- The normal schedule to be resumed according to the selected Rejoin Mode
- The held PGM to finish playout, the duration of which is defined by the parameter 'Min. Remaining Time of Held Event'
- The source device to prepare to play the Bumper event

Bumper Duration

The duration over which the Bumper Event will be played, as determined by the Rejoin calculation - it is set in the configuration at a fixed minimum, however it may be extended by the Rejoin Calculation as required.

The Rejoin Calculation takes account of the actual duration of the Bumper Event.

Rejoin Offset

The term used to describe the combined duration of the Rejoin Delay and the Bumper Duration.

13.9.3 Rejoin Modes

Different Rejoin modes are available to determine how the schedule is resumed on the Source Channel:

- Mapped
- Override
- Preserved

By default, a Rejoin can only be performed from the CFC Interface (refer to the Morpheus Operator's Manual).

Note: It is possible for all CFC operations to be activated via a script - contact Grass Valley engineering if this is a requirement.

A Rejoin mode can only be selected once a Dead-Roll has been activated, but can be changed at any point up until a Rejoin instruction has been executed.



Regardless of the selected Rejoin Mode, a Rejoin is only possible for the duration of a Dead-Roll (the Rejoin Timeframe).

Note: Failure to Issue a Rejoin Instruction

- A Dead-Roll has been performed, there has been no change to Events on the Source Channel, and no Rejoin has been actioned:

No consequences. When the Dead-Roll expires (a Dead-Roll can only ever have a fixed duration) then all events on the Staging Channel are deleted at the point of of the next Dead-Roll unless the Channel Flow Control Service is running (for example, if Preserve Aired Staging Events is enabled). The Events on the Source Channel are broadcast according to the original schedule.

For information relating to Preserve Aired Staging Events, refer to Section Channel Configuration.

- A Dead-Roll has been performed, the schedule on the Source Channel has been modified, no Rejoin has been actioned but the Dead-Roll has now expired:

The original timing of the schedule cannot be retrieved, therefore all events following the changes will air late - manual intervention will be required if schedule time is to be restored.

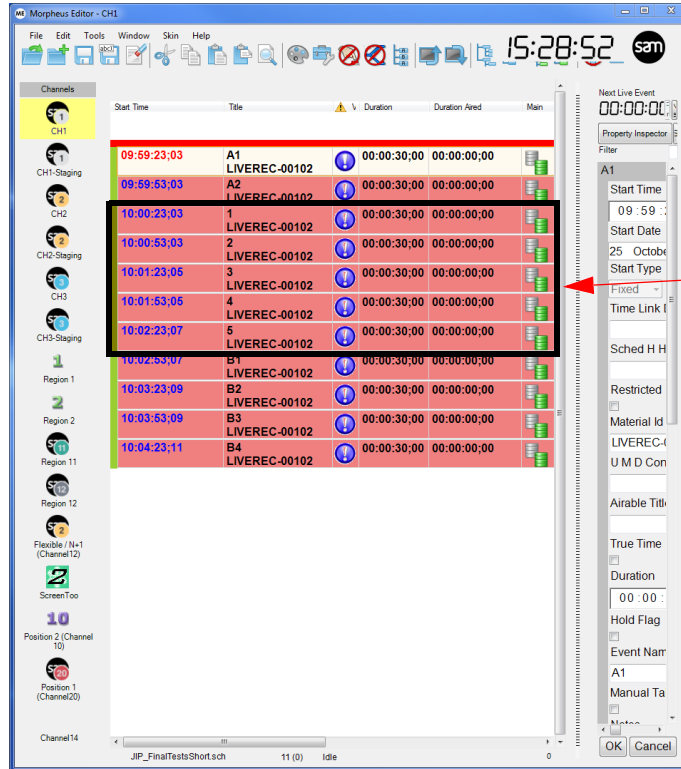
Note: Dealing with Time Link Declarations and Time Link References

Due to their nature, if present in a Dead-Roll Set, both Time Link Declarations and References are disabled by the Channel Flow Control system - they are labelled as such with the following suffix

'_CFC_DISABLED'

Upon a Rejoin, the suffix is removed and the Time Links are enabled on the Source Channel.

The Rejoin modes are described using schedule scenarios in the Editor. The original Source schedule is shown in Fig. 161, a section of which (a Show) is Dead-Rolled - specific modifications have been made to the schedules on both the Source and the Staging channels, in different combinations in order to demonstrate the effects of different Rejoin modes. Regardless of the Rejoin Mode, the Source schedules are identical.



'Show' to Dead-Roll

Figure 161 Source Channel Schedule

The Source schedule consists of three shows, as follows:

- Show 1: two events, A1 and A2. Event A2 is used in all overrun examples.
- Show 2: the Dead-Rolled show in all examples, containing events 1-5. These events are reproduced on the Staging Channel and will demonstrate the effect of different Rejoin Modes on the Source Channel. For the sake of clarity, once Dead-Rolled, three asterisks (***) have been manually prepended to the titles of all events on the Staging Channel in order to facilitate their identification on the Source Channel following a Rejoin.
- Show 3: four events, B1-B4.

All events have an initial duration of 30 seconds, unless modified in order to demonstrate the effect of Source and / or Staging Channel schedule alterations ahead of a Rejoin. Any modification is clearly stated in each example.

Each Rejoin example is illustrated with the Staging Channel (on the left) and the Source Channel at the point at which a Rejoin has been performed - the Rejoin instruction is issued mid-way though event 3 on the Staging Channel in all examples.

13.9.3.1 Mapped Mode Rejoin

This mode is designed to make it possible to resume schedule time on the Source Channel following an event overrun (such as an extended sports program or news bulletin).

Mapped Mode Rejoin

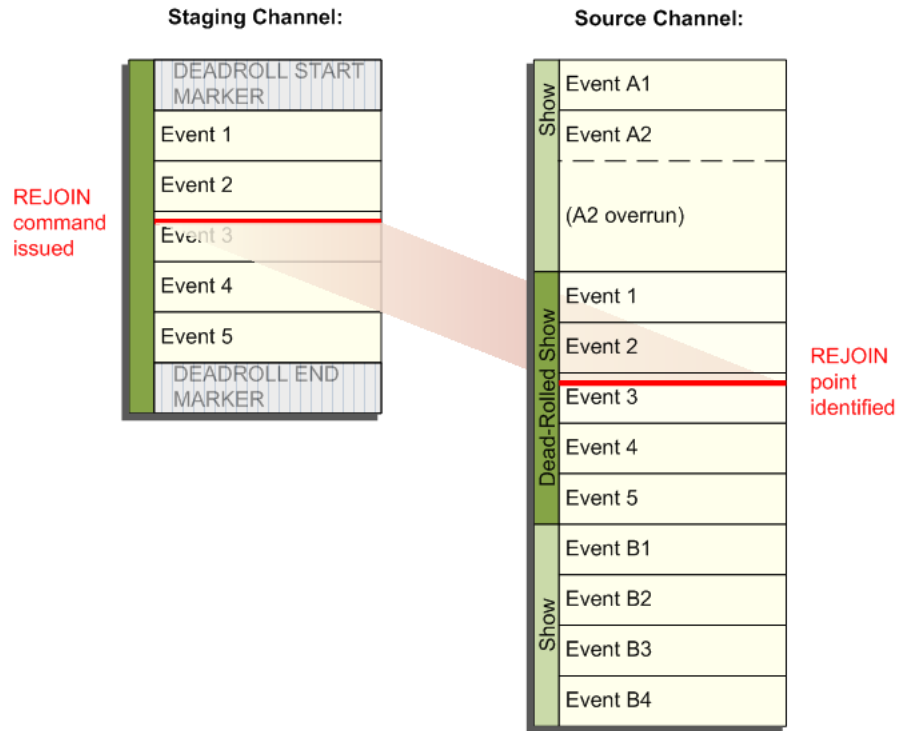


Figure 162 Mapped Rejoin Mode Concept

It is a static mode that synchronises Origin Events on the Source Channel to the Dead-Rolled Counterpart Events on the Staging Channel in order to maintain an accurate one to one mapping - by referencing a single point in time in the Dead-Roll Set relative to an event at the point of the Rejoin Instruction, this mode identifies precisely where to resume an event on the Source Channel (the Rejoined Event) thereby preserving schedule time.

No events are copied from the Staging Channel when using the Mapped Rejoin mode - the Rejoined Event, and all that follow, are the Origin Events on the Source Channel.

Important: Mapped mode offers the highest performance, and is recommended for use in all Rejoin cases. A Mapped mode Rejoin will fail if changes have been made to the schedule on either the Source Channel or the Staging Channel, with one exception: a Mapped Rejoin is supported following a Take Live, despite the insertion of an event onto the Source Channel.

Note: The duration of the Rejoined Event is reduced in order to absorb the Rejoin Delay and accommodate the broadcast of the Bumper Event.

Note: Events on the Staging Channel are Counterparts of the Origin Events on the Source Channel, and as such they are allocated new OIDs. A table is maintained by CFC in order to associate the OID of the Origin Event with that of the Counterpart Event. In Mapped Rejoin mode, the Dead-Roll is only used as a time reference for the Rejoin, the Origin Events will always retain their original OIDs.

For information relating to the CFC Markers, refer to the Morpheus Operator’s Manual.

Mapped Rejoin Example 1: Overrun on Source Channel

At the point of the Dead-Roll instruction, the Staging Channel appears as shown in Fig. 163.

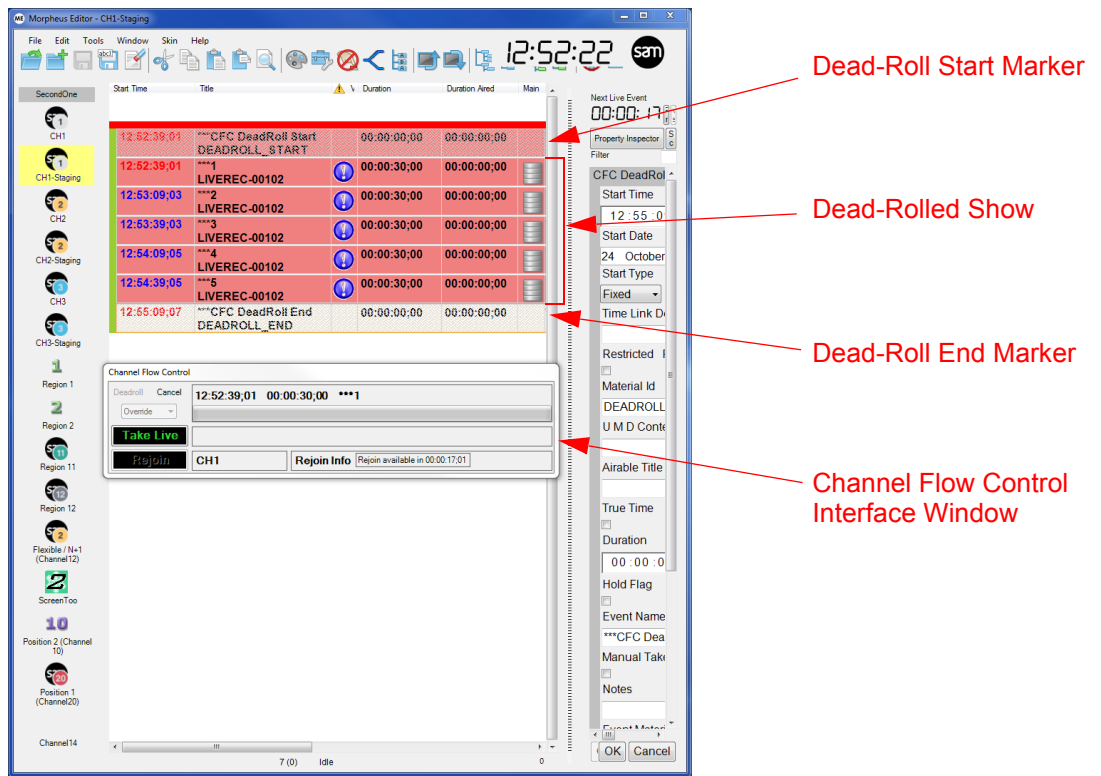


Figure 163 Mapped Rejoin Example 1: Staging Channel Schedule

Event A2 has been allowed to overrun by manually placing it on hold. Events 1- 5 have been Dead-Rolled.

At the point of the Rejoin in event 3, the following occurs on the Source Channel:

- 6. The hold is removed from the overrunning PGM event (event A2), allowing it to air for the duration of the Rejoin Delay and is then followed by the Bumper Event.
- 7. Events 1 and 2 have already Dead-Aired on the Staging Channel, and are therefore disabled on the Source Channel by the system.
- 8. Event 3 goes to air at the point that it would have been had there been no overrun, and the events that follow play out according to the original scheduled time.

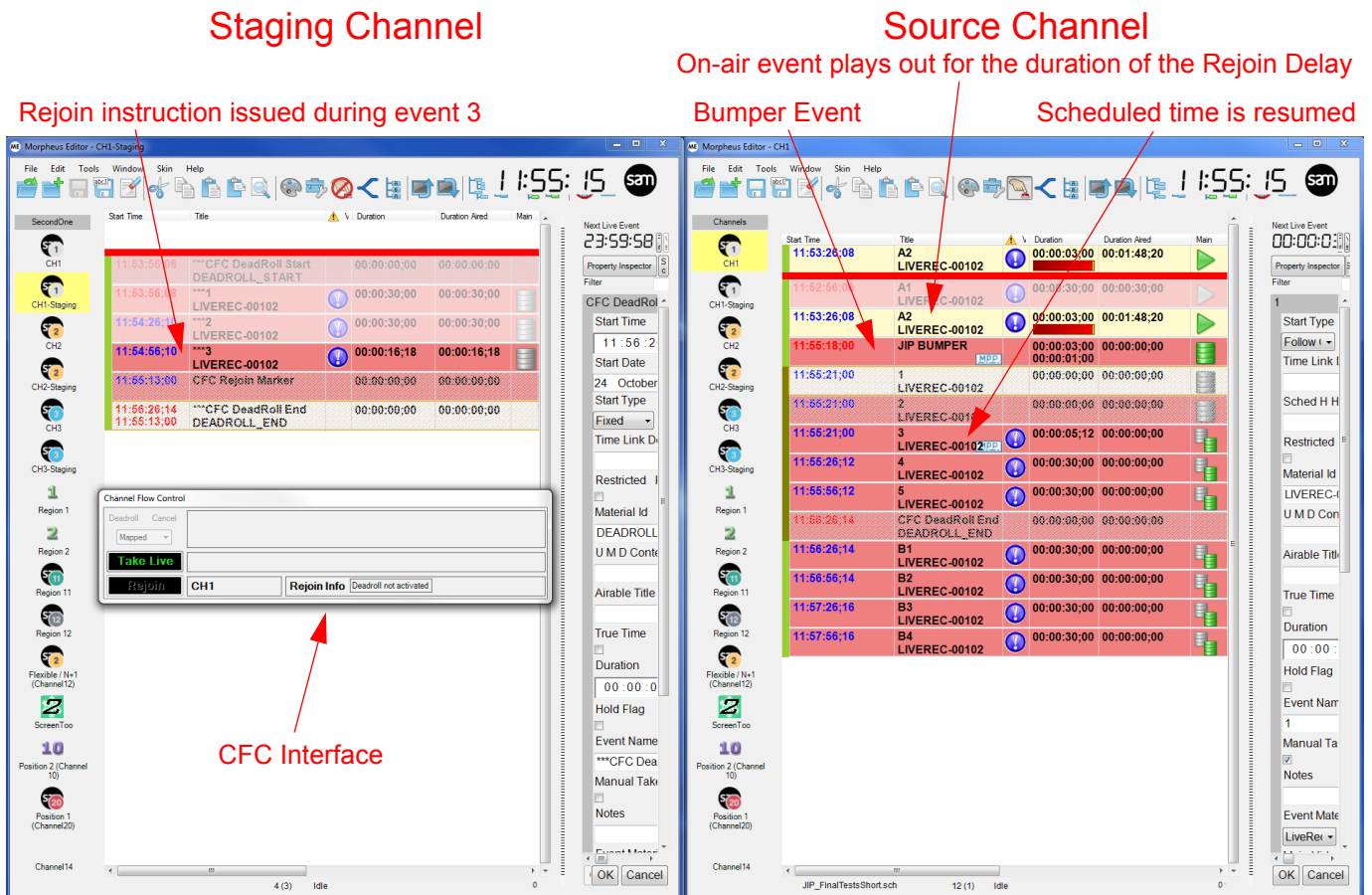


Figure 164 Mapped Mode Rejoin Example 1: Overrun on the Source Channel

Note: This example is based on a Dead-Roll. In the case of a Take Live, no event is required to be on hold if rejoining before the end of the inserted live event on the Source Channel.

Mapped Mode Example 2: Event Insertions on Source Channel

In this example, no overrun has occurred, but three additional events of 30 second duration each have been inserted into the Source Channel Schedule (2a, 2b and 2c). Events 1- 5 have been Dead-Rolled.

Note: This example is based on observation only and is not recommended as a use case - if any changes are made to the Source or Staging Channels, then a Dynamic Rejoin mode should be used.

At the point of the Dead-Roll instruction, the Staging Channel appears as shown in Fig. 165.

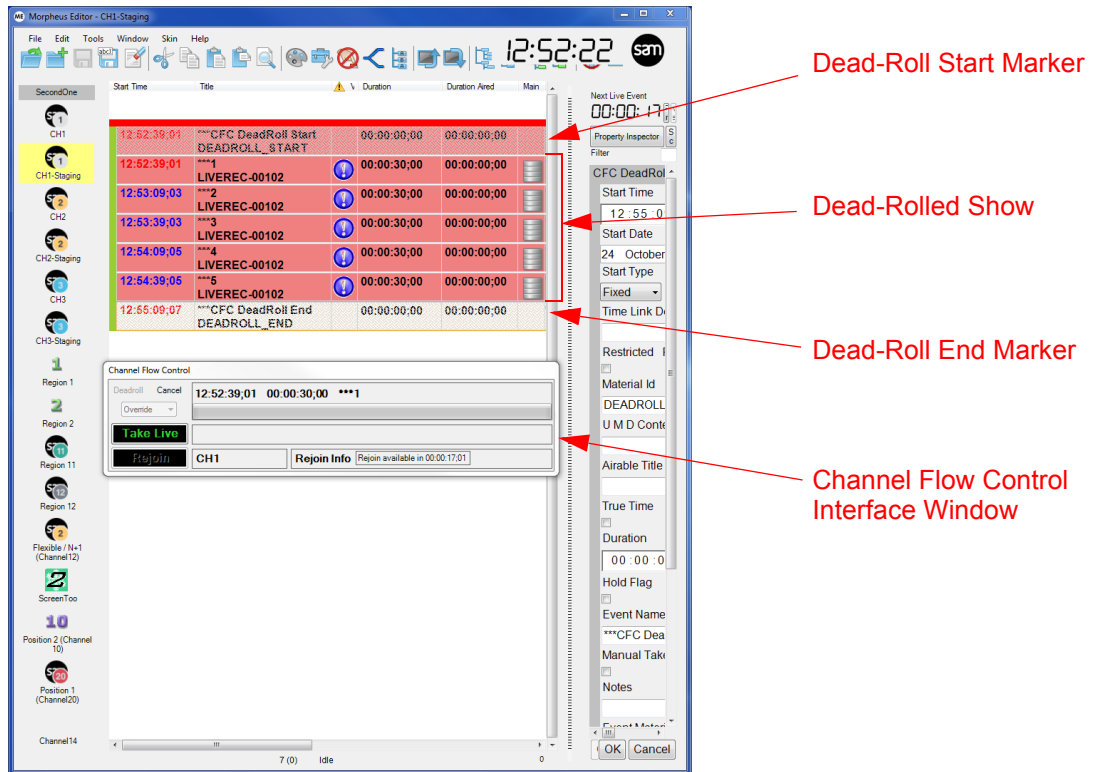


Figure 165 Mapped Rejoin Example 2: Staging Channel Schedule (Dead-Roll)

At the point of the Rejoin in event 3, the following occurs on the Source Channel:

1. Events A1, A2, 1 and 2 have aired successfully, and new event 2a is already airing - this event does not appear on the Staging Channel, as it was added to the Source Channel after the Dead-Roll was performed (the same applies to events 2b and 2c).
2. Event 2a airs for the duration of the Rejoin Delay and is then followed by the Bumper Event.
3. The CFC system disables events 2b and 2c in order to resume event 3 at the point that it should be according to the original schedule time, followed by the remaining events

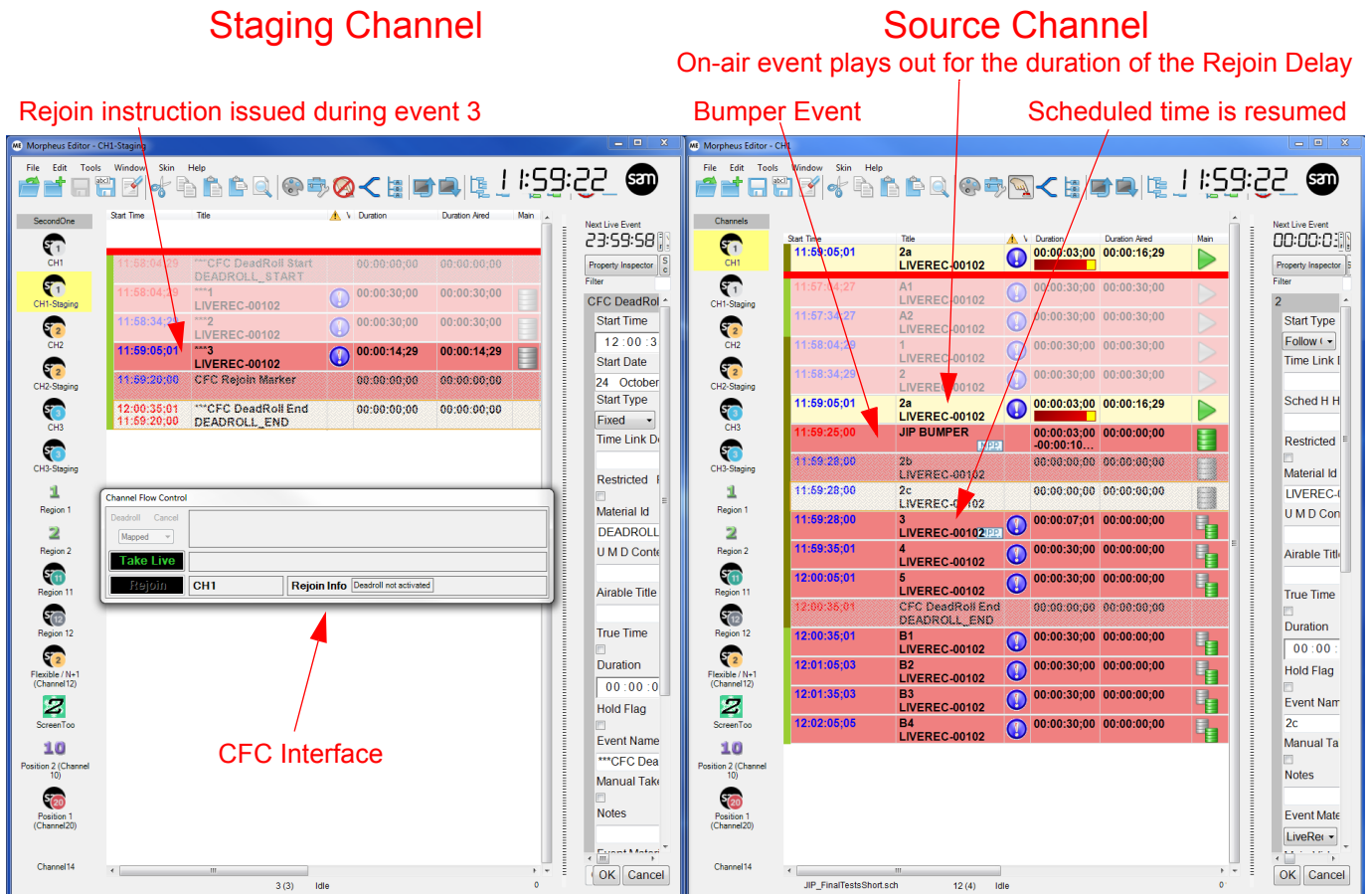


Figure 166 Mapped Mode Rejoin Example 2: Additional Event Insertions on the Source Channel

13.9.3.2 Override Mode

This is a dynamic mode that acts upon events that are within the Rejoin Timeframe (the length of time between the PGM event at the point of the Rejoin Instruction, to the end of the last event in the Dead-Roll Set). At the point of the Rejoin, the events (or parts of events) that are within the Rejoin Timeframe will replace those on the Source Channel that occupy the same period of time. Any events on the Source Channel that are straddled by the end of the Rejoin Timeframe are deleted.

This is demonstrated in Fig. 167, where the Dead-Roll has been modified by deleting event 5, and increasing the duration of Event 4 by that of the deleted event. At the point of the Rejoin, events 3 and 4 from the remaining Dead-Roll (the duration of which is the Rejoin Timeframe) will overwrite Origin Events 3, 4, and 5 on the Source Channel.

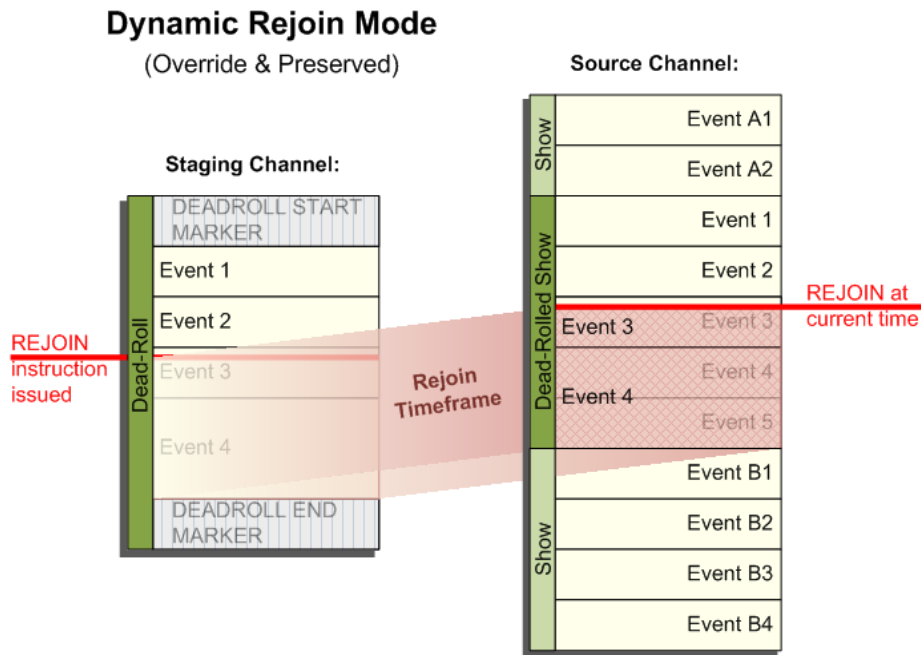


Figure 167 Dynamic Rejoin Mode Concept

Override mode is designed to make it possible to modify the contents and the length of the schedule on the Staging Channel, during the Dead-Roll and ahead of the Rejoin, allowing a different selection of events to be overlaid onto the Source Channel. The Rejoin Timeframe may be changed if events on the Staging Channel are modified.

Note: If the Dead-Roll Set has been modified, once a Rejoin is performed the Dead-Roll End Marker on the Source Channel can no longer be used as a time reference against the original schedule time.

In this second example (Fig. 168), event A2 has been allowed to overrun. At the point of the Rejoin, events 3, 4, and 5 from the Dead-Roll will overwrite Origin Events 1, 2, and 3 on the Source Channel as they have been delayed by the duration of the overrun. This has the effect of leaving Residual Events in the Source Channel schedule, i.e Origin Events 4 and 5 - if they are not deleted, the material identified by these events will be broadcast twice (once from the Rejoined Events, and again from the Origin Events).

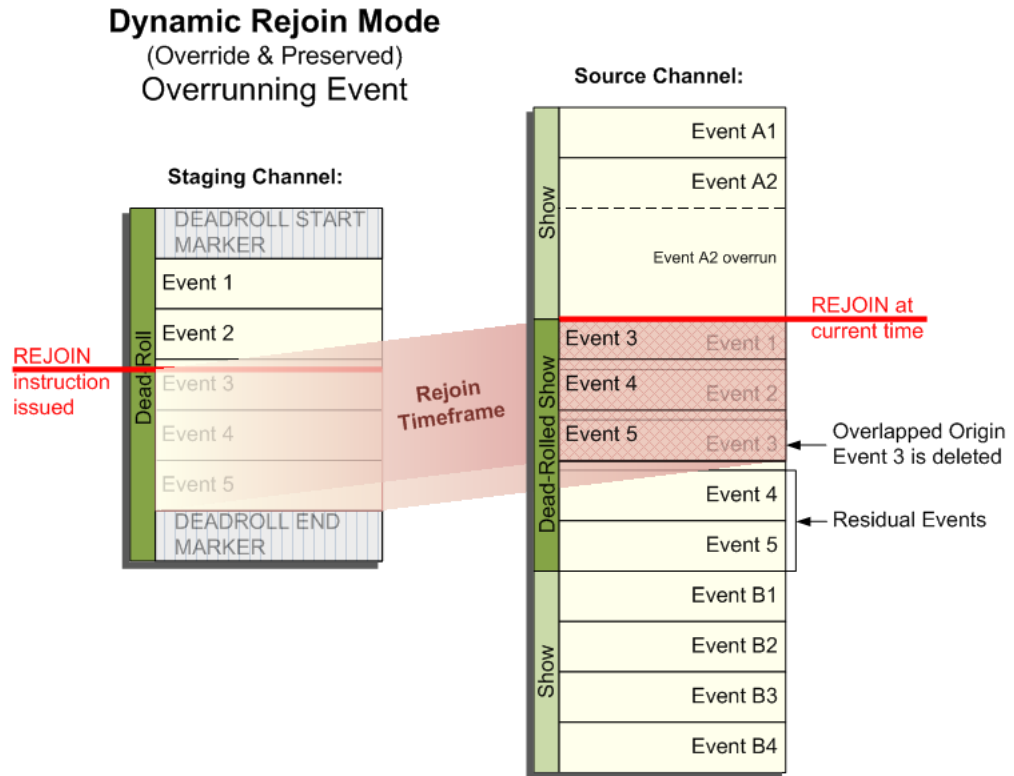


Figure 168 Dynamic Rejoin Mode Concept Showing Residual Events

Note: The duration of the Rejoined Event is reduced in order to absorb the Rejoin Delay and accommodate the broadcast of the Bumper Event.

Note: If the Dead-Roll was initiated as a result of an overrun, and no changes are made to the schedule on the Source Channel or the Staging Channel, it is advisable to use Mapped Mode.

Note: The system generates a new OID each time a Counterpart Event is created. The OIDs on the Source Channel are unique, as are those of the Dead-Roll Set, and those that re-populate the Source Channel upon a rejoin.

Override Mode Example 1: Event Duration Extended On Staging Channel

The duration of Event 5 has been extended on the Staging Channel by 40 seconds (from 30s to 1m10s), prior to the Rejoin, thus extending the Rejoin Timeframe.

Immediately prior the Rejoin instruction, the Staging Channel appears as shown in Fig. 169.

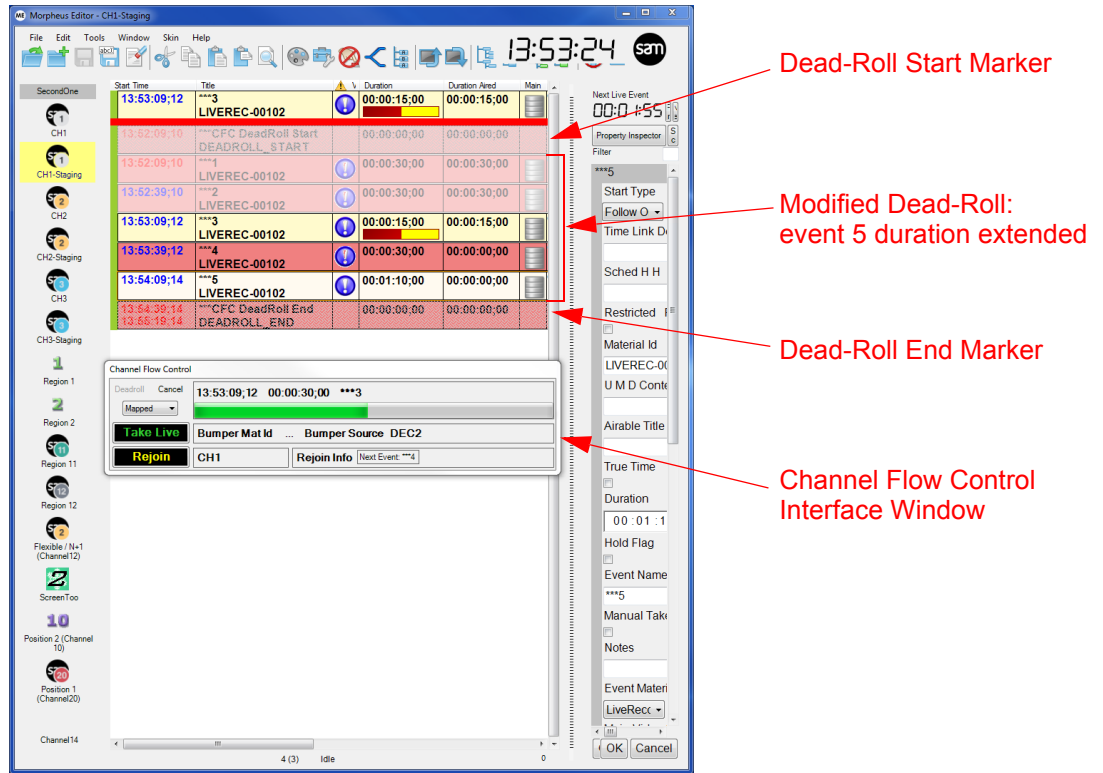


Figure 169 Override Rejoin Example 1: Staging Channel Schedule (Dead-Roll)

At the point of the Rejoin, the following actions occur:

1. The Source Channel on-air event, event 3, plays out for the duration of the Rejoin Delay and is then followed by the Bumper Event.
2. The Counterpart events (events 3, 4, and 5), or parts thereof, from the Staging Channel that have not yet Dead-Aired are copied onto the Source Channel, replacing any events that fall wholly or partly within the Rejoin Timeframe - this results in events B1 and B2 being deleted.

Note: The asterisks prepended to the Dead-Rolled events demonstrate that these are copies, and not the Origin Events.

3. The PGM event from the Staging Channel, event 3, is then resumed on the Source Channel for its remaining duration, and is followed by all later events from the Dead-Roll.
4. The remainder of the schedule on the Source Channel, outside of the Rejoin Timeframe, is resumed after the Dead-Roll End Marker, starting with event B3.

Note: Event B3 onwards will not air according to their original scheduled time due to the event changes (increased duration of event 5 and the deletion of events B1 and B2).

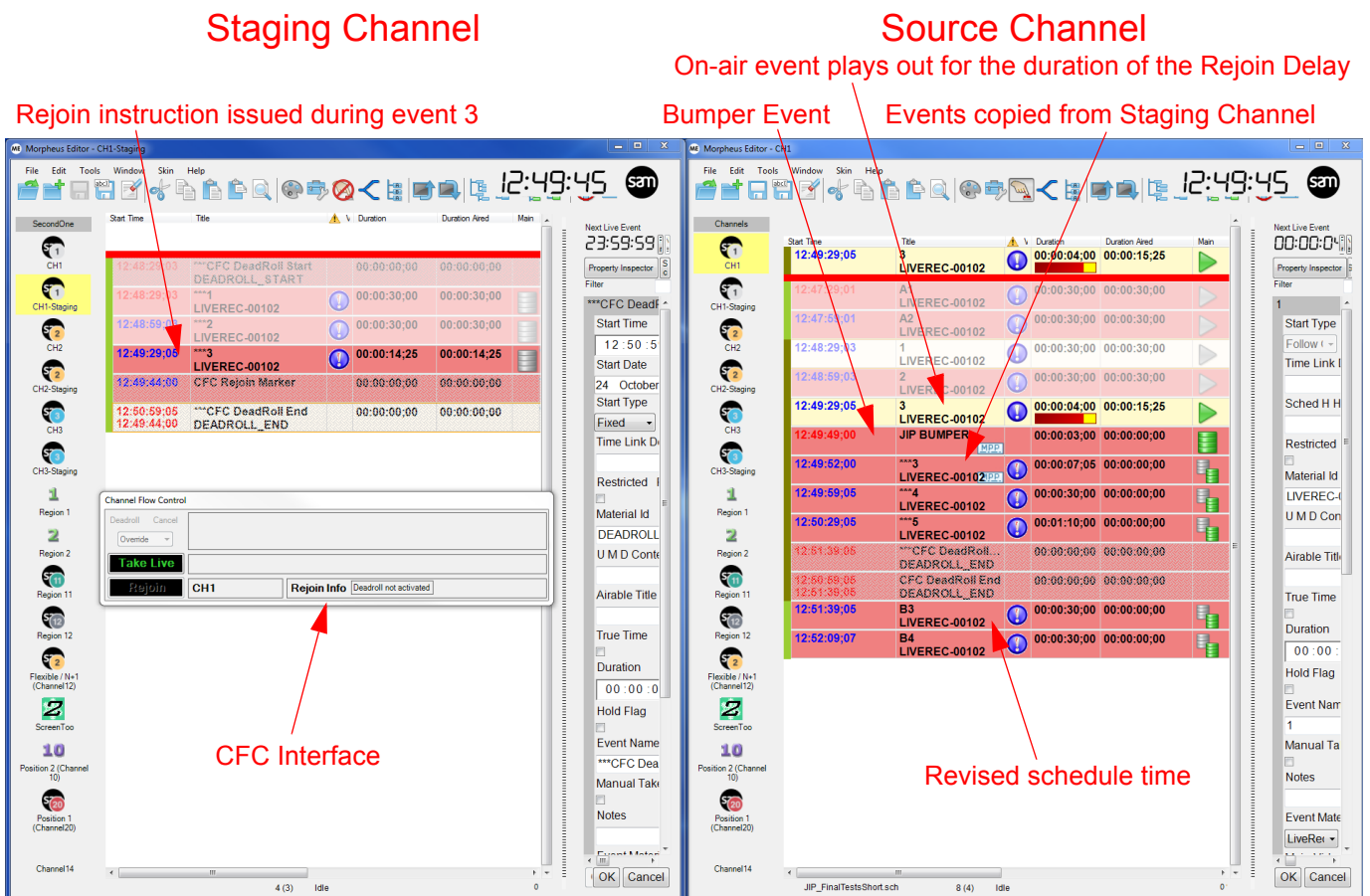


Figure 170 Override Mode Rejoin Example 1: Event Extended on the Staging Channel

Override Mode Example 2: Events Deleted From the Staging Channel

Events 4 and 5 have been deleted from the Dead-Roll prior to the Rejoin, thereby shortening the duration of the Rejoin Timeframe.

Immediately prior the Rejoin instruction, the Staging Channel appears as shown in Fig. 171.

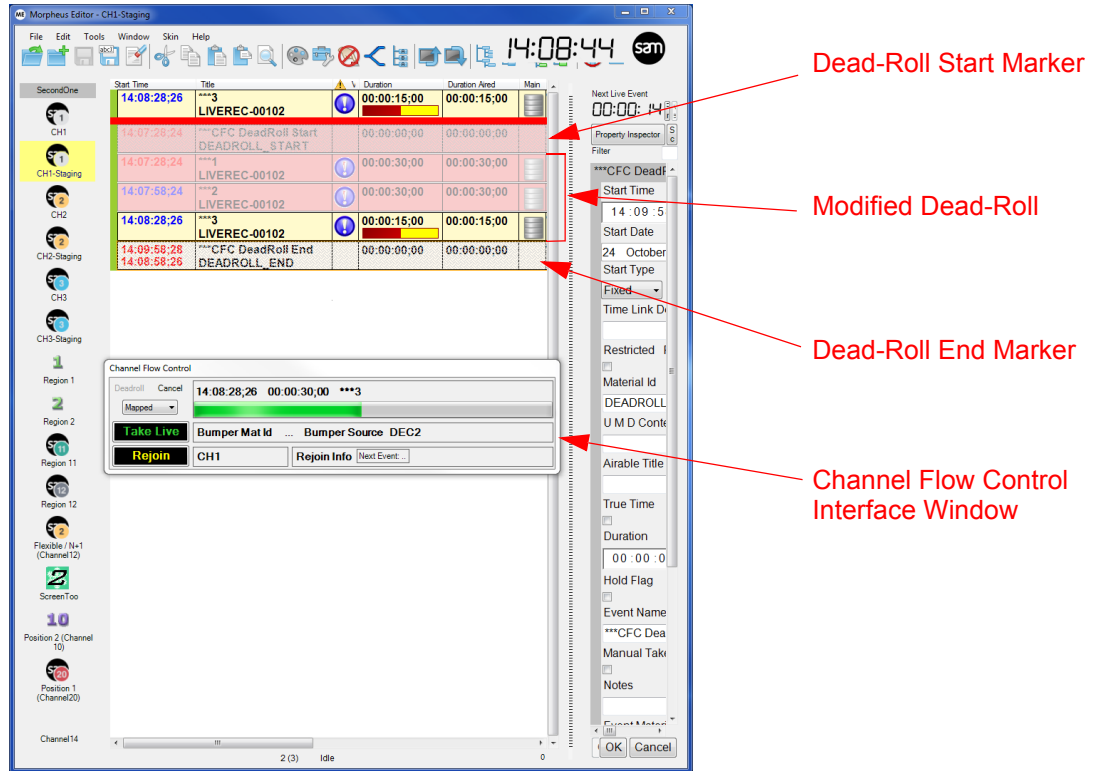


Figure 171 Override Rejoin Example 2: Staging Channel Schedule (Dead-Roll)

At the point of the Rejoin, the following occurs:

1. The Source Channel on-air event, event 3, plays out for the duration of the Rejoin Delay and is then followed by the Bumper Event.
2. The Counterpart event (event 3), or part thereof, from the Staging Channel that has not yet Dead-Aired is copied onto the Source Channel, replacing any events that fall wholly or partly within the Rejoin Timeframe - this results in Origin events 4 and 5 (the Residual Events) remaining on the Source Channel.

Note: The asterisks prepended to the Dead-Rolled events demonstrate that these are copies, and not the Origin Events.

3. The PGM event from the Staging Channel, event 3, is then resumed on the Source Channel for its remaining duration
4. The remainder of the schedule on the Source Channel, outside of the Rejoin Timeframe, is resumed after the Dead-Roll End Marker, starting with event 4.

Note: The first CFC DeadRoll End Marker on the Source Channel marks the end of the Rejoin Timeframe, accounting for the deletion of events 4 & 5. The second Dead-Roll End Marker was created on the Source Channel at the point of the Dead-Roll. In order to preserve the revised schedule, all events between the two Dead-Roll End Markers (the Residual Events) must be deleted.

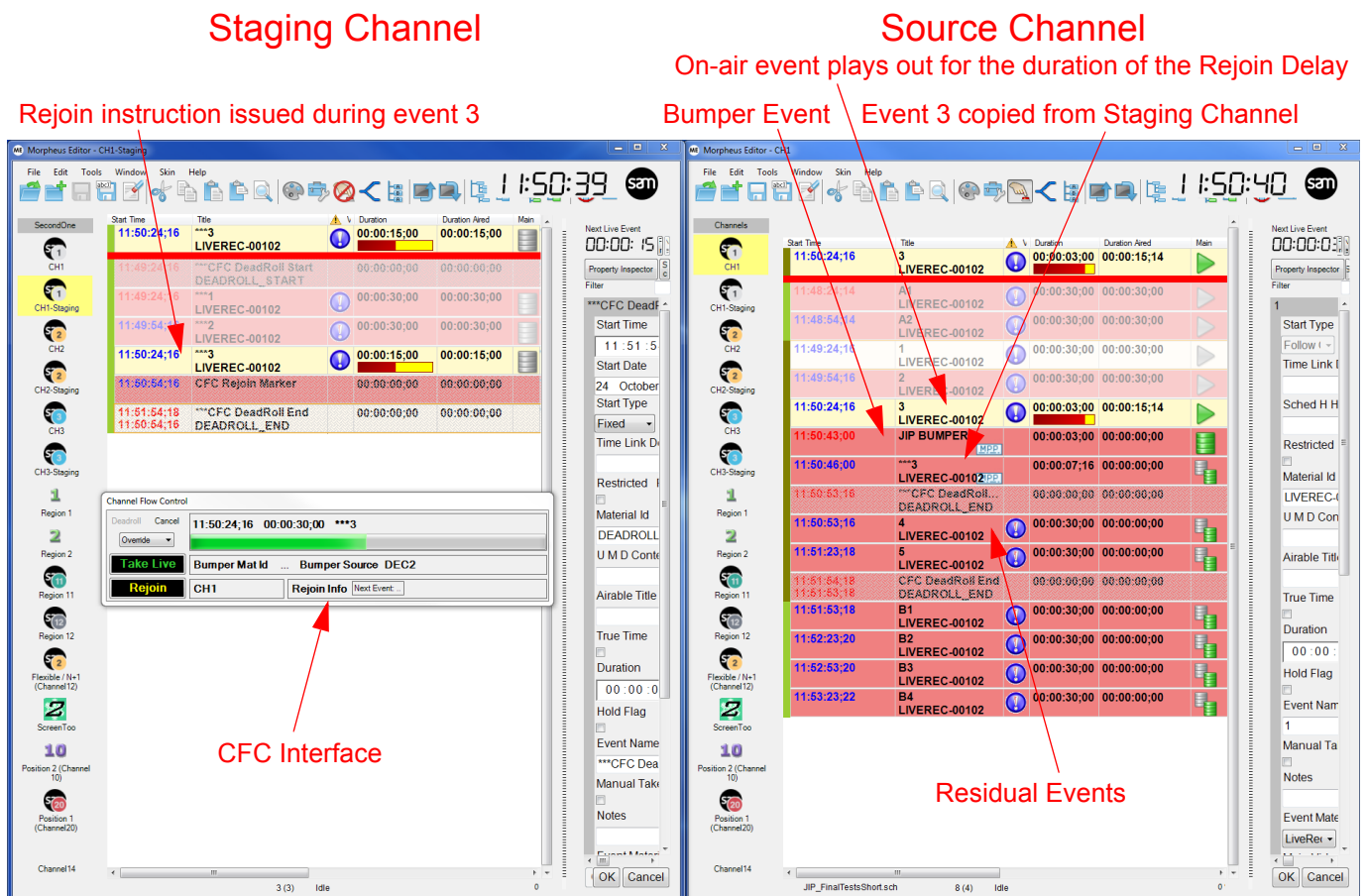


Figure 172 Override Mode Rejoin Example 2: Event Deletions From the Staging Channel

Note: The duration of the Rejoined Event is reduced in order to absorb the Rejoin Delay and accommodate the broadcast of the Bumper Event.

Override Mode Example 3: Overrun on Source Channel and Event Duration Extended On Staging Channel

The duration of Event 5 has been extended on the Staging Channel by 40 seconds (from 30s to 1m10s), prior to the Rejoin, thus extending the Rejoin Timeframe. Additionally, an overrun has been allowed on the Source Channel.

Immediately prior the Rejoin instruction, the Staging Channel appears as shown in Fig. 173.

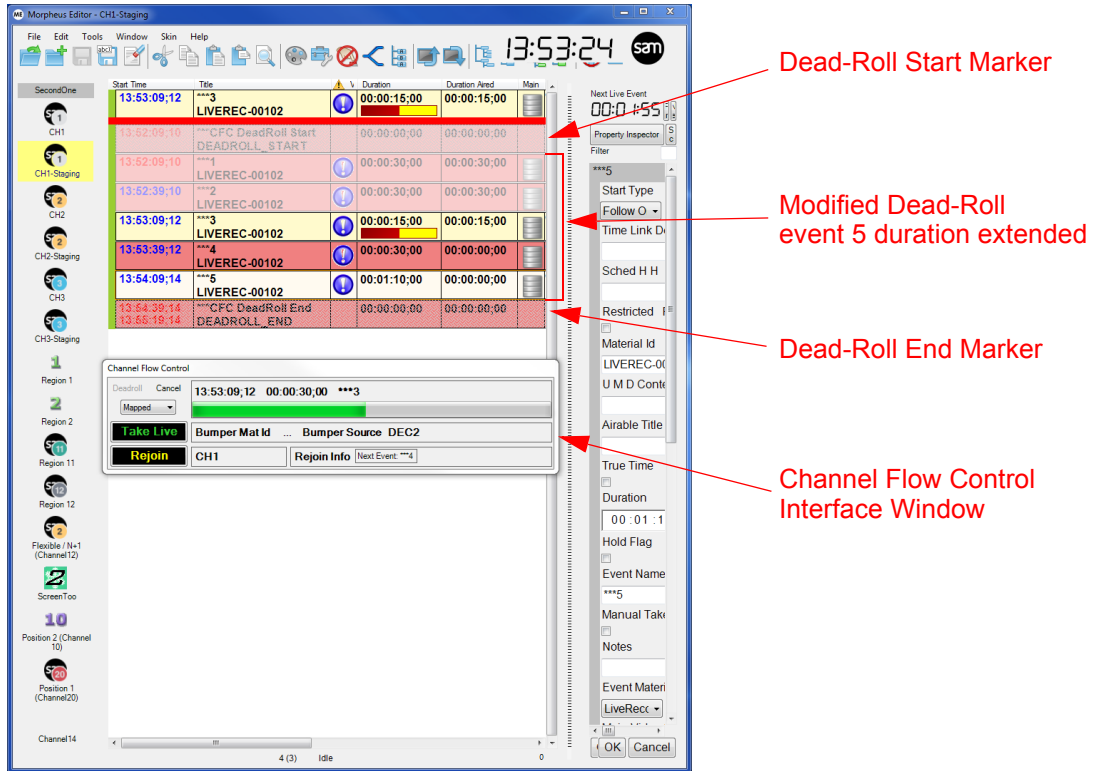


Figure 173 Override Rejoin Example 3: Staging Channel Schedule (Dead-Roll)

At the point of the Rejoin, the following actions occur:

1. The overrunning Source Channel on-air event, event A2, plays out for the duration of the Rejoin Delay and is then followed by the Bumper Event.
2. The Counterpart events (events 3, 4, and 5), or parts thereof, from the Staging Channel that have not yet Dead-Aired are copied onto the Source Channel, replacing any events that fall wholly or partly within the Rejoin Timeframe.

Note: The asterisks prepended to the Dead-Rolled events demonstrate that these are copies, and not the Origin Events.

3. The PGM event from the Staging Channel, event 3, is then resumed on the Source Channel for its remaining duration, and is followed by all later events from the Dead-Roll (4 and 5).
4. The duration of the overrun on the Source Channel was longer than the duration of the extended Rejoin Window, resulting in Origin Event 5 (the Residual Event) remaining on the Source Channel between the two Dead-Roll End Markers - in order to preserve the altered schedule from the Staging Channel, Origin Event 5 should be deleted.
5. The remainder of the schedule on the Source Channel, outside of the Rejoin Timeframe, is resumed after the Dead-Roll End Marker, starting with event B1.

Note: Events B1 onwards will not air according to their original scheduled time due to the combination of the overrun and the extended Rejoin Window. Resumption of Source Schedule time in such a case would be difficult.

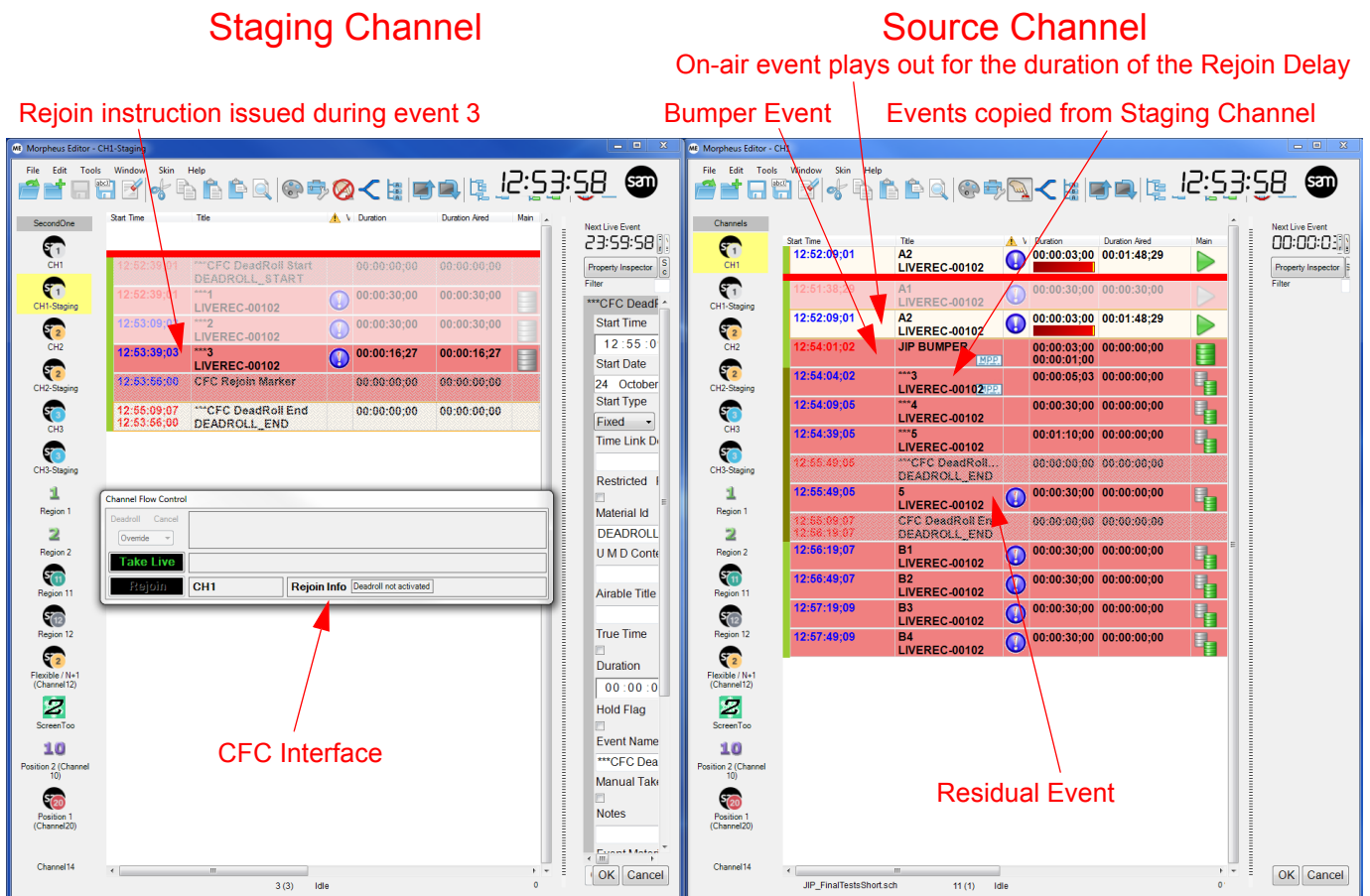


Figure 174 Override Mode Rejoin Ex. 3: Overrun on Source Channel and Event Duration Extended on Staging Channel

Override Mode Example 4: Overrun on Source Channel and Event Deletion on Staging Channel

Events 4 and 5 have been deleted from the Dead-Roll prior to the Rejoin, thereby shortening the duration of the Rejoin Timeframe. Additionally, an overrun has been allowed on the Source Channel.

Immediately prior the Rejoin instruction, the Staging Channel appears as shown in Fig. 175.

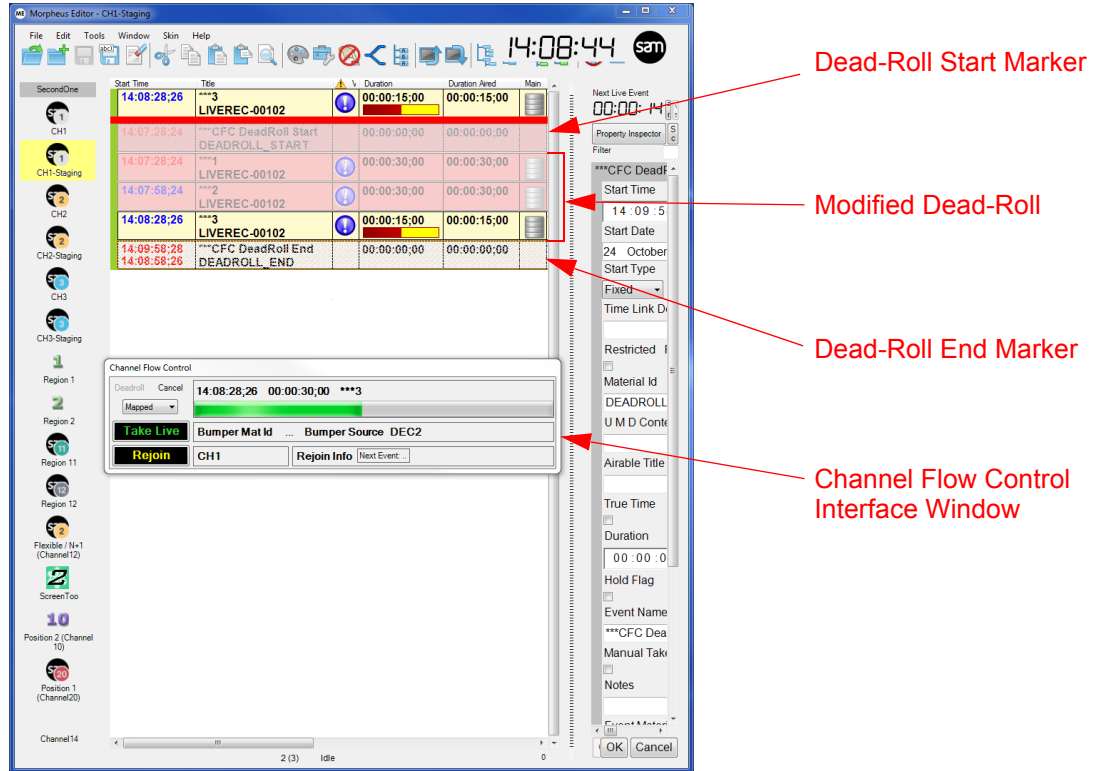


Figure 175 Override Rejoin Example 4: Staging Channel Schedule (Dead-Roll)

At the point of the Rejoin, the following actions occur:

1. The overrunning Source Channel on-air event, event A2, plays out for the duration of the Rejoin Delay and is then followed by the Bumper Event.
2. The Counterpart event (event 3), or part thereof, from the Staging Channel that has not yet Dead-Aired is copied onto the Source Channel, replacing any events that fall wholly or partly within the Rejoin Timeframe.

Note: The asterisks prepended to the Dead-Rolled events demonstrate that these are copies, and not the Origin Events.

3. The PGM event from the Staging Channel, event 3, is then resumed on the Source Channel for its remaining duration, and is followed by all later events from the Dead-Roll.
4. The duration of the overrun on the Source Channel was considerably longer than the reduced duration Rejoin Window, resulting in Origin Events 2, 3, 4, and 5 (the Residual Events) remaining on the Source Channel between the two Dead-Roll End Markers - in order to preserve the altered schedule from the Staging Channel, Origin Events 2, 3, 4, and 5 should be deleted.
5. The remainder of the schedule on the Source Channel, outside of the Rejoin Timeframe, is resumed after the Dead-Roll End Marker, starting with event B1.

Note: Event B1 onwards will not air according to their original scheduled time due to the combination of the overrun and the extended Rejoin Window. Resumption of Source Schedule time in such a case would be difficult.

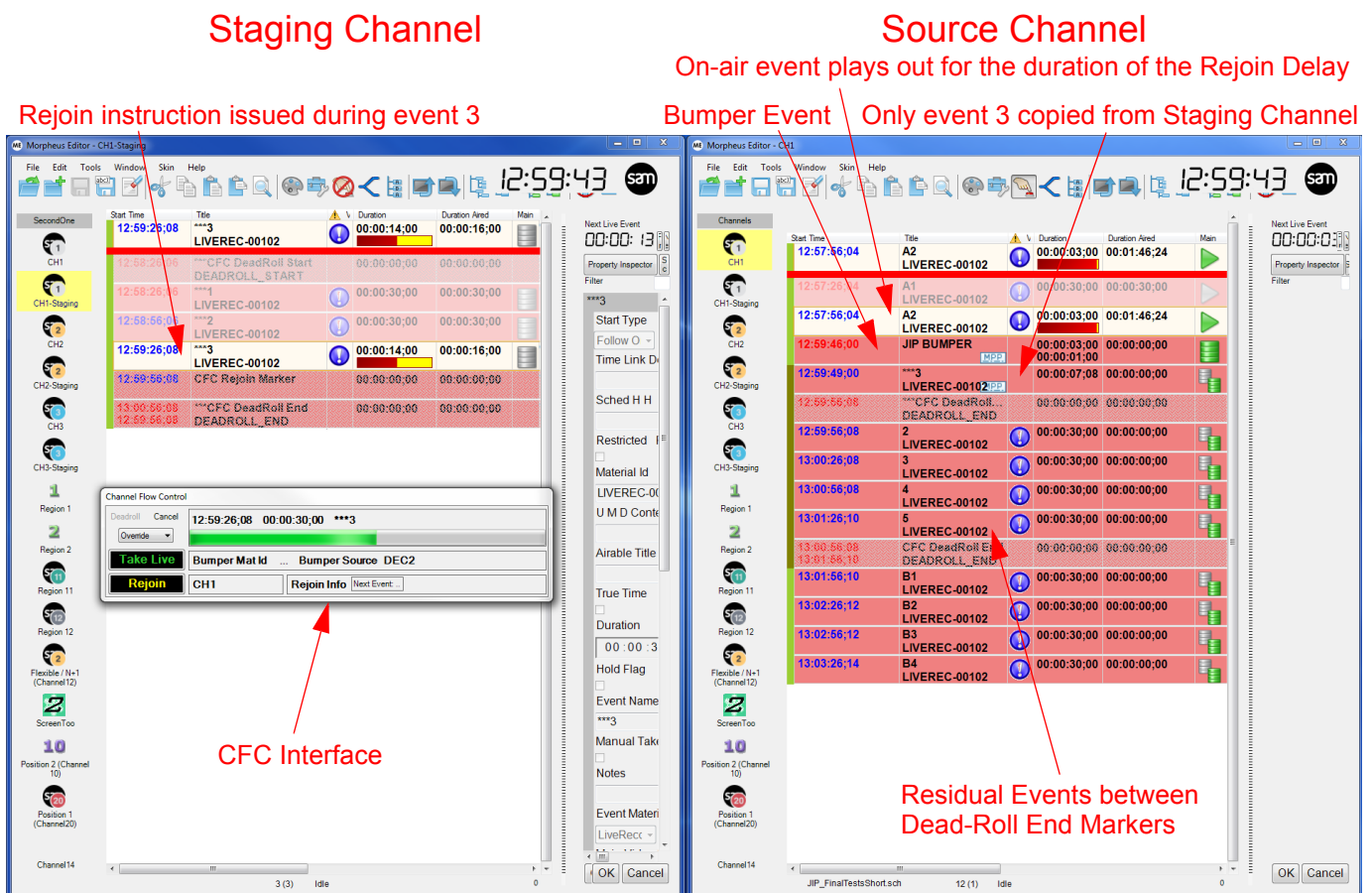


Figure 176 Override Mode Rejoin Example 4: Overrun on Source Channel and Event Deletion on Staging Channel

13.9.3.3 Preserved Mode

Preserved mode is identical to Override mode, i.e. the Rejoin is processed in the same way, except that it preserves the original events from the Source Channel that have been Dead-Rolled, and would otherwise be overwritten by Staging Channel Events at the point of the Rejoin.

It is a suitable Rejoin Mode following an overrun, and / or modification of the events on the Source Channel or the Staging Channel (i.e. rejoining with a modified schedule).

Note: Preserved mode is designed to provide the operator with the capability of resuming the schedule with the Origin Events.

This mode allows for, and requires, manual intervention in restructuring the schedule on the Source Channel once the Rejoin has completed. The following options are available:

- Allow the Rejoined Event and the remainder of those events that have been imported from the Staging Channel to be broadcast. Residual Events should be deleted, should they exist, in order to avoid playing the same event content twice.
- Enable the Preserved Events in order for them to be reinstated, and disable or delete the events imported from the Staging Channel.
- Disable an event imported from the Staging Channel, replacing it with a Residual Event.

Note: If the Dead-Roll was initiated as a result of an overrun, and no changes are made to the schedule on the Source Channel or Staging Channel, it is advisable to use Mapped Mode.

Note: If changes have been made to the Dead-Roll Set, then this mode can be used.

Note: The duration of the Rejoined Event is reduced in order to absorb the Rejoin Delay and accommodate the broadcast of the Bumper Event.

Note: Dealing with Time Link Declarations and Time Link References

Due to their nature, if present in a Dead-Roll Set, both Time Link Declarations and References are disabled by the Channel Flow Control system - they are labelled as such with the following suffix:

`'_CFC_DISABLED'`

Upon a Rejoin, the suffix is removed and the Time Links are enabled on the Source Channel.

Preserved Mode Rejoin Example 1: Event Duration Extended On Staging Channel

The duration of Event 5 has been extended on the Staging Channel by 40 seconds (from 30s to 1m10s), prior to the Rejoin, thus extending the Rejoin Timeframe.

Immediately prior the Rejoin instruction, the Staging Channel appears as shown in Fig. 177.

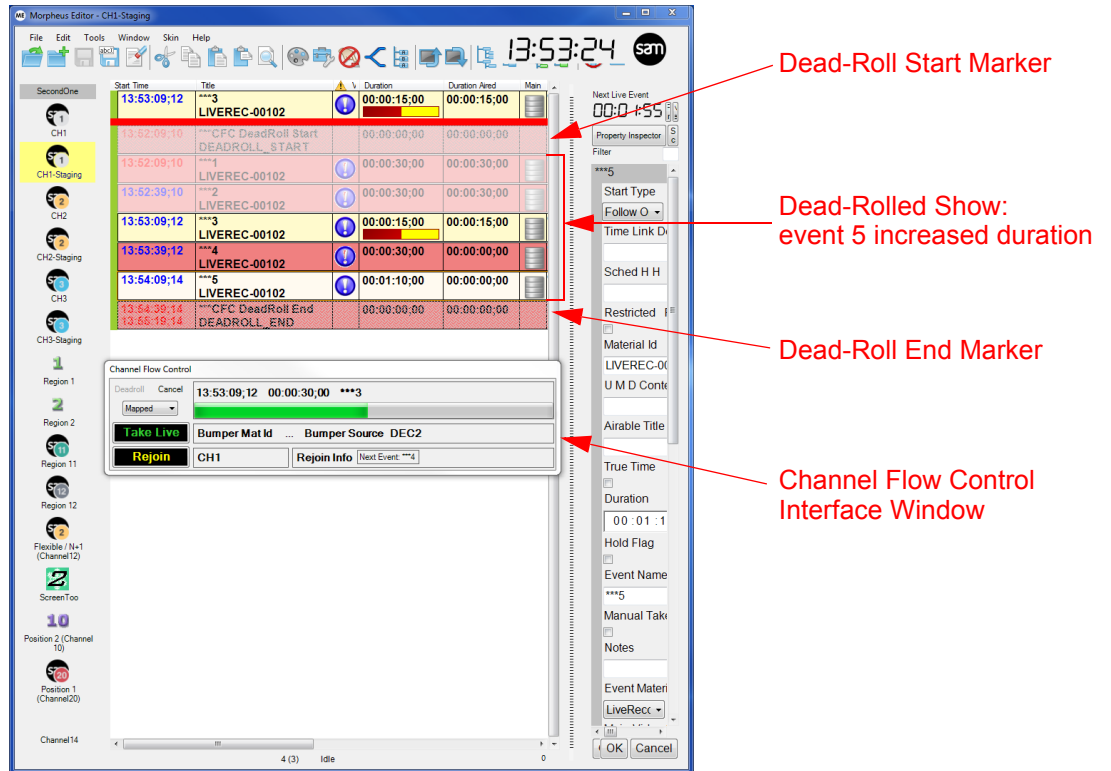


Figure 177 Preserved Rejoin Example 1: Staging Channel Schedule (Dead-Roll)

At the point of the Rejoin, the following actions occur:

1. The Source Channel on-air event, event 3, plays out for the duration of the Rejoin Delay and is then followed by the Bumper Event.
2. The Counterpart events (events 3, 4, and 5), or parts thereof, from the Staging Channel that have not yet Dead-Aired are copied onto the Source Channel, replacing any events that fall wholly or partly within the Rejoin Timeframe - this results in events 4, 5, B1 and B2 preserved in a disabled state.

Note: The asterisks prepended to the Dead-Rolled events demonstrate that these are copies, and not the Origin Events.

3. The PGM event from the Staging Channel, event 3, is then resumed on the Source Channel for its remaining duration, and is followed by all later events from the Dead-Roll.
4. The remainder of the schedule on the Source Channel, outside of the Rejoin Timeframe, is resumed after the Dead-Roll End Marker, starting with event B3.

Note: Event B3 onwards will not air according to their original scheduled time due to the increased duration of event 5.

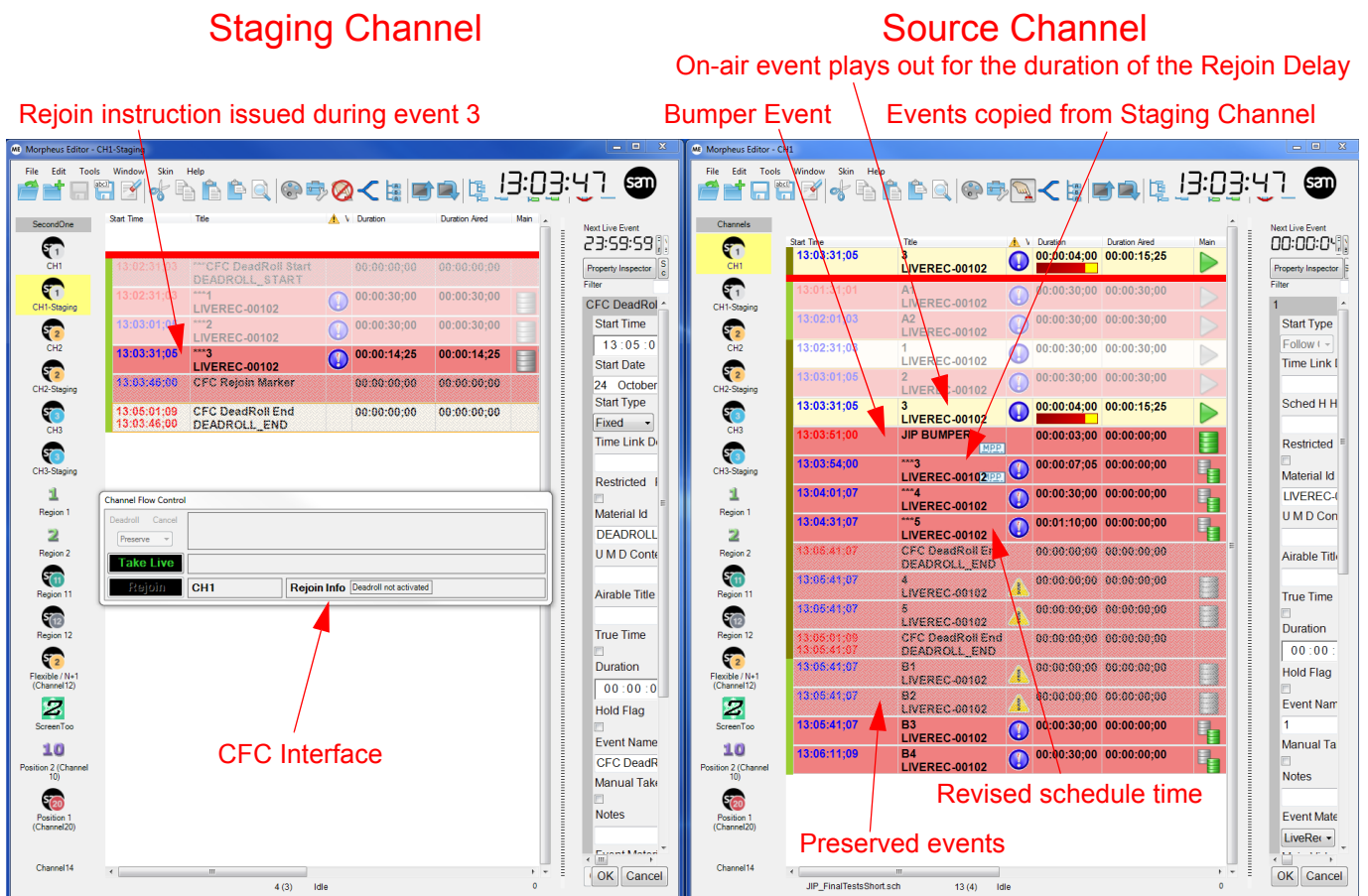


Figure 178 Preserved Mode Rejoin Example 1: Event Duration Extended on Staging Channel

Preserved Mode Rejoin Example 2: Event Deletion On Staging Channel

Events 4 and 5 have been deleted from the Dead-Roll prior to the Rejoin, thereby shortening the duration of the Rejoin Timeframe.

Immediately prior the Rejoin instruction, the Staging Channel appears as shown in Fig. 179.

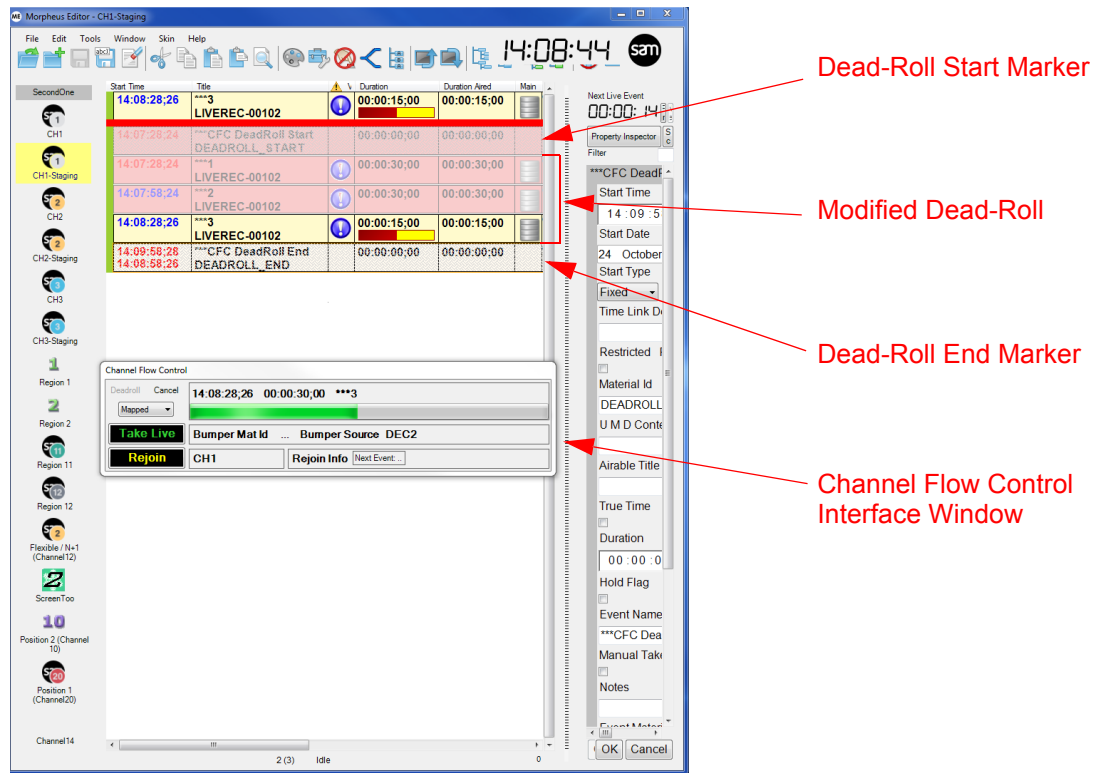


Figure 179 Preserved Rejoin Example 2: Staging Channel Schedule (Dead-Roll)

At the point of the Rejoin, the following occurs:

1. The Source Channel on-air event, event 3, plays out for the duration of the Rejoin Delay and is then followed by the Bumper Event.
2. The Counterpart event (event 3), or part thereof, from the Staging Channel that has not yet Dead-Aired is copied onto the Source Channel, replacing any events that fall wholly or partly within the Rejoin Timeframe - this results only in the remainder of Origin event 3 being replaced. However, because of the shortened Dead-Roll, the Rejoin Timeframe has been reduced, resulting in Origin Events 4 and 5 remaining in the source Schedule as Residual Events - they should be deleted if the revised schedule is to be maintained.

Note: The asterisks prepended to the Dead-Rolled events demonstrate that these are copies, and not the Origin Events.

Also due to the shortened Rejoin Timeframe, there were no events to preserve.

3. The PGM event from the Staging Channel, event 3, is then resumed on the Source Channel for its remaining duration.
4. The remainder of the schedule on the Source Channel, outside of the Rejoin Timeframe, is resumed after the Dead-Roll End Marker, starting with event B1.

Note: The first CFC DeadRoll End Marker on the Source Channel marks the end of the Rejoin Timeframe, accounting for the deletion of events 4 & 5. The second Dead-Roll End Marker was created on the Source Channel at the point of the Dead-Roll. To preserve the revised schedule, events between the two Dead-Roll End Markers (Residual Events) must be deleted.

Staging Channel

Source Channel

On-air event plays out for the duration of the Rejoin Delay

Bumper Event

Event copied from Staging Channel

Rejoin instruction issued during event 3

CFC Interface

Revised schedule time

Residual Events

Figure 180 Preserved Mode Rejoin Example 2: Event Deletion on Staging Channel

Preserved Mode Rejoin Example 3: Overrun on the Source Channel and Event Duration Extended on Staging Channel

The duration of Event 5 has been extended on the Staging Channel by 40 seconds (from 30s to 1m10s) prior to the Rejoin, thus extending the Rejoin Timeframe. Additionally, an overrun has been allowed on the Source Channel.

Immediately prior the Rejoin instruction, the Staging Channel appears as shown in Fig. 181.

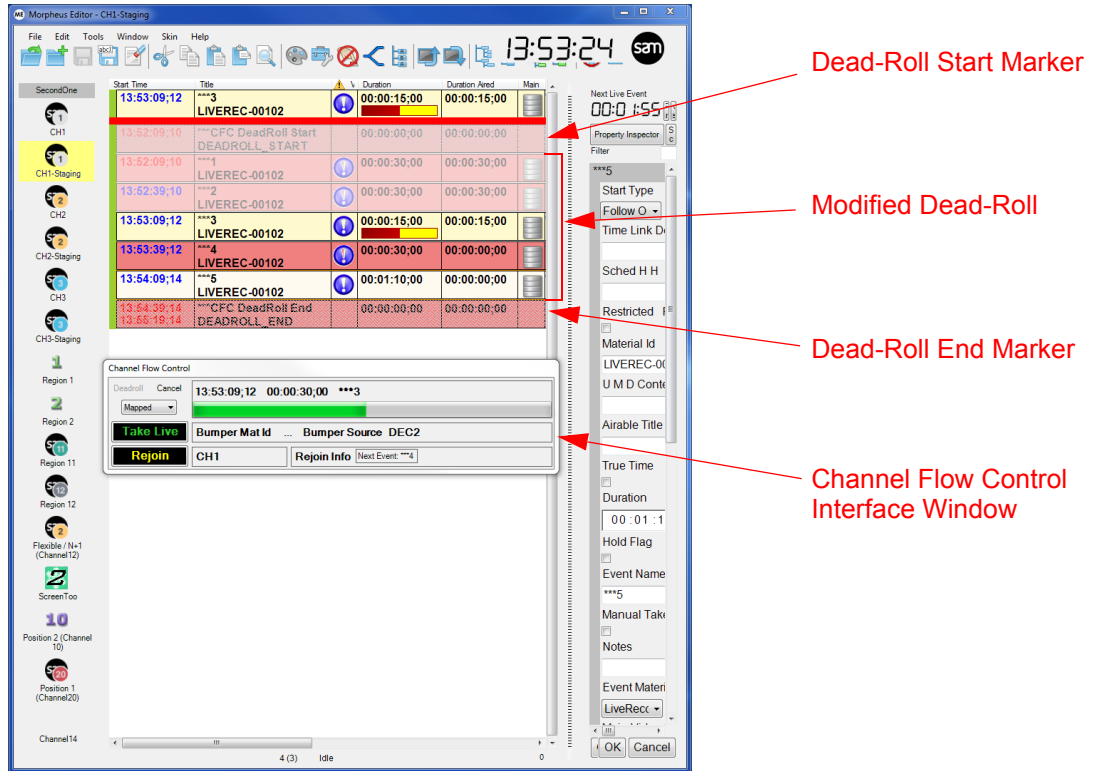


Figure 181 Preserved Rejoin Example 3: Staging Channel Schedule (Dead-Roll)

At the point of the Rejoin, the following actions occur:

1. The overrunning Source Channel on-air event, event A2, plays out for the duration of the Rejoin Delay and is then followed by the Bumper Event.
2. The Counterpart events (events 3, 4, and 5), or parts thereof, from the Staging Channel that have not yet Dead-Aired are copied onto the Source Channel, replacing any events that fall wholly or partly within the Rejoin Timeframe (events 1-4) - those events are preserved in a disabled state.

Note: The asterisks prepended to the Dead-Rolled events demonstrate that these are copies, and not the Origin Events.

3. The PGM event from the Staging Channel, event 3, is then resumed on the Source Channel for its remaining duration, and is followed by all later events from the Dead-Roll (events 4 and 5).
4. The duration of the overrun on the Source Channel was longer than the duration of the extended Rejoin Window, resulting in Origin Event 5 remaining on the Source Channel as a Residual Event between the two Dead-Roll End Markers - in order to preserve the altered schedule from the Staging Channel, Origin Event 5 should be deleted.
5. The remainder of the schedule on the Source Channel, outside of the Rejoin Timeframe, is resumed after the Dead-Roll End Marker, starting with event B1.

Note: Event B1 onwards will not air according to their original scheduled time due to the combination of the overrun and the extended Rejoin Window. Resumption of Source Schedule time in such a case would be difficult.

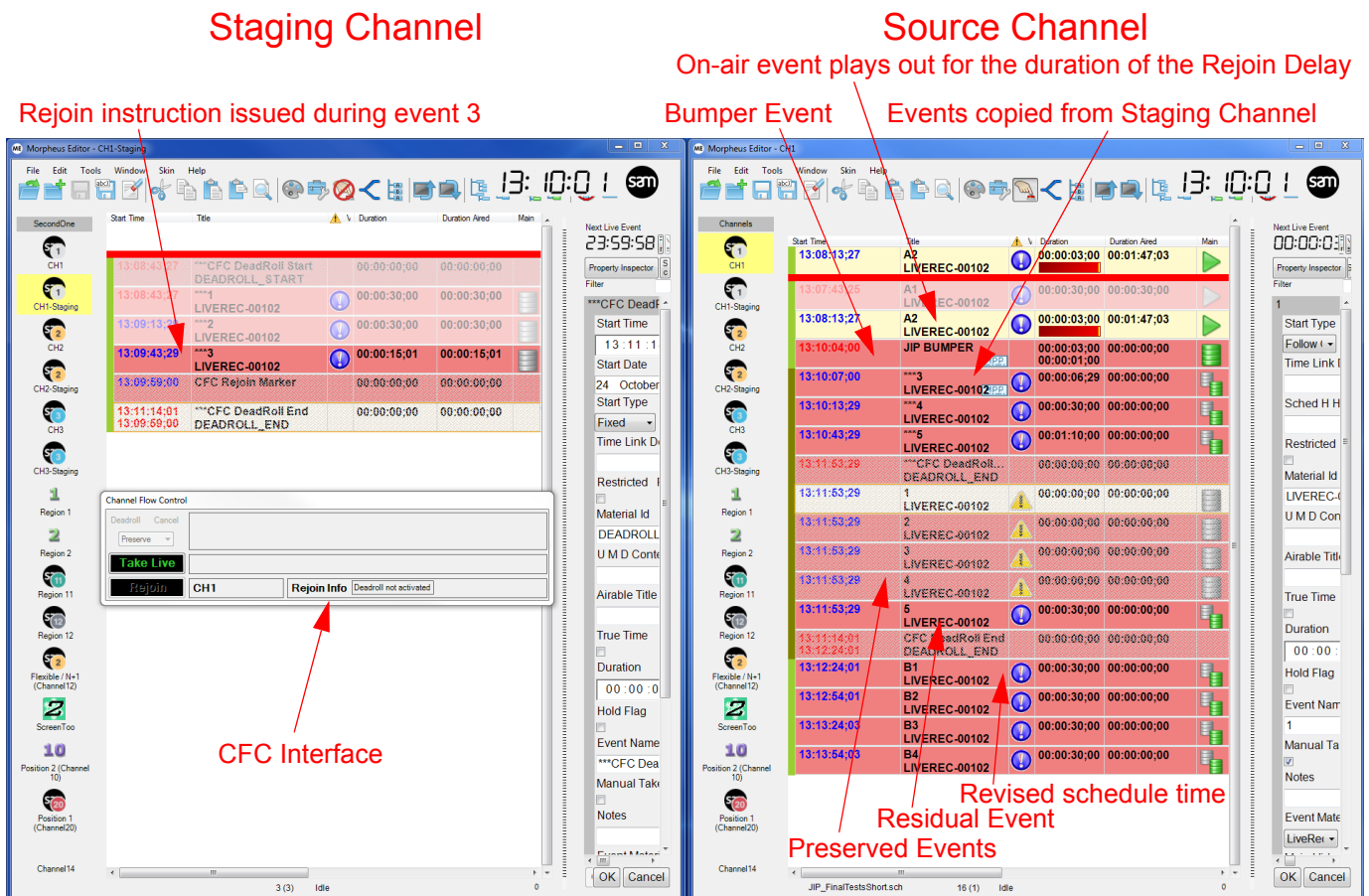


Figure 182 Preserved Mode Rejoin Ex. 3: Overrun on Source Channel and Event Duration Extended on Staging Channel

Preserved Mode Rejoin Example 4: Overrun on the Source Channel and Event Deletion on Staging Channel

Events 4 and 5 have been deleted from the Dead-Roll prior to the Rejoin, thereby shortening the duration of the Rejoin Timeframe. Additionally, an overrun has been allowed on the Source Channel.

Immediately prior the Rejoin instruction, the Staging Channel appears as shown in Fig. 183.

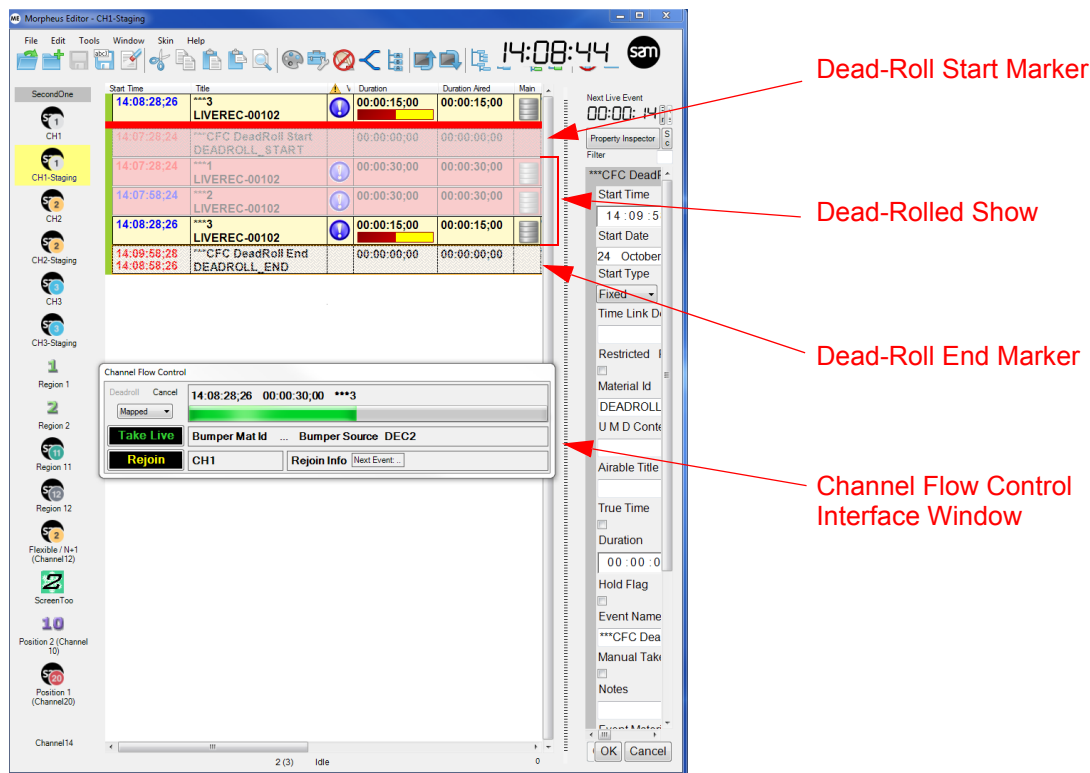


Figure 183 Preserved Rejoin Example 4: Staging Channel Schedule (Dead-Roll)

At the point of the Rejoin, the following actions occur:

1. The overrunning Source Channel on-air event, event A2, plays out for the duration of the Rejoin Delay and is then followed by the Bumper Event.
2. The Counterpart event (event 3), or part thereof, from the Staging Channel that has not yet Dead-Aired is copied onto the Source Channel, replacing any events that fall wholly or partly within the Rejoin Timeframe (event 1) - this event is preserved in a disabled state

Note: The asterisks prepended to the Dead-Rolled events demonstrate that these are copies, and not the Origin Events.

3. The PGM event from the Staging Channel, event 3, is then resumed on the Source Channel for its remaining duration, and is followed by all later events from the Dead-Roll.
4. The duration of the overrun on the Source Channel was considerably longer than the reduced duration Rejoin Window, resulting in Origin Events 2, 3, 4, and 5 (the Residual Events) remaining on the Source Channel between the two Dead-Roll End Markers - in order to preserve the altered schedule from the Staging Channel, Origin Events 2, 3, 4, and 5 should be deleted.
5. The remainder of the schedule on the Source Channel, outside of the Rejoin Timeframe, is resumed after the Dead-Roll End Marker, starting with event B1.

Note: Event B1 onwards will not air according to their original scheduled time due to the combination of the overrun and the reduced Rejoin Window. Resumption of Source Schedule time in such a case would be difficult.

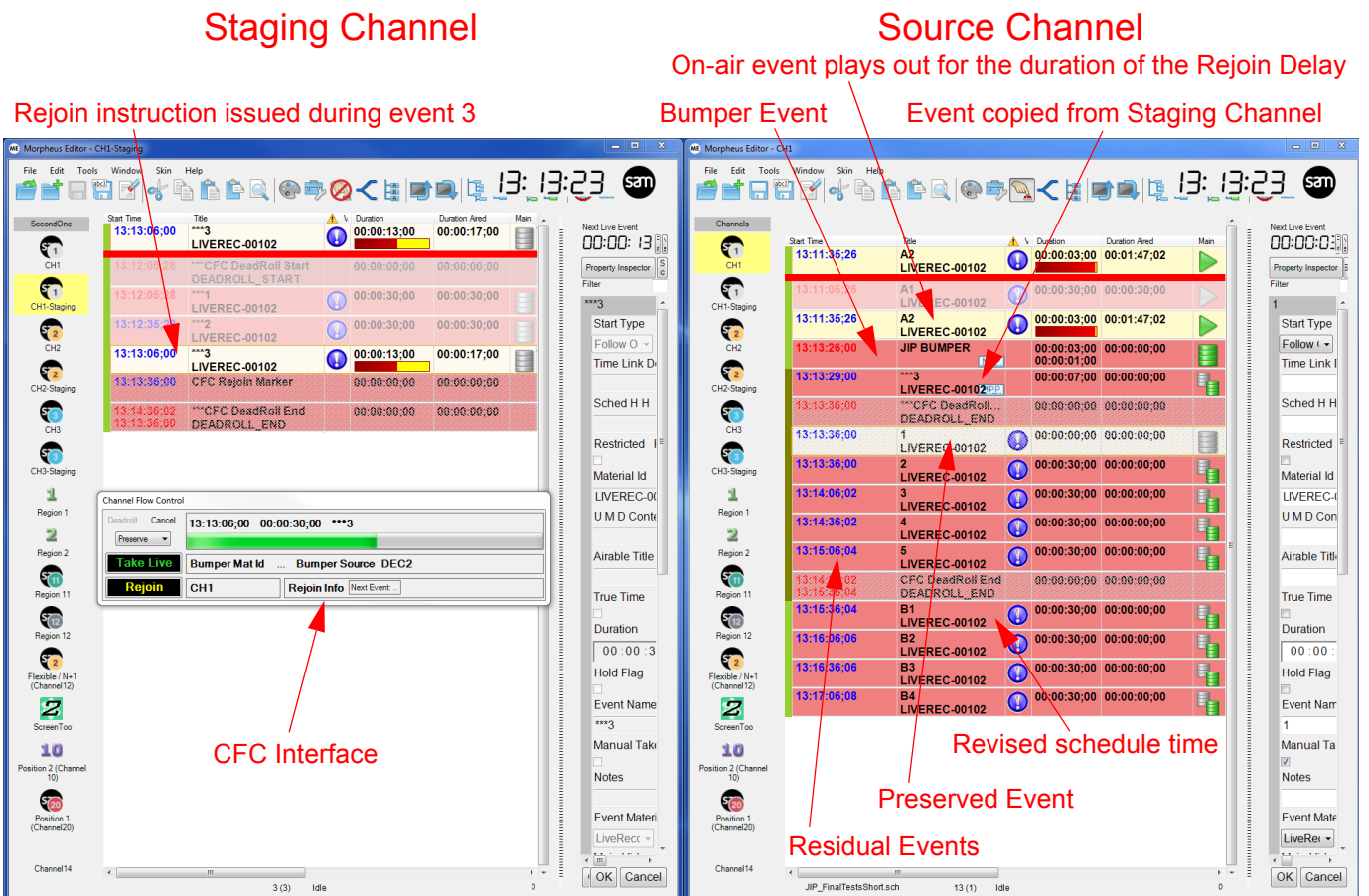


Figure 184 Preserved Mode Rejoin Ex. 4: Overrun on Source Channel and Event Duration Extended on Staging Channel

13.9.4 The Rejoin Calculation

The purpose of the Rejoin Calculation is to determine the point at which the original schedule should be resumed following a Rejoin Instruction. It has the following functions:

- To elect an event to lead in the Rejoin: the Calculated Rejoin Event
- To ensure that any Candidate event has a minimum remaining duration (the Minimum Event Duration), as set in the CFC-JIP configuration, in order to be nominated as the Calculated Rejoin Event.

The configuration of a minimum duration ensures that the the schedule does not resume with an event that may be finishing imminently, or is deemed to be unsuitably short - if this is the case, then the next Candidate event is evaluated, and so forth, until an event that complies with the Minimum Event Duration is identified.

- To allow sufficient time for the source device to prepare to play the Bumper event - a period of time known as the Rejoin Delay.

The Bumper material and its source are set in the CFC-JIP configuration (refer to Section 13.9.5.3 Configuration of CFC-JIP Behaviour). The duration of the Bumper Event will never be less than its configured value - it may however be extended by the system under specific circumstances (detailed later in this section).

Note:

As a part of the Rejoin Process, the inpoint of the Calculated Rejoin Event must be adjusted in order for broadcasting to occur according to the principles of CFC-JIP. To prevent a material decorator from resetting the inpoint to its original value, the CFC sets a Multi Part Program (MPP) flag **MPP** on the Calculated Rejoin Event on the Source Channel. This flag can be ignored, as it does not reflect it's true meaning and purpose.

13.9.4.1 Rejoin Calculation Examples

The following examples use an overrunning event to demonstrate the principle of the Rejoin Calculation - it should be noted, however, that other interruptions to the schedule will have the same effect, such as a live source inserted as a held event.

Rejoin Calculation Example 1

1. An event has overrun by an unspecified amount of time.

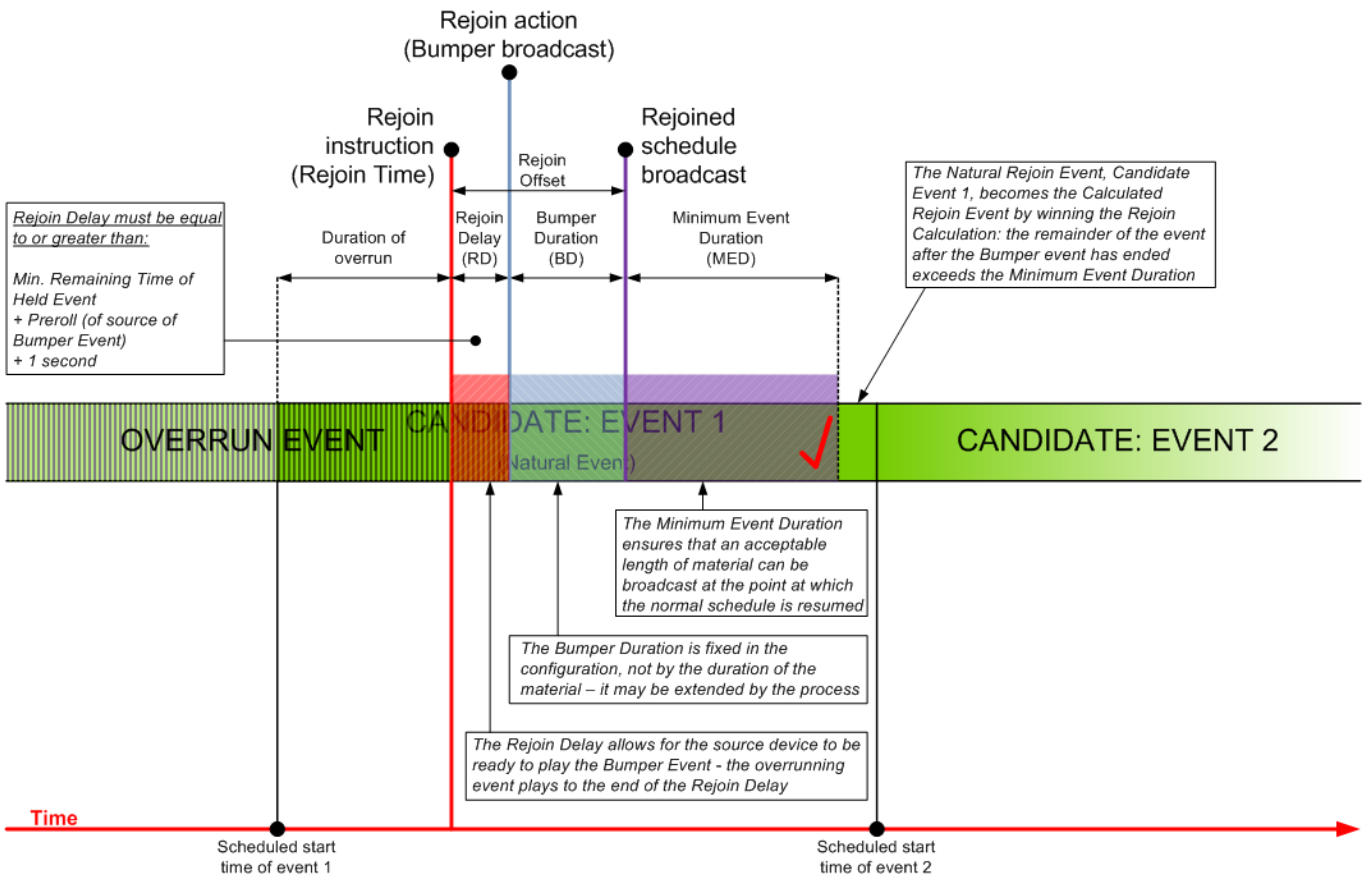


Figure 185 The Rejoin Calculation Example 1

2. A Rejoin instruction has been manually issued from the Channel Flow Control panel, instructing the CFC-JIP process to terminate the broadcast of the overrunning event, and to return to the original schedule.
3. The Rejoin Calculation applies a static delay, the Rejoin Delay, on the return to the schedule in order to allow sufficient time for the normal schedule to be resumed according to the selected Rejoin Mode, the held PGM to finish playout (the duration of which is defined by the parameter 'Min. Remaining Time of Held Event'), and the source device to prepare to play the Bumper event. The overrunning event will continue to play until the end of the Rejoin Delay.
4. The Rejoin Calculation has evaluated the candidacy of events in the schedule in order to establish eligibility to lead in the Rejoin process.

The Rejoin Calculation establishes that the Natural Event is the earliest suitable candidate, and is therefore nominated as the Calculated Rejoin Event.

5. The Rejoin Calculation has determined the amount of time over which to play the Bumper Event - in this example, the minimum duration is applied, as configured, based upon the election of the Calculated Rejoin Event. The Bumper Event will start immediately after the Rejoin Delay.
6. The Rejoin Delay expires, the Rejoin is actioned, and the Bumper Event is broadcast.
7. The schedule is resumed, broadcasting the remainder of the Natural Event (i.e. from the point in time at which it would have been broadcast had the previous event not overrun), and then the events that follow.

Rejoin Calculation Example 2

1. An event has overrun by an unspecified amount of time.

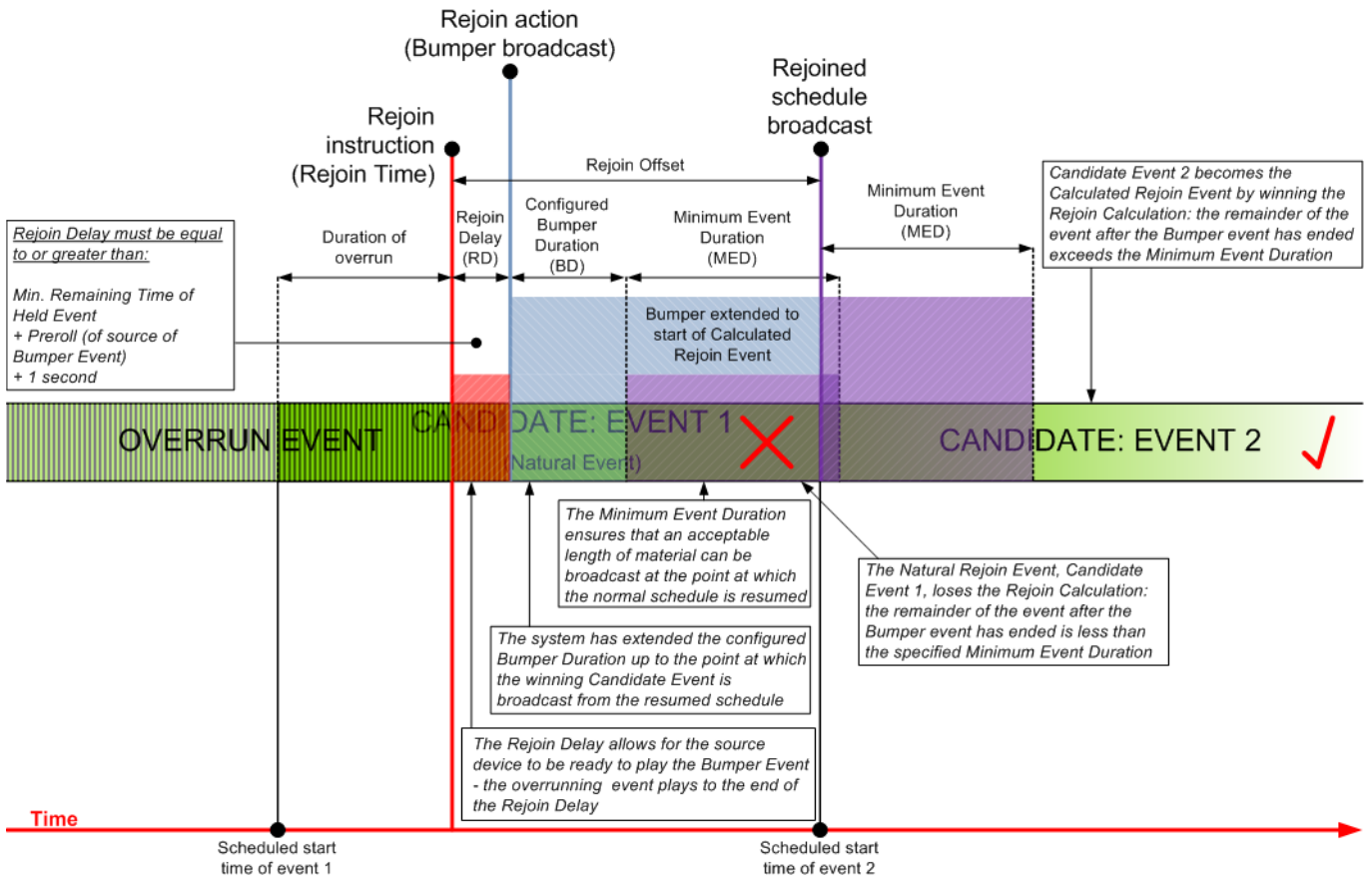


Figure 186 The Rejoin Calculation Example 2

3. A Rejoin instruction has been manually issued from the Channel Flow Control panel, instructing the CFC-JIP process to terminate the broadcast of the overrunning event, and to return to the original schedule.
4. The Rejoin Calculation applies a static delay, the Rejoin Delay, on the return to the schedule in order to allow sufficient time for the normal schedule to be resumed according to the selected Rejoin Mode, the held PGM to finish playout (the duration of which is defined by the parameter 'Min. Remaining Time of Held Event'), and the source device to prepare to play the Bumper event. The overrunning event will continue to play until the end of the Rejoin Delay.
5. The Rejoin Calculation has evaluated the candidacy of events in the schedule in order to establish eligibility to lead in the Rejoin process.
 - a) The Natural Event is not a suitable candidate as, although the Rejoin Delay and the configured Bumper Duration both expire before the end of the event, the Minimum Event Duration is longer than the remainder of the event.
 - b) The next event in the schedule has been evaluated against the Minimum Event Duration only, was found to be a suitable candidate, and was therefore nominated as the Calculated Rejoin Event.
 - c) The Bumper Event duration is extended to the start time of the Calculated Rejoin Event in order to include the remaining duration of the discarded Candidate Event (event 1). The Bumper Event will start immediately after the Rejoin Delay.

6. The Rejoin Delay expires, the Rejoin is actioned, and the Bumper Event is broadcast for the extended duration.
7. The schedule is resumed, broadcasting the Calculated Rejoin Event from its preserved start time (i.e. from the point in time at which it would have been broadcast had there not been an event overrun) and then the events that follow.

13.9.5 Configure CFC-JIP

CFC-JIP cannot coexist with the old JIP functionality within the same Morpheus system - the two functions are mutually exclusive. By default CFC-JIP is not configured, and it is therefore possible to use the old JIP functionality - however, when one Staging Channel is configured and then associated to a Source Channel, CFC-JIP becomes enabled, old JIP is disabled and its configuration forms can no longer be accessed.

Note: It is recommended that CFC-JIP is used exclusively and that Staging Channels are created by default for all channels in the system.

Note: A Staging Channel is identical to any other channel, and can be configured as such, except that it is not possible to load a schedule directly onto it outside of the CFC-JIP process.

It remains possible to paste events onto the Staging Channel from other channels if **Allow Paste From Other Channels** is enabled.

13.9.5.1 Channel Configuration

1. Create a new channel of type 'Staging'.

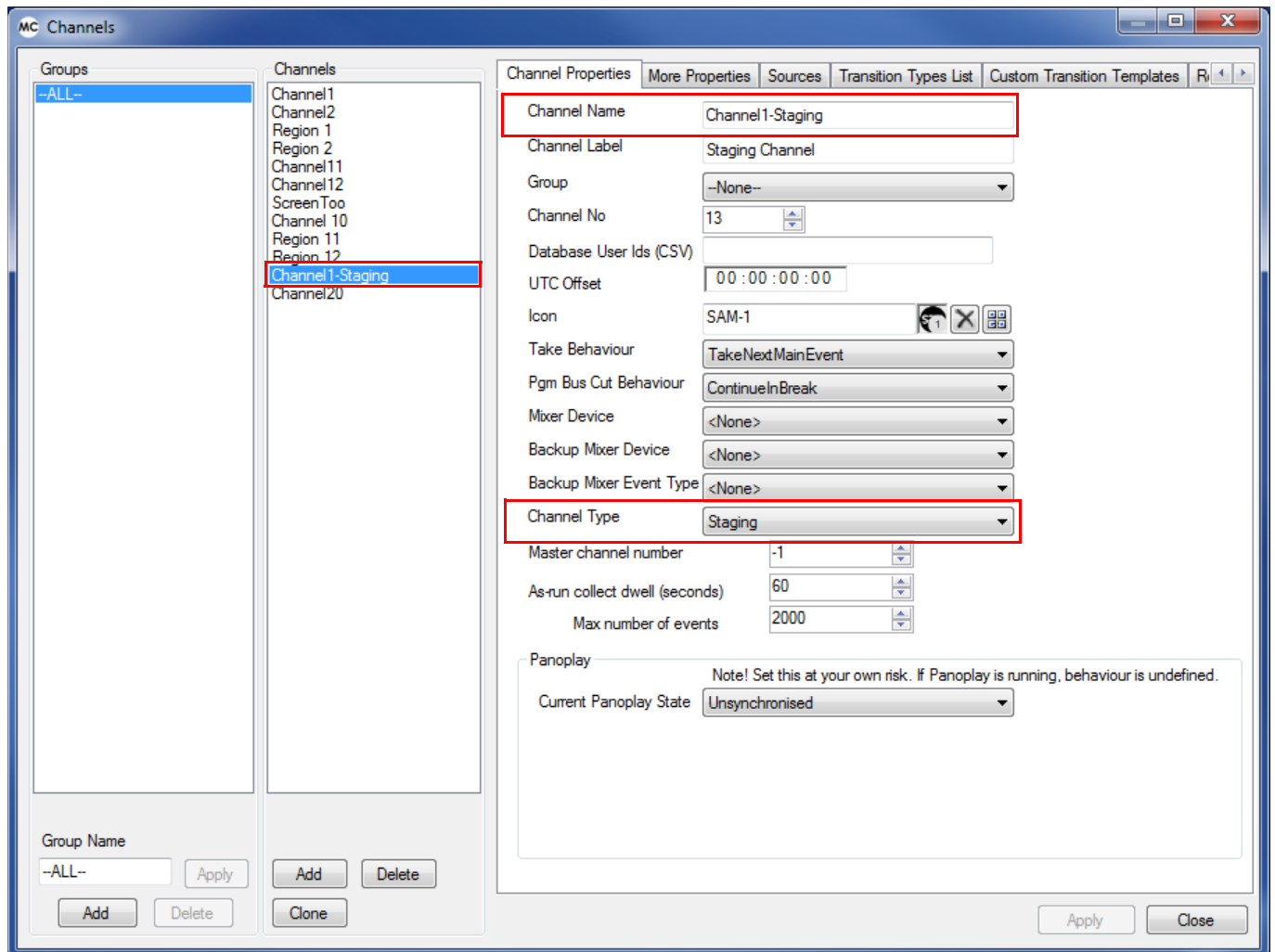


Figure 187 Create a Staging Channel

- a) Navigate to the Channel Configuration page in the Configurator:
Configurator > Configure Channels > **Add** (under the channels column).
- b) Assign a channel name - one that perhaps associates the Staging Channel with the Source Channel, e.g. if Source Channel is 'Channel1' then the Staging Channel could be named 'Channel1-Staging' (any naming convention is, however, acceptable).

- c) If the manual extension of a Dead-Roll is anticipated (i.e. the manual addition of events onto the Staging Channel) then tick the **Allow Paste From Other Channels** checkbox on the Staging Channel's *More Properties* tab in the Configurator, as shown in Fig. 188.

Note: If events are pasted onto the Staging Channel in addition to those from a previous Dead-Roll, a Mapped Rejoin will fail.

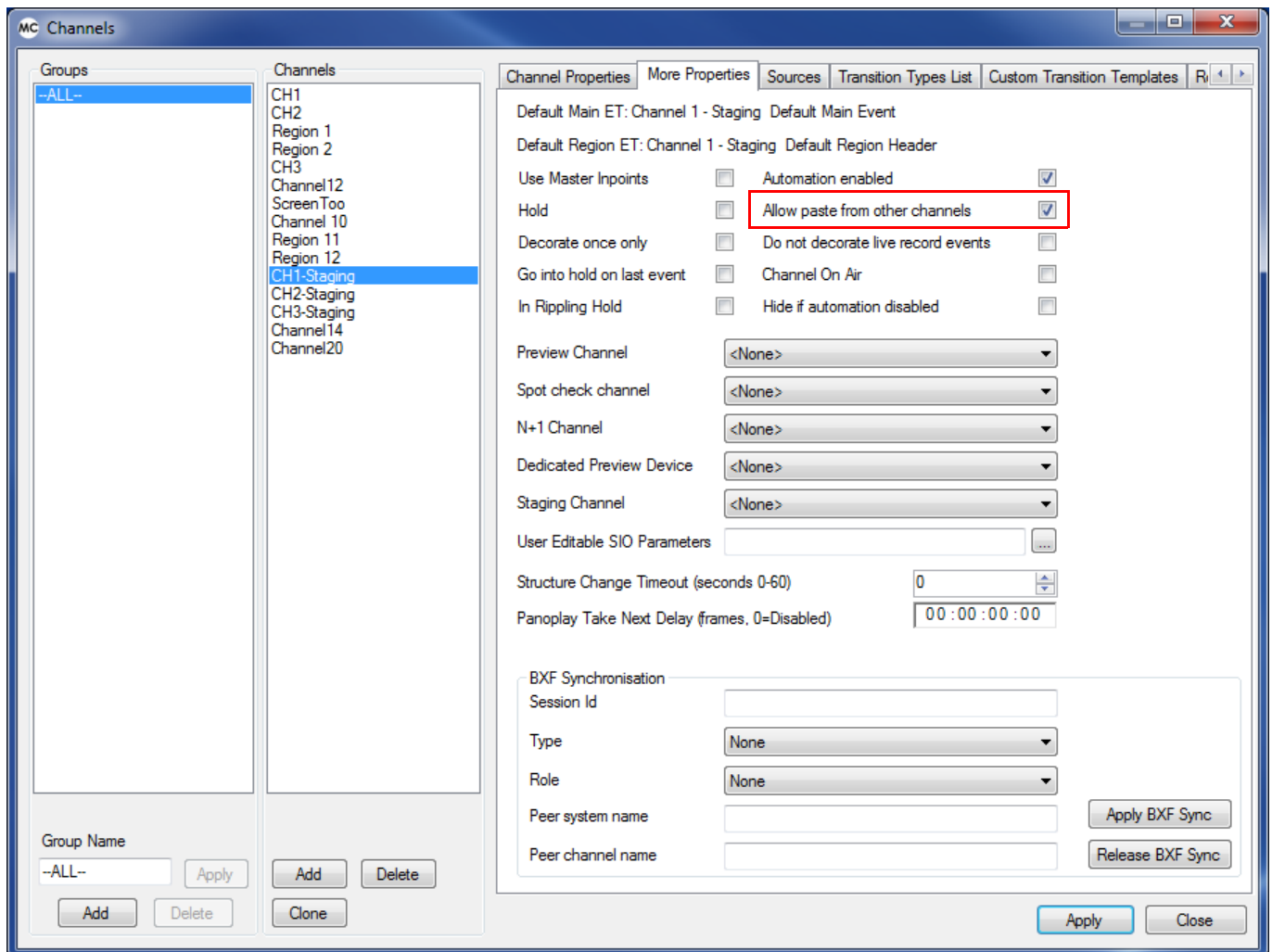


Figure 188 Staging Channel Configuration - More Properties

- d) From the drop-down menu, select Channel Type 'Staging'.
- e) Click on **Apply**.

2. Assign the Staging Channel to the Source Channel (the Source Channel must be of channel type 'Master').

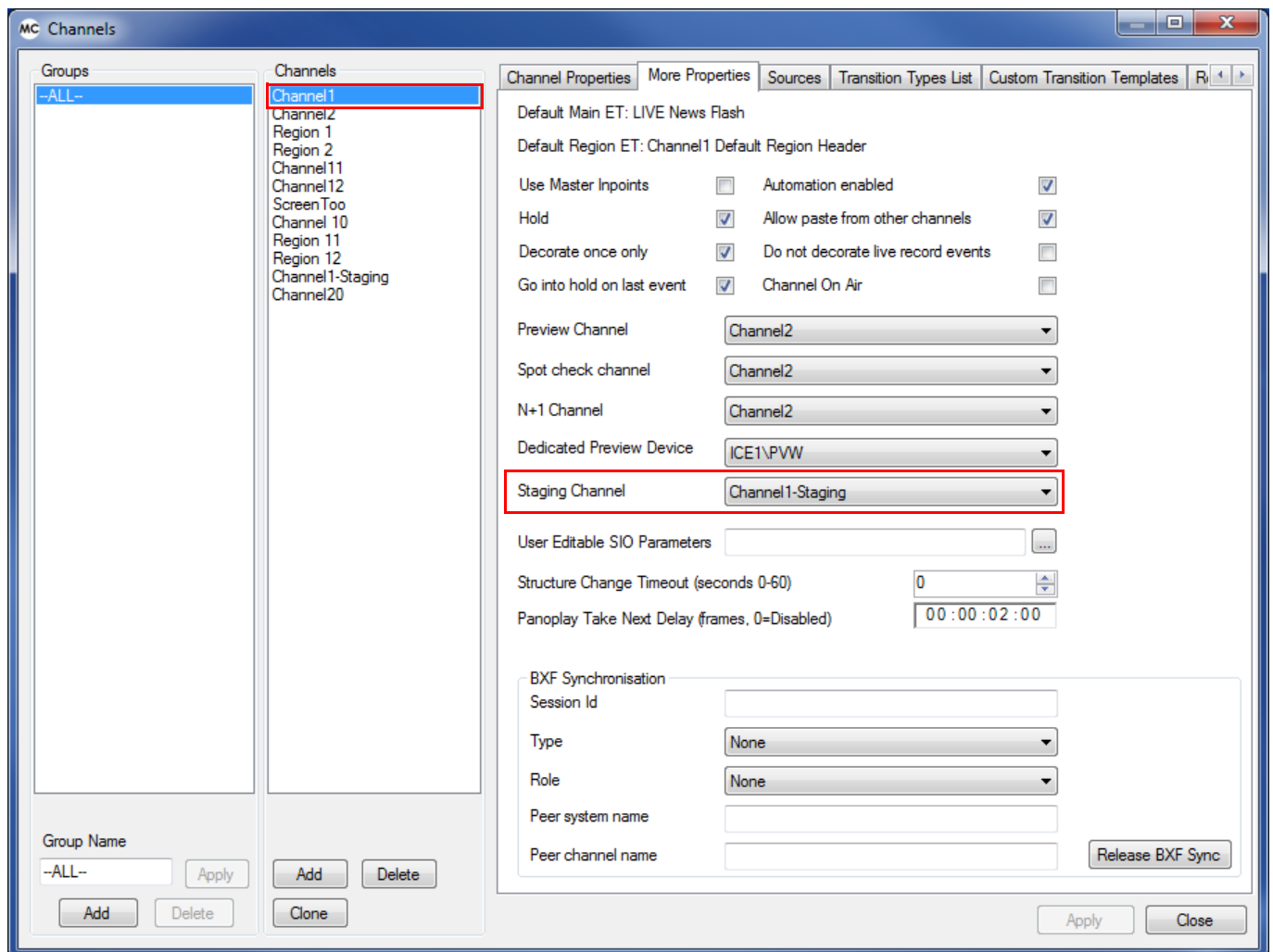



Figure 189 Assign the Staging Channel to the Source Channel

- a) Click on the chosen Source Channel (in this example, Channel1)
- b) Click on the More Properties tab.
- c) From the Staging Channel drop-down menu, select the channel that was created in step 1.
- d) Click on **Apply**.
CFC-JIP is now enabled and it is no longer possible to use old JIP.
- e) Restart the Editor (Workstation) if already open
 - The Staging Channel now appears on the Channels list in the Editor.
 - The CFC icon is displayed on the Editor tool bar. 

Note: The CFC icon is only displayed on the Editor tool bar for a configured Source Channel and Staging Channel pairing, otherwise it is greyed out - refer to Section 13.9.5.1 Channel Configuration.

Note: The CFC interface button cannot be displayed / hidden according to user role.

13.9.5.2 Configuration of Channel Flow Control

Navigate to the Channel Flow Control configuration window:

Editor > Tools Menu > Configuration > Common...Channel Flow Control

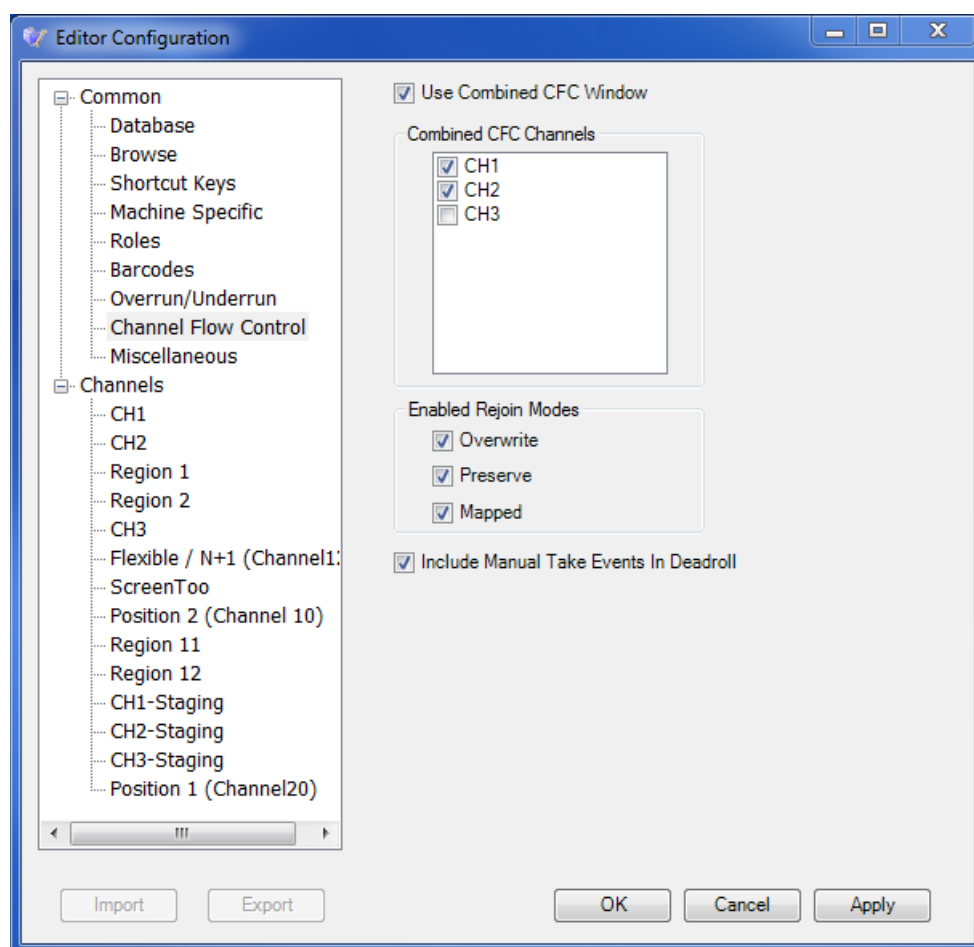


Figure 190 Configure Channel Flow Control

Important:

The configuration of all of the properties in the Channel Flow Control window (Fig. 190) applies only to the currently selected role, thereby providing the ability to enforce role based restrictions.

Log in to the system under each role in order to configure unique restrictions:
Morpheus Editor > File > Change Role

- Use Combined CFC Window

Checkbox. If ticked, the individual CFC interfaces that have 'Combined CFC Channel' ticked (below), are merged into a single window (Fig. 191). It is not possible to un-tick all channels, therefore if Use Combined CFC Window is ticked, at least one Combined CFC Channel will also be ticked (described below).

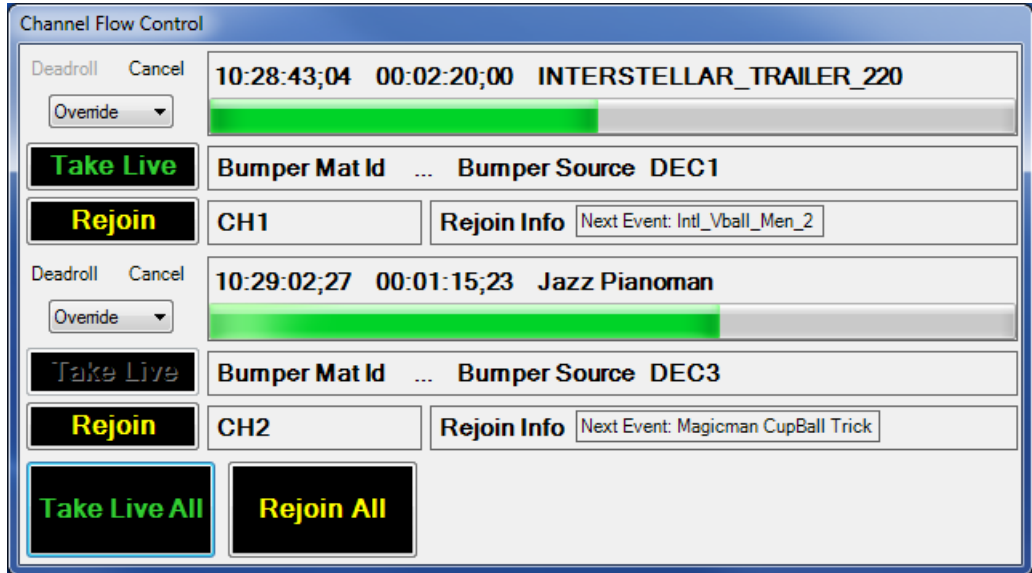


Figure 191 CFC Interfaces Combined into a Single Window

If un-ticked, an individual CFC interface window is displayed per selected channel, as shown in Fig. 192.

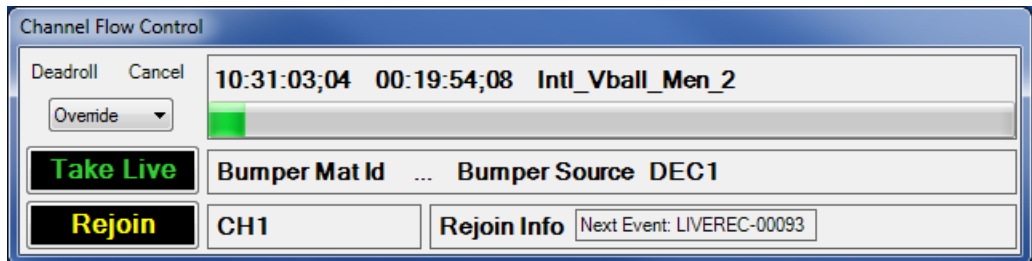


Figure 192 Single CFC Interface

Note: The Combined CFC Window feature disables the individual per-channel CFC interface views - if only a subset of CFC interfaces have been combined into a CFC window (i.e. ticked), the excluded CFC interfaces (un-ticked) cannot be viewed.

- Combined CFC Channels

Checkbox. Tick those channels that are to displayed in the Combined CFC Window. Those that are un-ticked cannot be displayed

- Enabled Rejoin Modes

Sets the Rejoin modes that will be available from the drop-down menu on the CFC interface (Fig. 193) - the setting is of a global nature, and will therefore apply to all CFC interfaces.

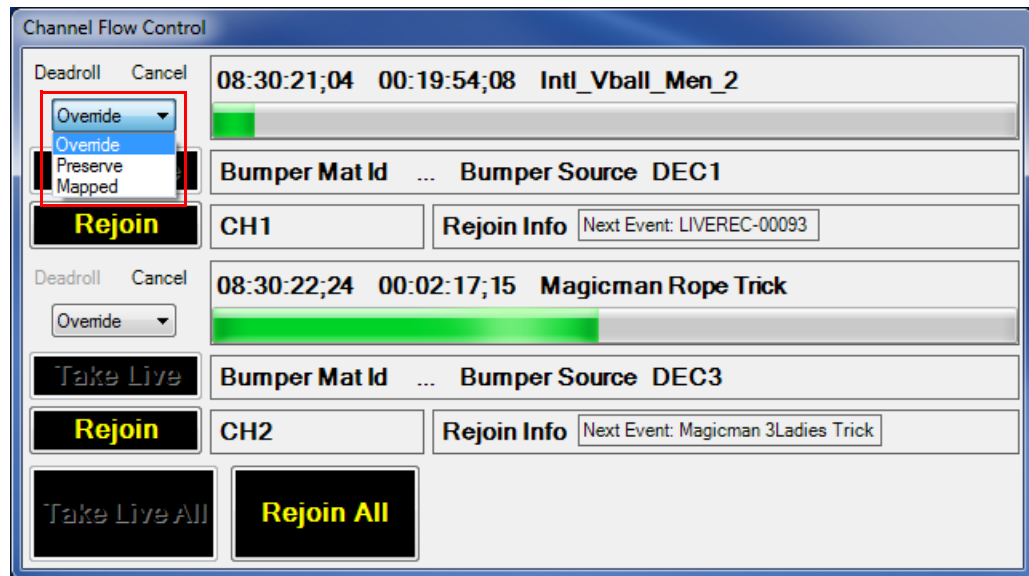


Figure 193 Rejoin Modes on CFC Interface

- Include Manual Take Events in Deadroll

Controls whether or not a Dead-Roll can be performed if the part of schedule that will be copied to the Staging Channel contains one or more events that have a Manual Take flag set. The default is ticked - Manual Take events are included in the Dead-Roll.

If ticked then the system will Dead-Roll all of the events, including those with a Manual Take flag - when recreated on the Staging Channel, these Counterpart Events will lose their Manual Take flags, and the Dead-Roll will therefore run without the need for manual intervention.



If un-ticked, and a Dead-Roll is requested that *would* include an event with a Manual Take flag in the Dead-Roll Set, then the system will not perform the Dead-Roll.

There is no system warning to alert to this condition!

13.9.5.3 Configuration of CFC-JIP Behaviour

Navigate to the Join In Progress tab on the Editor Configuration Window:

Editor > Tools > Configuration > select 'Channel' > System tab > Join In Progress tab

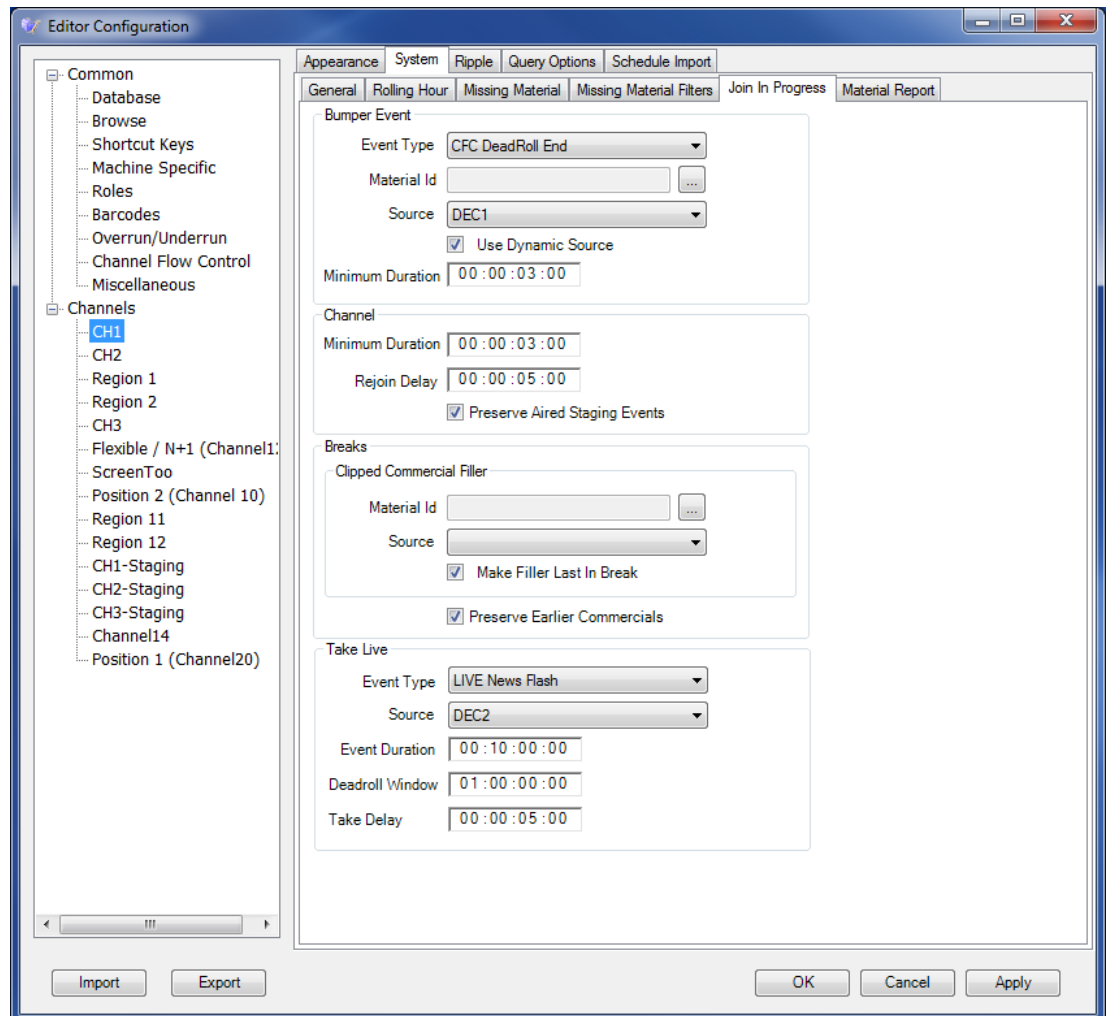


Figure 194 Configuration of CFC-JIP Behaviour

Bumper Event Configuration

The first event that will go to air at the point of a Rejoin Action, inserted before the Calculated Rejoin Event, informing the viewer that the normal schedule is about to resume. The Bumper Event may air a logo, graphic, or a clip from an evergreen source.

- Event Type

From the drop-down menu, select the Bumper event type that will play out (refer to Section 13.9.4 The Rejoin Calculation) - the selection is limited to Event Kind 'Main Event'.

- Material Id

Click on the ellipsis button (...) in order to display the Material ID Validator window and enter a default material Id for the Bumper Event. Click on **OK** to accept the new material Id, or **Cancel** to annul.

Note: The material Id for the Bumper Event must syntactically match one that exists in the Palette - there is no predictive help. The Material ID Validator is not case sensitive.

Note: Using the CFC interface, it is possible to override the default Bumper Event material Id, configured here, with an alternative. Refer to the Morpheus Operator's Manual for details.

Note: The Morpheus Application Server must be running in order for a material Id to be selectable.

- Source

From the drop-down menu, select the source of the Bumper event material Id.

- Use Dynamic Source

Checkbox. If ticked, then the source selection for the configured Bumper Event is performed dynamically by the system in the following order:

1. The source of the Calculated Rejoin Event, i.e. the source of the successful candidate event of the Rejoin Calculation.
2. The default Bumper Event source, as configured in 'Source' above.

Note: If un-ticked, then the source for the Bumper Event will be that configured in 'Source', above.

- Minimum Duration

The minimum period of time over which the Bumper Event will play - it is fixed unless the Rejoin Calculation has a need to extend it in order to satisfy the rejoin criteria (refer to Section 13.9.4 The Rejoin Calculation).

Channel Configuration

- Minimum Duration

Specify the minimum acceptable duration of a Candidate Event.

This parameter exists as a safety margin to guard against rejoining the schedule with an event that has an unsuitably short duration - the value of this parameter is used exclusively in the Rejoin Calculation.

- Rejoin Delay

Specify a period of time that takes account of the latency required for a source device to be ready to play the Bumper Event, the held PGM event to finish playout (the duration of which is defined by the parameter 'Min. Remaining Time of Held Event'), and for the normal schedule to be resumed according to the selected Rejoin Mode. It must have a value that is higher than the value of the Required PreRoll parameter for the source device that has been selected to play the Bumper Event.

The specified duration is used exclusively in the Rejoin calculation.

Important:

The minimum value for the Rejoin Delay MUST be calculated as follows:

$$\text{Rejoin_Delay} \geq \text{Min_Remaining_Time_of_Held_Event} + \text{Preroll} + 1 \text{ second}$$

Where:

'Min Remaining Time of Held Event' is configured in:
Configurator > System Configuration > Rippling Hold Tab

'Preroll' is that of the source device that will play the Bumper Event, configured in:
Configurator > Devices > More Properties

- Preserve Aired Staging Events

When enabled, the Dead-Airing PGM and all previous events that have Dead-Aired on the Staging Channel are preserved for the purpose of allowing them to be recorded into the channel's As-Run log as a record of the events that should have been broadcast.

All events on the Staging Channel that did not Dead-Air are removed by the Channel Flow Control Service after the Rejoin. If no Rejoin occurs in the current Dead-Roll, then its events are cleared from the Staging Channel by the Channel Flow Control Service.

When enabled, this feature applies to all rejoin modes.

Note: The Asrun Collect Dwell parameter is set on a per channel basis in the Configurator, on the Channel Properties tab.

Note: The Cancel function will not delete an aired Staging Event that has been preserved. Refer to the Morpheus Operator's Manual for information on the Cancel function.

To enable, tick the checkbox, and create an instance of the Channel Flow Control Service as follows:

In the ShellHost Configuration window, click **Add**.

1. From the 'Service Type' drop-down menu, select **ChannelFlowControlService**.
2. In the 'Instance Name' text box, enter a unique name for this instance of the service.

There are no detailed configuration parameters required for this service.

Note: The Channel Flow Control Service (Host Shell Service) is responsible for performing the housekeeping on Dead-Roll Sets on the Staging Channel, an instance of which must be running in order for this functionality to be operational.

- If no Rejoin has taken place, the service deletes the Dead-Roll Set
- If a Rejoin has taken place, the Dead-Aired events remain on the Staging Channel for AsRun collection

If a Rejoin has not occurred, then by default no change has been made to the schedule, and the effect of this functionality will be of no relevance.

Configuring Break Functions

Clipped Commercial Filler Pane

Define the content that will be played out instead of the clipped commercial content. The content is played for the entire duration of the clipped commercial thus ensuring that only whole commercials, that were not overrun, are broadcast. Any commercials that have been overrun entirely are discarded.

Note: If this feature is not configured, then the remainder of the clipped commercial content will be aired.

- Material Id

Click on the ellipsis button and specify the Material Id of the content to be used as the commercial filler. The **OK** button is greyed out unless the system has validated that the specified Material ID exists - validation is not case sensitive.

- Source

Specify the source for the Material ID to be used as the filler.

- Make Filler Last In Break

When enabled, the commercial that was clipped at the point of the Rejoin is moved to the end of the commercial break.

Tick the checkbox in order to enable this feature.

Note: If Make Filler Last In Break is checked without entering a value for the Material Id and Source fields, then the clipped commercial will be moved to the end of the break and will air its original content for its remaining duration.

Example - Make Filler Last in Break (Fig. 195):

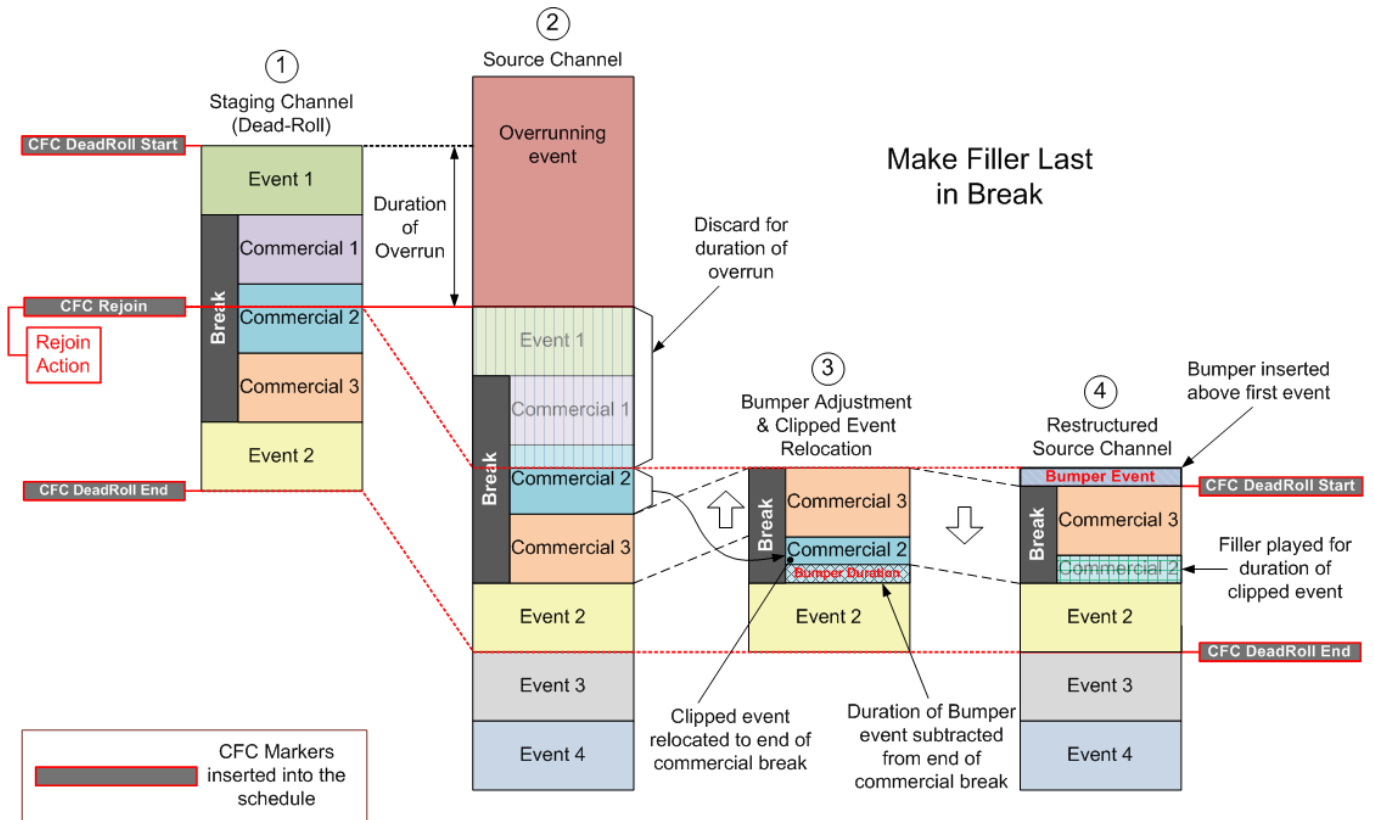


Figure 195 Make Filler Last in Break

1. Commercials 1 and 2 in a scheduled break have been overrun at the point of the Rejoin.
 2. The duration of the overrun is subtracted from the beginning of the commercial break (affecting commercials 1 and 2).
 3. Event 1 has been overrun entirely:
 - a) If using a Dynamic Rejoin Mode, event 1 is discarded.
 - b) If using a Mapped Mode Rejoin, event 1 is disabled and remains on the Source Channel for Asrun collection.
 4. For all Rejoin Modes, commercial 1 remains in the break but is disabled.
 5. The Bumper event is inserted before the break, ahead of commercial 3.
- Commercial 2 has been clipped, so it is relocated to the end of the commercial break, thus reordering the sequence of events, the duration of the Bumper event is subtracted from commercial 2.
6. After the Bumper Event, scheduled timing is resumed: commercial 3 is played for its scheduled duration and instead of the clipped commercial being broadcast (commercial 2), a filler is played for its remaining duration.

Important:

If Preserve Earlier Commercials is enabled (see below), in the example shown in Fig. 195, Commercial 1 (which had Dead-Aired on the Staging Channel) would be enabled on the Source Channel at the point of the Rejoin and would be aired immediately after the Bumper Event and ahead of the filler that has replaced the clipped commercial. In the same situation, Commercial 3 would be disabled and moved to the end of the break.

- Preserve Earlier Commercials

It is possible that an event could overrun onto a commercial break, thereby preventing commercials from being broadcast - if enabled (checkbox is ticked), this function presupposes that the most valuable commercials in a break are those that are due to air first, at the expense of those that are due to air last. If a Rejoin Instruction takes place during a commercial break, then the duration of the overrun is subtracted from the trailing commercials (Fig. 196) thereby preserving the leading commercials for broadcasting in their entirety. If the checkbox is NOT ticked, then the duration of the overrun is subtracted from the beginning of the commercial break.

Important: This feature also has an effect on the ordering of commercials when the 'Make Filler Last In Break' feature is enabled.

Example - Preserve Earlier Commercials (Fig. 196)

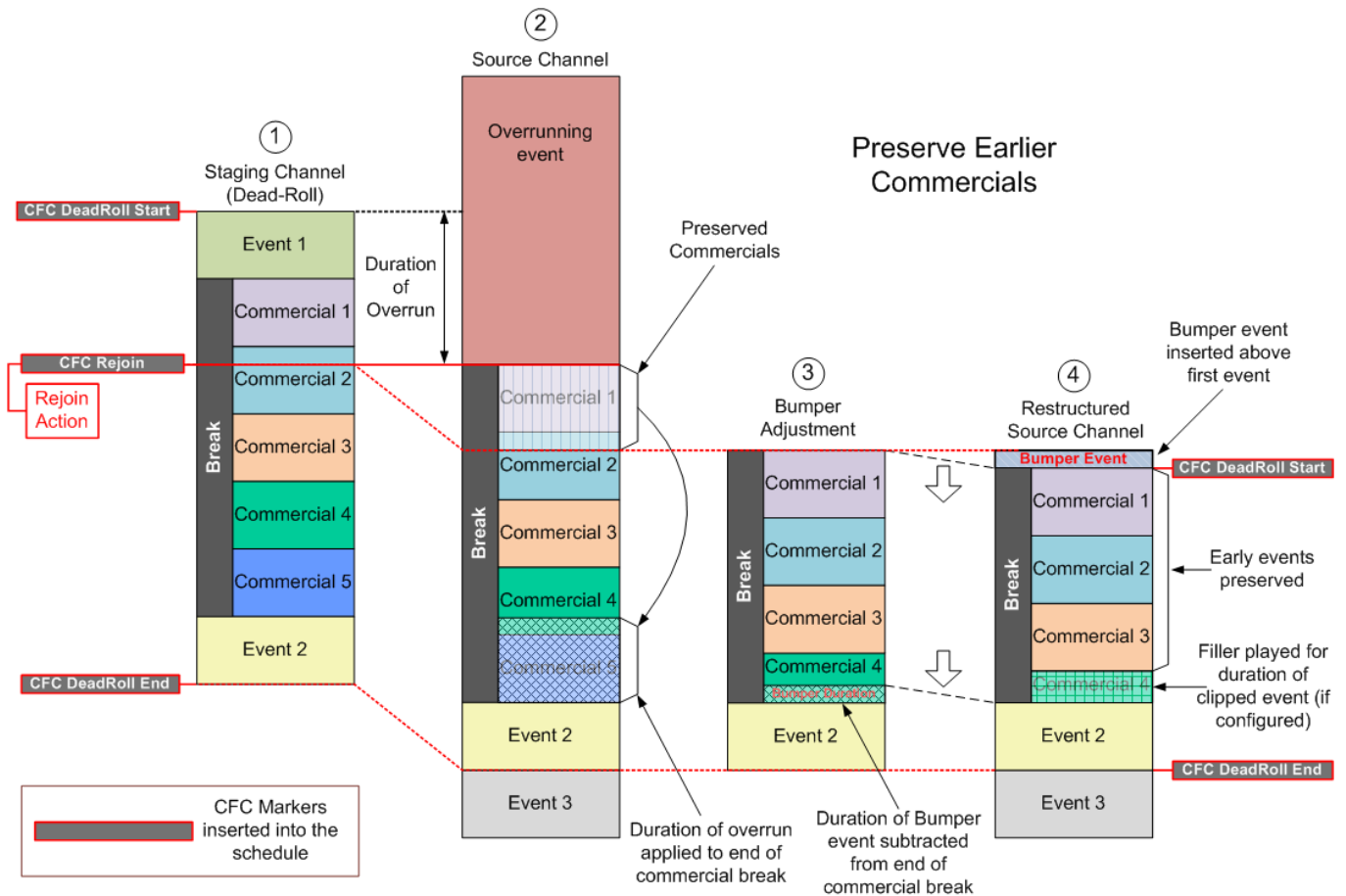


Figure 196 Preserve Earlier Commercials

1. Commercials 1 and 2 in a scheduled break have been overrun at the point of the Rejoin - these commercials are classified as the most valuable and must therefore be broadcast at the expense of commercials that are at the end of the break.
2. The duration of the overrun is subtracted from the end of the commercial break (affecting commercials 4 and 5), thus ensuring that commercials 1 and 2 play in their entirety according to the scheduled time of the break. The duration of commercial 5 is entirely consumed by the overrun and is therefore disabled and moved to the end of the commercial break.

3. The Bumper event is inserted before the break, ahead of commercial 1, but its duration is also subtracted from the end commercial, commercial 4.
4. After the Bumper, commercials 1, 2, and 3 are played for their scheduled duration. Commercial 4 will play the remainder of its duration unless Clipped Commercial Filler has been configured, in which case a filler is played for its remaining duration. Scheduled timing is resumed as soon as the Bumper Event has aired.

Take Live Configuration

- Event Type

From the drop-down menu, select the Event Type that will be used for the Take Live. Only those Event Types that have been assigned to the channel in the Configurator will be visible.

- Source

From the drop-down menu, select the source from which the Take Live event will be supplied.

- Event Duration

Enter an estimated duration for the Take Live event.

This value will have no effect upon the actual duration of the broadcast, as the Take Live event is inserted with the Hold Flag set - all following events will therefore be placed into a Rippling Hold once the Event Duration has expired and Take Live event is allowed to overrun.

The default is 30 minutes.

Note: A null value is valid.

- Deadroll Window

The duration of the Deadroll when a Take Live is actioned

The default is 1 hour.



It is recommended that the value attributed to the Deadroll Window is greater than that of the Event Duration - no Rejoin would be possible should the duration of the live event exceed that of the Deadroll Window.

- Take Delay

Configure the delay to apply between a Take Live action and its execution - the default is 5 seconds.

The purpose of this parameter is to allow for delays in the allocation of the resources required for the Take Live operation.

Applies to the Take Live function only.

13.10 Miscellaneous Settings

A collection of additional actions:

- Apply a background color to the icons on the channel bar to indicate errors.
- Change the vertical arrangement of the channel icons in the channel bar.
- Apply settings to events that will over run or under run.
- Disable the **Force Decorate Events** function on the right-click menu
- Adjust the N+1 start time
- Apply confirmation warnings when loading or appending SIO schedules
- Use a Momentum browser in the Editor

To display the miscellaneous settings, select **Miscellaneous** from the left-hand pane of the ConfigForm window.

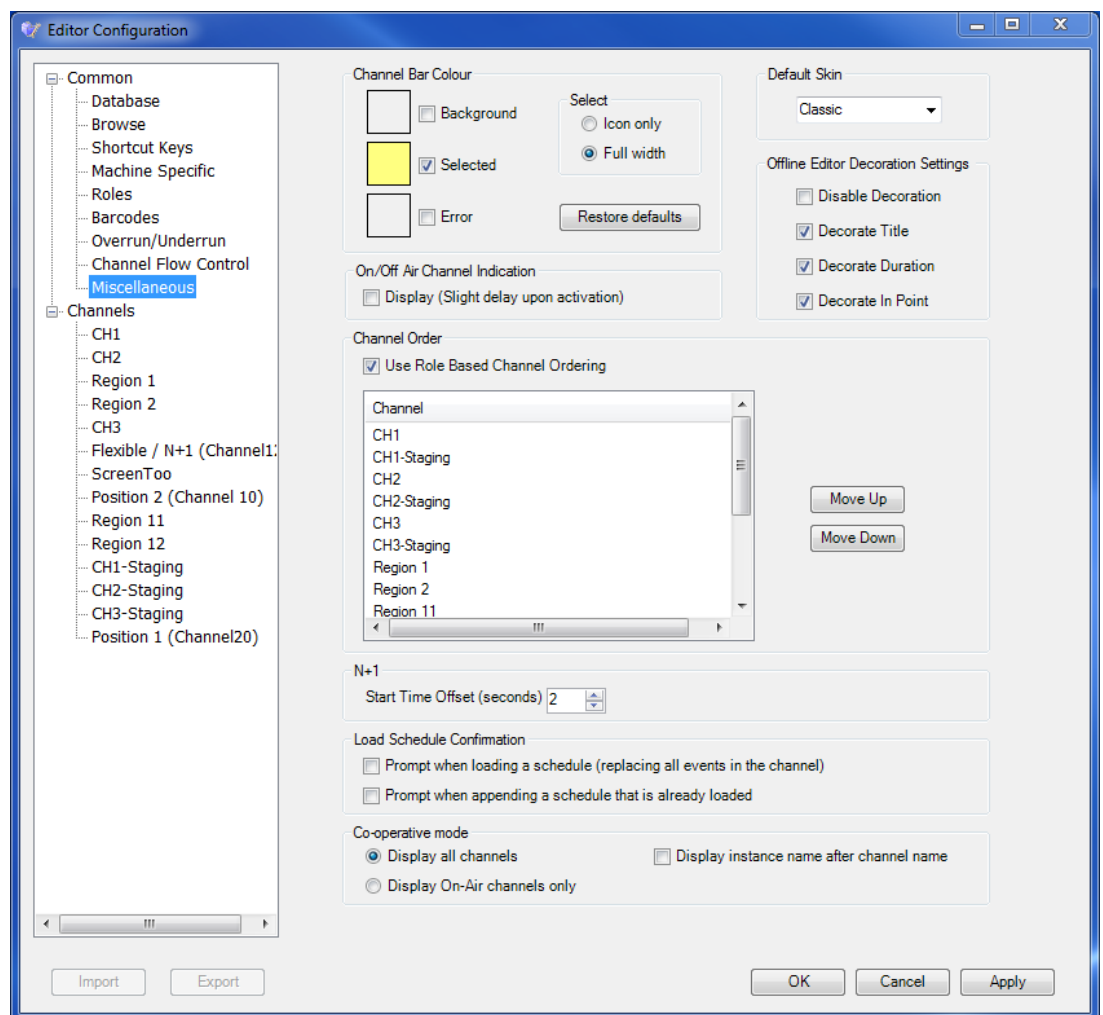


Figure 197 Editor Configuration - Miscellaneous Settings

Each of the settings is described below.

13.10.1 Channel Bar Settings

Configure colors for the following:

- The background color for the channel icons on the channel bar
- A color for a selected channel icon
- A color for a channel error.

For example:

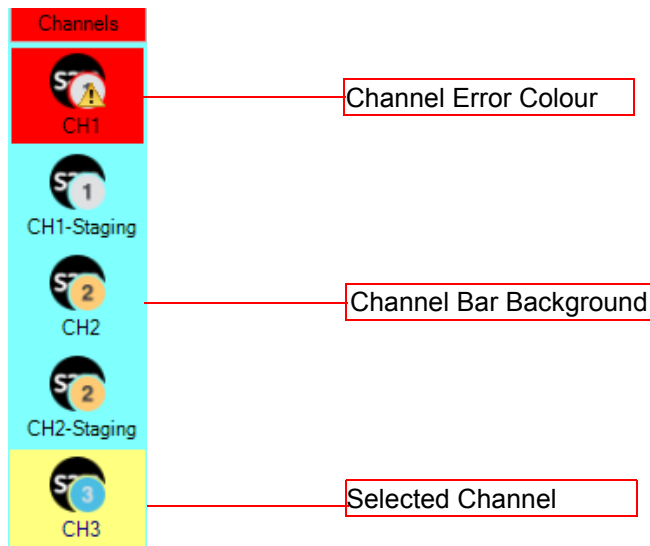


Figure 198 Channel Bar Colours

The color can be applied around the channel icon or across the width of the channel bar.

1. To set the color, click on the required color box, for example, **Error**.

The Color window is displayed.

2. Select the required color from the palette and click on **OK**.

Each of the color options has an associated checkbox - if enabled then a color can be configured; if disabled then the color is shown as transparent (default Windows colors).

Click on **Restore Defaults** to enable all checkboxes and set the colors to the Grass Valley defaults.

Note: Colors may be disabled by un-ticking the Channel Bar Colour boxes.

13.10.2 Default skin

Change the look and feel of the Editor window by selecting a default skin type.

Select one of the following options from the drop-down list:

- **Classic** - selects the standard color scheme as shown below:

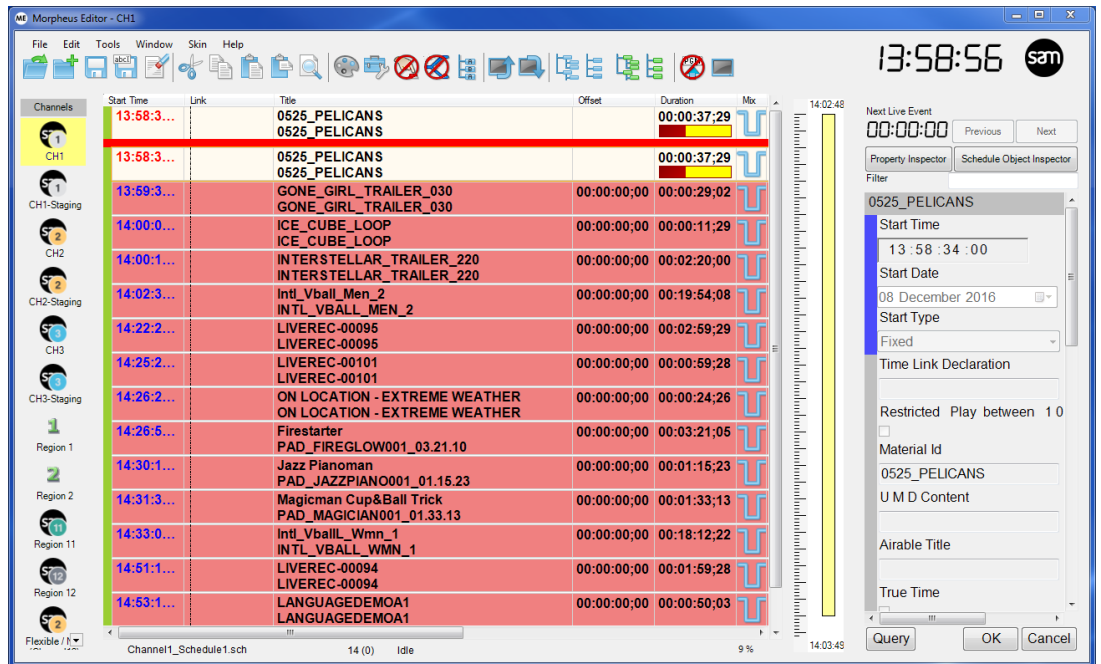


Figure 199 Classic Skin

- **Light** - selects a light grey color scheme as shown below:

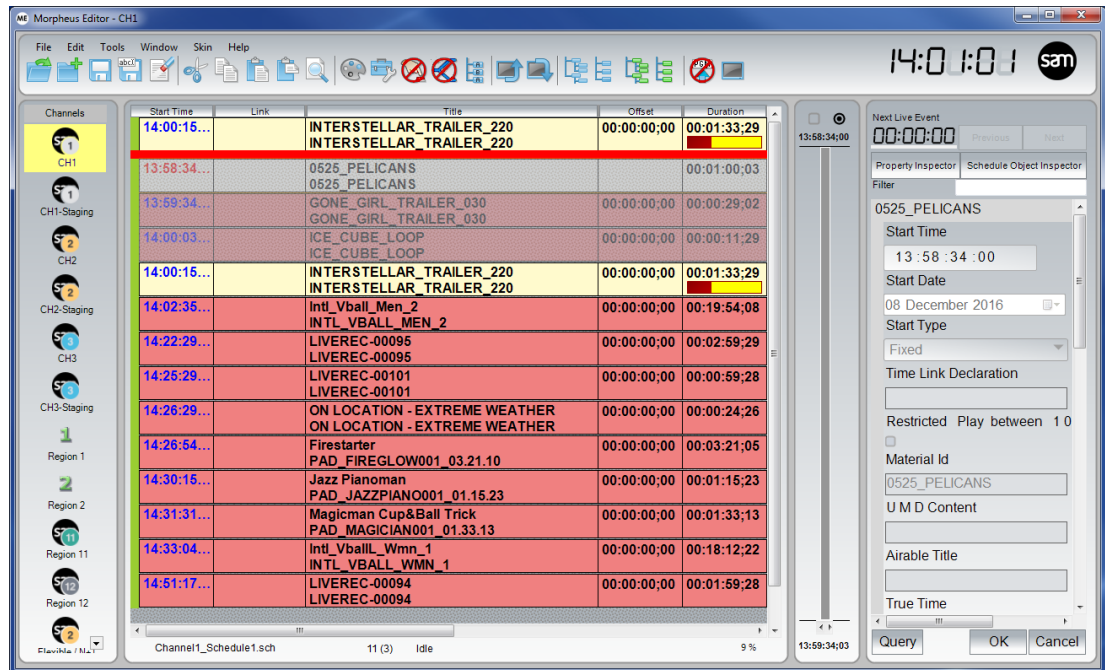


Figure 200 Light Skin

- **Dark** - selects a dark grey color scheme as shown below:

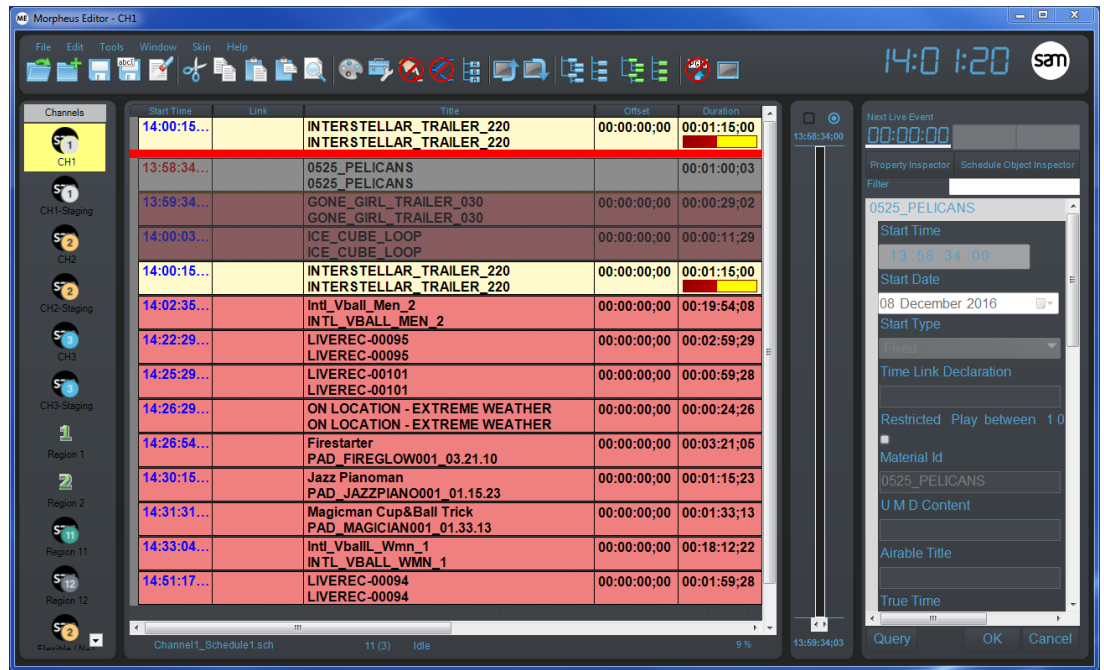


Figure 201 Dark Skin

13.10.3 Offline Editor Decoration Settings

The following decoration settings are available for the Offline Editor:

Function	Description
Disable decoration	When enabled, the Force Decorate Events option on the right-click menu is greyed out. The Decorate All Events function is greyed out on the Offline menu in the Offline Editor (refer to page 6).
Decorate Title	The offline editor has a feature that allows it to decorate the offline schedule. If Disable Decoration is not selected, then enabling this function will allow the title to be decorated.
Decorate Duration	If Disable Decoration is not selected, then enabling this function will allow the duration to be decorated.
Decorate In Point	If Disable Decoration is not selected, then enabling this function will allow the Inpoint to be decorated.

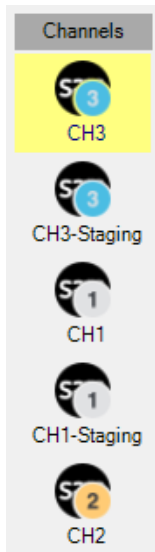
Table 9 Decoration settings

The **Force Decorate Events** right-click option allows users to override the **Decorate Once Only** configuration setting and return a field to its original value if it has been changed. For information relating to the Decorate Once Only parameter, refer to Chapter 7.4.6.2 More Properties Tab

Note: These decoration settings do not affect the Palette.

13.10.4 Channel Order Settings

Change the order of channel icons on the channel bar - in this example, channel 3 has been moved to the top.



To change the order of the channel icons:

1. Select the **Use Role Based Channel Ordering** check box.
2. Under **Channels**, select the appropriate channel and use the **Move Up** and **Move Down** buttons to move it to the required position.
3. Repeat for any other channels.

13.10.5 N+1 Start Time

Allows the the cue time for an N+1 flexible channel to be adjusted.

The default value is 10 seconds. Use this function with devices such as an ICE that require a lower cue time. Morpheus dynamically updates the inpoint for the first event in the N+1 channel so that the two channels are still synchronized.

For further information, refer to Flexible Channel in Chapter 7.4.1 Channel Types.

13.10.6 Load Schedule Confirmation

When selected, the **Prompt when loading a schedule** function places a confirmation warning (shown below) on the Editor when the user attempts to replace all events on a channel.

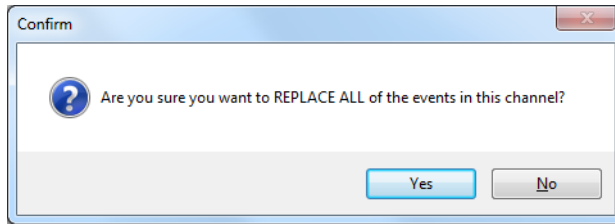


Figure 202 Load Confirmation Warning

When selected, the **Prompt when appending a schedule that is already loaded** function places a confirmation warning (shown below) on the Editor when the user attempts to append a schedule that is already loaded in the Editor.

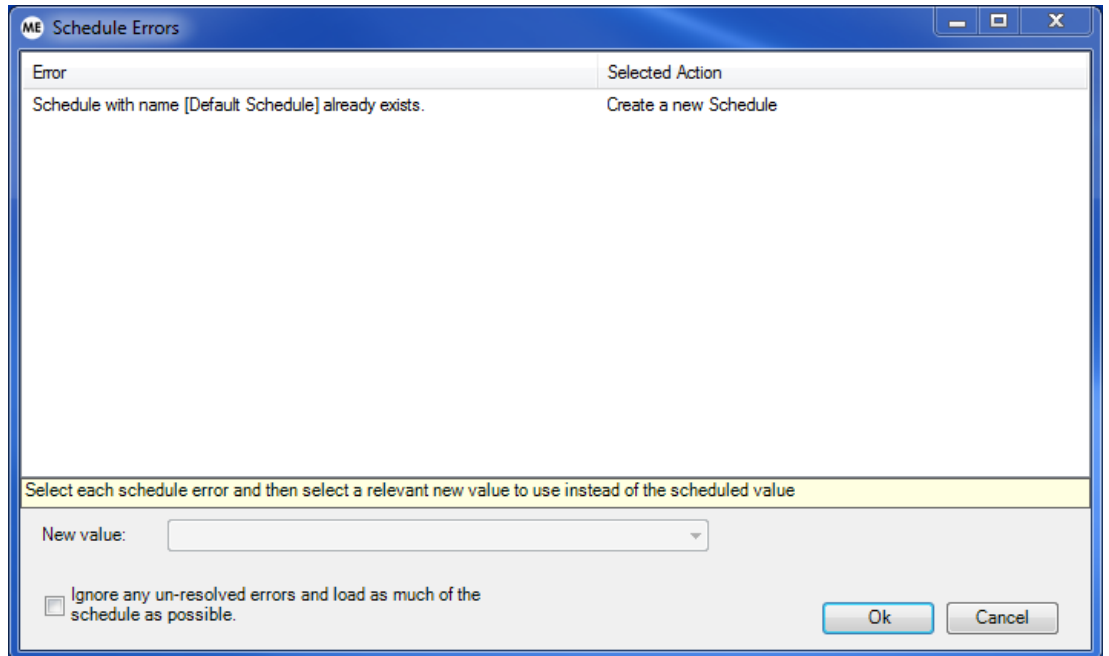


Figure 203 Append Confirmation Warning

Click on **OK** to append the schedule. Morpheus allocates the schedule a new Schedule Information Object ID. In the example above, the new schedule has an ID of Friday[1].

13.10.7 Use Momentum Browser

Enables the Momentum Browser in the Editor for use with Momentum thumbnails.

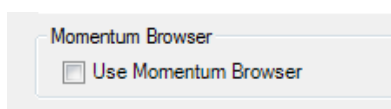


Figure 204 Momentum Browser

For further information, refer to Section 13.16 'Configuring Momentum Thumbnails' on page 375.

13.11 Channel Configuration

The **Channels** function allows configuration settings to be applied to different channels. To display the channel options, select **Channels** from the left-hand pane of the 'Editor Configuration' window.

All configuration information for the EventStore is stored in the file **C:\EventstoreExport\current_system.xml** (default location).

The **Import Config. To All Channels** function allows a previously exported configuration file to be applied to all channels for the current role.

To configure an individual channel, select it from the list on the left-hand side of the window. Additional **Import** and **Export** buttons at the bottom of the window allow configurations to be saved and applied to other channels.

13.12 Channel Appearance Settings

13.12.1 Colours Tab

Allows the colours of various components visible in the Morpheus Editor to be customised on a per channel basis.

- Event background
- Event text
- Gutter and Bookmarks
- The Palette, Property Inspector and Schedule Object Inspector background and text (refer to page 5)
- HUD messages (refer to page 21)
- Event countdown (refer to page 5)
- Commercial Hotlist
- The Next Break Panel (under Miscellaneous)

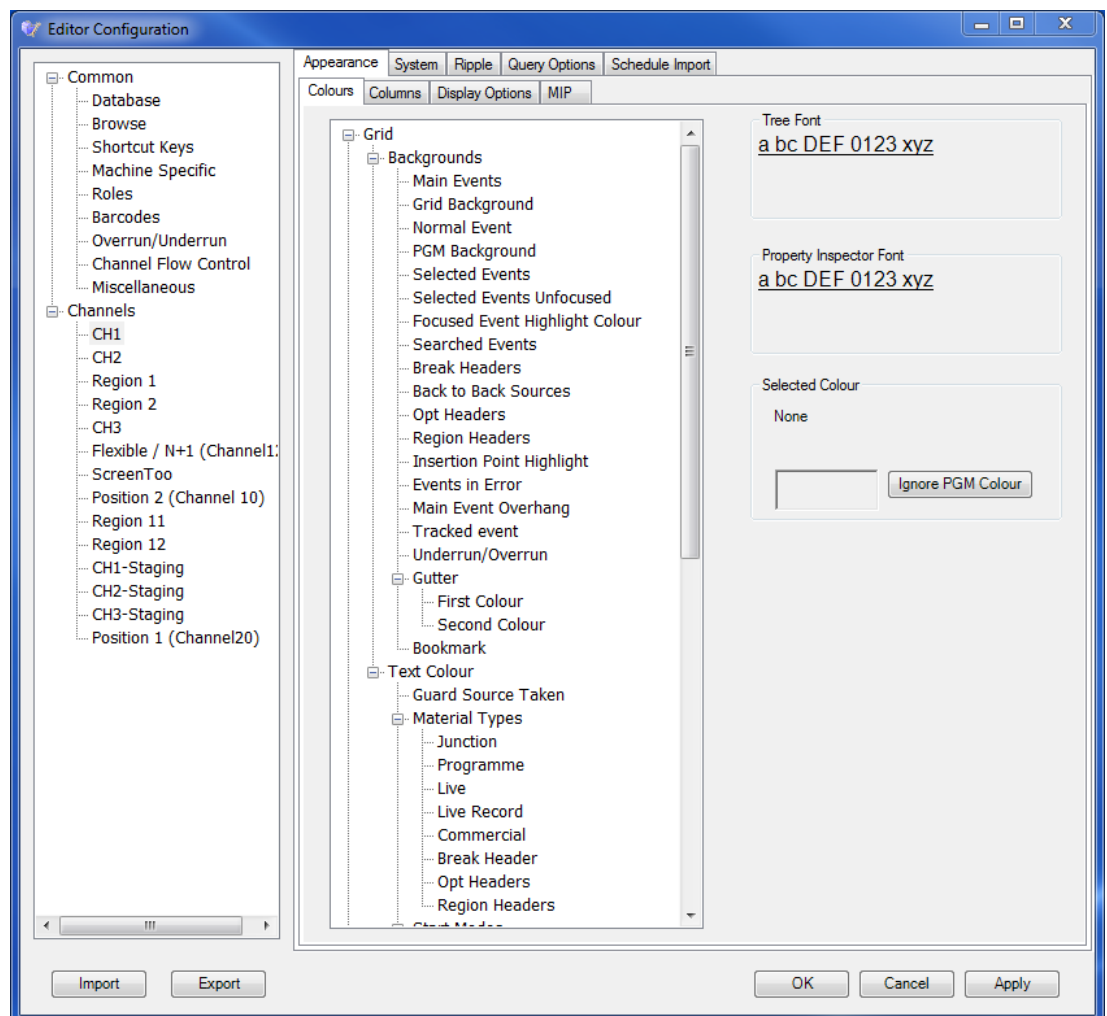


Figure 205 Editor Configuration - Colour Configurations

13.12.1.1 Changing the Background or Text Color

1. Select a channel from the left-hand pane.
2. Select the Editor component to modify.
3. Click on the coloured box ('Selected Colour'), and the Windows Color Picker will appear.
4. Select a color, and click on **OK**.

Note: Gutter and Bookmark colours are applied on a per channel and on a per skin basis. Two alternate gutter colours are available to distinguish between schedules with different Schedule Information Objects (SIOs).

The **PGM background** color box contains an additional function that overrides the selected color and makes the PGM background effectively transparent. This feature is useful if viewing the underlying Event Type background color is more important than having a dedicated on air background color, for example, displaying when a break header is on air. Clicking on the 'Ignore PGM colour' button results in the Event Type color being displayed, not the PGM background color.

The **Underrun/Overrun** color box also contains an additional **Ignore Colour** function that overrides the selected color. This button allows the user to stop events from displaying a special background color for underrunning/overrunning events.

13.12.1.2 Changing the Event Font

Change the font and size for events on the schedule as follows:

1. Under **Tree Font**, click on the underlined text.
2. Select the required font and size and click on **OK**.

13.12.1.3 Changing the Property Inspector / Schedule Object Inspector font

Change the font and size of text on the Property Inspector and Schedule Object Inspector as follows:

1. Under Property Inspector font, click on the underlined text.
2. Select the required font and size and click on **OK**.

13.12.2 Columns Tab

Allows the selection of the columns that are to be displayed in the Editor window, create custom columns and set validation options.

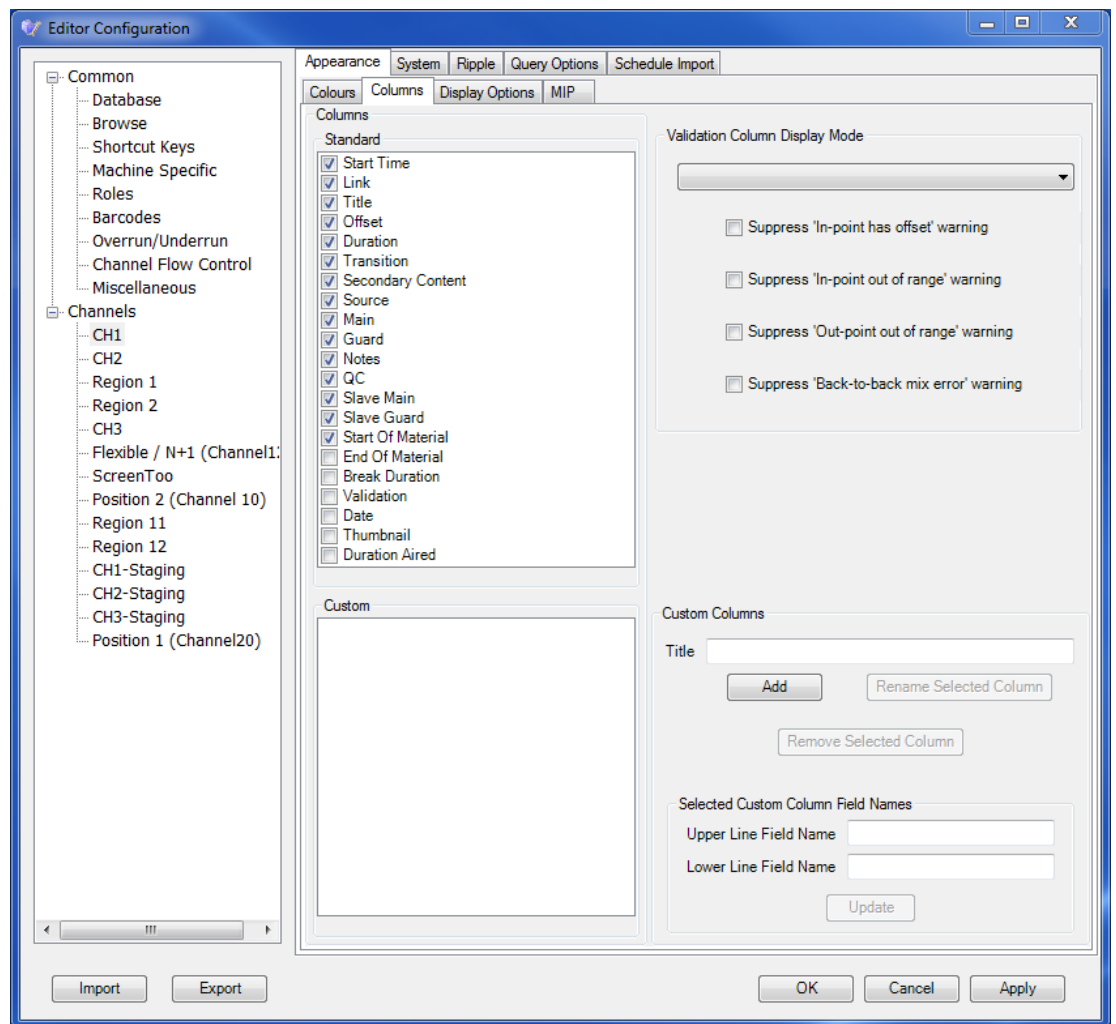


Figure 206 Editor Configuration - Channel Columns Settings

13.12.2.1 Column Options

Select the check boxes for each column that is to be displayed. The columns then appear on the Editor as shown below:

Schedule Columns

For descriptions of individual columns, refer to the Morpheus Operator's Manual.

13.12.2.2 Custom Columns

It is possible to create custom Editor columns as shown in the example below:

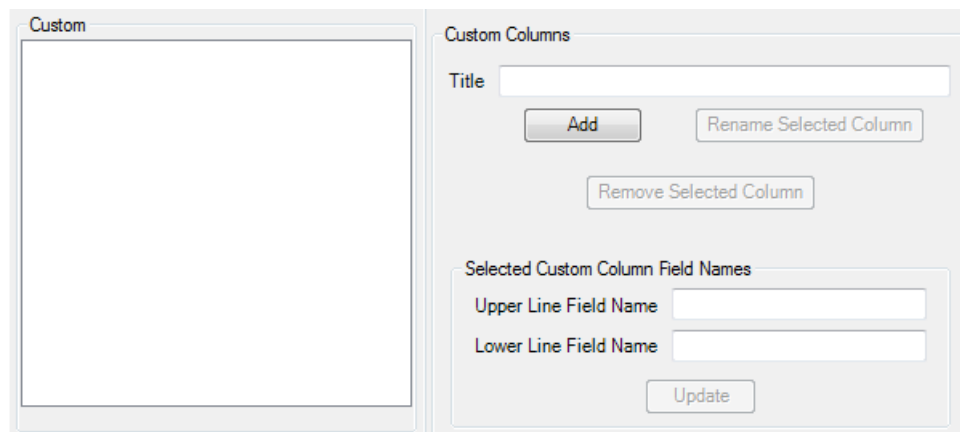


Figure 207 Editor Configuration - Channel Custom Columns

To create a custom column:

1. Enter a title - it will be displayed at the top of the column.
2. Enter an upper line field name if required. The field name must be a parameter name for the main Event Type. If the name of the parameter is incorrect, it will not be displayed. This parameter is displayed at the top of the row.
3. Enter a lower line field name if required. The field name must be a parameter name for the main Event Type. If the name of the parameter is incorrect, it is not displayed. This parameter is displayed at the bottom of the row.
4. Click on **Add** to create the column - it will then appear in the list on the left-hand pane.
5. Select the column title in order for it to appear on the Editor and click on **OK**.

The custom column is then displayed on the Editor as shown in the example below:




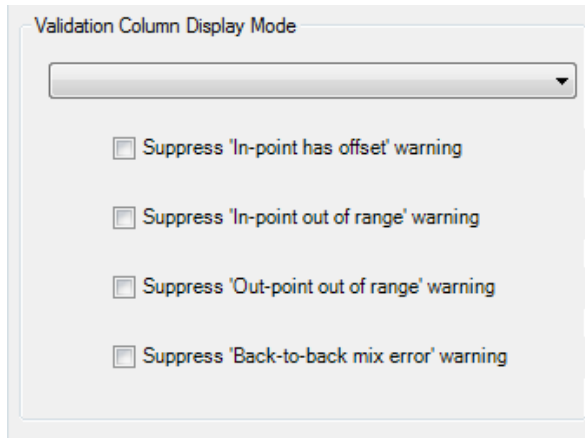
Custom	Start Time	Link	Title
A0123456 Mixer	10:58:11;01		EVENT 10 A0123456
C055653 Mixer	08:41:47:16 15:25:16:24	 	ON-AIR EVENT C055653
A123456 Mixer	15:43:51:13		EVENT 1 A123456
C003458 Mixer	15:48:06;24		EVENT 2 C003458
A3456789 Mixer	15:51:27;05		EVENT 3 A3456789

Figure 208 Custom Column on the Editor

To change the settings for a custom column, enter the new details and click on **Update**. To delete a custom column, click on **Remove**.

13.12.2.3 Validation Options

The **Validation** field on the Editor schedule shows icons indicating errors or information associated with an event. The **Validation Column Display Mode** functions determine whether a single icon is displayed or more than one icon.



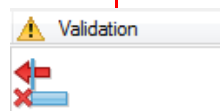
Each function is described below.

Function	Description
Single Icon	Displays only one icon in the Validation column and the icon indicates the highest (most serious) error level.
AggregatedByName	Displays more than one icon, with the highest level on the left, the second highest next to it and so on.

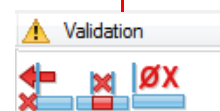
Table 10 Validation Settings

Examples of each are shown below:

Single Icon - only the most serious error is shown



AggregatedByName - all errors are shown



Note: The Generic Validation Host Shell Service is used to validate events (refer to page 220).

13.12.2.4 Inpoint/Outpoint Warnings

The Inpoint/Outpoint Warning functions are:





Function	Description
Suppress 'In-point has offset' warning	<p>When cleared, the following icon is displayed in the Validation column on the Editor schedule if the event's inpoint (refer to page 645) is offset from (later than) the Morpheus media management database inpoint (refer to page 588).</p> <p>To prevent the icon from appearing, select Suppress 'In-point has offset' warning.</p> 
Suppress 'In-point out of range' warning	<p>When cleared, the following icon is displayed in the Validation column if the event's inpoint is earlier than the database inpoint.</p> <p>To prevent the icon from appearing, select Suppress 'In-point out of range' warning.</p> 
Suppress 'Out-point out of range' warning	<p>When cleared, the following icon is displayed in the Validation column if the event's outpoint (refer to page 645) is later than the database outpoint. This means that the clip may freeze for the duration of the event.</p> <p>To prevent the icon from appearing, select Suppress 'Out-point out of range' warning.</p> 
Suppress 'Back-to-back mix error' warning	<p>When cleared, the following icon is displayed in the Validation column if a Mix or Wipe transition is selected that uses the same source as the previous main event source.</p> <p>To prevent the icon from appearing, select Suppress 'Back-to-back mix error' warning.</p> 

Table 11 Inpoint/Outpoint Validation Warning Settings

13.12.3 Display Options Tab

For the configuration of the toolbar and other visual display options, on a per channel basis.

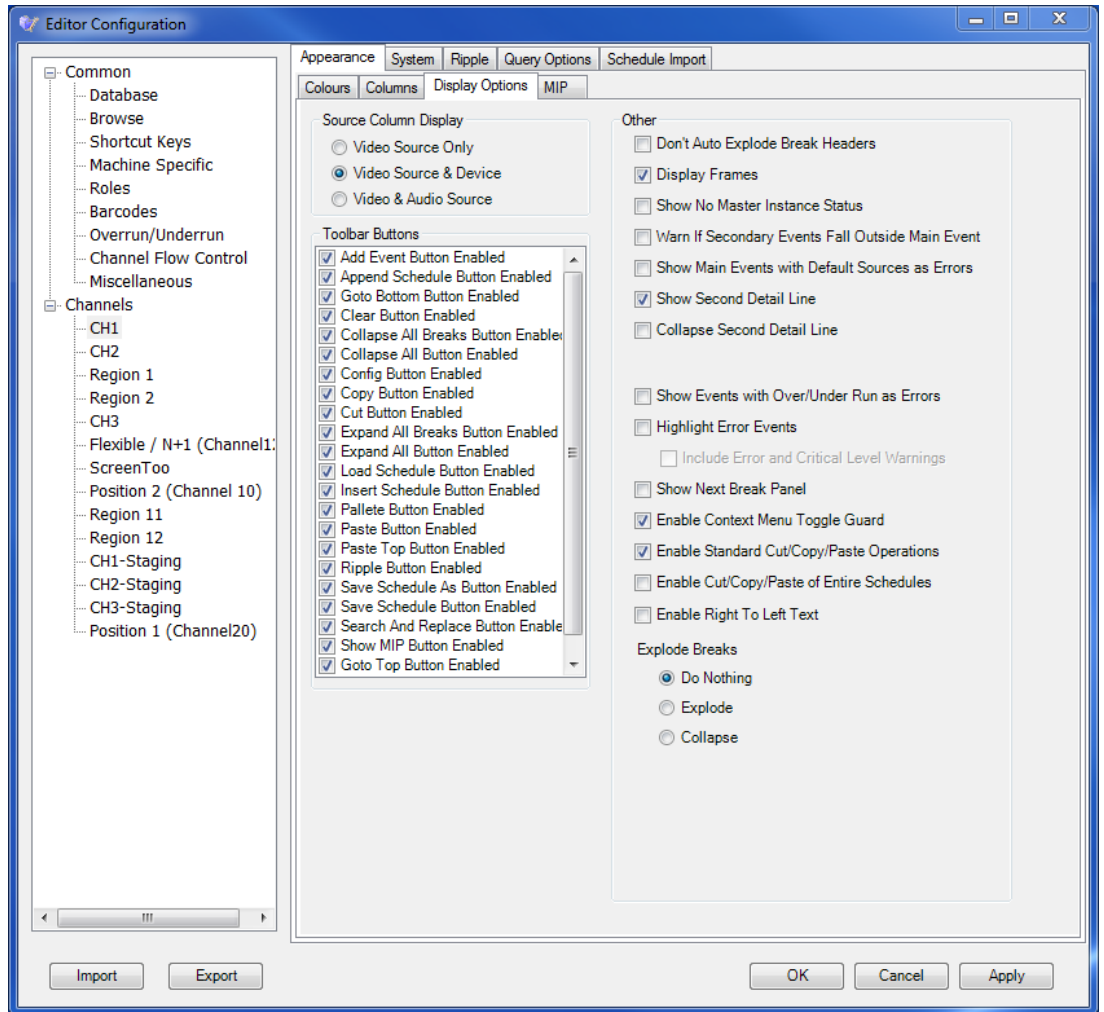


Figure 209 Editor Configuration - Channel - Display Options

13.12.3.1 Source Column Display

Select the device types to display in the Source column on the schedule. Each function is described below.

- Video Source Only

Displays only the video source in the Source column.

- Video Source & Device

Displays both the video source (such as the router or mixer) and device in the Source column.

- Video & Audio Source

Displays both the video and audio sources in the Source column.

13.12.3.2 Toolbar Buttons

Select the buttons that need to be displayed on the Editor toolbar.

13.12.3.3 'Other' Parameter Pane

This section contains additional functions.

- Don't Auto Explode Break Headers

When selected, break headers are visible but the commercials below them are not. When cleared, both the headers and their commercials are displayed. This feature only applies to the topmost break in the schedule.

Note:

This feature is deprecated by the Explode Breaks functionality. Refer to - Explode Breaks in this section.

- Display Frames

Tick the check box to display all timecodes as **hh:mm:ss:ff**. Clear this check box to display timecodes as **hh:mm:ss**.

- Show No Master Instance Status

Indicates that there is no master instance.

-Warn If Secondary Events Fall Outside Main Event

When selected, if a secondary event's duration (refer to page 648) causes it to fall outside the primary event's duration (refer to page 646), a warning color is displayed in the background of the **Secondary Content** column.

- Show Main Events with Default Sources as Errors

When selected, if a user selects a default source from the **Source** column for the main event, an error color is displayed in the event's background. When cleared, no error color is displayed.

- Show Second Detail Line

Tick the checkbox to display second line detail in each event row. Second line detail includes the MaterialID in the Title column and the device name in the Source Column. When un-ticked, no second line information is displayed.

Row depth is constant, regardless of this setting.

16:17:44;17		Intl_Vball_Men_2 INTL_VBALL_MEN_2	00:00:00;00	00:19:54;08			DEC1 ICE1	
16:37:38;25	<input type="checkbox"/>	Break -	00:00:00;00	00:02:49;02				
16:40:27;27		LIVEREC-00093 LIVEREC-00093	00:00:00;00	00:01:59;28			DEC1 ICE1	
16:42:27;27		Intl_VballL_Wmn_1 INTL_VBALL_WMN_1	00:00:00;00	00:18:12;22			DEC1 ICE1	

Second Detail Line Visible

16:17:44;17		Intl_Vball_Men_2	00:00:00;00	00:19:54;08			DEC1	
16:37:38;25	<input type="checkbox"/>	Break -	00:00:00;00	00:02:49;02				
16:40:27;27		LIVEREC-00093	00:00:00;00	00:01:59;28			DEC1	
16:42:27;27		Intl_VballL_Wmn_1	00:00:00;00	00:18:12;22			DEC1	

Second Detail Line Suppressed

- Collapse Second Detail Line

When the checkbox is ticked, the depth of all rows is reduced to one line. This is a companion setting to **Show Second Detail Line** when un-ticked.

Un-tick this feature to expand all rows.

16:17:44;17		Intl_Vball_Men_2	00:00:00;00	00:19:54;08			DEC1	
16:37:38;25	<input type="checkbox"/>	Break -	00:00:00;00	00:02:49;02				
16:40:27;27		LIVEREC-00093	00:00:00;00	00:01:59;28			DEC1	
16:42:27;27		Intl_VballL_Wmn_1	00:00:00;00	00:18:12;22			DEC1	

Collapsed Second Detail Line with Second Detail Line Suppressed

- Show Events with Over/Under Run as Errors

When selected, if the timing of an event causes an overrun or an underrun, the background color of the event changes to indicate an error.

- Highlight Error Events

Tick the check box to change the background color of events with errors.

When cleared, the background color of events with errors does not change, even if the **Show Main Events with Default Sources as Errors** and **Show Events with Over/Under Run as Errors** check boxes are selected.

This does not affect the **Warn If Secondary Events Fall Outside Main Event** function.

The warning color for errors is set on the Colours tab (refer to page 338) under **Grid>Backgrounds>Events in Error**.

- **Include Error and Critical Event Level Warnings**

This function is only available if the **Highlight Error Events** function above is selected. Selecting this function turns the background color of an event **red** if it contains one or more warnings that are errors or critical.

- **Show Next Break Panel**

Tick the checkbox in order to provide the following functionality:

- The next commercial break header automatically expands.
- A panel is displayed above the schedule that contains the following information:
 - The date and time when the break is due to play out
 - The name of the break
 - The duration of the break

Refer to Figure 210.

It is also possible to change the color of the panel background (refer to page 338).

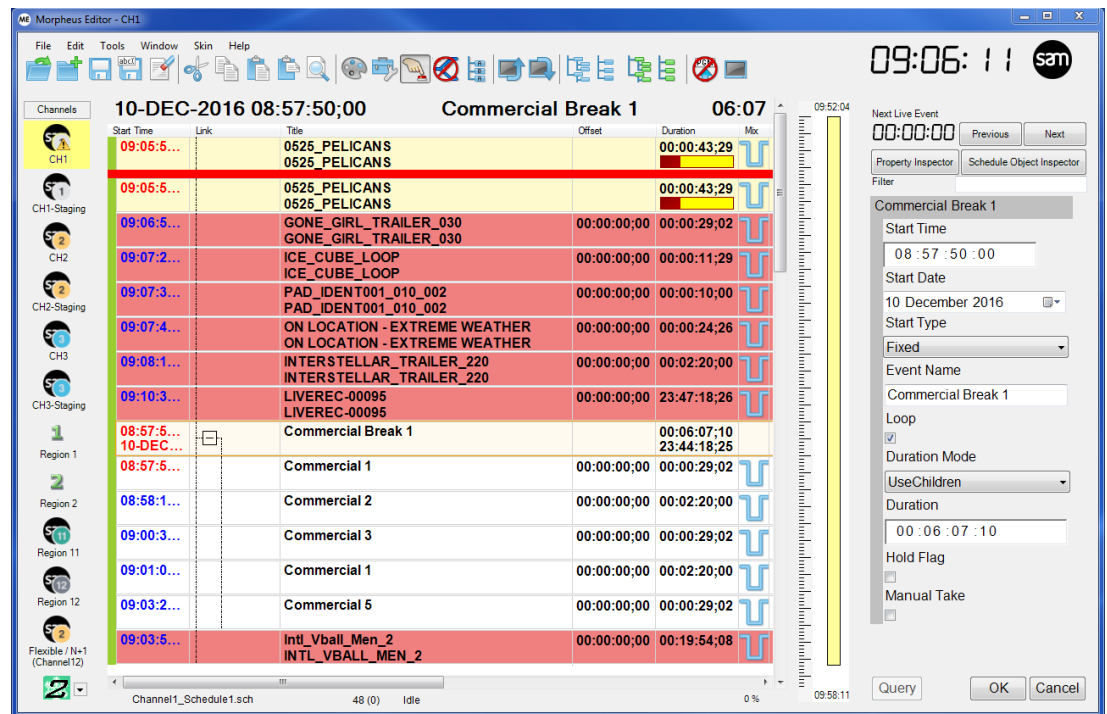


Figure 210 Editor Configuration - Channel - Show Next Break Panel

- **Enable Context Menu Toggle Guard**

Tick the checkbox in order to enable the Toggle Guard option on the Editor right-click menu. Toggle Guard switches all events using the same device as the highlighted event to the guard source.

- **Enable Standard Cut / Copy / Paste Operations**

If checked, the user is able to perform normal and cut / copy / paste functions: Ctrl-c / Ctrl-v, and right click paste sibling /paste child /paste top. If unchecked, cut / copy / paste actions are not possible.

Note: 'Paste Top' may be enabled / disabled separately in the 'Common' parameters of the Editor Configuration. If pasting to another channel, **Allow paste from other channels** must be checked in Configurator > Channels > More Properties.

- Enable Cut/Copy/Paste of Entire Schedules

If ticked, a user is able to perform a right mouse click to display a pop-up menu to select a cut / copy / paste of the entire schedule (the operation is based on a single Schedule Information Object ID). Highlight any event in the schedule, perform a mouse right click and select 'Cut Entire Schedule' or 'Copy Entire Schedule' as required, then 'Paste Top Entire Schedule' or 'Paste Entire Schedule'. If pasting to another channel, **Allow paste from other channels** must be checked in Configurator > Channels > More Properties.

- Enable Right To Left Text

If ticked, text is aligned to the right of all fields in the Property Inspector that support character strings, excluding the 'Filter' field.

- Explode Breaks

Sets a default display behaviour for a break.

- **Do Nothing**

The feature is disabled.

- **Explode**

Display all breaks, expanded to the first level of the sub-event tree.

- **Collapse**

Display all breaks, collapsed to the top level parent event.

The setting affects all breaks, but only at the point at which a schedule is loaded, appended, or saved in the Editor. Only if a 'save' command is issued will the setting apply to existing breaks in the schedule visible in the Editor, otherwise there is no change.

Note: This feature deprecates the '- Don't Auto Explode Break Headers'.

13.12.4 MIP Tab

The functions on the MIP tab relate to the Manual Intervention Panel - a panel of buttons for overriding the schedule. It is described in detail in the Morpheus Operators manual.

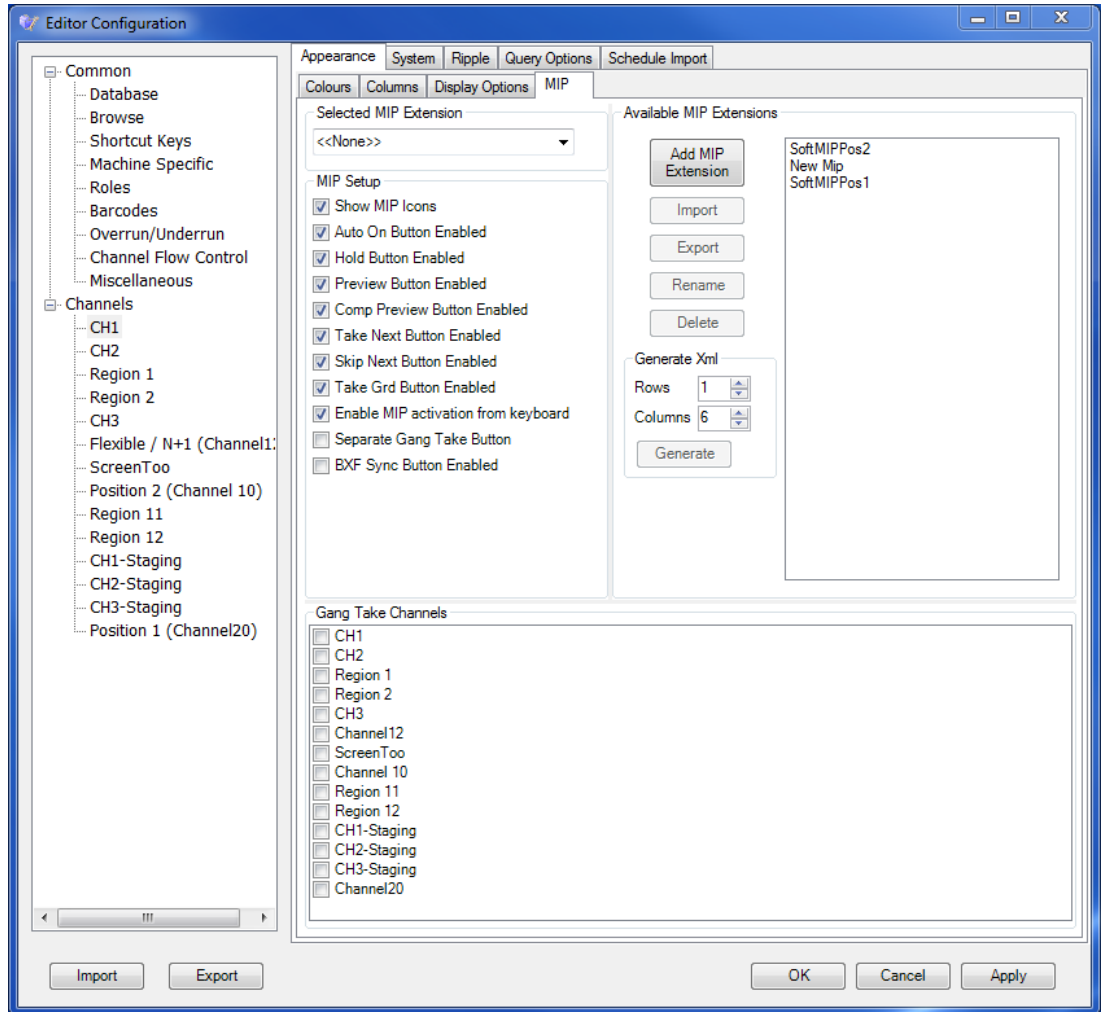


Figure 211 Editor Configuration - Channel - Manual Intervention Panel Tab

13.12.4.1 MIP Setup

Function	Description
Show MIP Icons	When selected, icons and text are displayed on the MIP buttons. When cleared, only the text is displayed on the buttons.
Auto On Button Enabled	When selected, the AUTO IS ON button on the MIP is enabled and available for use.
Hold Button Enabled	When selected, the HOLD button on the MIP is enabled and available for use.
Preview Button Enabled	When selected, the PREVIEW button on the MIP is enabled and available for use.
Comp Preview Button Enabled	When selected, the COMP PREV button on the MIP is enabled and available for use.
Take Next Button Enabled	When selected, the TAKE NEXT button on the MIP is enabled and available for use.

Table 12 MIP Settings

Function	Description
Skip Next Button Enabled	When selected, the SKIP NEXT button on the MIP is enabled and available for use.
Take Grd Button Enabled	When selected, the TAKE GRD and TAKE GRD PST buttons on the MIP are enabled and available for use.
Enable MIP activation from keyboard	When selected, operators can press F9 (when viewing the Editor window) to display the MIP. When cleared, F9 does not display the MIP.
Separate gang take button	If selected, the Gang Take button is displayed on the second row of the MIP panel - next to the Skip Next button instead of next to the Take Next button.

Table 12 MIP Settings

13.12.4.2 MIP Extensions

Add further buttons to the MIP from the 'Available MIP Extensions' pane in the Editor Configuration window. An example is shown below.

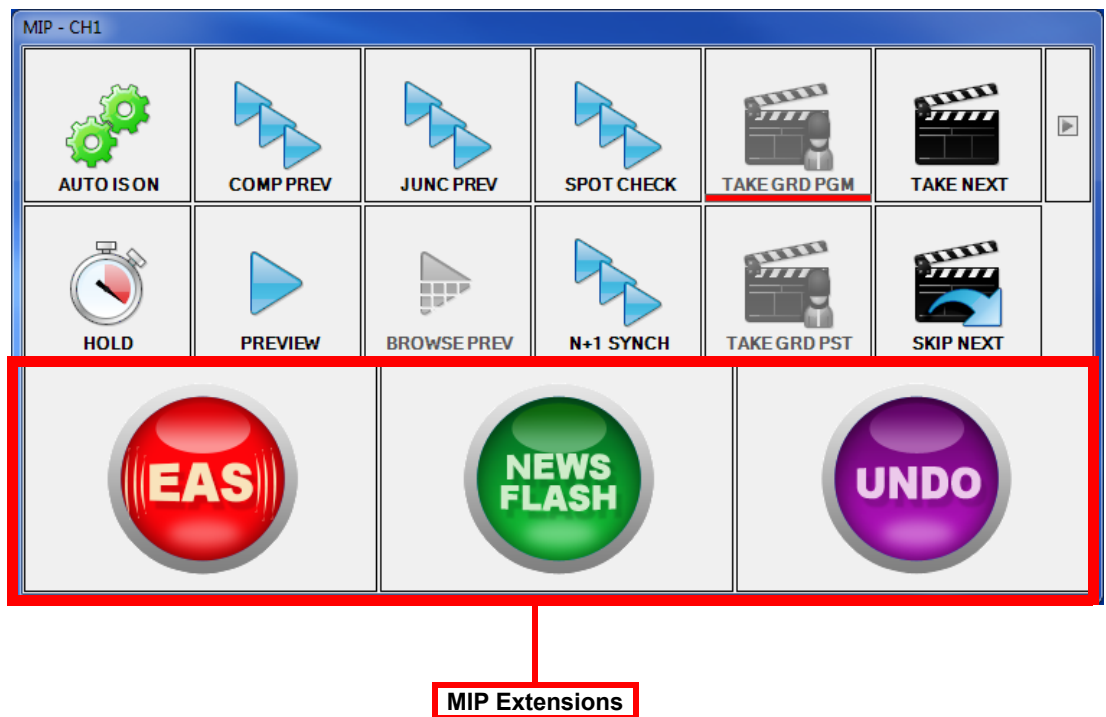


Figure 212 MIP Extensions

Function	Description
Selected MIP Extension	Select a MIP extension and display it at the bottom of the Manual Intervention Panel. Select the required extension from the list.
Add MIP Extension	Create a MIP extension. 'New MIP' is displayed in the Available MIP Extensions list.

Table 13 MIP Extension Settings

Function	Description
Import/Export	<p>All configuration information for the EventStore is stored in the file current_system.xml that, by default, is located in C:\EventstoreExport.</p> <p>The Export button allows the selected MIP extension to be exported in order to apply it to a different schedule using the Import button. Unlike the Export System function in the Configurator, MIP Export exports the MIP only. It does not affect any changes made to the system configuration.</p> <p>When Export is clicked, the Save As window is displayed - either accept the existing name or enter a new one.</p>
Rename	<p>Rename a MIP extension. Select the MIP extension and click on Rename. In the Enter New name window, type the required name and click on Apply.</p>
Delete	<p>Delete a MIP extension. Select the MIP extension and click on Delete. Click on Yes to confirm.</p>
Generate XML	<p>Enter the number of rows and columns on a MIP extension. The default is 1 row and 6 columns. Select the MIP to change. Enter the required number of rows and columns and click on Generate. At the prompt to replace the existing MIP extension, click on Yes.</p>

Table 13 MIP Extension Settings

13.12.4.3 Using MIP Extension Scripts

When creating and subsequently exporting a MIP extension, the generated file contains an XML script that can be manually edited to modify the appearance and behavior of the new MIP buttons.

To create an XML script:

1. Click on **Add MIP Extension**.
2. In the Generate XML section, select the number of rows and columns to include in the extension. Click on **Generate**.
3. Click on **Export**. Save the file and then open it in Notepad.

An example XML file for the MIP extension in Figure 212 is shown below:

```
<?xml version="1.0" encoding="utf-16"?>
<MipExtensionData
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <Rows>
    <RowData>
      <Buttons>
        <ButtonData>
          <Width>231</Width>
          <Image>EAS-Buttonv2</Image>
          <Event>event://SoftMIP/EAS</Event>
          <Text></Text>
          <BackgroundBrushColorAsARGB>-2830136</BackgroundBrushColorAsARGB>
        </ButtonData>
        <ButtonData xsi:type="ChannelSetButtonData">
          <Width>231</Width>
          <Image>NewsFlash</Image>
          <Event>event://SoftMIP/Newsflash</Event>
          <Text></Text>
          <BackgroundBrushColorAsARGB>-2830136</BackgroundBrushColorAsARGB>
        </ButtonData>
        <ButtonData>
          <Width>231</Width>
          <Image>UNDO</Image>
          <Event>event://SoftMIP/Undo</Event>
          <Text></Text>
          <BackgroundBrushColorAsARGB>-2830136</BackgroundBrushColorAsARGB>
        </ButtonData>
      </Buttons>
      <RowHeight>160</RowHeight>
    </RowData>
  </Rows>
  <VerticalRowSpacer>8</VerticalRowSpacer>
  <HorizontalColumnSpacer>8</HorizontalColumnSpacer>
</MipExtensionData>
```

Edit the fields as required in order to change the MIP button.

An additional entry can be made in the XML file to provide the capability of selecting the channels to which the action of the button press will be applied - checkboxes of all channels configured in the system will be displayed alongside the button.

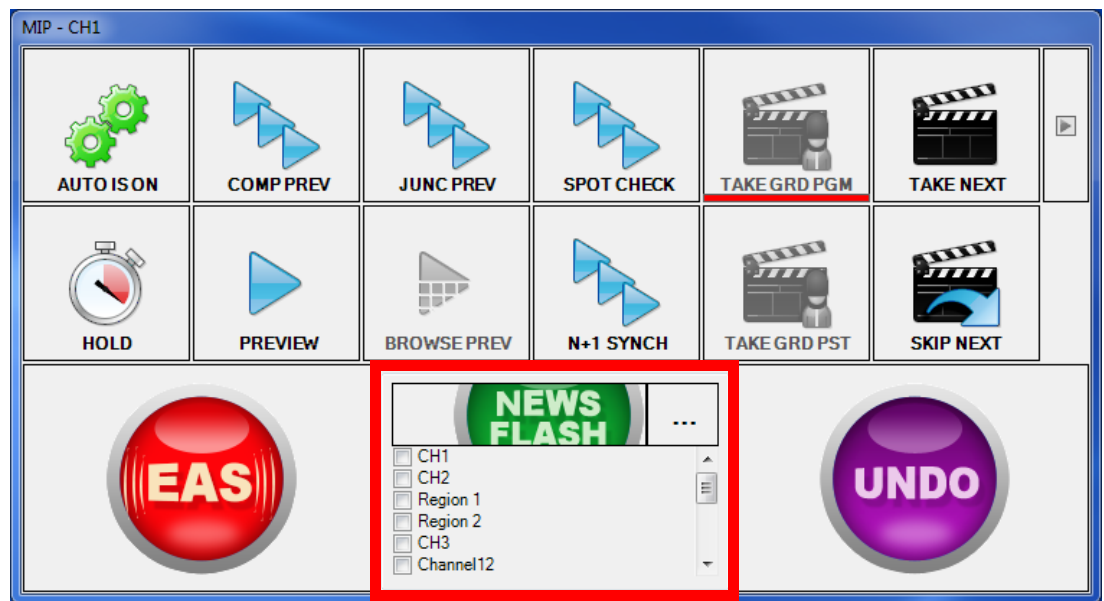


Figure 213 Custom MIP Button with Channel Selection

Add the following entry to the <ButtonData> start tag of the button's XML element:

```
xsi:type="ChannelSetButtonData"
```

i.e.

```
<ButtonData xsi:type="ChannelSetButtonData">
```

Now, the action of the button press is applied to all selected channels simultaneously. Select channels using the visible checkboxes and the scroll bar, or press on the ellipsis button in order to view all channels for selection within a separate window.

Note: This is currently the only 'type' value that can be used with the MIP.

13.12.4.4 Gang Take Channels

An function to allow the selection of channels that can be taken in a single operation. This is achieved using a 'Gang Take'.

13.13 Channel System Settings

Apply configuration settings to different channels.

To display the channel options, select the channel to configure from the left-hand pane of the Editor Configuration window - features are grouped by type onto separate tabs. The System tabs are described in this section.

13.13.1 System > General Tab

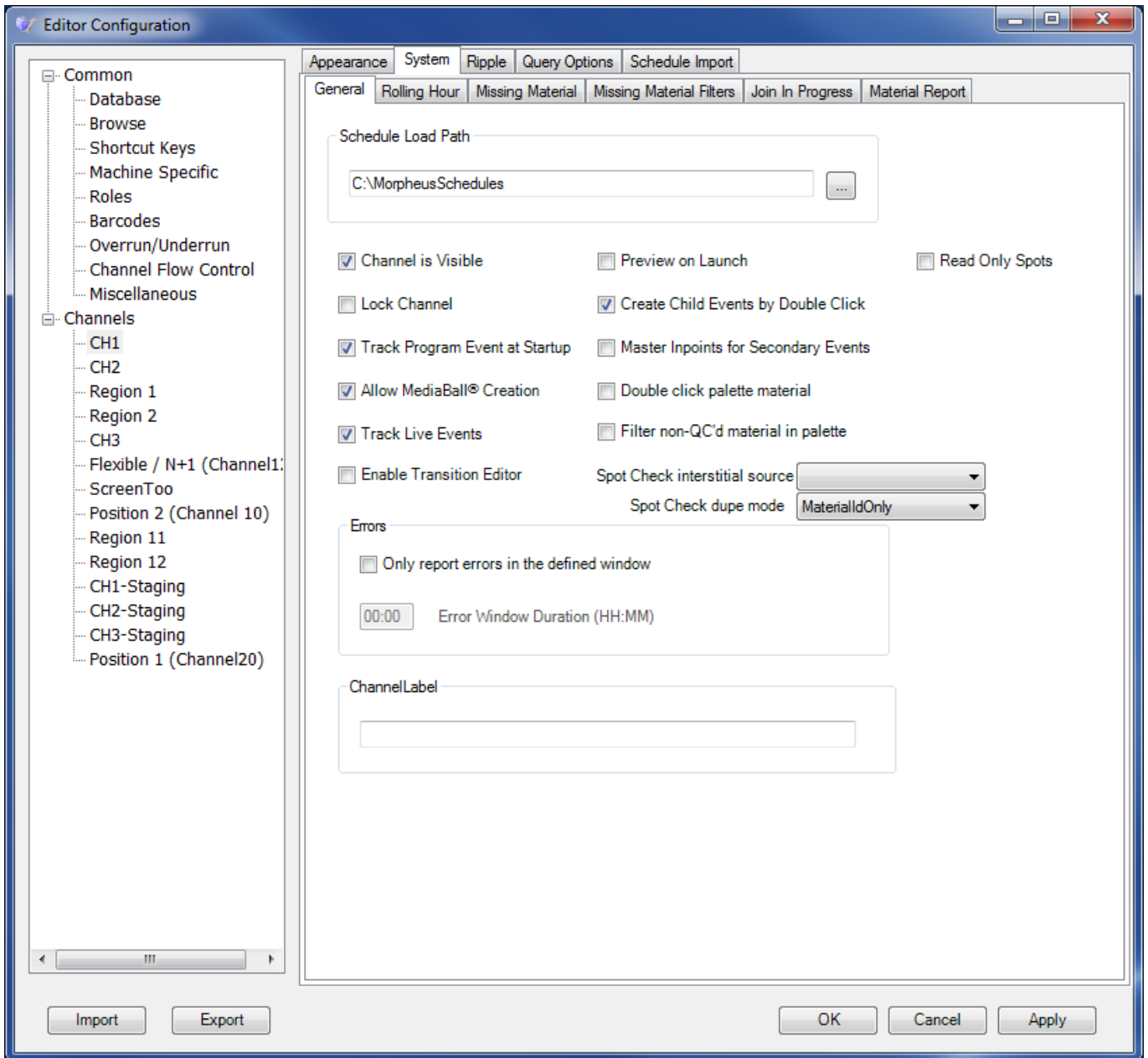


Figure 214 Editor Configuration - System - General Tab

Function	Description
Schedule Load Path	The default path for schedules. When operators choose to append or replace schedules, this is the path that is shown.
Channel is Visible	When enabled, after clicking OK , the channel icon dynamically appears on the channel bar and the schedule for that channel is displayed in the Editor window. When cleared, the channel is not visible.
Lock Channel	<p>Tick the checkbox to secure the Editor by disabling the following functions:</p> <ul style="list-style-type: none"> - Toolbar Buttons: Load Schedule, Append Schedule, Save Schedule, Save As Schedule, Clear, Cut, Copy, Paste, Paste Top, Palette, Configuration, MIP, CFC-JIP, Ripple, Add a Default Event. - Editor Right-Click Menu: all. - File Menu: Open, Append, Fill Regions, Save, Save As, Clear. - Edit Menu: Advanced Search and Replace - Tools Menu: Join In Progress <p>Applied on a per channel basis.</p> <p>When locked, many of the toolbar buttons and right-click options are greyed out and unavailable. When cleared, all options for the selected role are available.</p> <p>Note: if CFC-JIP is enabled, old JIP will already have been disabled. Refer to Section 13.9 Channel Flow Control-Join In Progress (CFC-JIP)</p>
Track Program Event at Startup	Applies to the Track Program Event button on the toolbar. When selected, Track Program Event is enabled each time the Editor is started, regardless of its previous setting. When cleared, it reverts to the last setting. Track Program Event is described in the Morpheus Operators manual.
Allow MediaBall Creation	When enabled, operators can create MediaBalls (refer to page 53). When cleared, MediaBalls cannot be created.
Track Live Events	Applies to the Event Countdown. When selected, each time the Editor is started, the Track Live Event function is selected on the event countdown right-click menu. When cleared, the Track Selected Event function is selected.

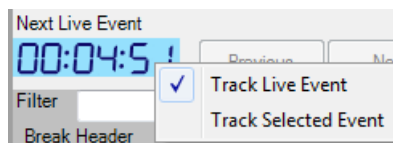


Table 14 Channel System Settings


Function	Description
Enable Transition Editor	<p>Allows transitions to be set up visually. Tick the check box in order to add the following button to the Transition Type field on the Property Inspector (refer to page 5).</p>  <p>Click on the button in order to display the Transition Editor. Clear the check box to remove the option to display the Transition Editor.</p>
Preview on Launch	When enabled, Morpheus automatically loads and starts playing the selected clip when operators click on Preview on the Manual Intervention Panel.
Create Child Events by Double Click	When enabled, operators can add child events to selected events by double-clicking a secondary event (refer to page 648) on the Palette (refer to page 5).
Master Inpoints for Secondary Events	Normally, a master tape instance has a different inpoint (refer to page 645) from a server. This function allows the server instance to refer to the tape timecode.
Double click palette material	Tick the check box to allow operators to add main events) to the schedule by double-clicking them on the Palette.
Filter non-QC'd material in palette	When enabled, only events that have QC check marks applied are displayed.
Spot Check interstitial source	Select the required source for any events that are inserted between spot check events.
Spot Check dupe mode	<p>When Morpheus performs spot checks, events are copied to a flexible channel - a user is then able to play the events in order to check the content.</p> <p>For information on Flexible Channels, refer to Chapter 7.4 Channel Configuration.</p> <p>Morpheus uses the dupe (duplication) mode setting to copy events based on the unique material id only or both the material id and SOM (start of material).</p>
Errors: Only report errors in the defined window	When enabled, errors are only active if their event starts prior to the end of the error window.
Errors: Error Window Duration (HH:MM)	Sets the length of the error window.
Read Only Spots	When enabled, events within the commercial breaks in the schedule cannot be edited, added or deleted. The operators can still move whole breaks within the schedule.
ChannelLabel	Places a channel label next to the channel name on the channel bar. It also places this on the ConfigForm window.

Table 14 Channel System Settings

13.13.2 System > Rolling Hour Tab

The 'rolling hour', if enabled, performs a dynamic check on one of the following:

- Programmes (main programme items)
- Commercials (revenue generating advertisements)
- Junction events (channel idents and other interstitials)
- Live events (live studio items)

The rolling hour appears on the Editor status bar as a percentage or duration of either:

- A 60 minute period (that could be partly in the future), or
- The current or previous complete clock hour.

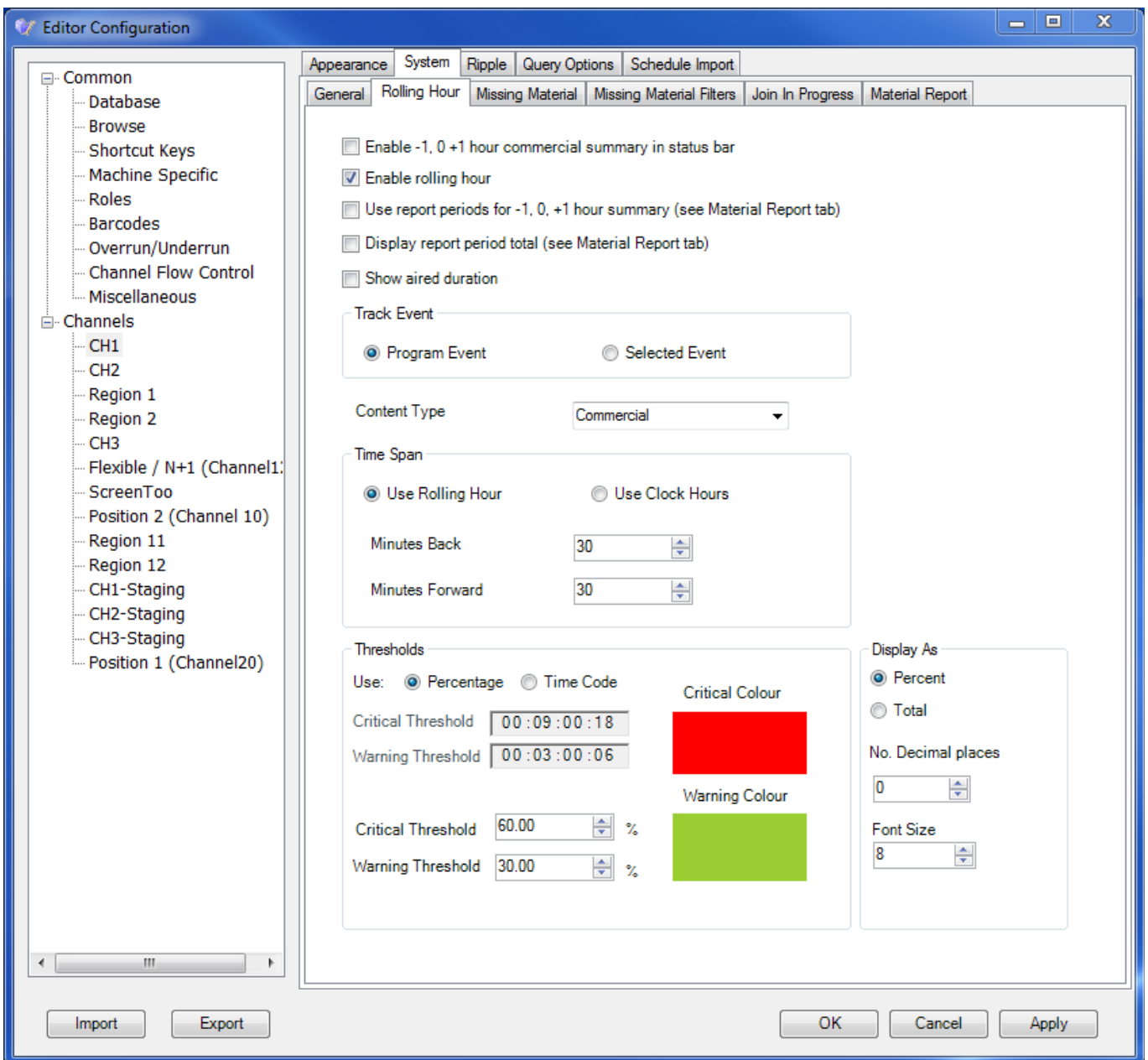


Figure 215 Editor Configuration - Channel - System - Rolling Hour Tab

Function	Description
Enable -1, 0 +1 hour commercial summary in status bar	When selected, the Editor status bar shows the last hour, the current hour and the next hour. Refer to Figure 216 below.
Enable rolling hour	Tick the check box to display the rolling hour on the status bar.
Use report periods (refer to Material Report tab)	Tick the check box to include report periods configured in the Material Report tab.
Track Event: Program Event	Tick the check box to reference the rolling hour to the on-air event.
Track Event: Selected Event	Tick the check box to reference the rolling hour to a highlighted event.
Content Type	Select the programme type for which occurrences are to be quantified.
Time Span: Use Rolling Hour	Enable this function to analyze a time period based on the current or selected event.
Time Span: Use Clock Hours	Enable this function to analyze a complete clock hour.
Time Span: Minutes Back/Minutes Forward	Use these fields to specify the time period referred to the current or selected event. In the color boxes, select the colors to display in the Editor when the figure exceeds the critical and warning thresholds.
Thresholds: Critical Threshold/ Warning Threshold	Set the threshold above which the Editor status bar display will change to the configured color. Click on the colour blocks to display a palette in order to select alternative colours for the Critical and Warning indicators.
Display As: Percent/Total	Select the manner in which the statistics should be displayed in the Editor status bar.
No. Decimal places	Specify the precision of the Editor status bar indication.
Font Size	Change the size of the rolling hour timecodes or percentages displayed on the status bar.

Table 15 Rolling Hour Settings

The following image shows the rolling hour indicators on the status bar.

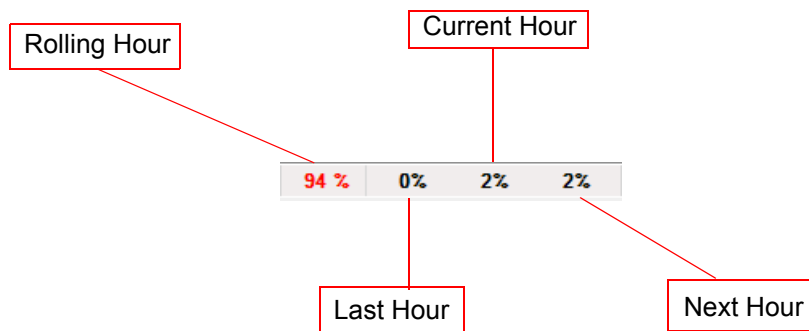


Figure 216 Rolling Hour Indicators on the Status Bar

13.13.3 Missing Material Tab

The missing material report within the Editor checks for and lists the following:

- Missing material.
- Material on other devices.
- Material requiring ingest (refer to page 631).
- Events with titles that do not match the titles in the Morpheus media management database (refer to page 588).
- Events with durations that do not match the durations in the database.

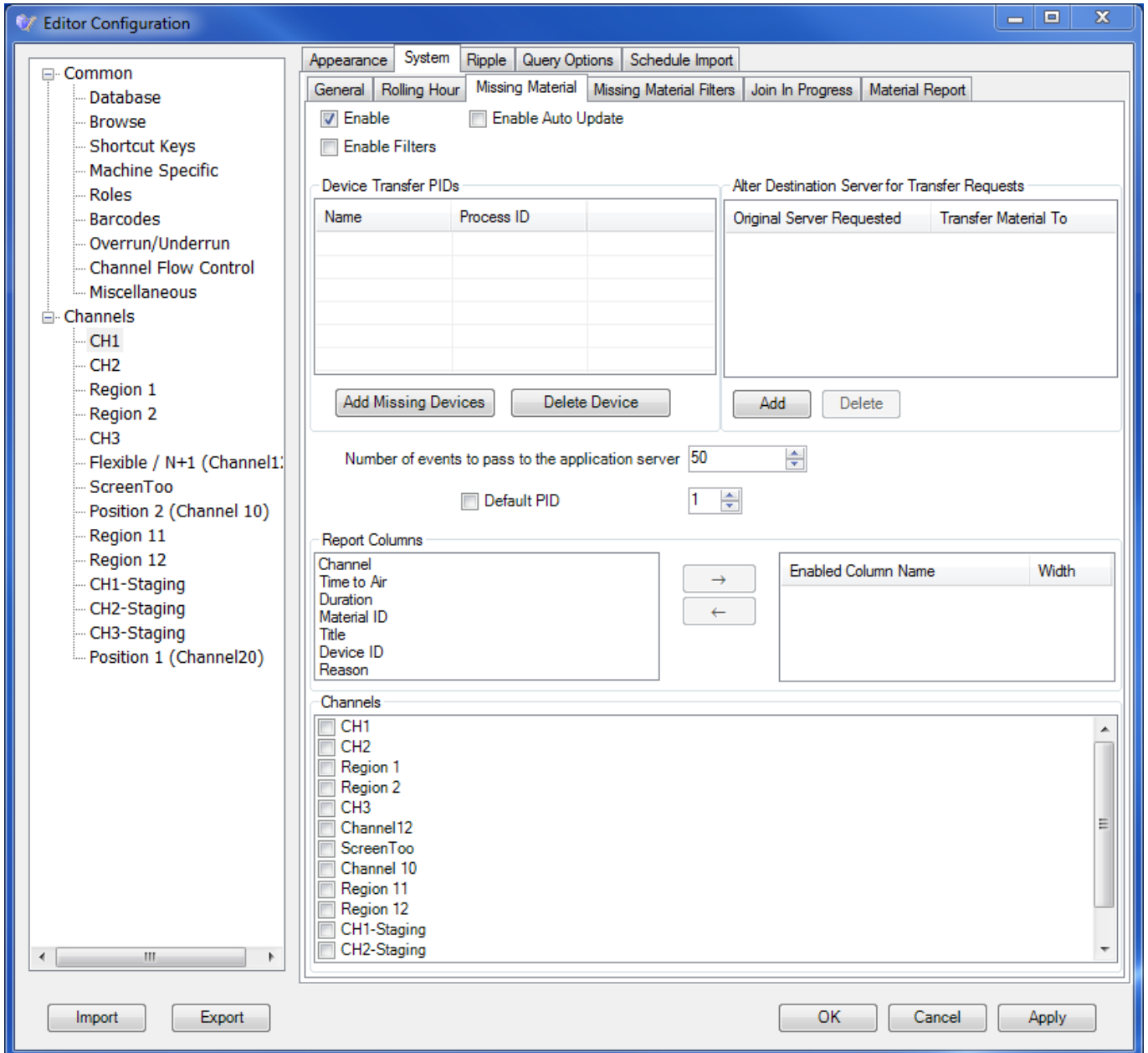


Figure 217 Editor Configuration - Channel - Missing Material Tab

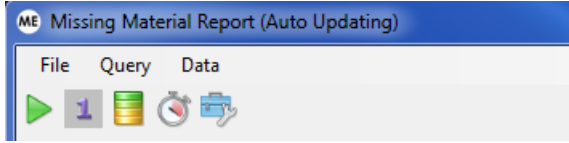
Function	Description
Enable	Enables the Missing Material Report option on the Tools menu.
Enable Auto Update	<p>Allows Morpheus to automatically and periodically update the report without the user clicking the Run Report button.</p> <p>In this mode, the Toolbar is labelled as such, as shown below:</p> 
Enable filters	Allows the user to set filters on the Missing Material Report by displaying an additional filter panel on the main window. For further filter settings and to change the font and color settings of the report results, refer to page 361.
Device Transfer PIDs	List all video servers that need to be checked. To add a video server, click on Add Missing Devices . To change the process ID, double-click on the server and type the required number. To delete a video server, select it and click on Delete Device .
Alter Destination Server for Transfer Requests	To change the destination server for transfer requests (refer to page 268), click on Add . From the Select Original Server list, select the current server. From the Select New Destination Server list, select the server to replace it with and click on OK . To delete the destination server, select it and click on Delete .
Number of events to pass to the application server	The Editor queries the Application Server (refer to page 165) about the metadata (refer to page 588) for each material event. Set the number of events that the Editor queries at a time to ensure the best performance.
Default PID	Select the Default PID check box to use a default Process ID (refer to page 618) value. Enter the required value in the spin box.
Report Columns/Enabled Column Name	Allows columns to be selected for display on the Missing Material Report. From the Report Columns list, select each column to add and click on the right arrow button. The column is added to the Enabled Column Name list.
Channels	Select the channels that can be checked in the missing material report.

Table 16 Missing Material Report Settings

13.13.4 Missing Material Filters tab

Set filters against the Missing Material Report (refer to Section 13.13.3 Missing Material Tab above) and change the font and color settings of the results.

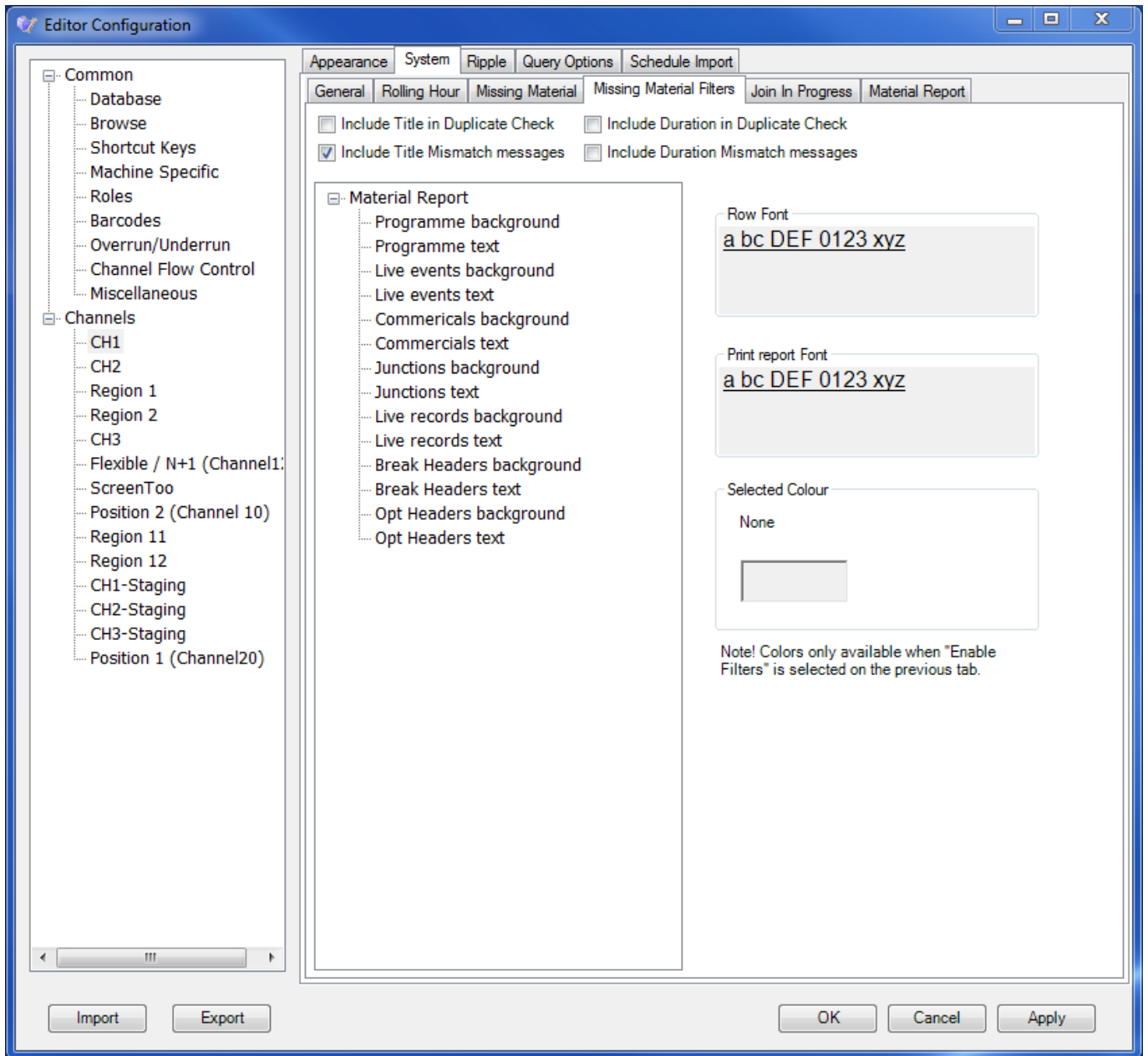


Figure 218 Missing Material Report Filters Settings

Function	Description
Include Title in Duplicate Check	When enabled, Morpheus uses the title to check whether an event is a duplicate of one that already exists on the missing material list.
Include Title Mismatch Messages	When enabled, if the title of an event does not match the title in the database, 'Title mismatch' is displayed in the Reason column on the Missing Material Report.
Include Duration in Duplicate Checks	When enabled, Morpheus uses the duration to check whether an event is a duplicate of one that already exists on the missing material list.
Include Duration Mismatch messages	When enabled, if the duration of an event does not match the duration in the database, 'Duration mismatch' is displayed in the Reason column.
Material Report	Select a text or background option. The font and color changes in the functions described below are applied to this selection. For example, selecting 'Commercials text' means that the font and color functions in the opposite tab column are applied to only the result text for commercials in the Missing Material Report.
Row Font	Click on the row font example in order to change the size, font and style for the text.
Print report Font	Click on the row font example in order to change the size, font and style for the text when it is printed using the Print function on the Missing Material Report toolbar. This feature is useful when the user does not want to create printed reports using different colours and fonts.
Selected Colour	Click on the color box in order to change the color. This feature helps the user to differentiate between different programme types quickly.

Table 17 Missing Material Report Filter Settings

13.13.5 Join In Progress Tab

Note: There are two versions of Join In Progress: legacy and CFC-JIP. For details on CFC-JIP refer to Section 13.9 Channel Flow Control-Join In Progress (CFC-JIP).

When 'Join In Progress' is applied to an event, the relevant device appears to be started but not cut to air until another event ends. For example, if a live event overruns, it may be better to lose part of the next event rather than delay the whole schedule.

Join In Progress allows the next event to start and, when it is eventually cut to air, placed at the point it would have been if the live event had not overrun.

The device is not started. Instead, the inpoint (refer to page 645) of the material is adjusted continually over time and, when the joined event eventually runs, the material starts at the calculated inpoint.

The preroll time for the device has to elapse (refer to page 646).

The schedule has to be in the 'hold' state for the Join In Progress function to be available.

Morpheus prevents the Join In Progress function from joining an event less than 30 seconds from the end.

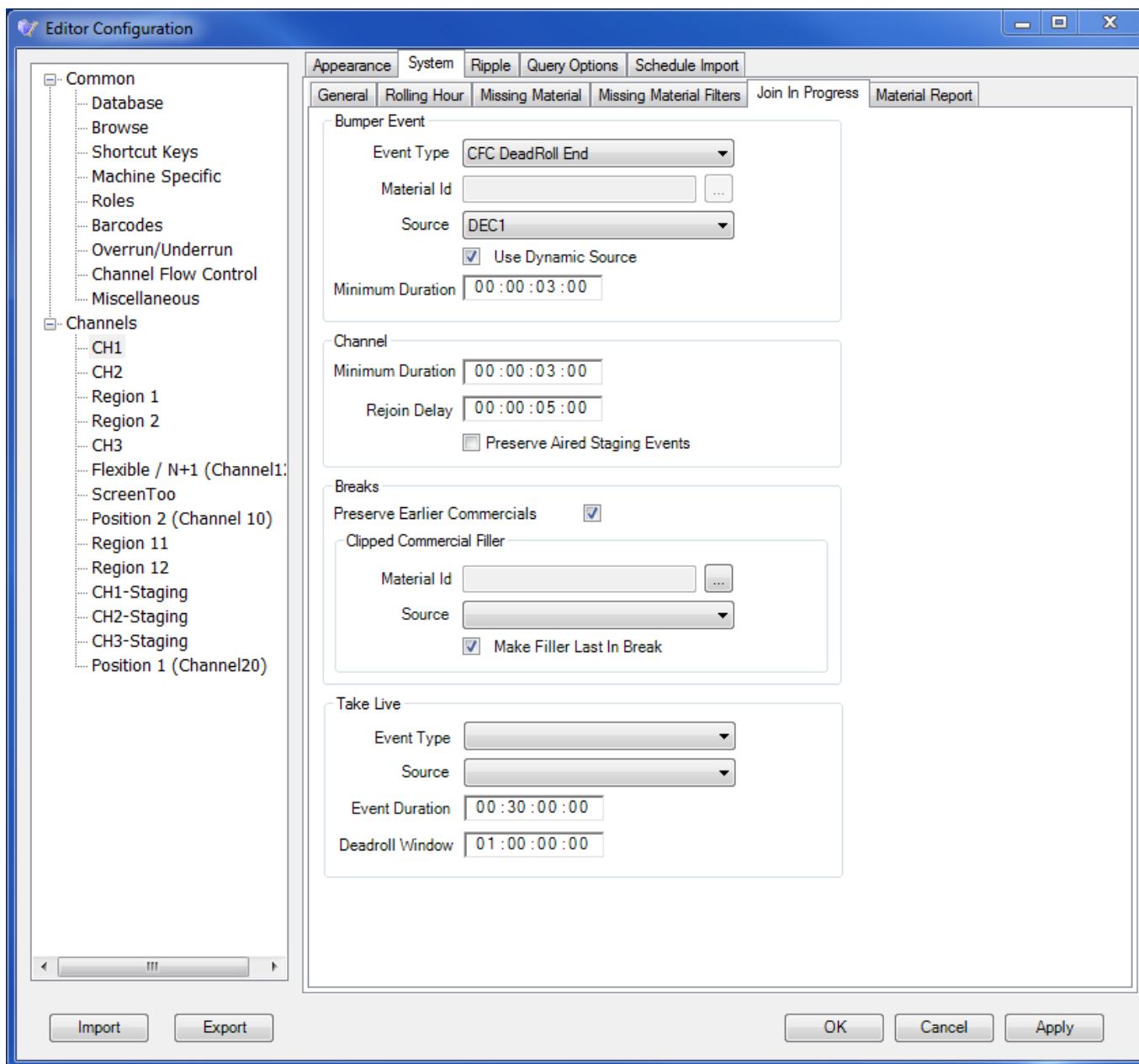


Figure 219 Editor Configuration - System - Join In Progress Tab

13.13.5.1 Bumper Event

Morpheus can be configured to automatically insert and play out a bumper event prior to joining the playlist in progress.

A bumper event is a brief announcement, usually between two and 15 seconds. For example “We now rejoin [Film Name]”.

If a user clicks on **Rejoin** during a Join in Progress, then the bumper event becomes the preset event (the event that follows the on-air event).

When the bumper event is taken to air, the new preset event is the event to join in progress.

The start time and SOM (start of material) of the rejoined event are adjusted appropriately.

The bumper event configuration functions are described below.

Function	Description
Event Type	Select the Event Type to configure as the bumper event.
Material Id	Click on the ellipsis button (...) to enter a material ID for the bumper event. The material ID is only accepted if it exists in the Media Management database and belongs to the correct channel. It is not possible to paste a Material ID into this field and the following characters are not permitted: " ' () ; ; { } [] ~ ~ ` ? %
Source	Enter the source for the bumper event.
Use dynamic source	Select this function to dynamically select a source for the Bumper event at the point of rejoin. Morpheus selects the source using the following priority depending on the source availability: <ol style="list-style-type: none"> 1. Source of the rejoin event 2. Source of the selected event 3. Default source (configured in the Source field above)
Minimum Duration	Enter the minimum duration of the bumper event.

Table 18 Bumper Event Settings

13.13.5.2 Channel

The channel configuration functions are described below.

Function	Description
Minimum Duration	The Minimum Duration is the smallest amount of time that a clip can be reduced to in order to allow it to be rejoined. If the clip has less than this duration left at rejoin, the remaining duration of the clip from the point of rejoin (accounting for Bumper duration and Rejoin Delay) is taken and added to the Bumper event duration. The now void clip is disabled. At Rejoin, the system then plays the remaining portion of the held event, according to the Rejoin Delay setting, followed by the extended Bumper event followed by the event that succeeded the disabled event.
Rejoin Delay	The amount of time before the Rejoin occurs. This is useful if a bumper event precedes a programme that is set to 'join in progress'.

Table 19 Join In Progress Channel Settings

13.13.5.3 Breaks

Where Join in Progress affects a break header and its contents, selecting this function 'loses' content from the *last* commercial. This preserves the first commercial. If this function is not selected, Morpheus 'loses' content from the *first* commercial in the break header.

13.13.6 Material Report Tab

Set a time period to include in the Rolling hour calculation.

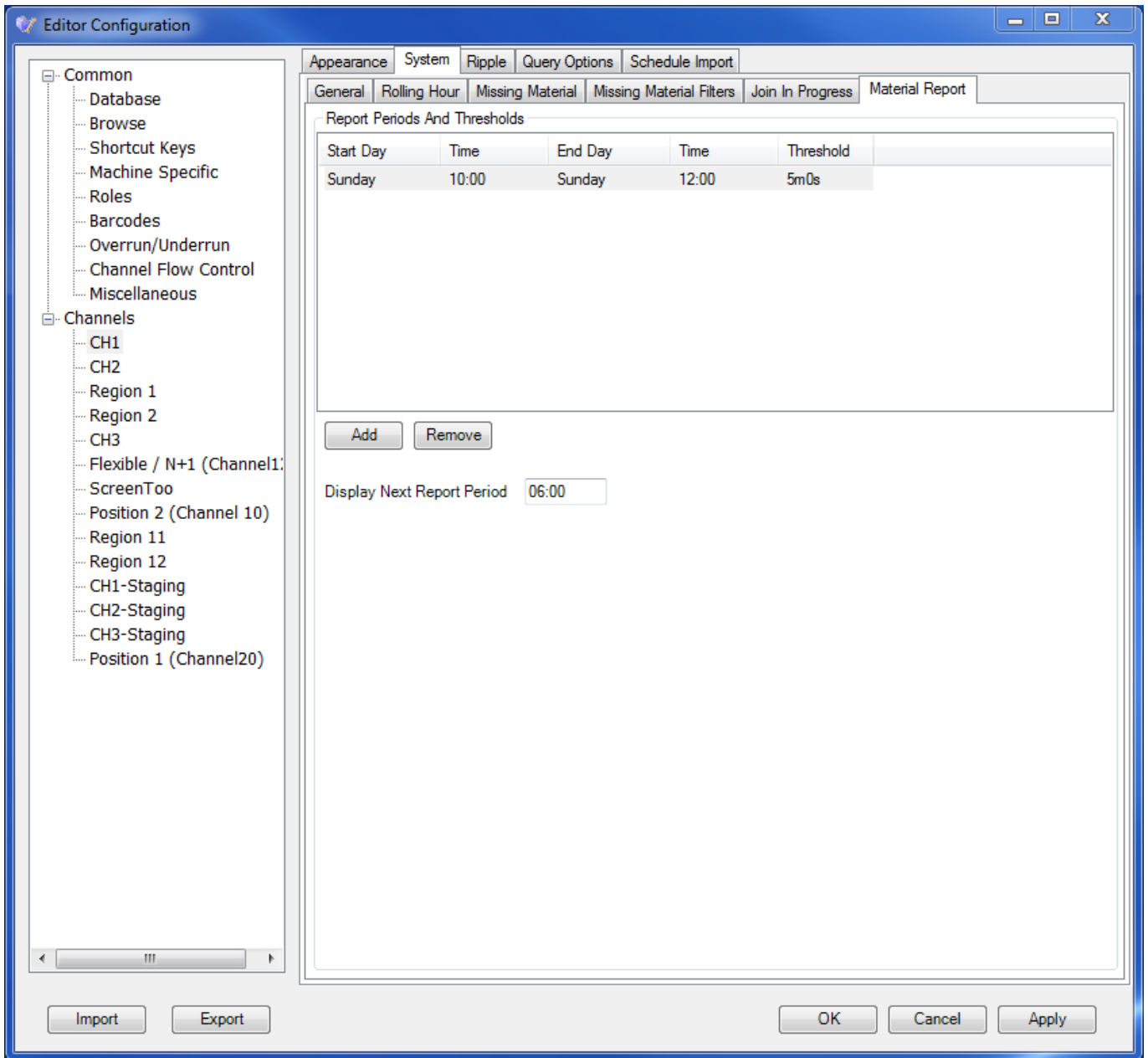
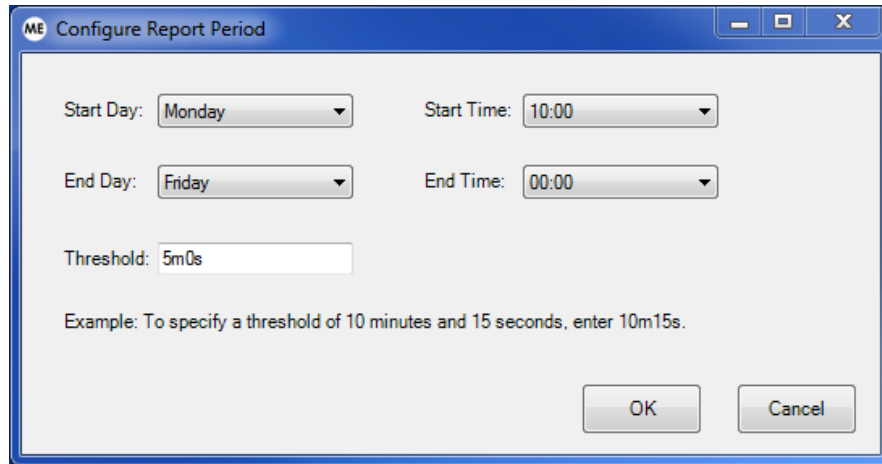


Figure 220 Material Report Settings

To add a time period, click on **Add**. The following window is displayed:



ME Configure Report Period

Start Day: Monday Start Time: 10:00

End Day: Friday End Time: 00:00

Threshold: 5m0s

Example: To specify a threshold of 10 minutes and 15 seconds, enter 10m15s.

OK Cancel

Figure 221 Configure Material Report Time Period

To add a new time period:

1. Enter a start time and date.
2. Enter an end time and date.
3. Enter a threshold time period. This threshold sets the maximum amount of the selected material allowable within the time period. For example, if only 10 minutes of commercials are permitted to air within the time period, set this value to 10m.
4. Click on **OK** to save the settings.

13.13.7 Channel Ripple Settings

The term Rippling refers to playing out events on a schedule from alternate playout devices or server ports. The following examples show where rippling can be used:

- In a VTR based system, where at least two machines need to play out alternately, rippling allows time for tapes to be changed. If a series of very short files (one or two seconds) are to play out, three or more ports could be necessary.
- In server based systems where a port requires a defined preroll time in order to guarantee a stable output (preroll is the amount of time, ahead of the start time of an event, that the server receives a 'play' command, in order to account for any latency).

Rippling distributes the load evenly between devices or ports. Operators can ripple a schedule using the **Ripple** button on the toolbar.

The Ripple tab allows configuration functions to be configured for rippling.

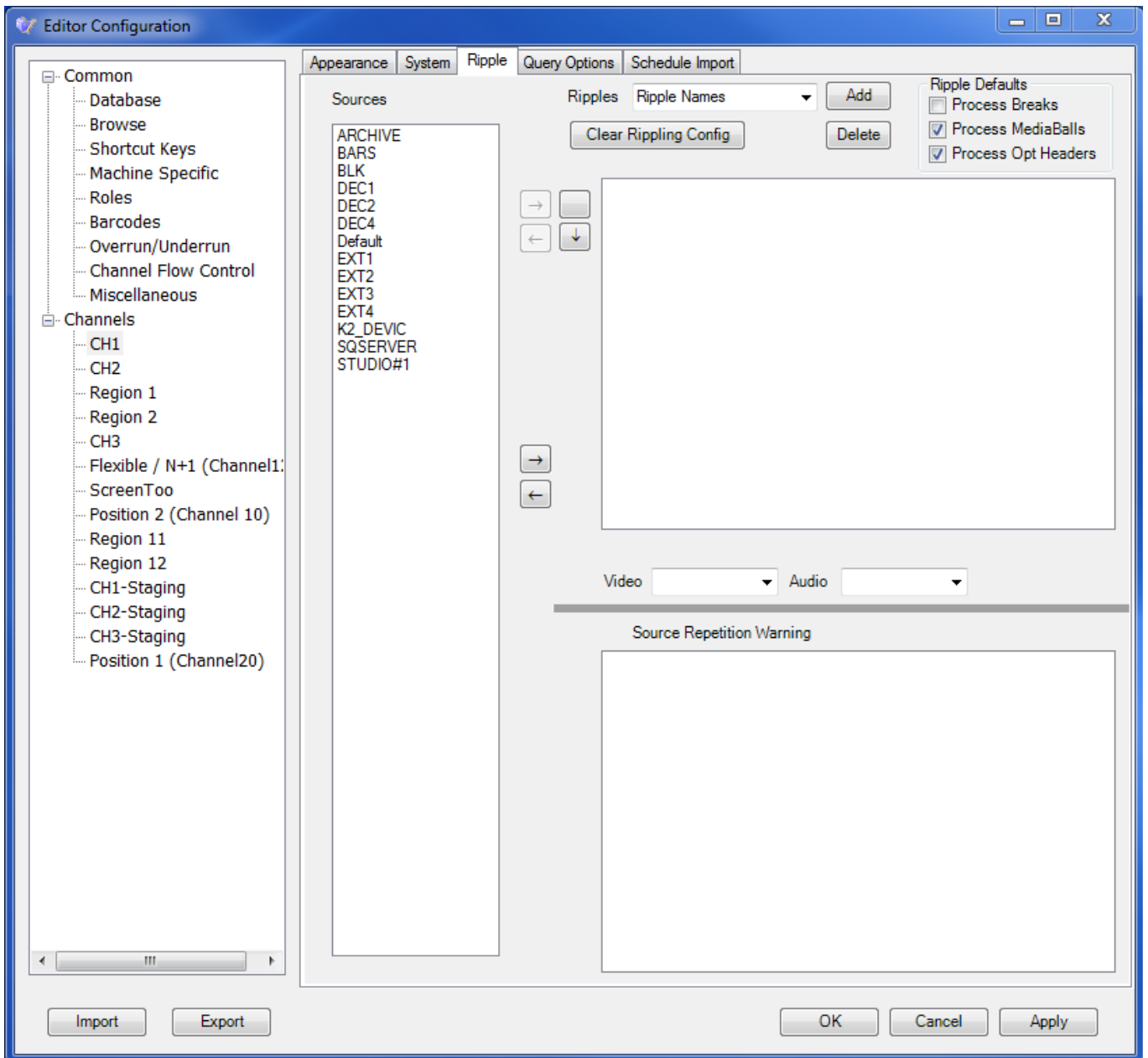


Figure 222 Channel Ripple Tab


Function	Description
Ripples	Select either Ripple Names or Ripple Server . If Ripple Server is selected, the sources to ripple can be selected from the Sources list. Refer to 'Sources' below.
Ripple Defaults	Select the check boxes that you want to be selected by default on the Select A Ripple window.
Sources	<p>If 'server' is selected from the Ripples list, the Sources list can be used to select those servers to ripple. Select the required server and click on the following button:</p> <p style="text-align: center;"></p> <p>Note: to remove a server from the list, select it and click on the left arrow. Use the up and down arrows to change the order of the servers.</p>
Source Repetition Warning	Displays a warning when there are back to back sources.

Table 20 Channel Ripple Settings

13.14 Channel Query Options

This function applies to the **Query** button on the Property Inspector (refer to page 5). It provides a mechanism of selecting those fields that will be populated when the **Query** button is used, and which fields are selected in the Search and Replace window in the Editor. The 'Search and Replace' function allows operators to search for material based on its ID, title or source and, if required, replace these for one or more events.

The configurable fields are:

- Duration
- In Timecode
- Title
- File ID

To display the channel query options, under **Channels** in the left-hand pane of the Config Form window, select the channel to configure. In the right-hand pane, click on the Query Options tab.

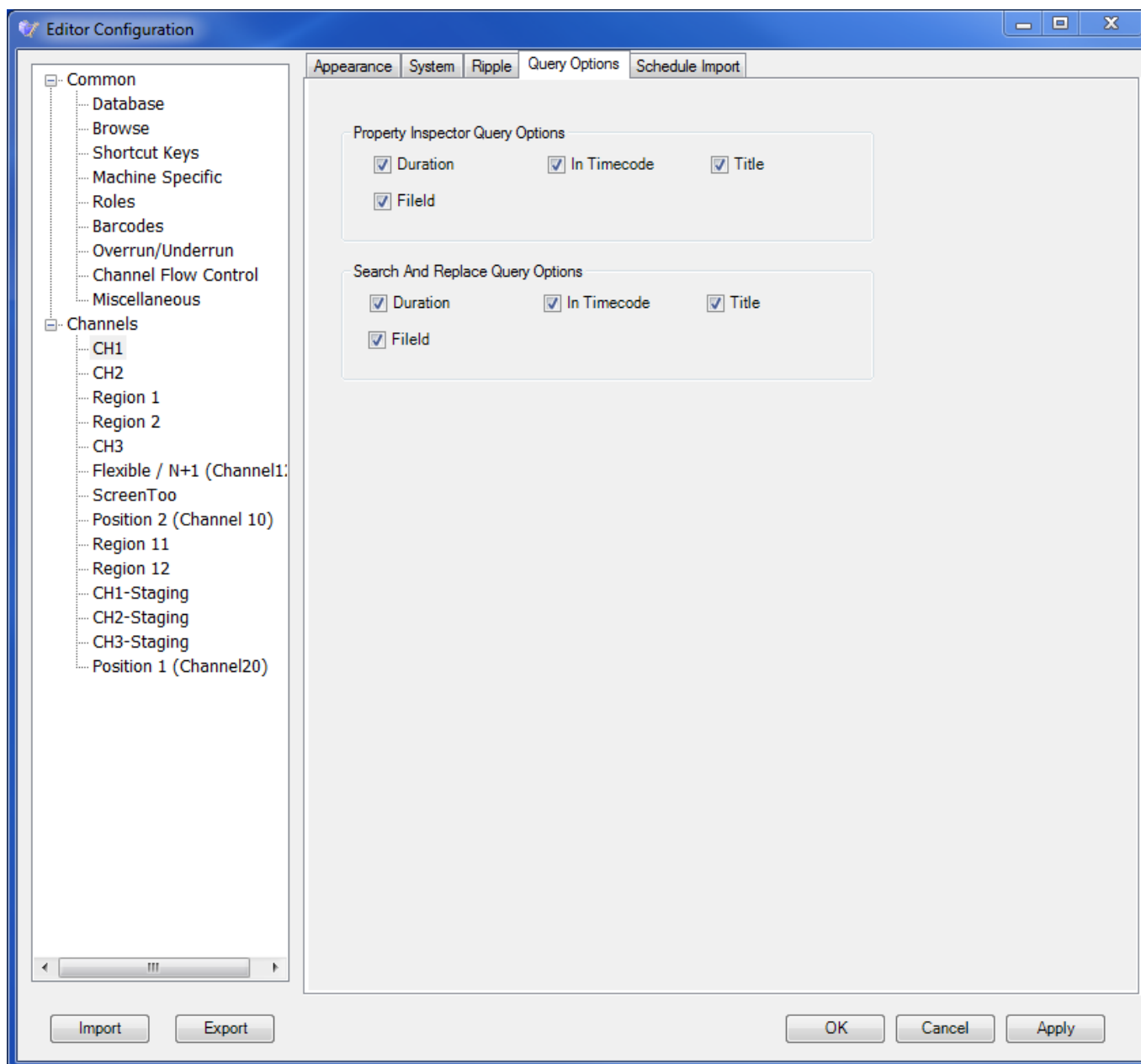


Figure 223 Editor Configuration - Channel Query Options Tab

To specify the fields that are to be populated when **Query** is clicked on the Property Inspector, select/clear the relevant check boxes under **Event Query Options**.

To specify which of the fields are replaced when **OK** is clicked, select/clear the relevant check boxes under **Search and Replace Query**.

13.15 Schedule Import

Load schedules from one or more other channels into the selected channel.

To display the schedule import options, under **Channels** in the left-hand pane of the Config Form window, select the channel to configure. In the right-hand pane, click on the Schedule Import tab.

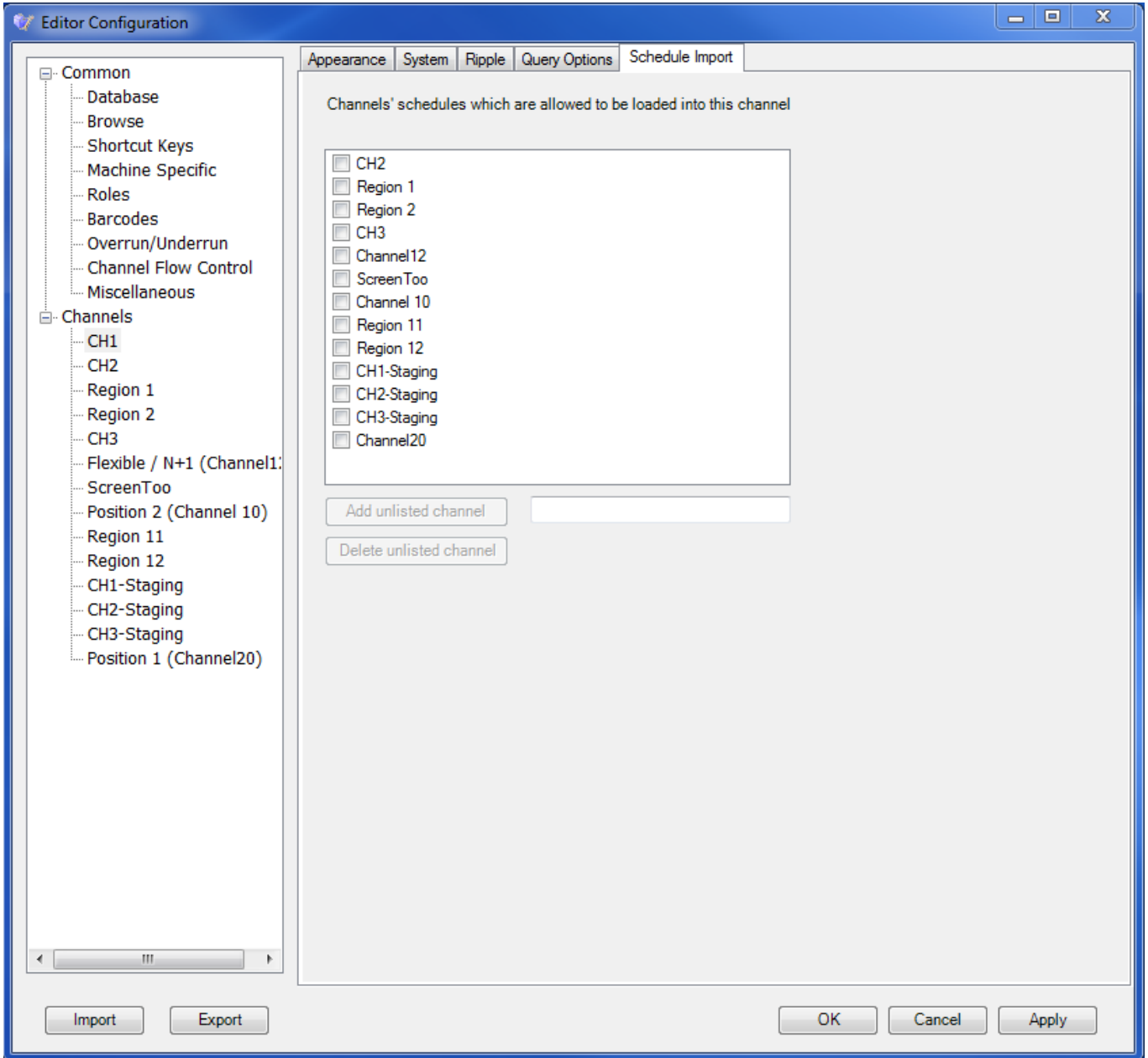


Figure 224 Channel Schedule Import Settings

Select the check boxes for appropriate channel schedules.

13.16 Configuring Momentum Thumbnails

In order to display Momentum thumbnails on the Editor for each clip, configure the following functions:

- Click on **Tools > Configuration**.
- In the **Common** main page configuration settings, enable the Show Thumbnails function and set a refresh time in seconds (refer to Section 13.1 Common Configuration Settings). Click on Apply.
- In the **Browse** configuration settings, enter the IP address and username for the Momentum system (refer to page 269).
- In the **Miscellaneous** configuration settings, enable the Momentum browser (refer to page 336).
- In the Channel **Columns** configuration settings, set the Thumbnail column to be visible (refer to page 340).

13.17 Commercial Hotlist Configuration

The 'Commercial Hotlist' is a feature within the Editor that provides a fast way to manipulate content in a channel's playlist, usually during a live event. It can be used to replace breaks in the schedule and cue a break to air or to the preset position. The Commercial Hotlist is described in detail in the Morpheus Operators manual.

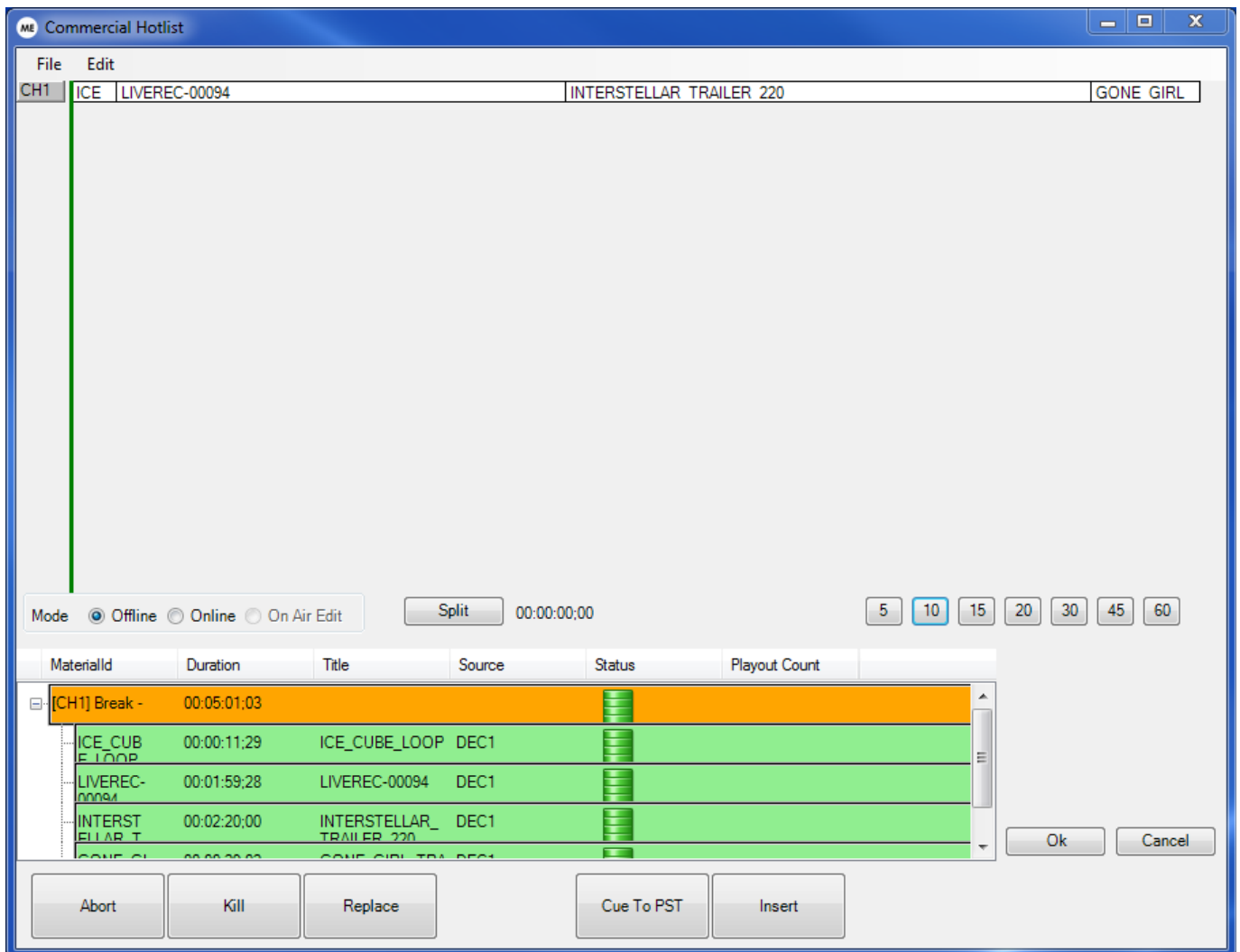


Figure 225 Commercial Hotlist Main Window

13.17.1 Enabling the Commercial Hotlist

The Commercial Hotlist is not available by default. It can be enabled in the Morpheus Editor as follows:

- In C:\Morpheus, double-click on **CommercialHotlistEnabler.exe**

13.17.2 Configuring the Commercial Hotlist

1. In the Editor, select **Commercial Hotlist** from the **Tools** menu - the commercial hotlist window is displayed (Figure 225).
2. From the Commercial Hotlist **Edit** menu, select **Configuration**.
3. The Commercial Hotlist Configuration window is displayed.

The functions on each tab are described below.

13.17.2.1 General Settings Tab

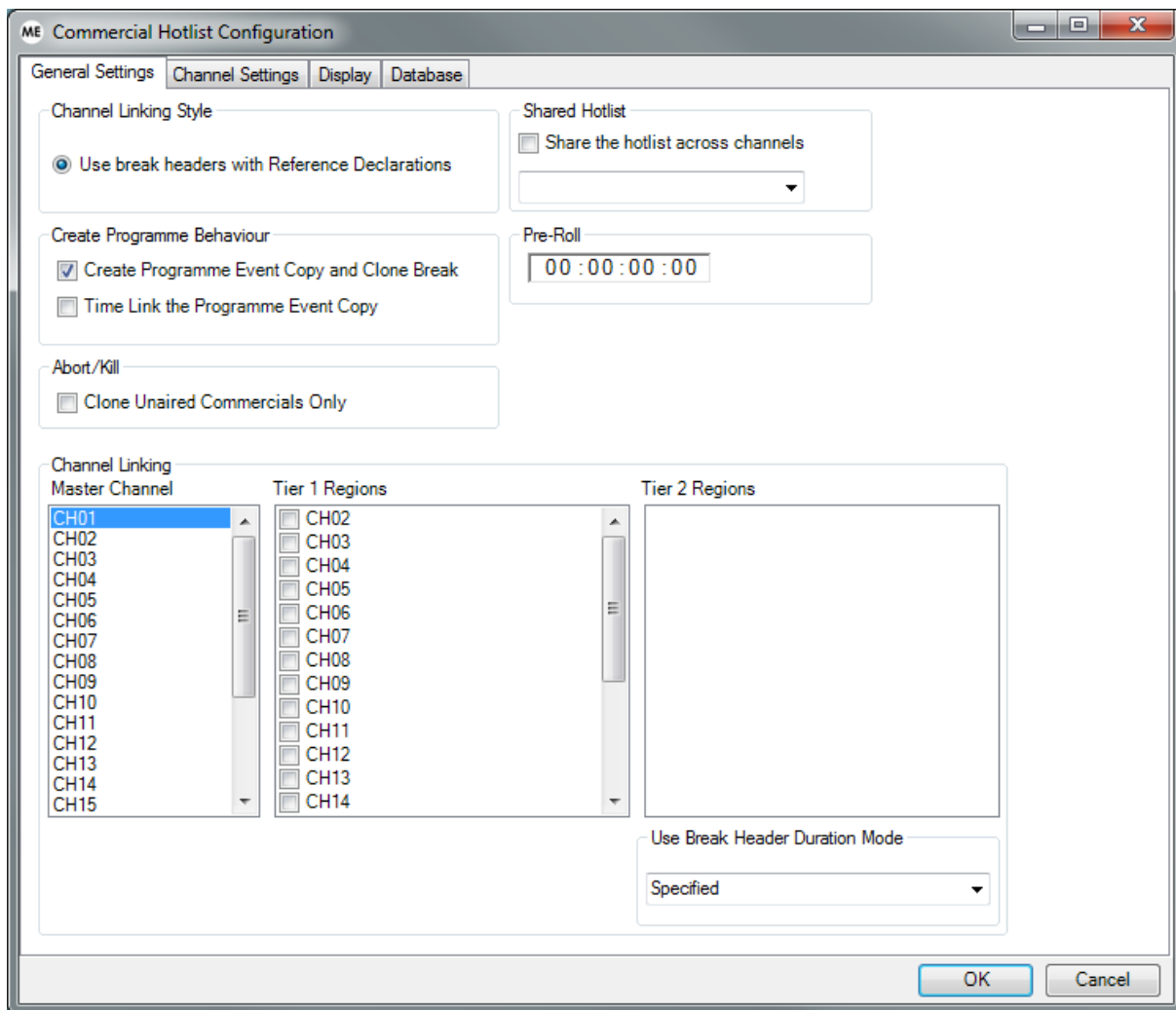


Figure 226 Commercial Hotlist Configuration - General Settings Tab

Parameters:

Function	Description
Channel Linking Style:	When selected, the Commercial Hotlist links breaks across multiple channels using 'Reference/Declaration' parameters.
Use break headers with Reference Declarations	The declarations are created automatically by the hotlist. When a break is inserted into the running event, the second part of that event is given a reference. The reference is used to link the event to the second part of the running event in other channels. This means that Morpheus can perform a 'take out of break' in the main channel and in respective linked channels.

Table 21 Commercial Hotlist Configuration - General Settings

Function	Description
<u>Create Programme Behaviour:</u> Create Programme Event Copy and Clone Break	<p>It functions as follows:</p> <ol style="list-style-type: none"> 1. A user highlights the PGM position on the schedule and chooses a break on the Commercial Hotlist. 2. The user clicks on Cue To PST. 3. The currently playing live event is changed to a MPP event (MultiPart Programme). This is described in the Morpheus Operators manual. 4. A commercial break is inserted at the PST position on the schedule and is given a manual take status. 5. Another MPP event, derived from the on-air live PGM event is inserted at PST+1. 6. If the commercial break is taken, the remainder of the PGM MPP is added onto the PST+1 MPP segment. <p>If the Create Programme Event Copy and Clone Break check box is cleared and the above steps are repeated, the break is inserted at PST (manual start) and the PGM event is not split using MPP.</p>
<u>Shared Hotlist:</u> Share the Hotlist Across Channels	<p>When a hotlist is shared, the same hotlist is used regardless of the channel that is selected in the Editor.</p> <p>Can be configured only if the Channel Linking Style: Use Break Headers with Reference Declarations is enabled.</p>
Pre-Roll	<p>When a break is cued to air, the Commercial Hotlist needs to establish whether it has enough time to perform this operation before the current programme event ends. It does this using the Pre-Roll setting.</p> <p>For example, if the programme event has five seconds remaining, the Commercial Hotlist determines whether or not there is enough time to perform the following before the five seconds elapse:</p> <ul style="list-style-type: none"> • Insert a break • The first commercial of the break to cue • The first commercial to be ready to play <p>The Commercial Hotlist also uses the Pre-Roll setting along side the Abort function to determine whether there is enough time to perform the abort before the programme event ends.</p>
Channel Linking	<p>Links channels to the selected master channel (an independent channel) when operators select Insert Break from the right-click menu in the hotlist.</p> <p>It does not enforce these channels and each linked channel can be deleted from the hotlist break group if required.</p> <p>It also does not enforce creation of these channels when loading from a schedule. In this case only the channels found in the schedule file are inserted into the hotlist.</p>

Table 21 Commercial Hotlist Configuration - General Settings

13.17.2.2 Channel Settings Tab

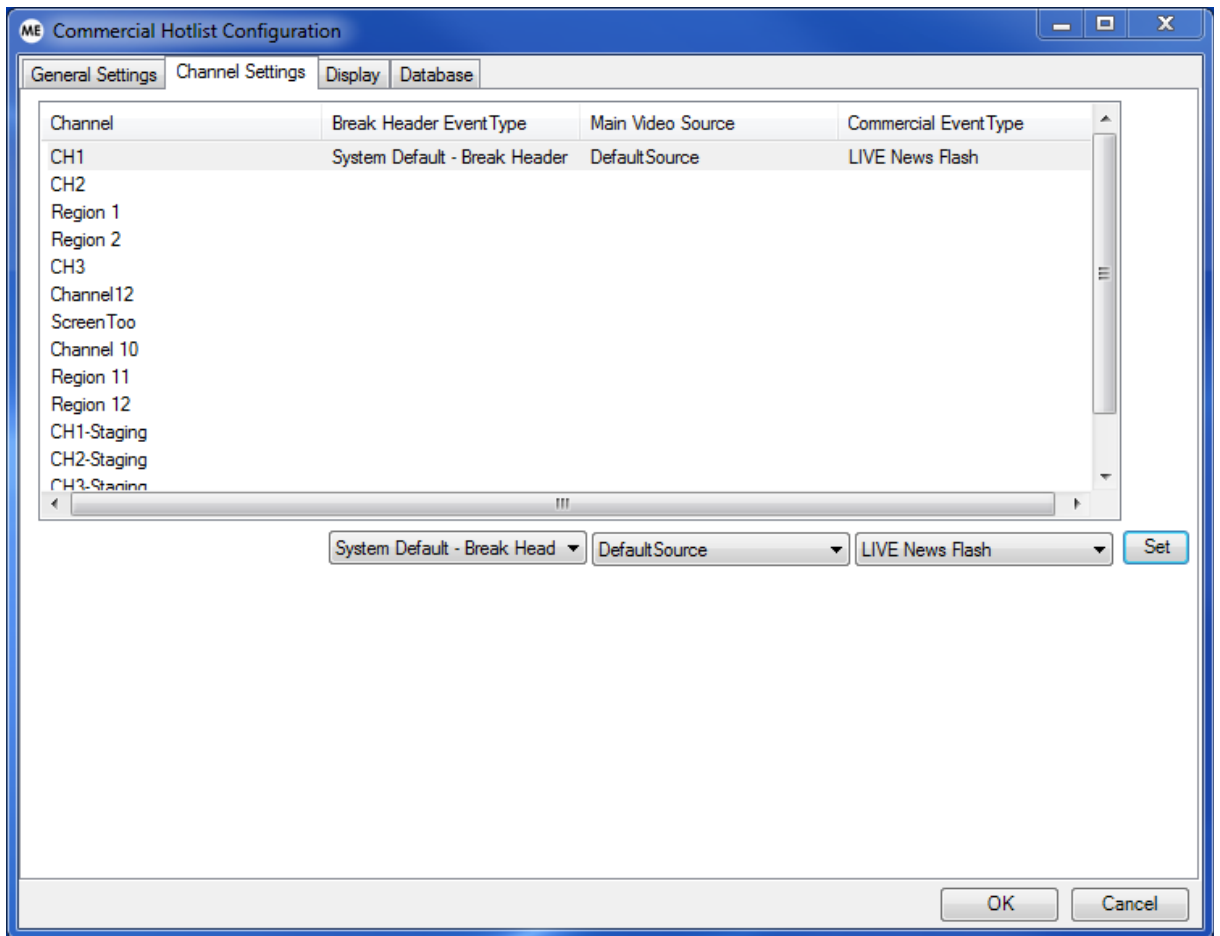


Figure 227 Commercial Hotlist Configuration - Channel Settings Tab

Function	Description
Break Header Type	The EventStore (refer to page 8) break Event Type to create for the given channel when inserting a new break from the hotlist.
Main Video Source	The video source to use when inserting commercials into the selected channel.
Commercial Type	The type of commercial to insert.

Table 22 Commercial Hotlist Configuration - Channel Settings

13.17.2.3 Display Settings Tab

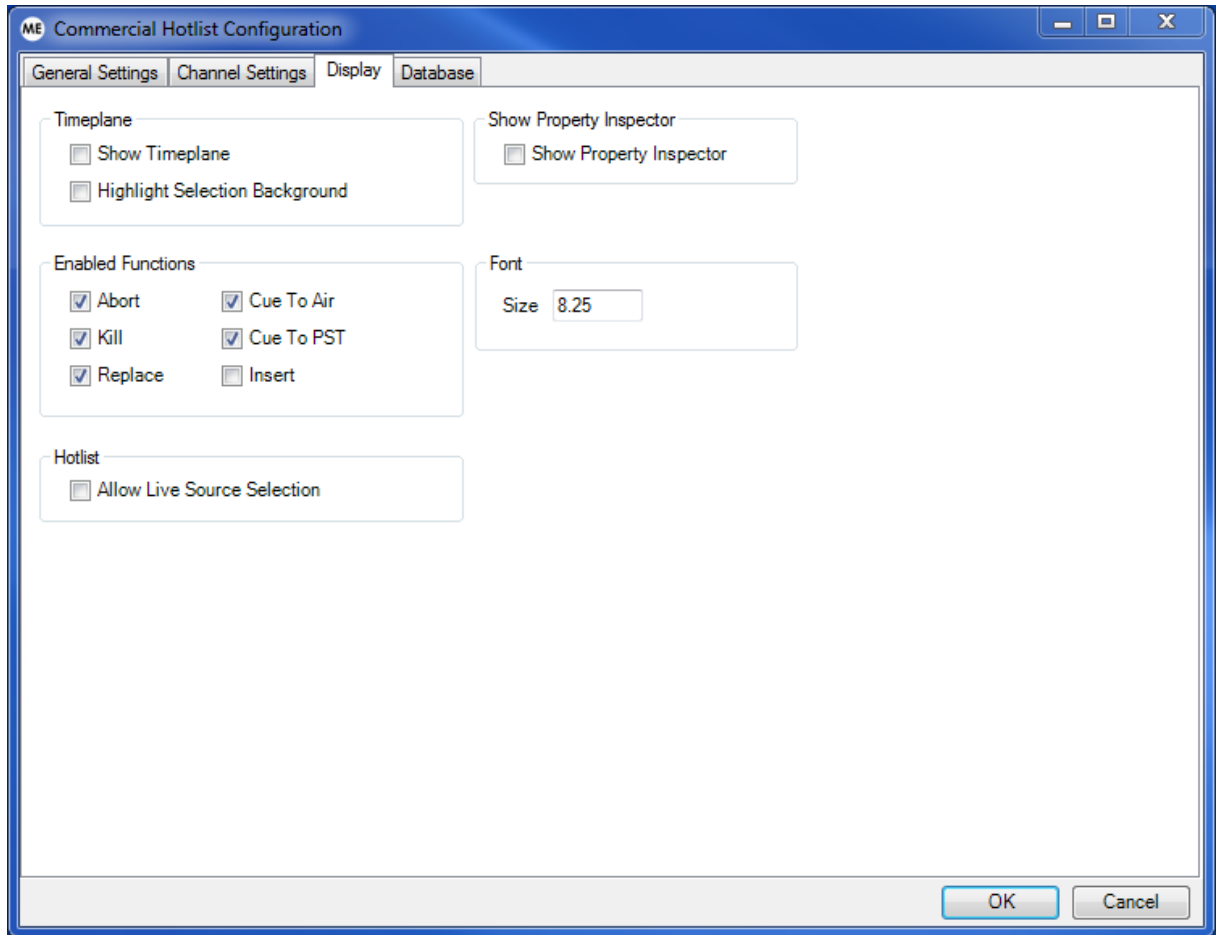


Figure 228 Commercial Hotlist Configuration - Display Settings

Function	Description
<p><u>Timeplane:</u> Show Timeplane</p>	<p>When selected, the Hotlist Timeplane is displayed at the top of the Commercial Hotlist window. The Hotlist Timeplane is a time proportional view of the commercials in the break(s) selected in the Hotlist Grid. This is used for multi-channel systems.</p>
<p><u>Timeplane:</u> Highlight Selection Background</p>	<p>Applies when clicking on breaks in the Timeplane - select from two different highlighting options:</p> <ul style="list-style-type: none"> • Un-ticked: thin blue outline only. • Ticked: thin blue outline, filled with the colour set in Editor Configuration > Appearance > Colours > Timeplane Selection Background (refer to Section 13.12.1 Colours Tab). <div style="text-align: center;"> </div>
<p>Show Property Inspector</p>	<p>Enabling this function displays a lightweight Property Inspector on the grid for each commercial Subevent. It displays all visible string parameters for the Subevent. Use the OK and Cancel buttons to edit the parameters in the same way as the main Editor Property Inspector.</p>

Table 23 Commercial Hotlist Configuration - Display Settings

Function	Description
Enabled Functions	<p>Select the required functions for use with the Commercial Hotlist - if a feature not selected, it will not appear as a button on the main Commercial Hotlist window. The following functions can be enabled:</p> <ul style="list-style-type: none"> • Abort • Kill • Replace • Cue to Air • Cue to PST • Insert
Font Size	<p>Alter the font size of all text entries on the Timeplane and in the Hotlist - rows are re-sized to suit. The default is 8.25 points. GUI parameter text is not re-sized.</p>
Hotlist: Allow Live Source Selection	<p>Tick the checkbox in order for live sources to be selectable from a commercial's 'Source' drop-down menu (Figure 229). If un-ticked, then live sources are not included in the menu.</p>

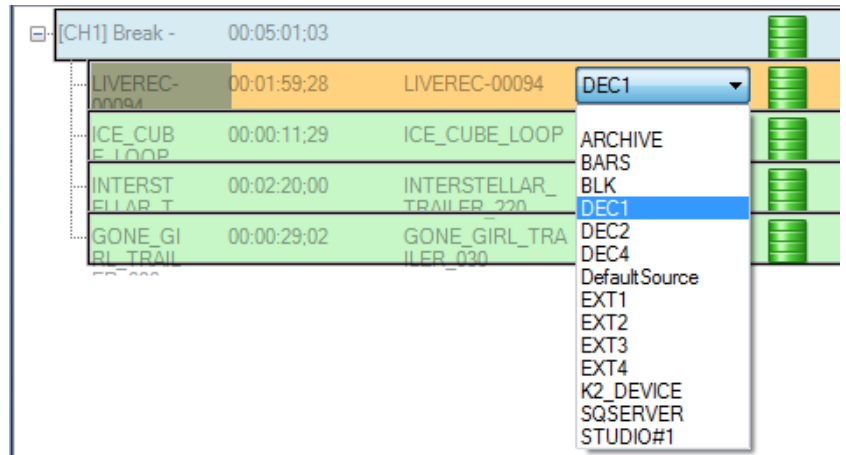


Figure 229 Source Menu

Timeplane Channel Column Options	<p>Define the manner in which the name of the channel is displayed on the Commercial Hotlist Timeplane. Use a combination of the following controls:</p> <ul style="list-style-type: none"> • Short Name radio button only: the first 3 characters of the Channel Name as set in the Configurator • Long Name radio button only: the whole of the Channel Name, as set in the Configurator • Channel Label ticked and Short Name radio button set: Channel Label as set in the Configurator plus the first 3 characters of the Channel Name as set in the Configurator, in brackets, i.e. 'Channel Label(Short Name)' • Channel Label ticked and Long Name radio button set: Channel Label as set in the Configurator plus the whole of the Channel Name as set in the Configurator, in brackets, i.e. 'Channel Label(Long Name)'
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For details of the configured names, refer to Chapter 7.4.6.1 Channel Properties Tab.

Table 23 Commercial Hotlist Configuration - Display Settings

13.17.2.4 Database Tab

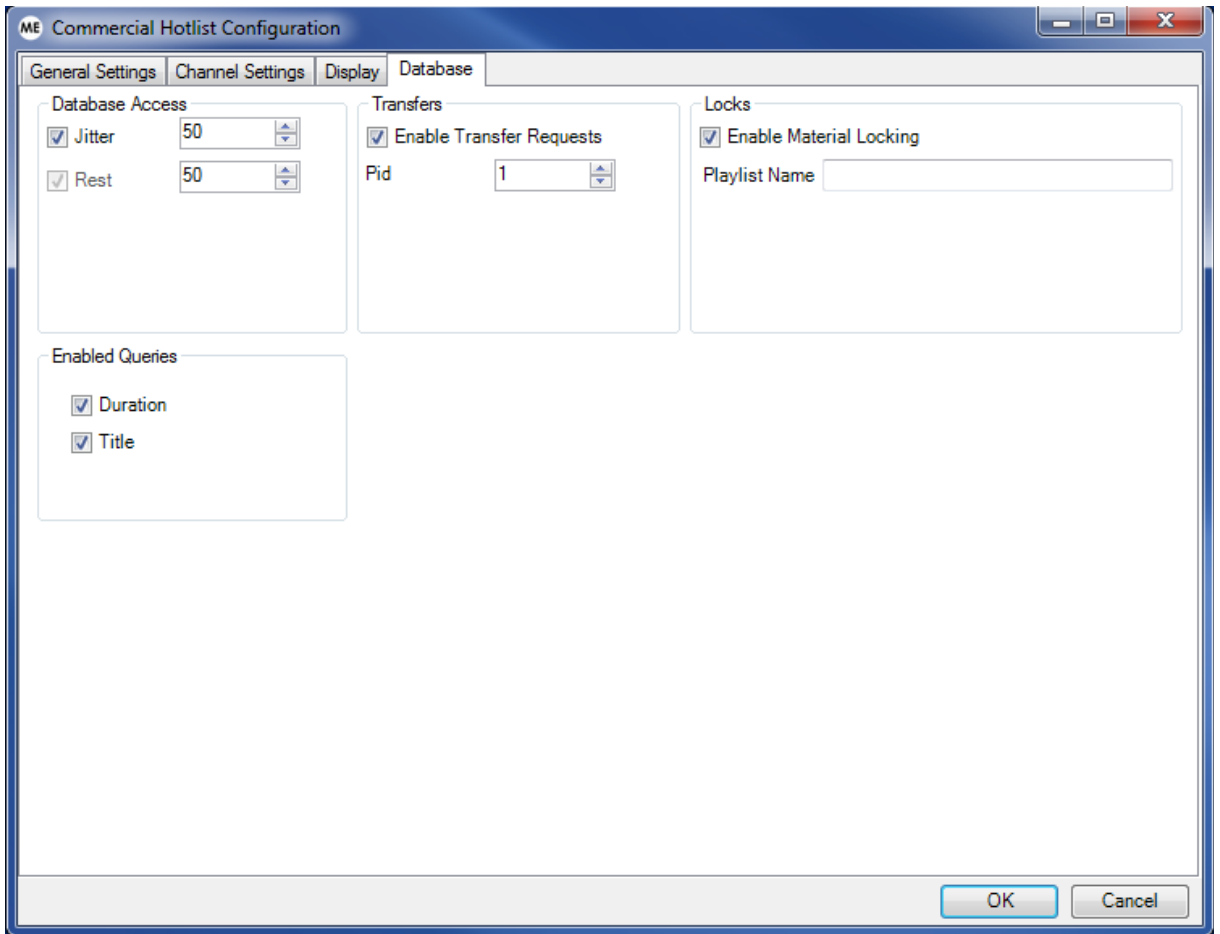


Figure 230 Commercial Hotlist Configuration - Database Settings

Function	Description
<u>Database Access:</u> Jitter	When Jitter is selected, batch queries move around in time randomly. This introduces variation in the queries performed on the database. This value should be set in milliseconds.
<u>Database Access:</u> Rest	'Rest' is always enabled by default. It is the period of time between successive batch queries. The default value is 50ms.
Transfers	Using this function, the Commercial Hotlist can make automatic transfer requests for material that is in the hotlist but is not present on the required devices. A PID can also be selected to use for the transfer. The default value is 1.
Locks	Using this function, the Commercial Hotlist feature can lock all material that is currently in the hotlist. This material cannot be transferred or deleted from the current device until it is removed from the hotlist. By entering a playlist name, the current transfers can be easily identified in the Media Management database.
<u>Enabled queries:</u> Duration	When enabled, Morpheus is able to update the duration for any event in the Commercial Hotlist. If this function is not selected, the duration remains unchanged, preserving the scheduled duration.
<u>Enabled queries:</u> Title	When enabled, Morpheus is able to update the database title for any event in the Commercial Hotlist. If this function is not selected, the title remains unchanged.

Table 24 Commercial Hotlist Configuration - Database Settings

13.18 ICE Master Control: ICE Panel Configuration

The ICE Panel provides the ability to control an ICE mixer from a dedicated hardware panel for the purpose of switching sources, adding graphics, etc.

A layout (panel design) is created in the 'ICE Panel Editor' application and then downloaded to the Controller card to which the hardware panel is connected.

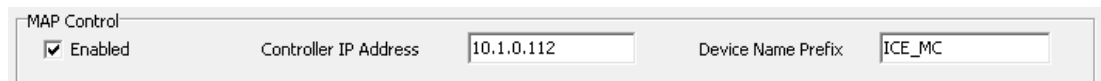
- A single layout can only be associated to one Controller card
- Individual layouts can be associated to the same Controller card or to many different ones
- Individual layouts can be associated to the same ICE or to different ones on the same Controller card

This document uses examples of layouts that offer functionality for different mixers on the same ICE.

13.18.1 Prerequisites

The following tasks must have been performed on any ICE that is to operate under 'ICE Master Control' (refer to the 'Configuration' chapter in the ICE Technical User Manual):

1. 'MAP Control' (on the ICE 'Mixers tab [Fig. 231]) must be configured on the mixers for the ICE that is to be controlled by 'ICE Master Control'.
 - MAP Control enabled
 - Controller IP Address configured
 - Device Name Prefix configured



MAP Control	<input checked="" type="checkbox"/> Enabled	Controller IP Address	10.1.0.112	Device Name Prefix	ICE_MC
-------------	---	-----------------------	------------	--------------------	--------

Figure 231 MAP Control Configuration on the ICE

2. The ICE configuration must have been saved to a registry file.

13.18.2 Accessing the ICE Panel Configuration Utility

The ICE Panel Configuration Utility is accessed from the Morpheus Editor, as follows (Fig. 232):

1. Click on **Tools** in the Windows menu bar.
2. Click on **ICE Panel Configuration** from the drop-down menu.

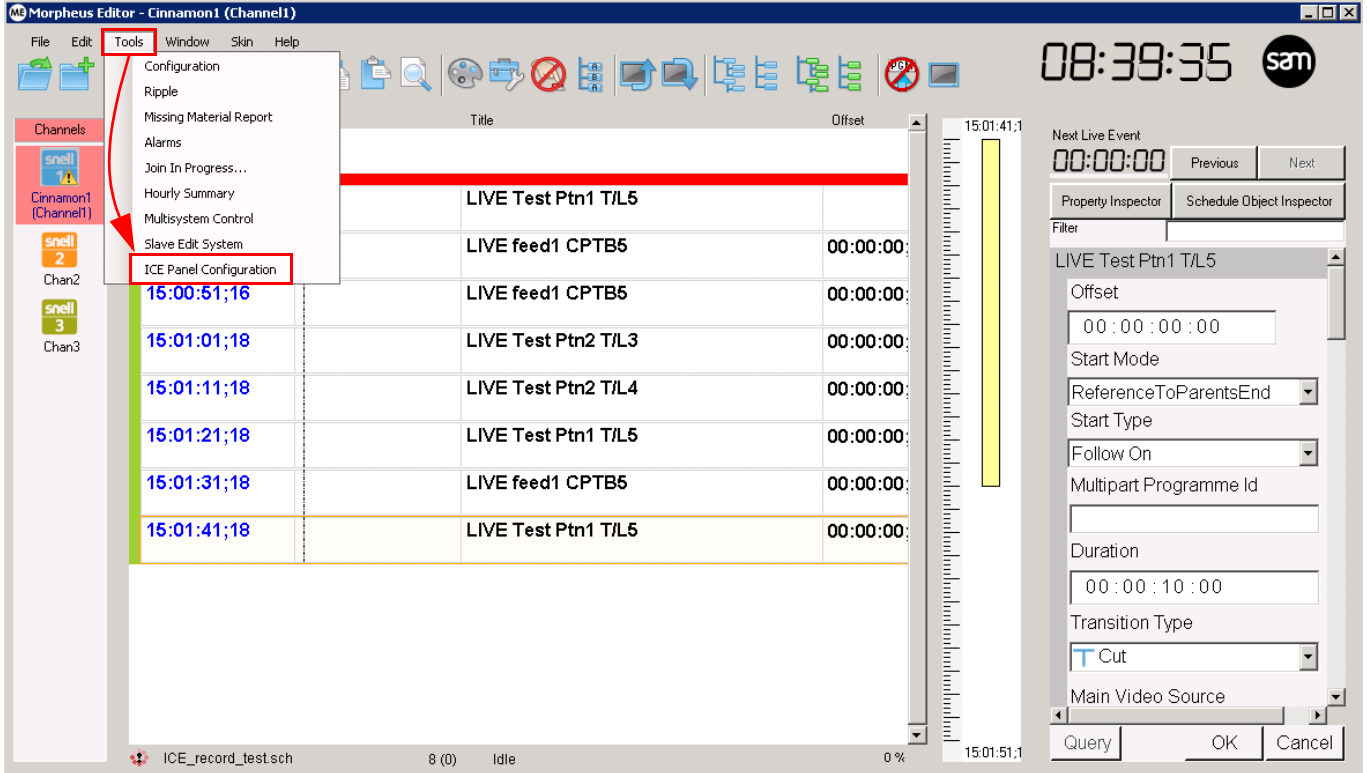


Figure 232 Accessing the ICE Panel Editor Utility

4. The ICE Panel Editor window is displayed (Fig. 233, shown with a previously configured layout).

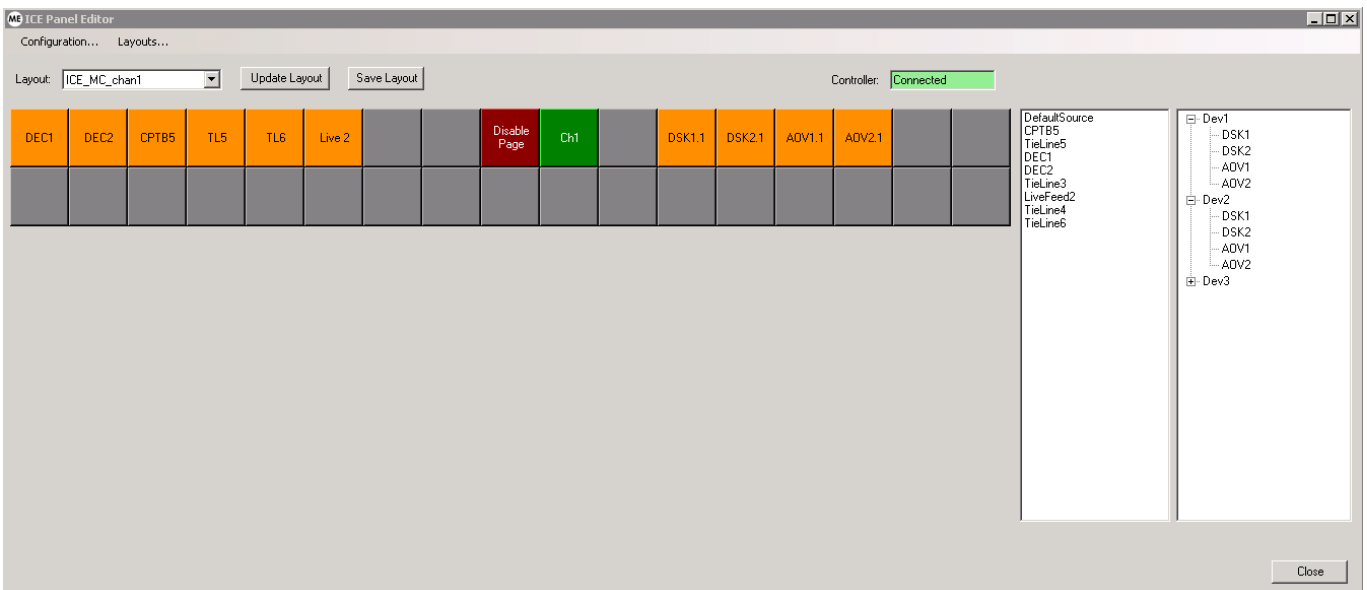


Figure 233 The ICE Panel Editor

13.18.3 Topology of the ICE Panel Editor

The features, functions, and configuration options of the ICE Panel Editor.

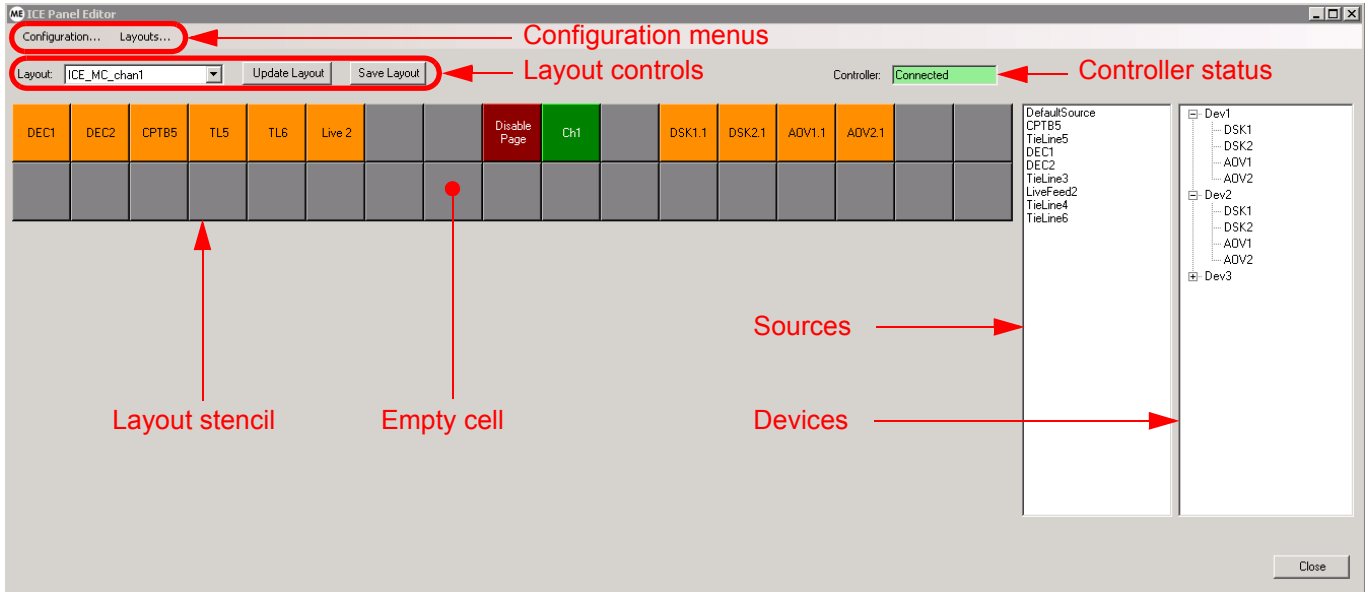


Figure 234 ICE Panel Editor Topology

13.18.3.1 Configuration Menus

Set up communication between the MAP panel and an ICE.

- Configuration...

Import the configuration from an ICE in order that it may be controlled from a MAP panel.

1. Click on the **Configuration** button - the ICE Panel Editor Configuration Window is displayed (Fig. 235).

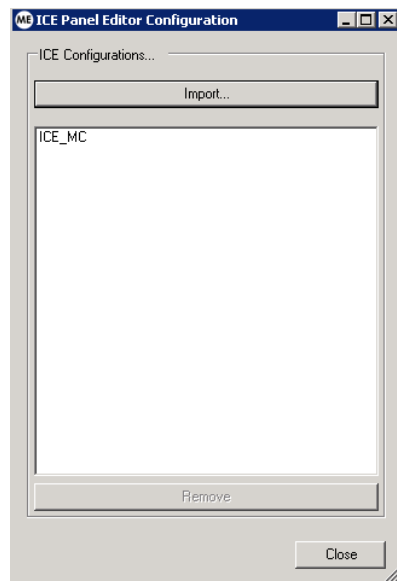


Figure 235 ICE Panel Editor Configuration Window

2. Click on the **Import** button.
3. Windows Explorer is displayed.

Browse to the location of the required ICE configuration that has been previously saved, then click on **Open**.

The ICE mixers and their sub-device definitions are loaded onto the Controller card to which the MAP panel is attached, and the 'Device Name Prefix' is displayed in the configuration list. The Controller card IP address and the 'Device Name Prefix' are defined in the 'MAP Control' configuration on the ICE.

The 'Device Name Prefix' uniquely identifies the ICE (e.g. ICE_MC in Fig. 235). Refer to Section 13.18.1 Prerequisites.

Note:

The ICE 'Device Name Prefix' will be used in the naming of all panel layouts in order to create an association. Refer to 'Layouts...' below.

- Layouts...

For each of the panel layouts required, configure all of the following parameters.

Note: The design of the layout is performed at a later stage.

1. Name

Identify a panel layout on a Controller card (Fig. 236).

Note: It is recommended a panel layout design is based upon a single channel (ICE mixer) and that this is taken into consideration when it is named.

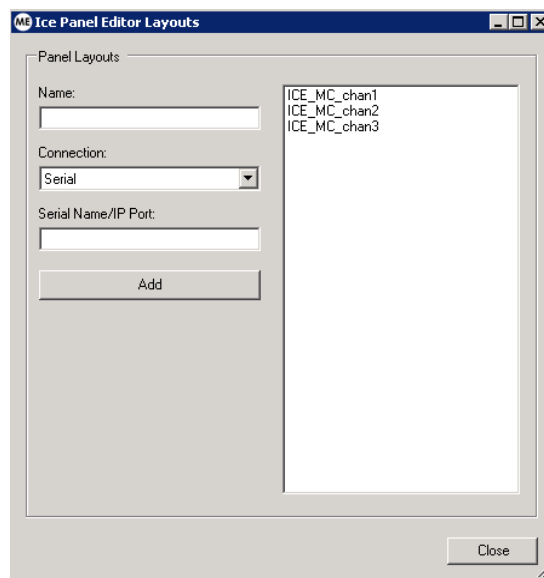


Figure 236 ICE Panel Editor Layouts

Each panel layout identity must be defined following a strict naming convention that is composed of a prefix and a suffix, as follows:

Prefix: the 'Device Name Prefix' of the ICE that this layout will control. In the examples shown, the prefix is *ICE_MC*.

Suffix: any name of choice that uniquely identifies the layout, preceded by an underscore.

Note: The suffix does not have to match the name of the channel as configured in Morpheus.

In the examples shown, the suffixes identify the channel on the ICE to which the panels relate, i.e. *_chan1*, *_chan2*, *_chan3*.

The resulting names of each panel layout would therefore be as follows:

ICE_MC_chan1

ICE_MC_chan2

ICE_MC_chan3

2. Connection

From the drop-down menu, select the communication mechanism that exists between the MAP panel and the Controller card:

Serial: RS422

IP: TCP/IP

3. Serial Name / IP Port

According to the selection made for the connection type, enter one of the following interface address types:

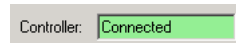
Serial Name: the serial port number on the Controller card.

IP Port: the IP address of the interface on the Controller card (not the port).

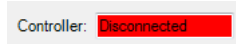
4. Click on **Add**.

The panel layout identifier is displayed.

5. If communication between the ICE Panel Editor and the Controller card has been established, then the 'Controller' indicator will be highlighted green, and the word 'Connected' will be displayed.



If communication has failed to be established, then the indicator will be highlighted in red and display the word 'Disconnected'.



13.18.3.2 Layout Controls

Select, modify, and save panel layouts.

- Layout

A drop-down menu that lists all of the panel layout identities that have been created in the 'ICE Panel Editor Layouts' window, for all of the ICE configurations that have been imported using the 'ICE Panel Editor Configuration' window.

The menu provides the method of selecting a panel layout for design purposes or for modification.

- Update Layout

Revise an existing panel layout on an impermanent basis on the Controller card.

Once the Controller card is rebooted, any changes are lost and the MAP panel design reverts to that which was last 'saved'.

- Save Layout

Preserve any changes to a panel layout on a permanent basis on the Controller card.

13.18.4 Creating or Editing a Panel Layout

Important: When the ICE Panel Editor is opened, the device / source fields are populated according to the channel that is currently selected in the Morpheus Editor. Devices and sources must not be added to a panel layout that is not associated to that channel, as they will be incorrect.

Follow the sequence detailed below in order to create or edit a panel layout:

1. In the Morpheus Editor, select the channel that is associated to the panel layout that is to be created or edited.
2. Open the ICE Panel Editor.
3. Select the panel layout that is associated to the current channel in view in the Morpheus editor.
4. Perform the necessary changes.
5. Close the ICE Panel Editor.
6. Repeat in order to edit any other panel layout.

The following options are available for editing a panel layout:

- Drag & drop a source or device onto empty cell on the layout stencil (Fig. 237)
- Drag & drop a source or device onto an occupied cell in order to change its current function
- Set an empty or an occupied cell to type 'Disable' or 'Unassigned Source'

Note: When a device or source is dropped into an empty cell, the 'ICE Panel Button Configuration' form is displayed - the button appears only once the **OK** button has been pressed (refer to Section 13.18.4.1 ICE Panel Button Configuration).

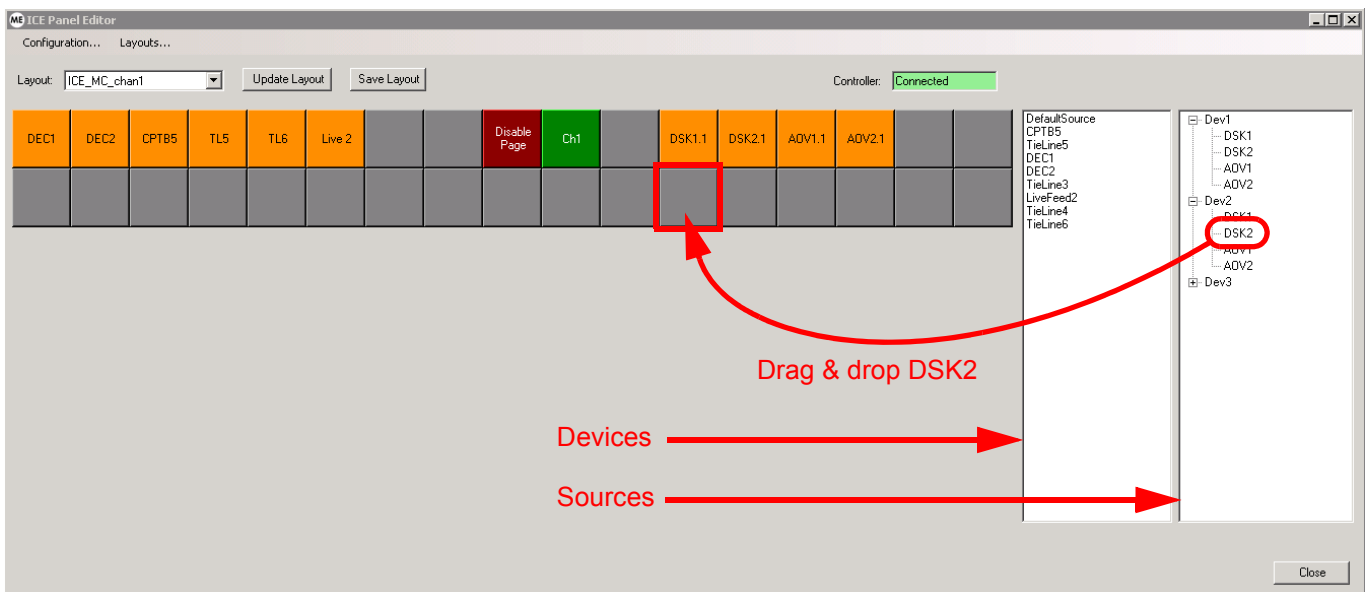


Figure 237 Creating a Panel Layout

13.18.4.1 ICE Panel Button Configuration

When either a source or a device is dragged and dropped onto the layout stencil, the 'ICE Panel Button Configuration' form is displayed - only once it has been configured will the button appear on the panel layout.

Left-click on a either a button or an empty cell in a panel layout in order to access its individual configuration parameters, as shown in Fig. 238.

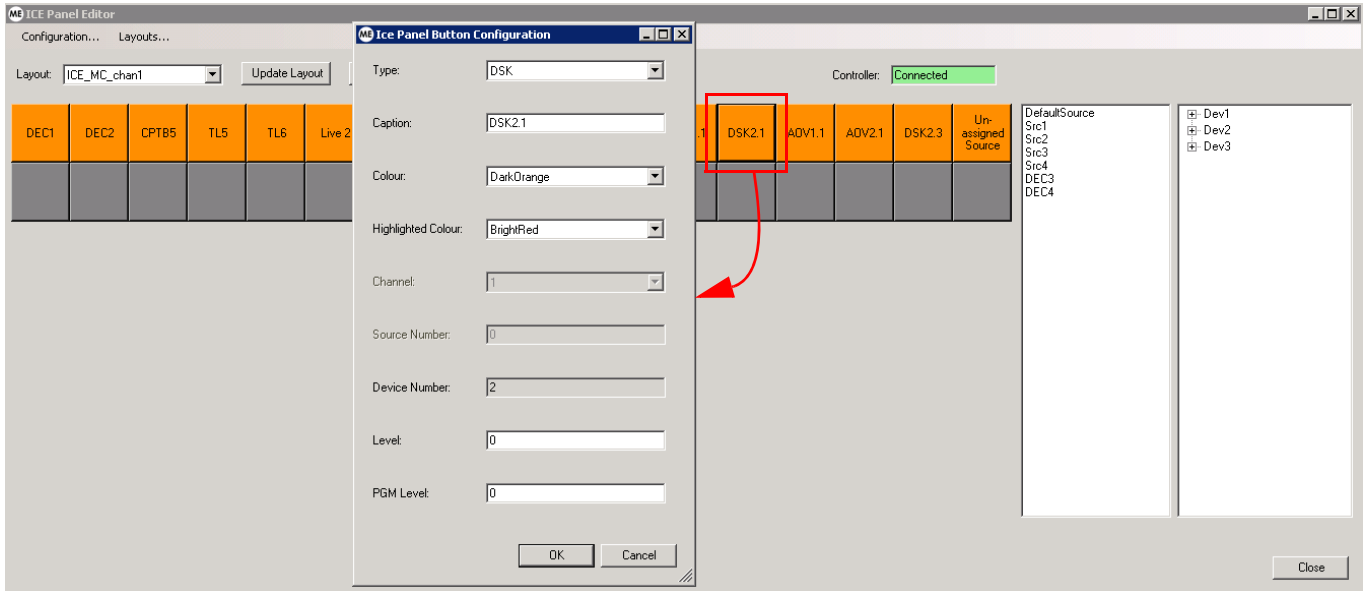


Figure 238 ICE Panel Button Configuration

Note: The property fields are identical, regardless of the button function. Greyed out properties are those of the ICE sources and devices loaded onto the Controller card, and as such cannot be changed.

- Type

Source

Is set If the cell is populated with a 'source', or the cell is empty.

DSK:

Is set if the cell is populated with a 'DSK'.

AOV:

Is set if the cell is populated with an 'AOV'.

Disable:

Select this type for an empty cell that is to be defined as the MAP panel 'disable' button. When this button type is pressed, all other buttons will be disabled and unlit - press again to enable the panel buttons. This is a feature to prevent accidental button presses.

Unassigned Source:

Should a source be set, for example from a Morpheus schedule, that is not defined on the MAP panel then this button will be set to that unrecognised source, illuminated, and labelled with the corresponding source number configured on the ICE, as follows:

U<ICE source number>

The source setting will persist until another undefined source is set, thereby providing the means of manually cutting back to it should a different source have been selected from the MAP panel.

By default, source 0 is set on a button of type 'Unassigned Source' - button presses with this source set are ignored.

Note:

An 'Unassigned Source' button is recommended for all panel layouts.

Only one 'Unassigned Source' button should be created per panel layout.



Despite the 'Type' field values being selectable from a drop-down menu, they must not be changed for any 'device' or 'source' that has been dragged & dropped onto the panel layout. This recommendation also applies to the 'Unassigned Source'.

- Caption

Enter an alphanumeric description that will be displayed on the MAP panel button.

- Colour

Select a default colour for the MAP panel button that it will display when it is not active, i.e. the associated source has not been selected.

- Highlighted Colour

Select a highlight colour for the MAP panel button that it will display when it is active, i.e. the button has been pressed and associated action has been performed.

- Channel

Associates the button with a specific Morpheus channel / ICE mixer device.

The *Channel No* and the related *ICE Mixer Device* are as configured in the 'Channel Properties' in the Morpheus Configurator (e.g. Morpheus channel number 1 relates to ICE mixer device 'DEV1').

- Source Number

The *Source Number* of the source on the specified channel (above) as configured in the Morpheus Configurator. This could be an ICE source or an external source.

- Device Number

For system use only and non-configurable.

A number that identifies the sub-device in the Controller card driver. It starts at number 1 for the first sub-device of a particular type added as a button to the panel layout, and is incremented for each additional sub-device of the same type added thereafter.

For example, the first AOV sub-device added to the panel layout is allocated device number 1, the second is allocated number 2, etc. The first sub-device of a different type, such as a DSK, is also allocated number 1, the second is allocated number 2, etc.

- Level

Applies to DSK and AOV sub-devices only. It is greyed out on all other device / source configuration forms.

A configurable value in the range 0-100 representing the percentage level of contribution to the current PGM from the sub-device. A value of 0 deactivates the sub-device, therefore the button will have no effect and will not be illuminated when pressed.

- If the sub-device is a keyer (DSK), then the value configured will set the level of transparency of the image sent to the mixer. A value of 100 adds the image at maximum opacity. Fig. 239 shows the 'State' field of the ICE GUI after the button for the DSK has been pressed, with the Level configured at 100.

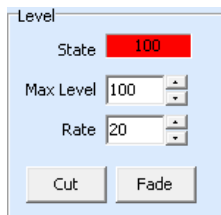


Figure 239 DSK Sub-Device Contribution Level to PGM Mixer

- If the sub-device is an audio over (AOV), then the value configured will set the level of the audio contribution to the mixer. Fig. 240 shows the 'State' field of the ICE GUI after the button for the AOV has been pressed, with the sub-device 'Level' configured at 100 and the 'PGM Level' ducked to 30% of its original contribution (in brackets).

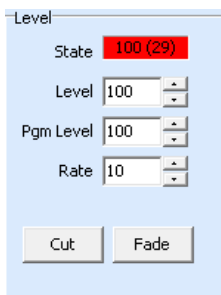


Figure 240 AOV Sub-Device Contribution Level to PGM Mixer

- PGM Level

Applies to AOV sub-devices only (Fig. 240). It is greyed out on all other device / source configuration forms.

A configurable value in the range 0-100, allowing an adjustment of the percentage level of audio contribution currently on the PGM whilst the sub-device is active. Fig. 240 shows the 'State' field of the ICE GUI after the button for the AOV has been pressed, with the sub-device 'Level' configured at 100 and the 'PGM Level' ducked to 30% of its original contribution (in brackets).

13.18.5 Verifying the Panel Layouts on the Controller Card

The Controller card configuration is visible in the Bridge, and in greater detail from the PBAK Test Utility.

13.18.5.1 Controller Configuration on the Bridge

1. Click on the 'Controller Status' tab.
2. In the left-hand pane, open the tree with the IP address of the Controller card that has been configured with the panel layout(s). The names of the panel layouts will be visible.

Alternatively, click on the 'Devices' tab in the main pane in order to view devices on all of the configured Controller cards (Fig. 241).

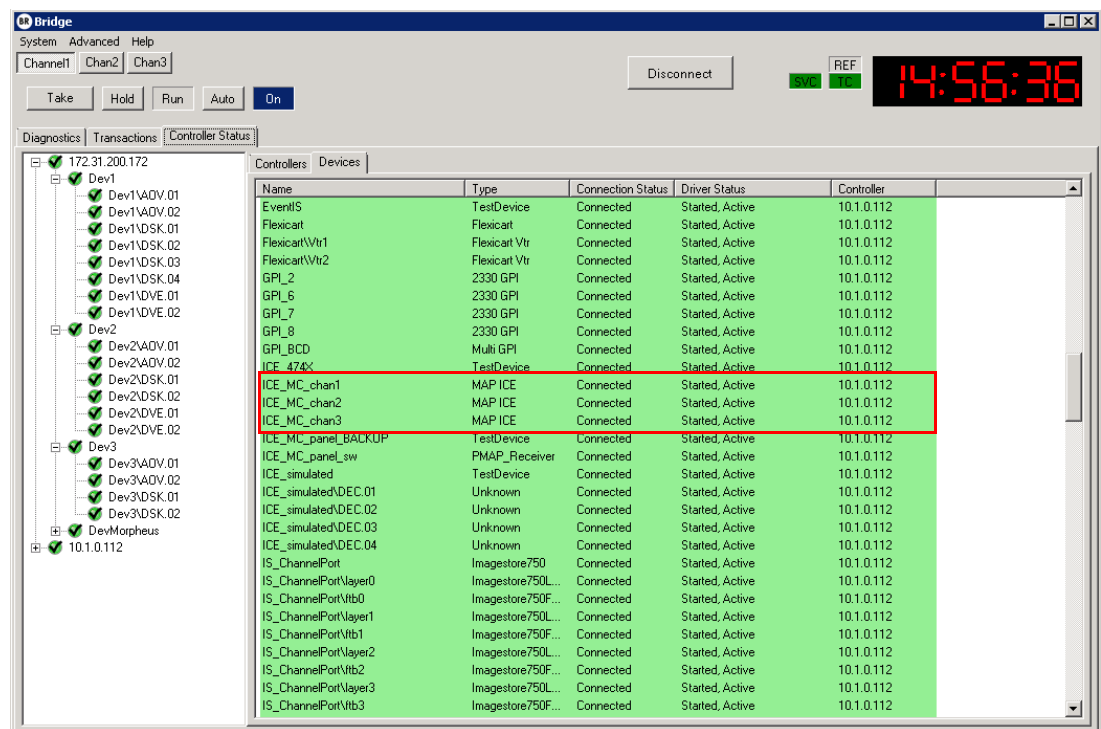


Figure 241 ICE Panel Configuration on the Bridge

13.18.5.2 Controller Configuration in the PBAK Test Utility

1. From the Morpheus 'Shortcuts' folder, open the Pbak Test Utility.
2. Unless otherwise set, click on the **Config** button at the top of the window and enter the IP address of the Controller card to which the MAP panel is attached.
3. Click on the **Connect** button in order to connect to the Controller Card.
4. Click on the 'Registry' tab.
5. Click on the 'Config' button on the panel to the right hand-side of the window.
6. In the main pane, open the 'Configuration' tree
7. The branches for each of the panel layouts will be visible. Each of them can be opened in order to view their specific configurations (Fig. 242).

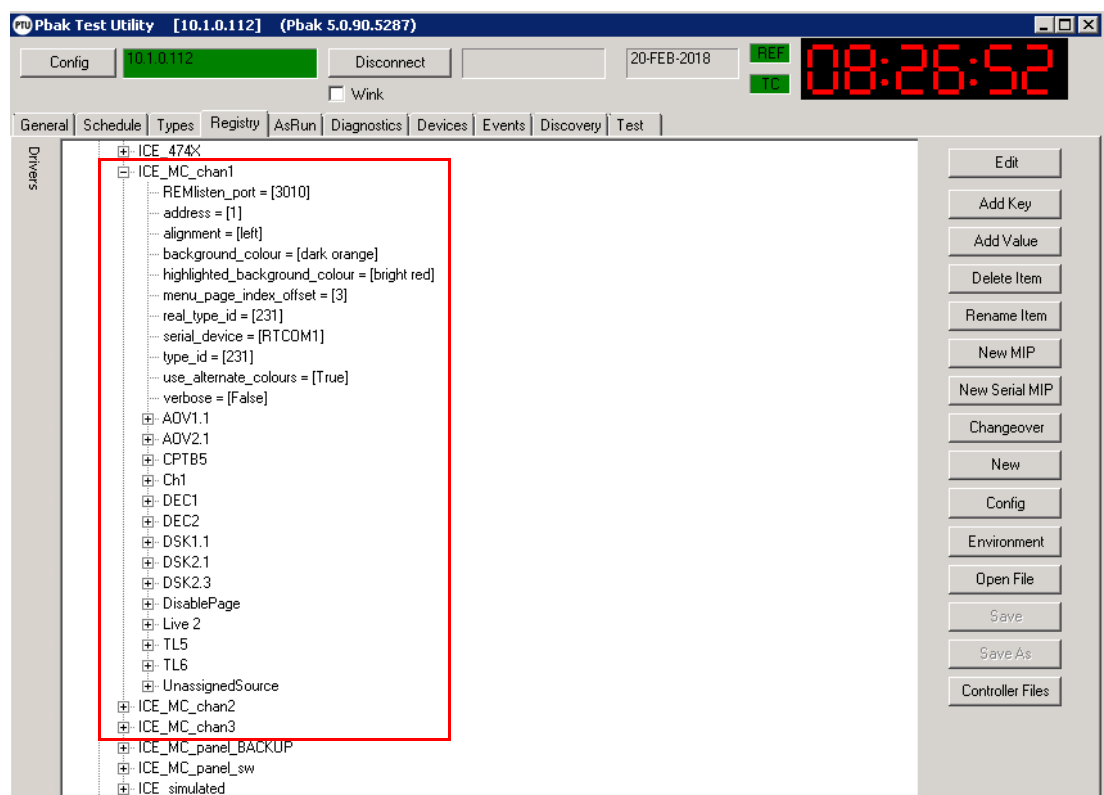


Figure 242 ICE Panel Configuration in the PBAK Test Utility

13.18.6 Hardware Panel Specification

Currently only one panel is supported for use with the ICE MC and PBAK Device Control functions - details below.

Model: Luna 7028-RC Series 1RU Shallow Router Control Panel

Part Number: 7028251RCSB

Description: 1RU 39 key LCD Control Panel with Rotary Encoder Knob (the Rotary Knob has no functionality when used with the ICE Master Control feature)

Dimensions:

- Height (1RU): 43.6mm
- Width: 448mm
- Depth: 50mm

Power:

- 2 x DC jacks for redundant external AC mains converter
- Power Over Ethernet (POE)

For further details relating to this panel, please refer directly to the Grass Valley product data sheet '**Luna - 7028-RC Series**'.

Note: In the ICE Technical User Manual, the hardware panel is referred to as follows:
MAP Panel for ICE Master Control and PBAK Device Control.

14. HostShell Services

Host Shell Services is a host application that contains various services that can be used by the system.

14.1 HostShell Services Main Window

Running services are displayed at the top of the HostShell window with a log, and alarms are displayed at the bottom.

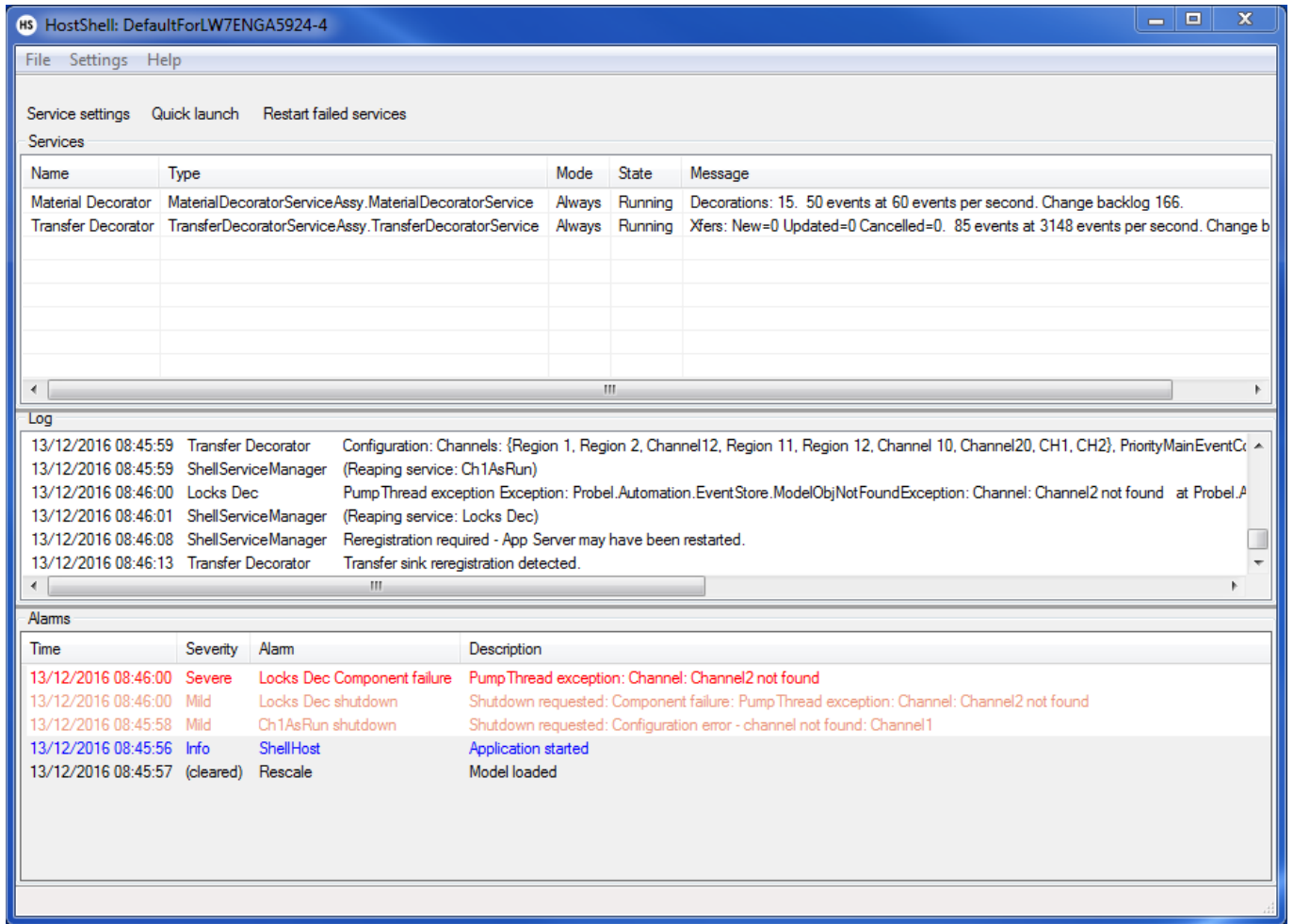


Figure 243 HostShell Window

Note: Host Shell Services only work if the Application Server is already running (refer to page 165).

Three buttons appear at the top of the HostShell window - **Service Settings**, **Quick launch** and **Restart failed services**. Each of these is described on the following page.

Some of the most commonly used Host Shell services are described in this chapter.

Note: The BXF services are covered in a separate chapter (refer to 'BXF Services' on page 579).

14.1.1 Quick Launch

Launch a service that is set to **Manual** (refer to 'Launch Modes' above).

1. Click on **Quick Launch**. The Launch Panel window is displayed.

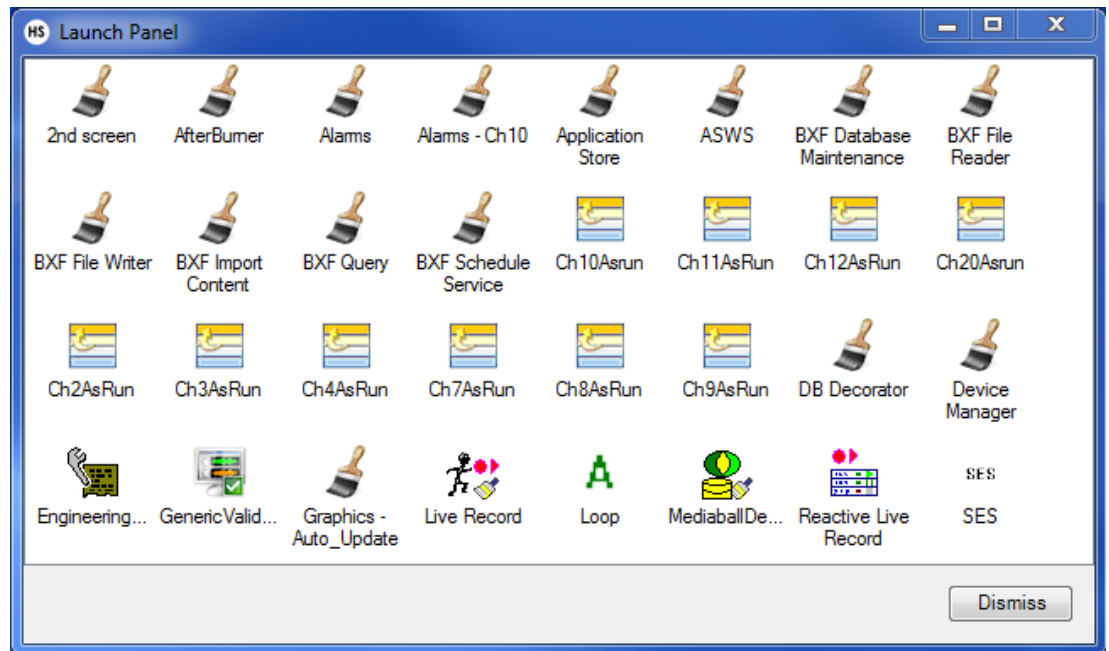


Figure 244 Host Shell Service Launch Panel

3. Double-click the service to launch.

14.1.2 Restart Failed Services

If any services were shut down manually or did not start correctly, click on **Restart failed services**.

14.1.3 Right-Click Menu

In the HostShell Services main window, right-click on an active service from the list and select one of the following options from the menu:



14.2 Service Settings - Configuration of HostShell Services

Host Shell Services can be configured to run some, or all, services. Services can be added, run and configured from the 'ShellHost configuration' window. To display the window, either click on the **Service settings** button on the HostShell window, or from the **Settings** menu select **Service settings**.

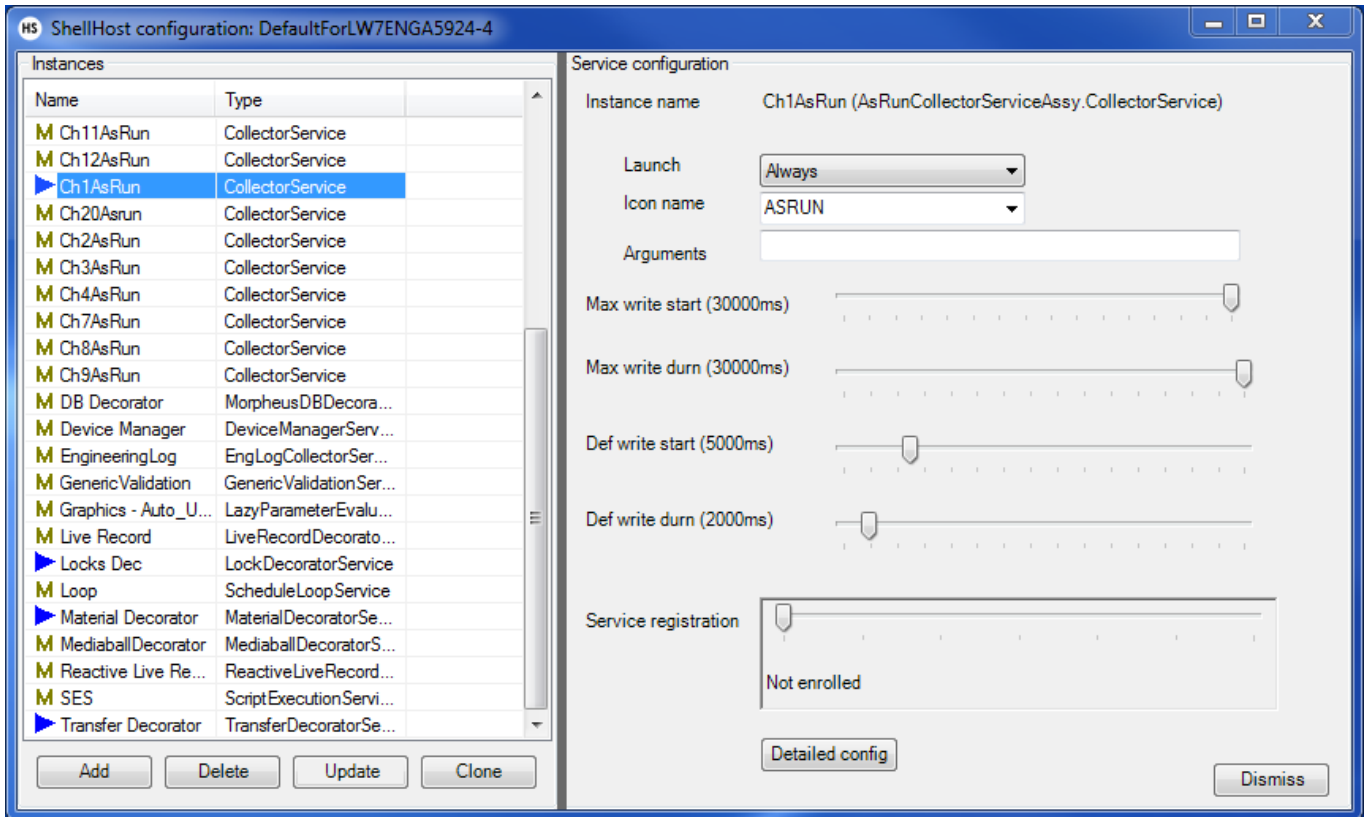


Figure 245 Host Shell Service Settings

Services that have been added appear under 'Instances' with the settings for each service on the right under 'Service configuration'. The following functions are available from the ShellHost configuration window.

14.2.1 Add a Service

To add a service:

1. Click on **Add** to open the Add service window.
2. From the **Service type** drop-down list, select the type of service to add.
3. In the **Instance name** field, type a name to be used for this service instance.
4. Click on **OK**.

The service is displayed on the list on the left.

14.2.2 Delete a Service

Under Instances, select the service to remove and click on **Delete**.

14.2.3 Configure a Service

To configure a service:

1. Under **Instances**, select the service to configure.
2. In the **Service configuration** section of the window, complete the fields on the right of the window, as required.
3. To configure the service further, click on **Detailed config**.
4. Complete the Configuration window for that service as required and click on **Save**.

For detailed configuration information on each service, refer to the individual sections that follow in this chapter.

14.2.4 Launch Modes

Each service can run in one of three launch modes: **Manual**, **Automatic** and **Always** - refer to Table 25.

Mode	Description	Icon
Manual	The default setting. In this mode the service has to be run using Quick Launch on the 'HostShell window. If Host Shell is restarted, the service has to be run again because the launch mode remains as 'Manual'.	M
Automatic	When running dual Host Shells, this setting ensures that arbitration between the two takes place. Services start automatically when the Host Shells are run.	A
Always	The normal operation with single Host Shells. The service starts automatically when the Host Shell is run.	▶

Table 25 HostShell Launch Modes

To apply a launch mode to a service, click on the service in the Service Settings window, select the required mode from the **Launch** drop-down menu, and click on **Update**.

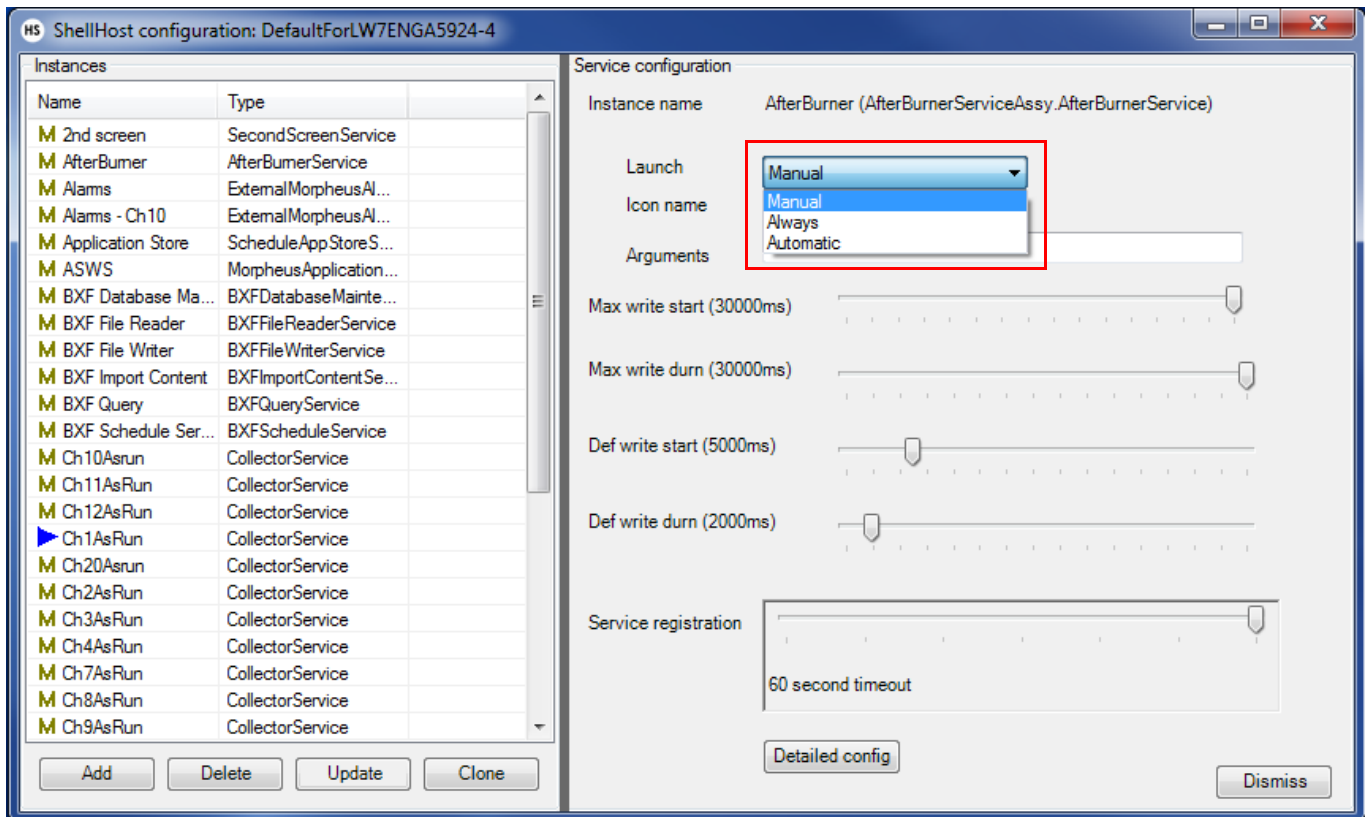


Figure 246 HostShell Service Launch Modes

14.3 After Burner Service

Identifies events that have After Effects Subevents, and detects if the graphics have changed. For each event on the selected channels, the service examines the event's Material Id and compares it with the event's 'AfterBurner' parameters. If the event has changed, it updates the Material Id and generates a transfer request to the Media Management system.

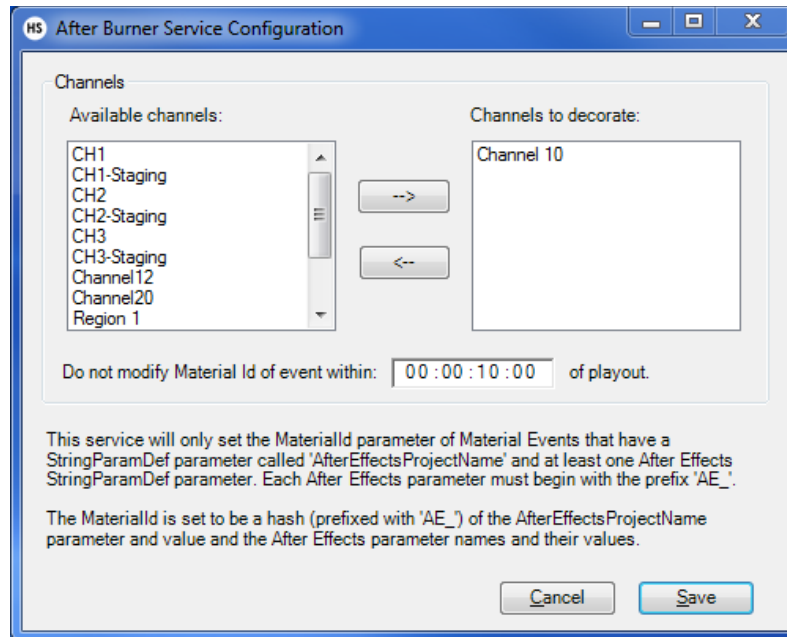


Figure 247 Afterburner Configuration

It is also possible to set a time limit on changing the event in relation to the time remaining before playback.

14.4 Alarm GPI Service

Configure GPI alarms (refer to page 636).

14.4.1 Configuring the Alarm GPI Service

To configure the Alarm GPI Service:

1. Enter, in milliseconds, the required amount of time between each check.
2. Select the serial port on which to perform the check.
3. Click on **Save**.

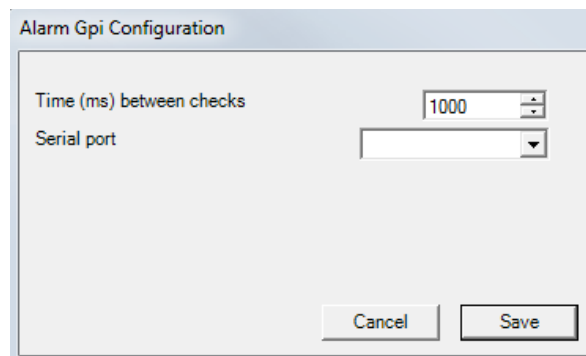


Figure 248 Alarm GPI Configuration

14.5 As Run DB Service

The 'As Run DB' service keeps a record of the events that have played out on the schedule and writes them to the 'Asrun' database - they can then be used for billing purposes. The As Run DB service can work with the Automation Database Reporter application (refer to page 569) to produce 'as run logs' (refer to page 569).

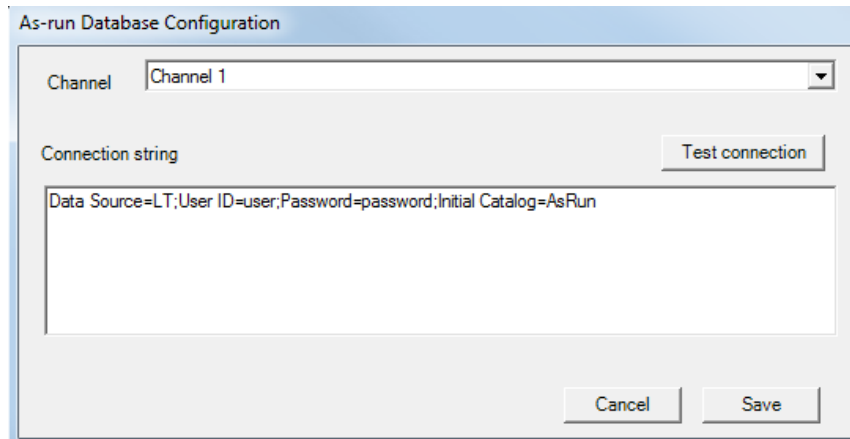


Figure 249 As-run Database Configuration

14.5.1 As-Run Database Service Configuration Parameters

To configure the As Run DB Service:

1. Select the required channel from the **Channel** list.
2. In the **Connection string** field, enter the required connection string in the following format (in one continuous string).

```
Data Source=<machinename>\SQLEXPRESS;UserID=<userID>;  
Password=<password>;Initial Catalog=AsRun
```

Note: \SQLEXPRESS only applies when SQLServer Express is used as the database server. Where full SQLserver is used, the backslash and the word SQLEXPRESS are omitted, leaving only the machine name.

14.6 Commercial Minutage Protection Service

Applied on a per-channel basis, this utility constantly monitors the aggregate duration of events of type 'Commercial' per clock hour - if the duration exceeds a pre-configured total time that has been allowed per clock hour, then the commercial events in that hours' schedule that run over and beyond the allocated time are considered to be in breach of the rule, and are not aired. Instead of airing the commercials that are considered in breach of the rule, this service switches to a different source and plays out an alternative, non-commercial event (such as a graphic). The constant monitoring process ensures that changes to the schedule, during the clock hour, that may be affected by the configured 'Commercial Air Time' are re-evaluated by the service. A 'clock hour' is fixed to start on the hour, and the evaluation of commercial events is always performed in time order. The service has no effect upon events that are not of type 'Commercial'.

Note: When an event of type 'Commercial' is in breach of the 'Commercial Air Time' period and has therefore been stopped from going to air, the service changes the 'Event Material Type' to **Junction** - this is non-configurable.

The following counters are displayed in the 'Message' column of the ShellHost Service window, alongside each active instance of the service:

- **Commercial Allowance Remaining** - the amount of time, within the clock hour, that is currently available to air commercial events without breaching the 'Commercial Air Time' period. The display represents the total time remaining, regardless of whether or not there are commercial events in the schedule waiting to go to air. The time counts down as 'Commercial Air Time' is consumed within the clock hour (displayed as <hours>:<minutes>:<seconds>:<frames>).
- **Commercial Air Time Remaining** - the amount of time that currently scheduled commercial events would require in order to go to air. In order for commercial events to not be in breach of the 'Commercial Air Time' period, this counter should always be less than or equal to the 'Commercial Allowance Remaining' (above).
- **Commercials Over Minutage** - the total number of events of type 'Commercial' that are currently in breach of the 'Commercial Air Time' period setting for the existing clock hour. Included are events that are due to start after the 'Commercial Air Time' period has expired, and events that would have started before the 'Commercial Air Time' period had expired but are due to finish after it has expired.
- **Excluded Commercial Airtime** - the amount of 'Commercial Air Time' that has been reclaimed by the service in cancelling the airing of commercial events. Another commercial event with a duration less than or equal to this time, could be added to the schedule without being in breach of the 'Commercial Air Time'.

The service will automatically adjust these counters if the schedule for the current clock hour is altered, for example if an event that is in breach of the 'Commercial Air Time' period is moved to a later clock hour.

An example of the principle of the Commercial Minutage Protection Service is shown in Figure 250 below.

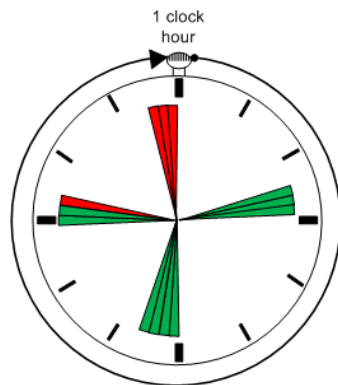


Figure 250 Commercial Minutage Protection Service - events in breach

In this example, on the channel to which the Commercial Minutage Protection Service has been applied, 13 events of type 'Commercial' each have a duration of 1 minute, as shown by the individual time slices on the clock; the aggregate duration of the commercials is therefore 13 minutes (not shown are the other non-commercial events that occupy the time in between the commercials). If the pre-configured total time that has been allowed per clock hour for commercials (known as the 'Commercial Air Time') has been set to 9 minutes, then there will be 4 minutes of overrun, equating to 4 commercials that are 'in breach' of the 'Commercial Air Time'. If the schedule remains unchanged for the hour, the commercials shown in green will go to air as planned, but those shown in red will not.

The 'Commercial Minutage Protection Service' must be started from the ShellServices Host - refer to the Shell Services Host section of the Engineers Manual for further information.

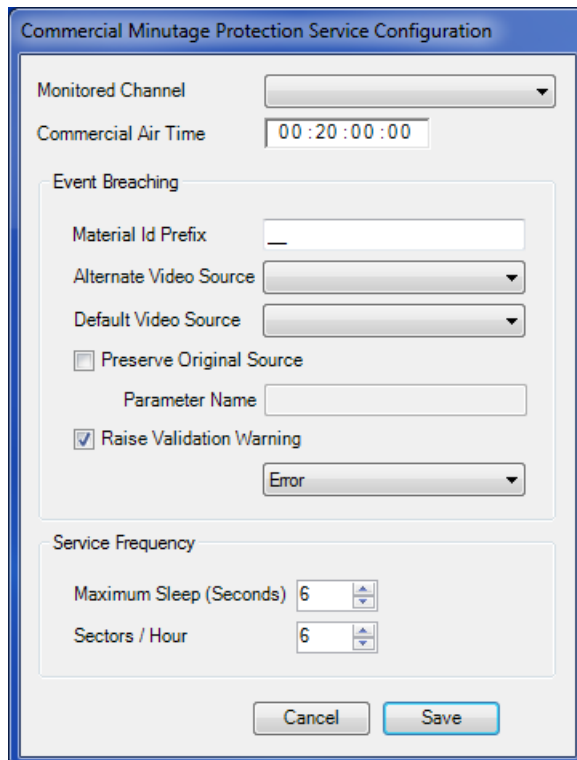


Figure 251 Commercial Minutage Protection Service Configuration Window

All of the parameters below must be configured in order to enable the service.

- Monitored Channel

Select the channel that is to be monitored from the drop-down menu. Only one channel can be monitored per instance of the Commercial Minutage Protection Service, therefore separate instances of the service must be created for each additional channel. The channel must already have been created in the 'Configurator' application.

- Commercial Air Time

Enter the maximum time permitted for commercials per clock hour in the following format:

<hours>:<minutes>:<seconds>:<frames>

The default is 20 minutes (00:20:00:00).

Event Breaching

In the 'Event Breaching' pane, configure the parameters that will define system behaviour in the event of a breach of the 'Commercial Air Time'. Refer to the flow chart in Figure 252 for an understanding of the system behaviour.

- Material Id Prefix

Enter any prefix of choice. The prefix will be automatically prepended to the material id of commercial events that are in breach of the 'Commercial Air Time' period setting. The default is a double underscore (__).

- Alternate Video Source

From the drop-down menu, select the pre-configured video source that will play out an alternative image or moving graphic in replacement of the commercial that is in breach of the 'Commercial Air Time' period setting. The service uses the entry for 'Alternate Video Source' as the replacement 'Source' against the original commercial event, and it will be played out for a period of time that is equal to the duration of the original commercial event, and with an identical start time. The 'Alternate Video Source' must have been defined as a 'Source' within the monitored channel, using the 'Configurator' application, to allow it to be displayed within the list of 'Alternative Video Source' options.

- Default Video Source

From the drop-down menu, select the video source that will be used for events that are no longer in breach of the 'Commercial Air Time'. This parameter is only applied to events that are no longer breaching the 'Commercial Air Time' (this implies that the event was breaching the 'Commercial Air Time' period at some point in the current clock hour). Unless the 'Preserve Original Source' checkbox is ticked (see below), an event will not be reassigned to its original source if it is no longer in breach of the 'Commercial Air Time' period; instead the event is assigned to the source defined as the 'Default Video Source'.

- Preserve Original Source

If ticked, this option allows the process to reassign an event to its original source when it is no longer in breach of the 'Commercial Air Time' (the original source is defined as the one that was originally assigned to the event before it was considered in breach of the 'Commercial Air Time'). In order for the process to store the original source definition, a new event type parameter must be defined as described below.

- **Parameter Name**

Enter the name of the parameter that has been assigned to preserve the original source. This must be defined in the Configurator against the event type as follows:

- 1 In the Configurator, click on the 'Configure Events' icon.
- 2 Select the event type and click on the 'All Parameter Definitions' tab.
- 3 Click on 'Add Parameter' and select Parameter Type 'StringParamDef' (the parameter must be of this type).
- 4 In the 'Parameter Name' field enter a suitable name for the parameter definition. It is this name that must be entered into the 'Parameter Name' field of the 'Commercial Minutage Protection Service Configuration' window.

Once defined, the parameter definition will be visible in the property inspector section of the Editor, against the event.

- Raise Validation Warning

Tick the checkbox in order for the service to display an icon in the 'Validation' column of the Morpheus Editor against commercial events that are in breach of the 'Commercial Air Time' period. This function is designed to highlight to the operator of the Editor that there are commercial events that will not go to air without remedial action. The icons are associated to severity levels that can be selected from the drop-down menu: Information, Warning, Error, Critical (the icons are default, pre-configured items in the Editor and should not be changed).

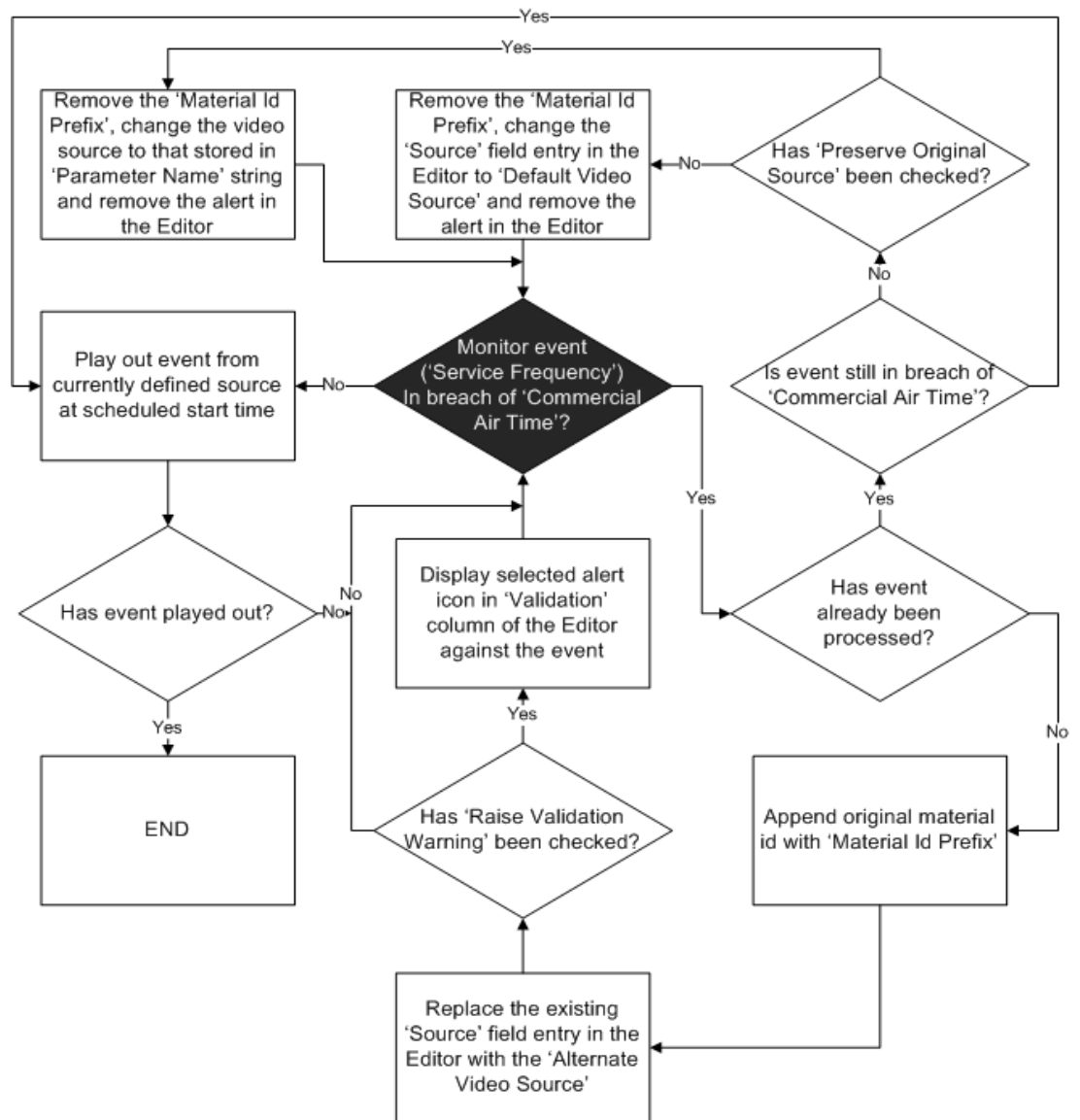


Figure 252 Commercial Minutage Protection Service - System Behaviour

- AsRun Database

Enter a connection string to allow the service to access the Asrun Database. It is required in order for the process to know how much of the 'Commercial Air Time' has already been consumed by commercial events that have already aired during the current clock hour.

Service Frequency

In the **Service Frequency** pane, enter the time related parameters that will define how frequently the service re-evaluates commercial events against the configured 'Commercial Air Time'.

- Maximum Sleep (Seconds)

Defines the number of seconds between event evaluation scans at the start of the clock hour. The number of seconds between scans is decremented as the hour progresses according to the number of 'Sectors' that have been defined (refer to the 'Sectors / Hour' parameter below).

Enter the required number of seconds between event evaluation scans. This will define how frequently the service will evaluate commercial events for breaches of the 'Commercial Air Time'. Ensure that the number of seconds configured is always a value greater than or equal to the number of sectors configured in the 'Sectors / Hour' field. The maximum value is 20 seconds, and the minimum value is 1 second. The default value is 6 seconds. During the final 5 minutes of the clock hour, the service will automatically scan every second (this is non-configurable).

- Sectors / Hour

The service allows the clock hour to be divided into individual sectors of equal duration - as each time sector expires, the number of seconds between event evaluation scans (as defined by 'Maximum Sleep') is decremented to allow the service to scan more frequently as the hour progresses. 'Sleep' is decremented according to the following formula:

$$lastsleep - (maxsleep / sectors)$$

Where '*lastsleep*' is equal to the sleep time from the previous sector, '*maxsleep*' is equal to the configured value of the 'Maximum Sleep' parameter, and '*sectors*' is the configured value of 'Sectors / Hour'.

Ensure that the number of sectors configured is always a value smaller than or equal to the number of seconds configured in the 'Maximum Sleep' field (it also makes sense for 'Maximum Sleep' to be a multiple of 'Sectors / Hour'). The default value is 6 sectors. The maximum value is 12 sectors, the minimum value is 2 sectors.

The example in Figure 253 (below) demonstrates the principle behind the 'Service Frequency' configuration options. In this case, 'Maximum Sleep (Seconds)' has been set to 12, and 'Sectors / Hour' has been set to 4.

For the 15 minutes in sector 1, commercial events are scanned according to the value of 'Maximum Sleep' (i.e. every 12 seconds) for a breach of the 'Commercial Air Time'. After the first 15 minutes of the clock hour, commercial events are scanned every 9 seconds - this occurs in sector 2. Formula: $12 - (12 / 4) = 9$.

In sector 3, commercial events are scanned every 6 seconds. Formula: $9 - (12 / 4) = 6$.

Finally, in sector 4, commercial events are scanned every 3 seconds. Formula: $6 - (12 / 4) = 3$. In the last 5 minutes of the clock hour, events are scanned automatically every second. The process is reset at the end of the clock hour.

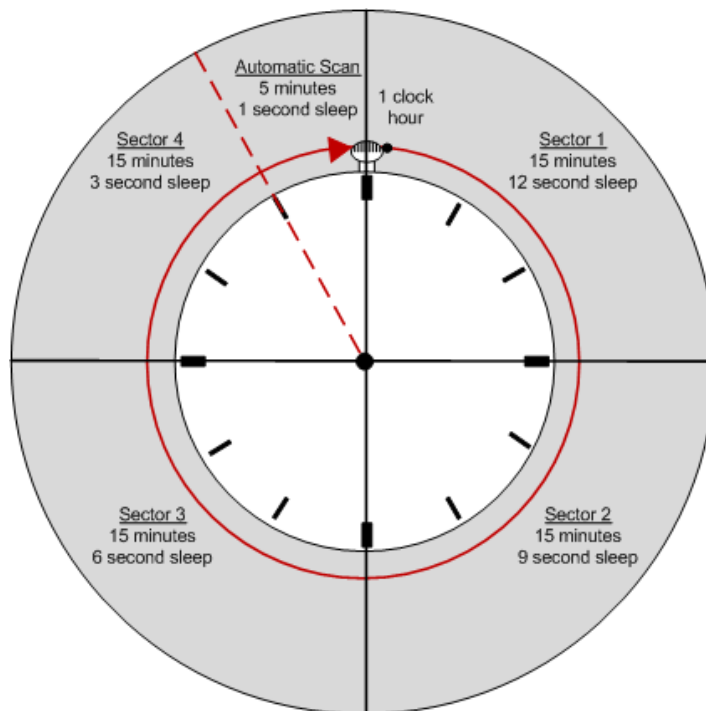


Figure 253 Commercial Minutage Protection Service - Service Frequency

Note: Panoplay compatibility. An instance of the service can be configured on both the Leader and Follower channels, but only the instance on the Leader will be operational.

14.7 Delay Shadow Channel Service

Allows Morpheus to 'shadow' a channel with a configurable delay.

As a top level event is marked as complete, Morpheus copies it across to a new channel that has a time offset. Its sources are set to the delay server, and its Subevents are also disabled. This feature effectively allows a schedule to play out in advance so that if there is a problem, the exact schedule is now available in the shadow channel but a few hours delayed (the exact time it is due to go to air) so that it can be manipulated to fix any issue. The user can then select a video server instead of the delay server, and enable any secondary content. The Device Manager allocates any secondary devices.

Note: This service is compatible with Panoplay.

The following configuration is available for this service:

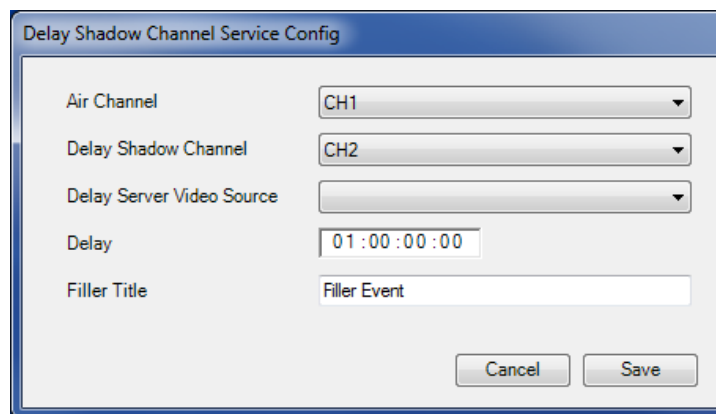


Figure 254 Delay Shadow Channel Service Configuration

The following configuration settings are available:

- Air channel

Select the original channel.

- Delay Shadow Channel

Select the channel to use as the delay channel.

- Delay Server Video Source

Select the video source for the delay server.

- Delay

Select the required time delay.

- Filler Title

Select a title for use in the Editor where the delay channel does not know which event was originally playing out.

14.8 Device Manager Service

The 'Device Manager' service manages the allocation of devices to events in order to make optimum use of resources and eliminate conflicts in a multi channel environment. It also detects conflicts.

It only selects a device that:

- Is enabled for the relevant channel and is connected.
- Supports the kernel class Id of the Event Type (the 'kernel class ID' is a three digit number that informs the system of the parameters that relate to a device - refer to page 52)

14.8.1 General Tab

Using the General tab, the Device Manager service can be configured to re-allocate events that have an overlap, where the device is disconnected, or where the device has a diary entry that means it is not allowed to be used. The diary entry can allocate the device to a different channel, or take the device offline for maintenance.

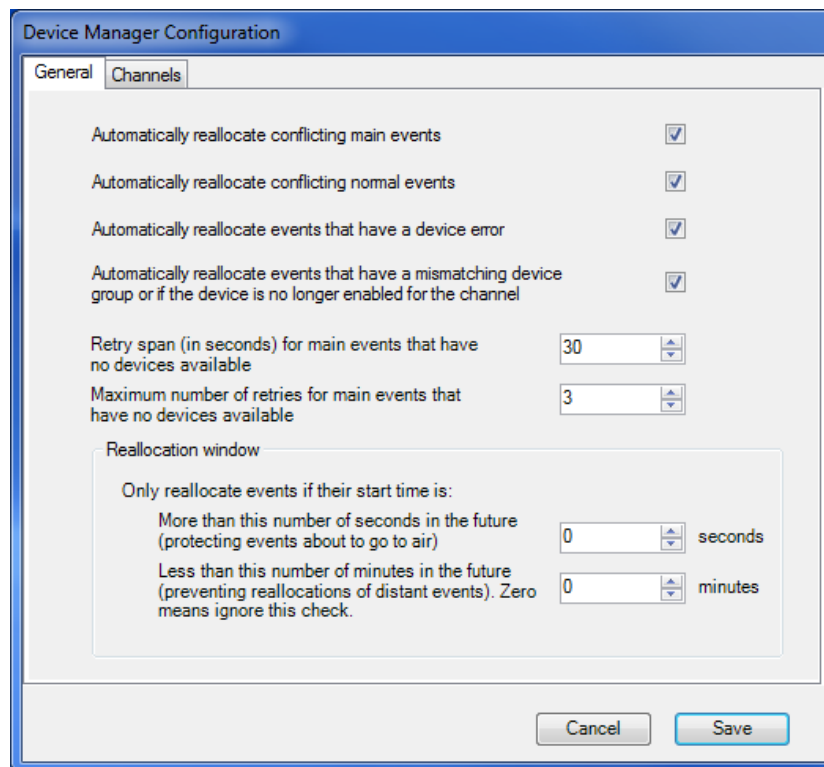


Figure 255 Device Manager Service Configuration - General Tab

View the allocation of devices using the Morpheus 'Device Manager Viewer' application (refer to Section 17. Device Manager Viewer).

Reallocation Window

This service also allows the user to reallocate or protect events based on the length of time remaining before they are due to go on-air, as follows:

- More than this Number of Seconds in the Future

If the user does not want events to be reallocated very close to the start time, this value can be set to a minimum number of seconds. Events that are due to start less than this number of seconds in the future are not reallocated. This protects events that are about to go on air.

- Less than this Number of Minutes in the Future

If the user does not want to reallocate events that are in the distant future, this value can be set to a minimum number of minutes. Events that are due to start at a time that is greater than this number of minutes in the future, are not reallocated. A value of zero ignores this check.

14.8.2 Channels Tab

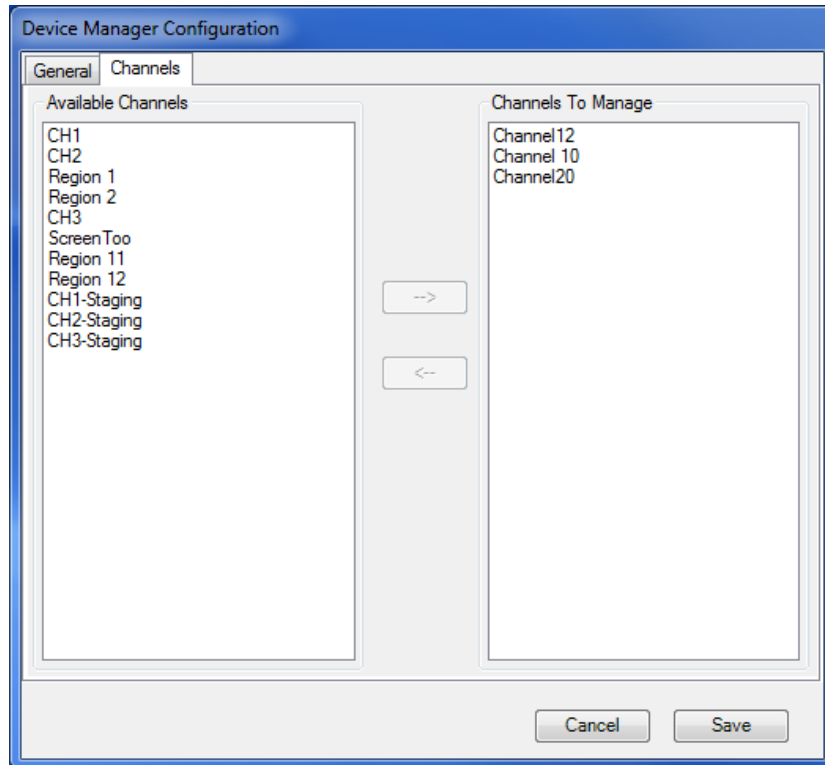

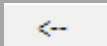


Figure 256 Device Manager Service Configuration - Channels Tab

To select the channels to manage:

1. On the Channels tab, under **Available channels**, select the channels to manage.
2. Click on  . The channels appear under **Channels to Manage**.

Note: To prevent a channel from being managed, select it under **Channels to Manage** and then click on  .

14.9 Eng Log Collector Service

The Eng Log Collector service creates a log for diagnostic purposes (refer to 'Engineering Log' on page 572).

The service can be configured to either write the engineering log to the AsRun database or to a file.

If the service is configured to write the log to a file, the messages are taken directly from the EventStore.

If the service is configured to write the log to the AsRun database, the Automation Database Reporter application (refer to page 569) needs to be running. The Automation Database Reporter takes the information from the AsRun database and writes the log to a file.

It is recommended that the Eng Log Collector Service is configured to add the log to the database - the Automation Database Reporter can then be used to write the log to a file.

14.9.1 Configuring the Eng Log Collector Service

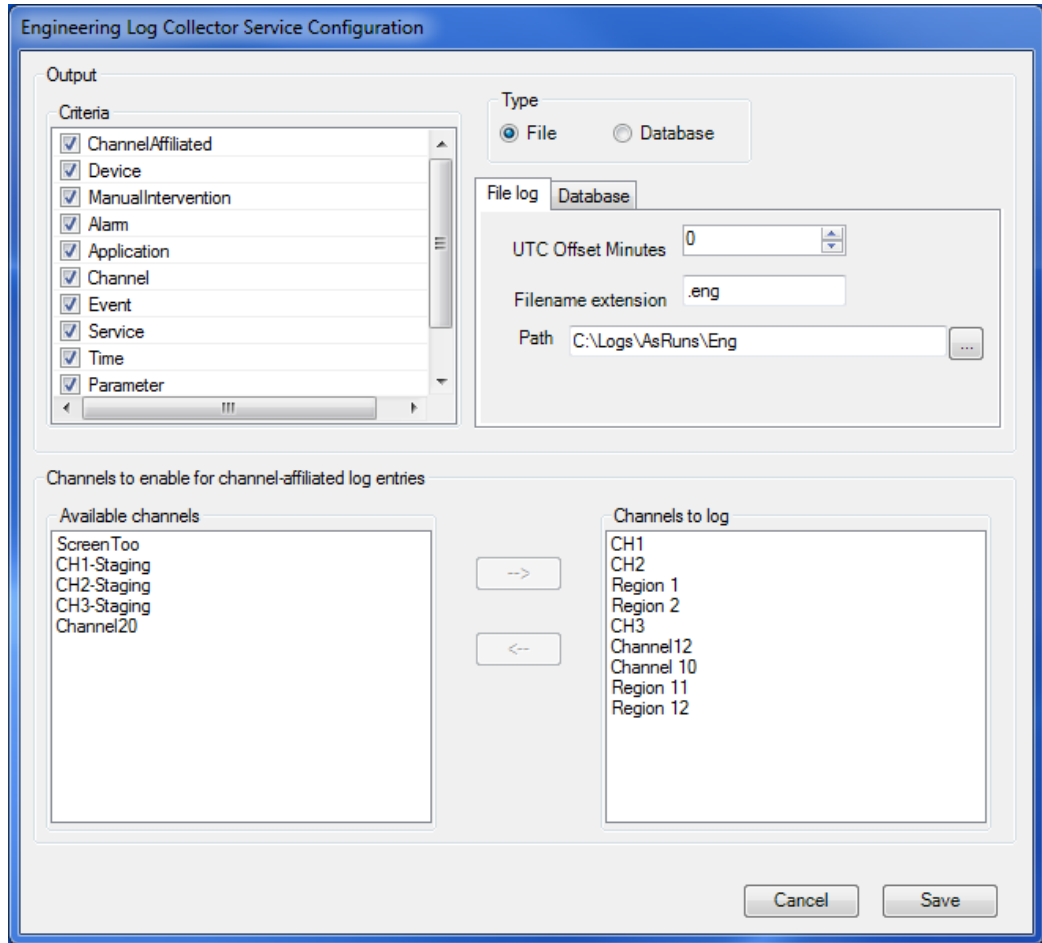


Figure 257 Eng Log Collector Service Configuration

- Criteria

Select the criteria to include in the log.

- Type

Select to write the log to a file or to a database. The file and database options are described below.

- File Log Tab

- UTC Offset Minutes
‘UTC’ (Coordinated Universal Time) is the time standard by which the world regulates clocks and time. The ‘UTC offset’ allows each channel in a system to use a different offset from an overall time of day timecode reference. This is useful in situations where regional channels are in different time zones. Enter the required offset in minutes.
- Filename Extension
Enter the preferred extension for the log file. The default is **.eng**.
- Path
Enter a path to specify the location to store the log. The default path is **C:\As Run Logs\Engineering**.

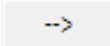
- Database Tab

Connection string: enter the connection string for the AsRun database table.

- Channels to Enable for Channel-Affiliated Log Entries

Select the channels to log.

Under **Available channels**, select the channels to log.

Click on  .

The channels appear under **Channels to log**.

To remove a channel, select it under **Channels to log** and then click on  .

Note:

View entries in the engineering log using the Engineering Log option in the Configurator (refer to page 148).

14.10 Event Journal Collector Service

A service that is used by the Panoplay functionality to collect and generate As-run logs for both Leader and Follower channels. Refer to Section 16. Panoplay for further information.

Configure the services as follows:

1. Select a channel from the drop-down list as shown below:

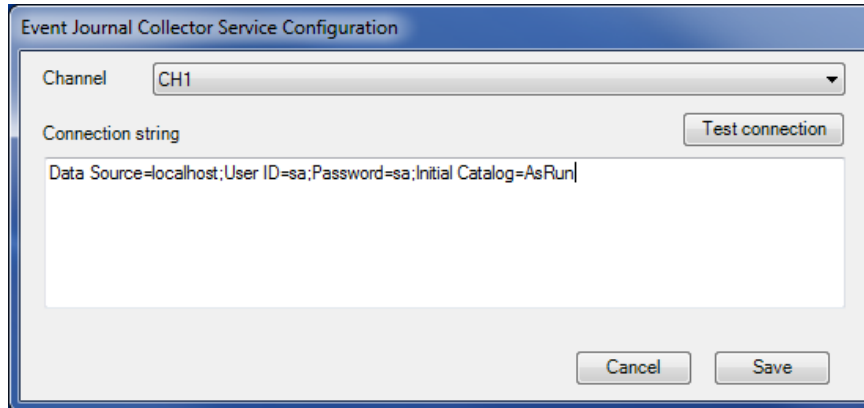


Figure 258 Event Journal Configuration

2. Ensure that the connection string is correct using the Test Connection button.
3. Click on **Save**.

Note:

To use the Event Journal Collector Service, the As-run DB Service must be disabled **before** creating an Event Journal Collector service in order to prevent it from collecting the Panoplay events.

The As-run DB Service only needs to be turned off or on for each channel that is using it. The As-run DB Service can be run on other channels, but the Event Journal Collector Service and the As-run DB Service cannot be run on the same channel at the same time.

14.11 External Morpheus Alarms Service

A service to provide external alerts. These alerts are intended to notify operators about certain error conditions with Morpheus.

The alerts can take the form of:

- An email
- An event in the Morpheus schedule
- A log file

The possible alarm conditions are:

- Material is not available
- Device is disconnected
- Device allocation error
- Live event
- Event error
- Event validation error

14.11.1 Configuring the External Morpheus Alarms Service

1. Select a channel to monitor from the drop-down list as shown below:

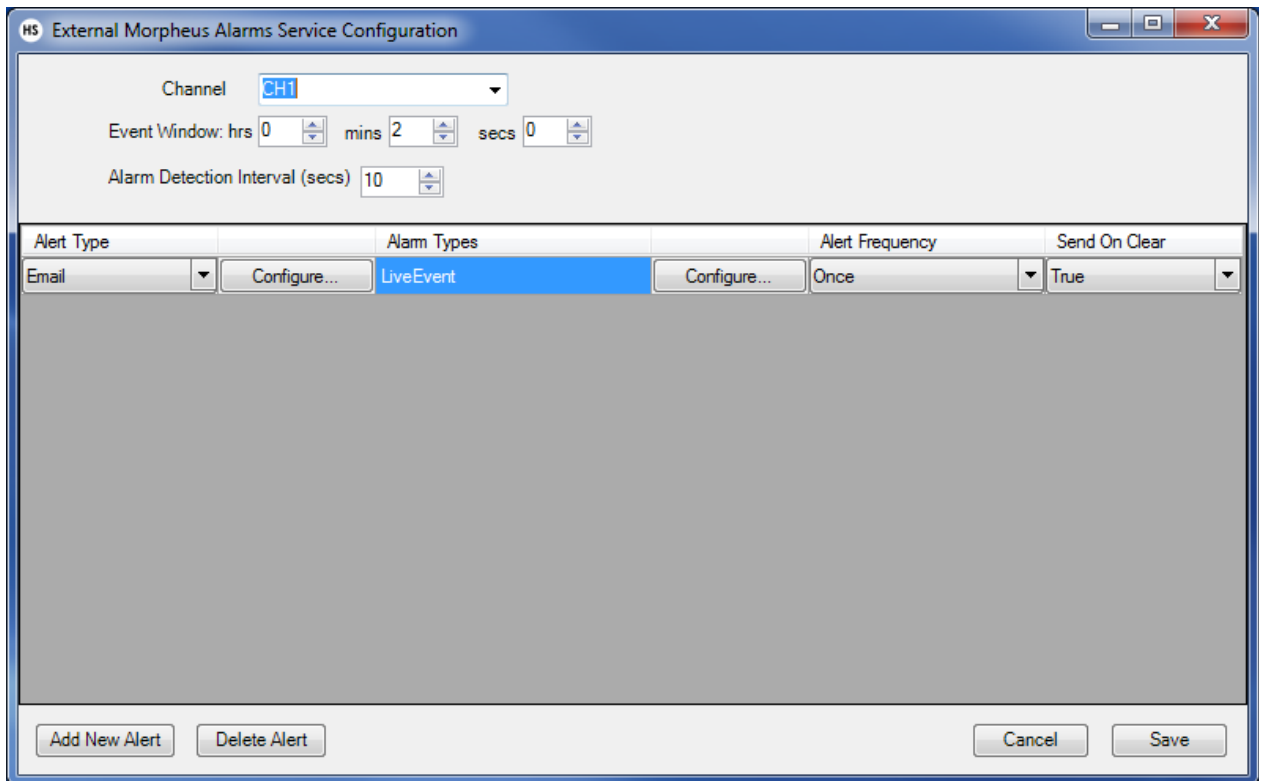


Figure 259 External Morpheus Alarms Service Configuration Window

2. Select an Event Window, i.e. the length of time starting from the current time during which events are checked for alarm conditions.
3. Select the Alarm Detection Interval, i.e. the interval in seconds for which the events are checked for alarm conditions. For example, if this option is set to 10 seconds, then every 10 seconds, the service checks for any error conditions on the configured channel.
4. Add a new alert type as required by clicking on the **Add New Alert** button. All current alerts are displayed in the list.
5. Configure the alert as described below.
6. Click on **Save**. The service is now configured.

The following attributes can be configured for each alert:

- **Alert type** - such as email, file or event insertion
- **Alarm type** - a list of the different scenarios that can trigger an alert
- **Alert frequency** - sets how often the alert is generated
- **Send on Clear** - sets whether to send an alert after the alarms are cleared

14.11.2 Alert Types

- Email
- Event Insertion
- File

14.11.2.1 Email Alert

An alert to create and send email containing all newly detected alarms, cleared alarms and any outstanding alarms, including a time stamp for each entry.

Create an email alert as follows:

1. In the Alert Type column, click on the drop down list, select **Email**, then click on the adjacent **Configure** button. The following form is displayed:

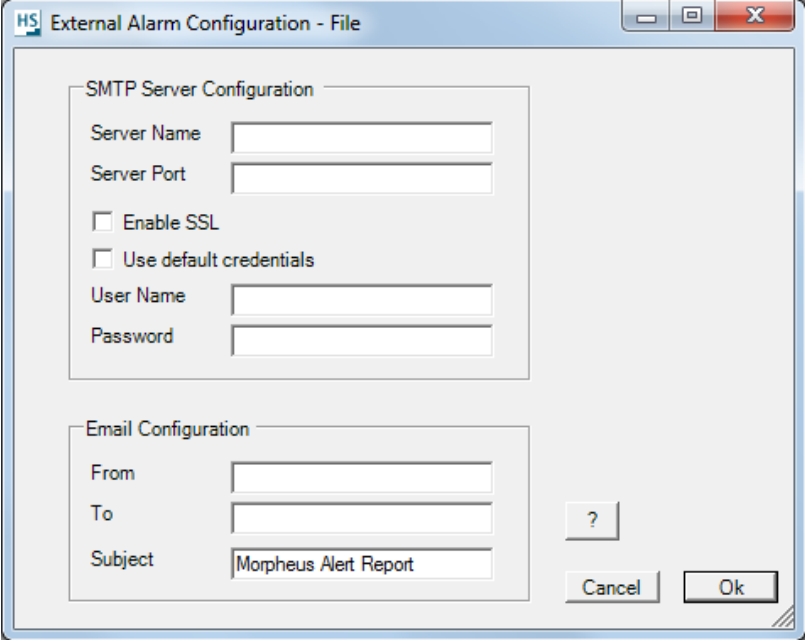


Figure 262 File Alert Configuration

2. In the SMTP Server Configuration section, set the SMTP options required in order to connect to the email account to use with the service:

- Server Name

The name of the mail server, e.g. *smtp.domain.com*

- Server Port

The port number on the server for SMTP traffic, typically port 25, 587, or 465 (for use with SSL).

- Enable SSL

Enable encryption over the Secure Sockets Layer (SSL).

- Use Default Credentials

Use the credentials of the user that is currently logged in. If ticked, the User Name and Password fields are greyed out.

- User Name

Set a user name for authentication to the mail server.

Note:

If Use Default Credentials is disabled, then a valid user name must be entered - it is not possible to save the configuration if this field is left blank.

- Password

Set a password for authentication to the mail server.

Note:

If Use Default Credentials is disabled, then a valid password must be entered - it is not possible to save the configuration if this field is left blank.

3. In the Email Configuration section, set the From, To, and Subject fields for the email. These details are also useful in order for the recipient to create email rules. If sending to multiple recipients, separate the email addresses using a semi-colon followed by a space.

Example

b.dickinson@company.com; s.harris@company.com

4. Click on **OK** to save the settings.

14.11.2.2 File alert

An alert to create a summary file containing all newly detected alarms, cleared alarms and any outstanding alarms, including a time stamp for each entry.

Create a file alert as follows:

1. In the Alert Type column, click on the drop down list, select **File**, and click on the adjacent **Configure** button. The following form is displayed:

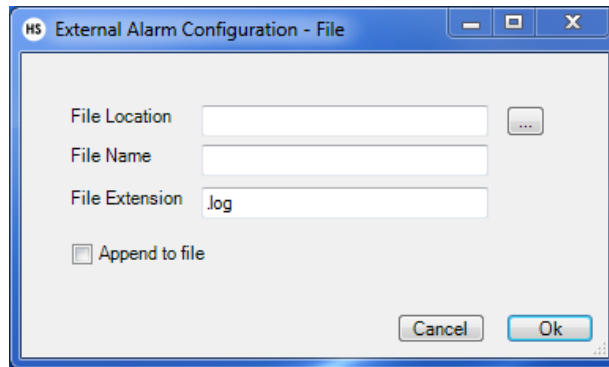


Figure 265 File Alert Configuration Form

2. Set the location for the alert file by typing in a file location path or by using the browse button in the **File Location** field.
3. Enter a name for the file in the **File Name** field.
4. Enter a file extension for the file in the **File Extension** field. The default is .log.
5. Select the append to file option in order to add the new alert summary to the end of the existing file. Otherwise, the file is overwritten each time a new alert summary is created.
6. Click on **OK** to save the settings.

14.11.2.3 Event Insertion Alert

An event that creates a new Subevent in the schedule when any alarm condition for either the main event or any of its child events is detected.

If the main event is playing out when the alarm is detected, the new Subevent plays out two seconds later. If the main event is not playing out, the new Subevent is inserted with a start time offset as configured in the Event Type.

When the service first starts, it search the schedule for the existence of any events that are of the Event Type configured for insertion on alarm detection and clearance. If any events are found, they are deleted. Therefore, it is important that the Event Types used by this service are not used elsewhere in the schedule.

Note: It is highly recommended that the service contains only one event insertion alert at a time.

To create an event insertion alert:

1. In the alert type column, click on the drop down list, select **EventInsertion**, then click on the adjacent **Configure** button. The following form is displayed:

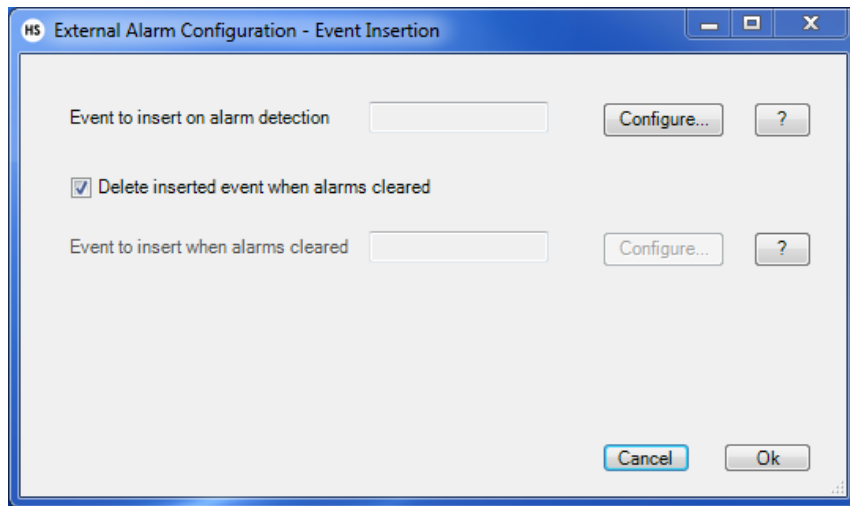


Figure 268 Event Insertion Configuration From

2. Click on the **Configure** button next to the 'Event to insert on alarm detection' option and select the required event from the list. Click on **OK** to save the event settings. This Event Type is displayed in the schedule under the relevant main event when any alarm condition for either the main event or any of its child events is detected.
3. Select the 'Delete inserted event when alarms cleared' option in order to delete the previously inserted Subevent when all alarms are cleared for all events in the hierarchy beneath the relevant main event.
4. Alternatively, click on the **Configure** button next to the 'Event to insert when alarm cleared' option and select the required event from the list. This Subevent is inserted under the relevant main event when all alarms are cleared for all events in the hierarchy. This option is only available when the 'Delete inserted event when alarms cleared' option is not selected.
5. Click on **OK** to save the settings.

Note: For this alert type, the 'Alert Frequency' option is always set to 'Once' and the 'Send On Clear' option is always set to 'True'. These settings cannot be changed.

14.11.3 Alarm type

Configures the different scenarios that will trigger an alert.

To configure an alarm type:

1. Click on the **Configure** button adjacent to the Alarm Type. The following form is displayed:

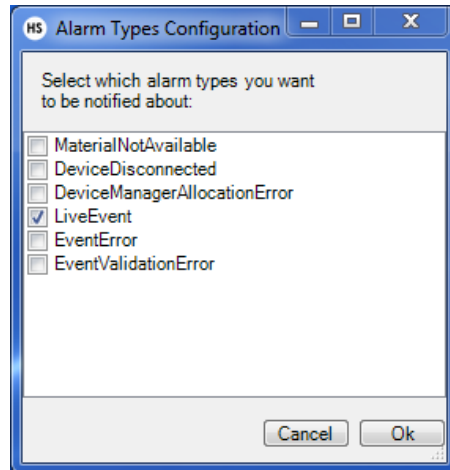


Figure 271 Alarm Type Configuration Form

2. Select the required alarm types from the list. The alarm types are:
 - a) **MaterialNotAvailable** - If the material for an event is not on the required server and this is detected within the time window, an alarm is generated.
 - b) **DeviceDisconnected** - When an event reporting a device status of disconnected is detected within the time window, an alarm is generated.
 - c) **DeviceManagerAllocationError** - When an event reporting a device allocation error is detected within the time window, an alarm is generated. This error is only set by the Device Manager when it cannot allocate a device for the event.

Note: When a controller device allocation conflict exists, this is reported as an EventError as described below.

- d) **LiveEvent** - When an event reporting a material type of 'live' is detected within the time window, an alarm is generated.
 - e) **EventError** - When an event reporting a failure status is detected within the time window, an alarm is generated.
 - f) **EventValidationError** - When an event reporting a validation error is detected within the time window, an alarm is generated.
3. Click on **OK** to save the settings.

14.11.4 Alert Frequency

To configure a frequency for an alert type, select a frequency from the drop-down list as shown below:

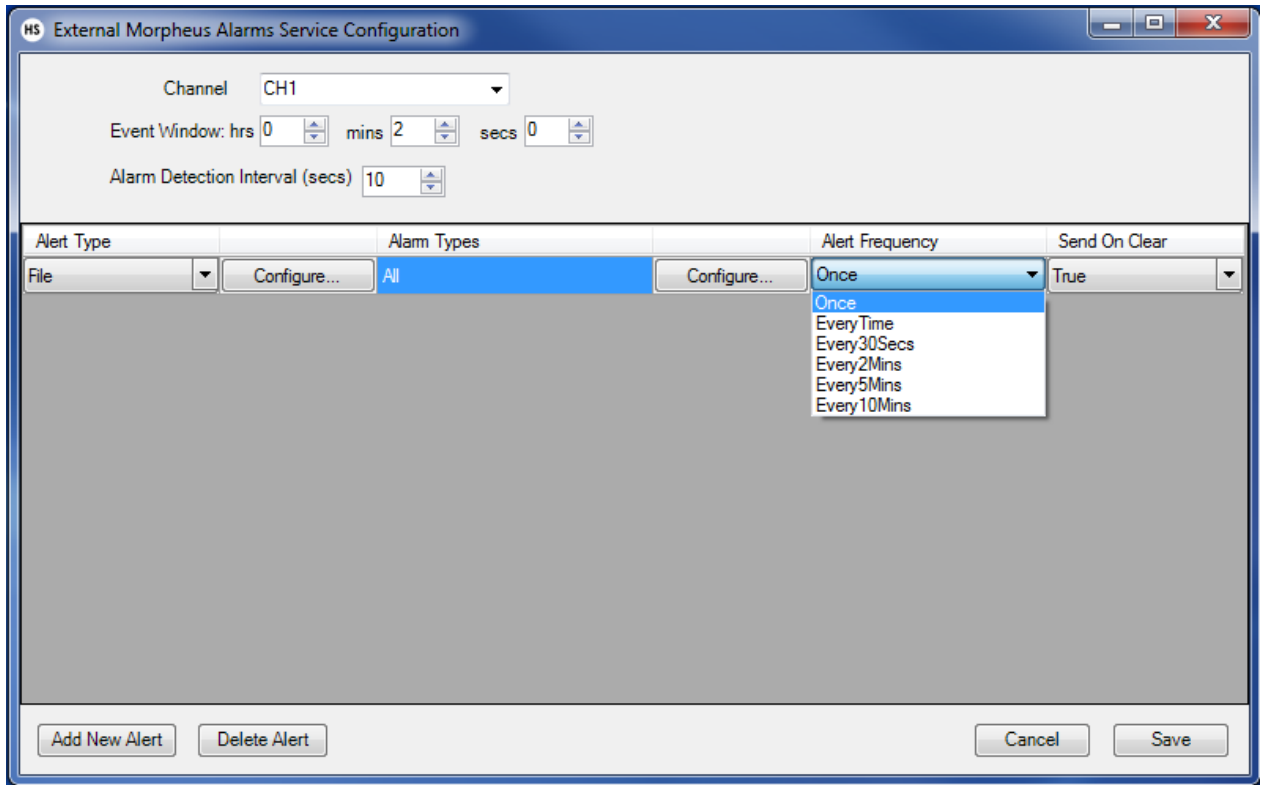


Figure 274 External Morpheus Alarms Service - Alert Frequency

Any newly detected alarms cause an alert report to be sent immediately, but for any recurring alarm conditions, the service sends an alerts at the configured interval.

The only exception is the 'Every Time' option. For this option, every time an alarm is detected (whether it has been previously detected or not) an alert is sent. Therefore, the frequency of this alert depends on the Alarm Detection Interval value.

14.11.5 Send On Clear

To configure the service to send an alert when the alarms are cleared, set this option to true.

14.11.6 Deleting an alert

To delete an alert, click on the **Delete Alert** button.

14.12 Generic Validation Service

The Generic Validation Service is used to validate events. If it finds any errors or warnings it places icons in the **Validation** column on the Editor schedule to indicate these.

Note:

The manner in which the validation icons appear from the Editor application can be configured. Select **Tools > Configuration** and under **Channels**, click on the required channel. Click on the **Columns** tab. Set the validation options as required (refer to page 343).

There are various types of Generic Validation service. These are:

- Pbak Event Validation
- Mixer Event Validation
- Omneon Event Validation
- FTP Event Validation
- UNC Event Validation
- Priority Source Validation
- Clip Size Validation

14.12.1 Configuring the Generic Validation Service

14.12.1.1 The General Tab

Use the General tab to select the type of service to validate and to apply settings to that type. Each option is described in Table 26.

The screenshot shows the 'ValidationConfigForm' dialog box with the 'General' tab selected. The 'Validation Service Type' is set to 'Pbak Event Validation'. The 'Device Transaction min. Period' is set to 1, with a value range from 1 to 500. The 'Background Schedule Validation min. Period' is set to 1, with a value range from 0 to 20. The 'Initial Processing Delay' is set to 5 sec, with a value range from 0 to 20. The 'Maximum Items to Process' is set to 10, with a value range from 0 to 200. The 'Priority Window' section includes a 'Priority window period' set to 05:00:00:00 and a 'Priority workload %' set to 60. The dialog box has 'Cancel' and 'Save' buttons at the bottom right.

Property	Value
Validation Service Type	Pbak Event Validation
Device Transaction min. Period	1
Background Schedule Validation min. Period	1
Initial Processing Delay	5 sec
Maximum Items to Process	10
Priority window period	05:00:00:00
Priority workload %	60

Figure 277 Generic Validation Service Configuration Form - General Tab

The following table contains the available options:

Option	Description
Validation Service Type	Select the type of service to validate. The options on the Type tab change, depending on the Validation Service Type selected.
Device Transaction min. Period	<p>The minimum amount of time, in milliseconds, between sending query messages to the device. If a device is slow or unresponsive, it is recommended that this value is changed to 20ms.</p> <p>The recommended setting for the Mixer, Omneon and Pbak validation service types is 1 ms.</p>
Background Schedule Validation min. Period	<p>The period in minutes during which the entire schedule is revalidated. If this is set to 0, background schedule validation is disabled.</p> <p>The recommended setting for the Mixer type is 0 minutes.</p> <p>The recommended setting for the Omneon type is 5 minutes.</p> <p>The recommended setting for the Pbak type is 1 minute.</p>
Initial Processing Delay	<p>When the service loads, this is the time in seconds before the first message is sent to the device.</p> <p>The recommended setting for the Pbak, Mixer and Omneon validation service types is 20 seconds.</p>
Maximum Items to Process	<p>The maximum number of validations that can be processed in one transaction.</p> <p>For example, 100 items might be awaiting validation with a Maximum items to Process value of 10. The service would process 10 items 10 times. There would be a delay between each item equalling the Device Transaction min. Period value.</p> <p>The recommended setting for the Mixer and Pbak types is 100 items.</p> <p>The recommended setting for the Omneon type is 10 items.</p>
<u>Priority Window:</u> Priority Window Period	Events are prioritized for validation if their start time falls within the configured window. The service checks these events more frequently than those outside of the window.
<u>Priority Window:</u> Priority Workload	Configure the workload distribution of the service. The percentage of time on priority events can be modified as required with the remainder left for background checks.

Table 26 Generic Validation Configuration Options

14.12.1.2 The Type Tab: Pbak Event Validation

A service to check for the presence of scheduled content on the specified devices and warn an operator of missing material.

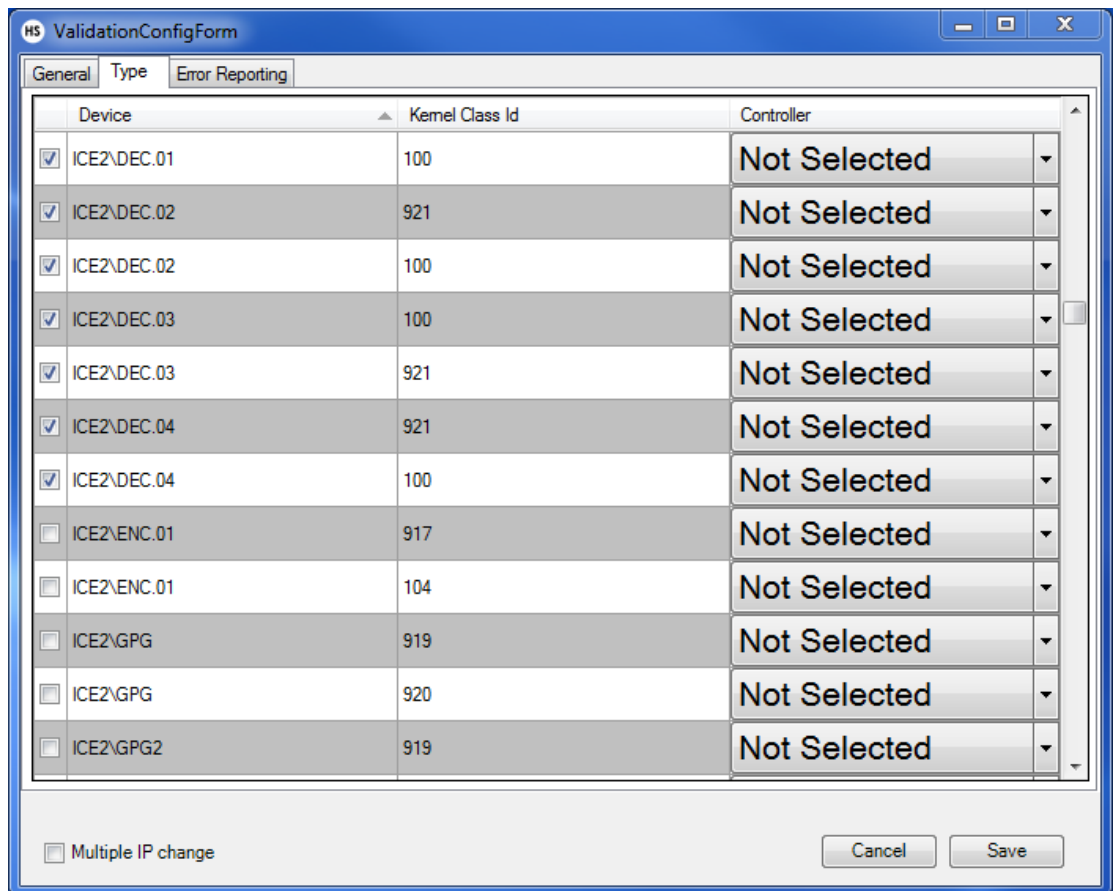


Figure 278 Generic Validation Service - Type Tab: Pbak Event Validation

The validation process operates as follows:

1. The service calls down to the controllers passing the event information.
2. The controllers call in to the device to validate the presence of the scheduled content.
3. The result of this call is passed back to the Pbak Validation Service and the Editor is updated accordingly.

The functionality of the validation call depends on how this has been implemented in the controller. For most drivers this is a simple check for the presence of a file on the device. For other devices, such as a subtitle, this may involve an additional check that the file is available for layout in a specified language.

To configure the service:

- Select the check box for the required device.
- Select the controller from the list.
- Enter the Kernel Class ID. The 'kernel class ID' is a three digit number that informs the system of the parameters that relate to a device. It is a label for the kernel parameters - a list of parameters that the kernel (refer to page 169) needs to control the device.

14.12.1.3 The Type Tab - Mixer Event Validation

A service to flag and optionally fix the schedule if secondary events (refer to page 648) affect the timelines of the main transition.

This may occur under the following conditions:

- Excessive time is taken by a mixer to transition a bus (for example, PGM, DSK or AOV) on or off air.
- A mixer does not support simultaneous transitions unless they start concurrently.

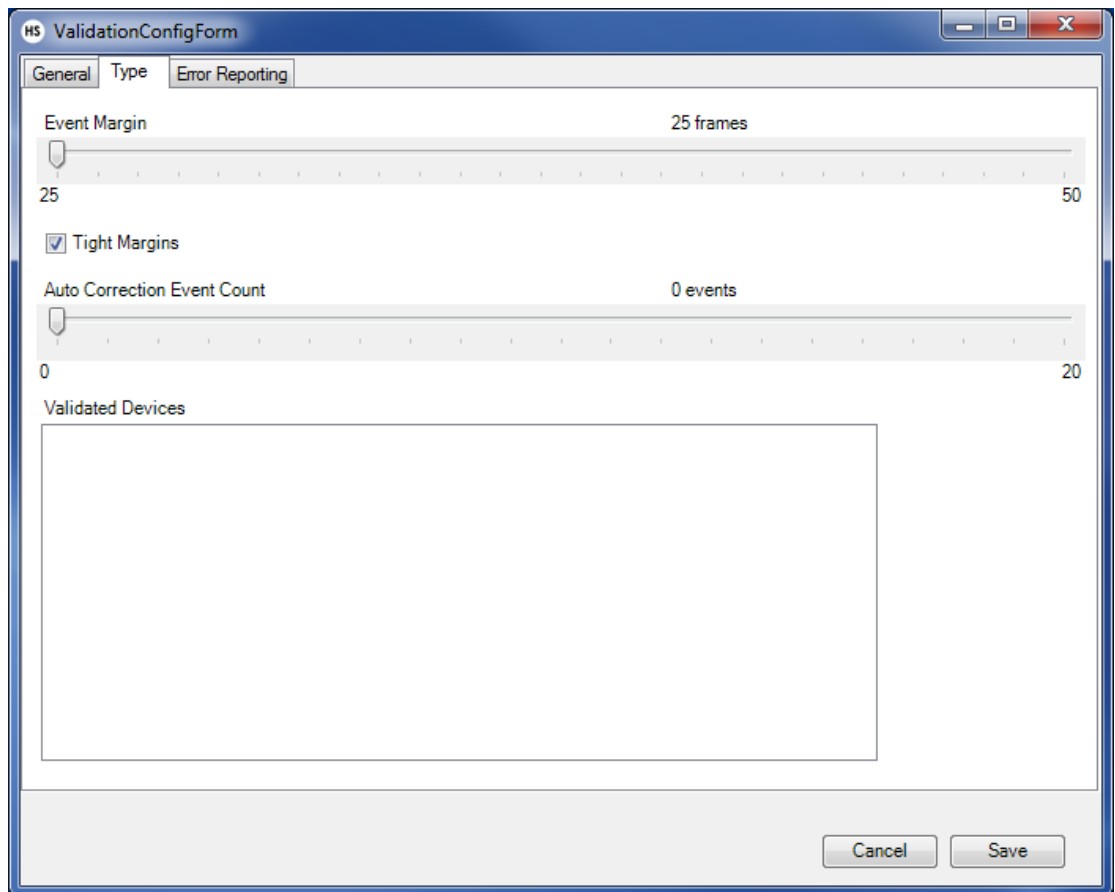


Figure 279 Generic Validation Service - Type Tab: Mixer Event Validation

Note:

A mixer event (such as a DSK event) that is scheduled to start at the same time as its parent main event is the desirable state - transitions that occur on the same frame are acceptable as the mixer devices can process multiple transitions at the same time. One that is scheduled to complete a few frames before, or start a few frames later than its parent main event may cause a delay to the main bus transition due to the delay introduced by the processing. Examples of products on which this can occur are Saturn, Maestro, M2100, and Brand Master.

- Event Margin

The number of frames either side of a main event transition, within which a child mixer event and any of its sub-events will require remedial action, as their start time or end time does not occur at the same time as the transition.

Any such events will be flagged with a warning in the Validation column of the schedule, as defined on the 'Error Reporting' tab (Section 14.12.1.9 The Error Reporting Tab).

Specify a number of frames between 25 and 50.

- Auto Correction Event Count

For those events that straddle the boundary of the 'Event Margin', specify the number of future events in the schedule, counting from the PGM event, that will have their duration or start time offset modified in order for that event's end time or start time to coincide with the transition.

Specify from 0 to 20 events, where 0 disables the 'Auto Correction Event Count'.

- Validated Devices

Tick the checkbox against each device for which this service should run. The service will validate any event that is configured to use the specified device.

- Tight Margins

In some situations, mixer events beyond the transition, and outside of the configured Event Margin, can be mistakenly auto corrected as described above. Should this be undesirable, then enable this feature in order to regulate the behaviour of the 'Auto Correction Event Count'.

Questions and Answers on the Mixer Validation Type

Q. What happens if a DSK is scheduled to turn on one frame after the main transition?

A. The DSK event is aligned to the main transition when it comes within the 'Auto Correction Event Count' of the Program event.

Q. What happens if a DSK is scheduled to turn on at the same time as a transition but has a different fade up rate?

A. It is ignored by the service. The drivers always uses the main event's transition shape and rate. The sub content (AOV, DSK, USK or DVE) will transition with the main event transition.

Q. What happens if a DSK is scheduled to turn off one frame before the main transition?

A. The DSK event is aligned to the main transition when it comes within the 'Auto Correction Event Count' of the Program event.

Q. What happens if a DSK is scheduled to turn off at the same time as a transition but has a different fade down rate (the DSK transition may have started earlier in the driver because of this)?

A. It is ignored by the service. The drivers must always use the main event's transition shape and rate. The sub content (AOV, DSK, USK and DVE) will transition with the main event's transition.

Note:

As a rule, when a mixer SubeventSubevent comes within the 'Auto Correction Event Count' and is within the 'Event Margin' of a main transition, it is aligned to the main transition. When the sub content transitions to air, it uses the main event's transition rate and shape.

14.12.1.4 The Type Tab - Omneon Event Validation

This service uses Omneon Media and Player APIs to validate the content on the Omneon that is scheduled for playout.

The screenshot shows the 'ValidationConfigForm' dialog box with the 'Type' tab selected. The 'Error Reporting' sub-tab is also active. The configuration includes:

- Clip Directory: \Omneon\clip.dir
- Essence Directory: \Omneon\clip.dir\media.dir
- Director Name: 10.1.0.123
- Player Name: Play_1
- Essence Validation Type: All audio expressions and all essence
- Validate in-points and out-points
- Convert Timecode [60 fps -> 30 fps]
- In-point Tolerance +/- frames: 0
- Out-point Tolerance +/- frames: 0
- Omneon Timecode Mode: Default, First Frame
- List of files to validate:
 - AfterBurner
 - ICE1\AUD.01
 - ICE1\AUD.02
 - ICE1\AUD.03
 - ICE1\AUD.04
 - ICE1\DEC.01
 - ICE1\DEC.02
 - ICE1\DEC.03
 - ICE1\DEC.04
 - ICE1\PVW
 - ICE1\VID.01

Figure 280 Generic Validation Service - Type Tab: Omneon Event Validation

The service validates the following:

- Inpoints (refer to page 645), outpoints (refer to page 645) and duration.
- The file ID.
- Essence files - video and audio files that are contained within a wrapper. For example, an Omneon uses a .mov wrapper that contains metadata about the MPEG video essence file and the AIFF audio essence files.

Each field on the Type tab described below.

Option	Description
Clip Directory	The directory for the file ID. The file ID is the name that the system uses to locate a file on the video server.
Essence Directory	The directory for the essence files.
Director Name	The Omneon director name.
Player Name	The player port that the service connects to. We recommend a player port that is used for preview or not used at all for validation. This ensures minimum impact on playout.
Omneon Remote Port	The Omneon remote port. Note: Omneon only supports a x86 version of ompplib.dll and ommedia.dll . The default setting is 3000. If more than one Omneon Validation Type is running on a single machine, this port number must be unique for each service. For example, Omneon Validation Service 1 could use 3000 and Omneon Validation Service 2 could use 3001.
Essence Validation Type	Essence files can be validated using one of the following options: <ul style="list-style-type: none"> All audio expressions and all essence: for events with audio expression parameters, this validates all expressions. For events without audio expression parameters, this validates all essence files. All audio expressions and all in routing table: for events with audio expression parameters, this validates all expressions. For events without audio expression parameters, this validates using expressions in the routing table. First audio expression and all essence: or events with audio expression parameters, this validates using the first expression in each tag only. For events without audio expression parameters, this validates all essence files. First audio expression and all in routing table: for events with audio expression parameters, this validates using the first expression in each tag only. For events without audio expression parameters, this validates using expressions in the routing table. All essence: validates all essence files for all events. All in routing table: validates all events using expressions in the routing table.
Validate in-points and out-points	When selected, the service checks that an event's inpoint or outpoint is not before or after the end of the clip.
Convert Timecode [60 fps ->30 fps]	In order to maintain compatibility with the Morpheus system and the Media database, data that relates to clips stored on an Omneon at 60 frames per second is converted to 30 frames per second when this service (the Omneon variant of the Generic Validation Service) checks the data returned from the Omneon device with that stored in the Media Database.
In-point/Out-point Tolerance +/- frames	Allow for a margin of error on the material. For Grass Valley use only.
Omneon Timecode Mode.	<ul style="list-style-type: none"> Default: the first frame inpoint time in the header. First Frame: the first frame inpoint time in the media.

Table 27 Omneon Validation Type Settings

Option	Description
Devices	A list of devices is displayed at the bottom of the window. Select the check boxes of all of the devices to which the settings are to be applied.

Table 27 Omneon Validation Type Settings

Note:

To view the error message associated with an event failing validation, add the string parameter 'ValidationMessage' to the relevant Omneon events.

This parameter should also be set to **Visible** as follows: on the Configurator toolbar, click on **Configure Events**, and from the list on the left, select the appropriate event. Under **Event Type Properties**, select **Visible** and in the **Expression** field, enter the 'ValidationMessage' string. Refer to 'Configurator' on page 50.

14.12.1.5 The Type Tab - FTP Event Validation

The service uses an FTP connection (refer to page 644) to check whether or not a file is present. No other validation is performed. To perform the check, the string parameter **FileId** must be present. This provides the name of the file to look for.

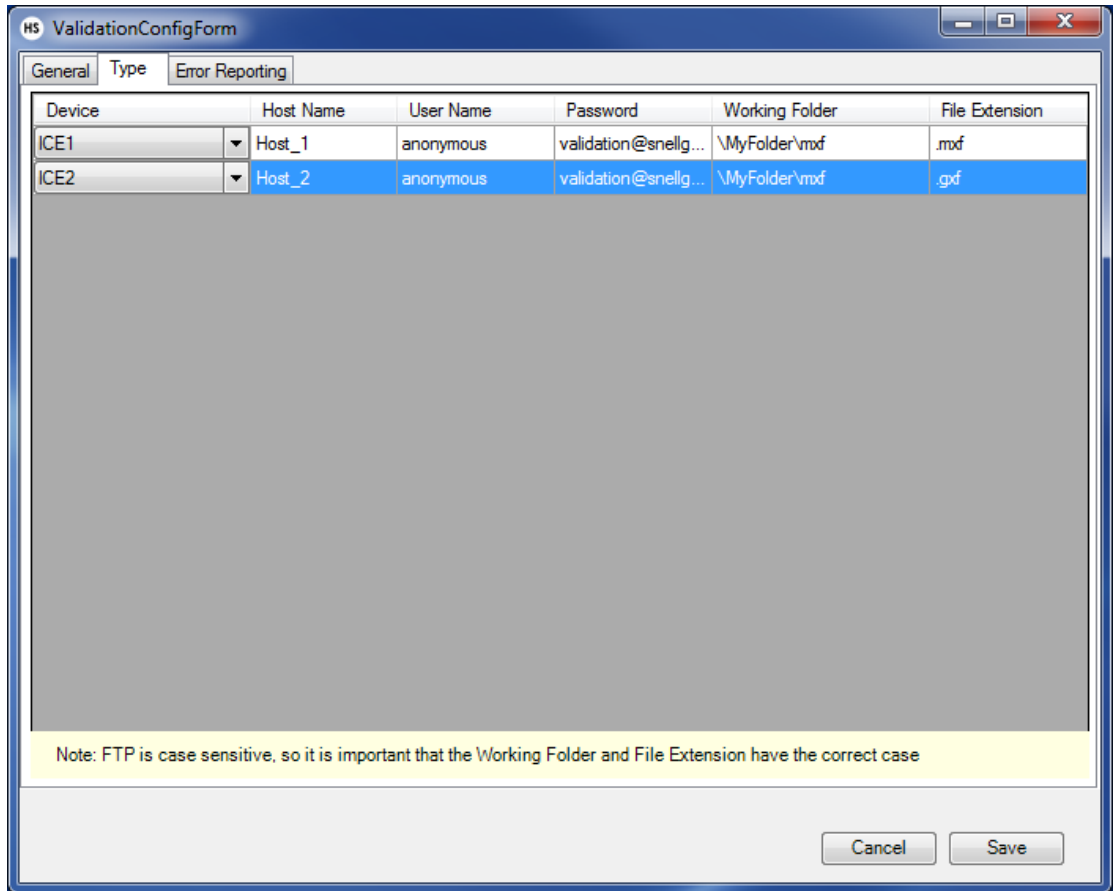


Figure 281 Generic Validation Service - Type Tab: FTP Event Validation

The service connects to the FTP server on the host machine using the supplied Host Name, Username and Password.

The file path has the following components: **/WorkingFolder/FileId.extension**.

Note: If the slashes (\) before/after the working folder are missing, these are added.
If the dot (.) before the file extension is missing, this is added.

After connecting to the FTP service, the service checks for the presence of the files by adding the working folder, file ID and extension together.

Configuration:

To add or remove a device, right click on the background of the Type tab and select either **Add Device** or **Remove Device**.

Note:

FTP is case sensitive so the configuration of the working folder and file extension should be case accurate. The File Ids provided in the event should also be case accurate.

14.12.1.6 The Type Tab - UNC Event Validation

The service uses a UNC (Universal Naming Convention) path to check whether or not a file is present. No other validation is performed. To perform the check, the string parameter **FileId** must be present. This provides the name of the file to look for.

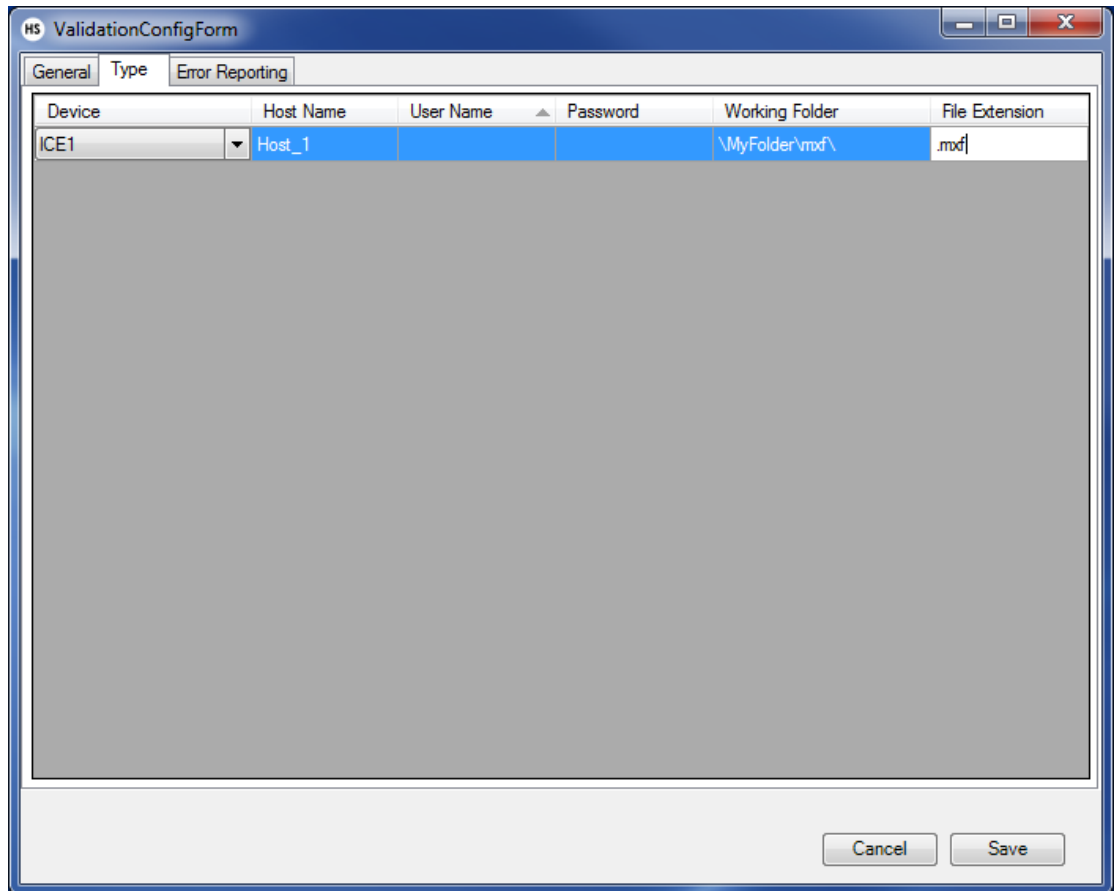


Figure 282 Generic Validation Service - Type Tab: UNC Event Validation

The file path has the following components:

\\HostName\WorkingFolder\FileId.extension

Note: If the slashes (\) before/after the working folder are missing, these are added.

If the dot (.) before the file extension is missing, this is added.

The service attempts to log on with the provided username and password. If it fails to authenticate, it may be necessary to map a drive permanently.

To add or remove a device, right click on the background of the Type tab and select either **Add Device** or **Remove Device**.

Note: UNC is not case sensitive.

14.12.1.7 The Type Tab - Priority Source Validation Type

The service compares the start times of router events on regional channel(s) with those on the master channel to detect any clashes. If any events in the specified time window have the same router destination, the event with the high priority source is allowed while the event with the low priority source is disabled. If there are no priority distinctions between the events, a warning is issued indicating that manual intervention is required.

Note: When making changes to the schedule, regional events are validated immediately. Master channel events are only validated at the next validation cycle time.

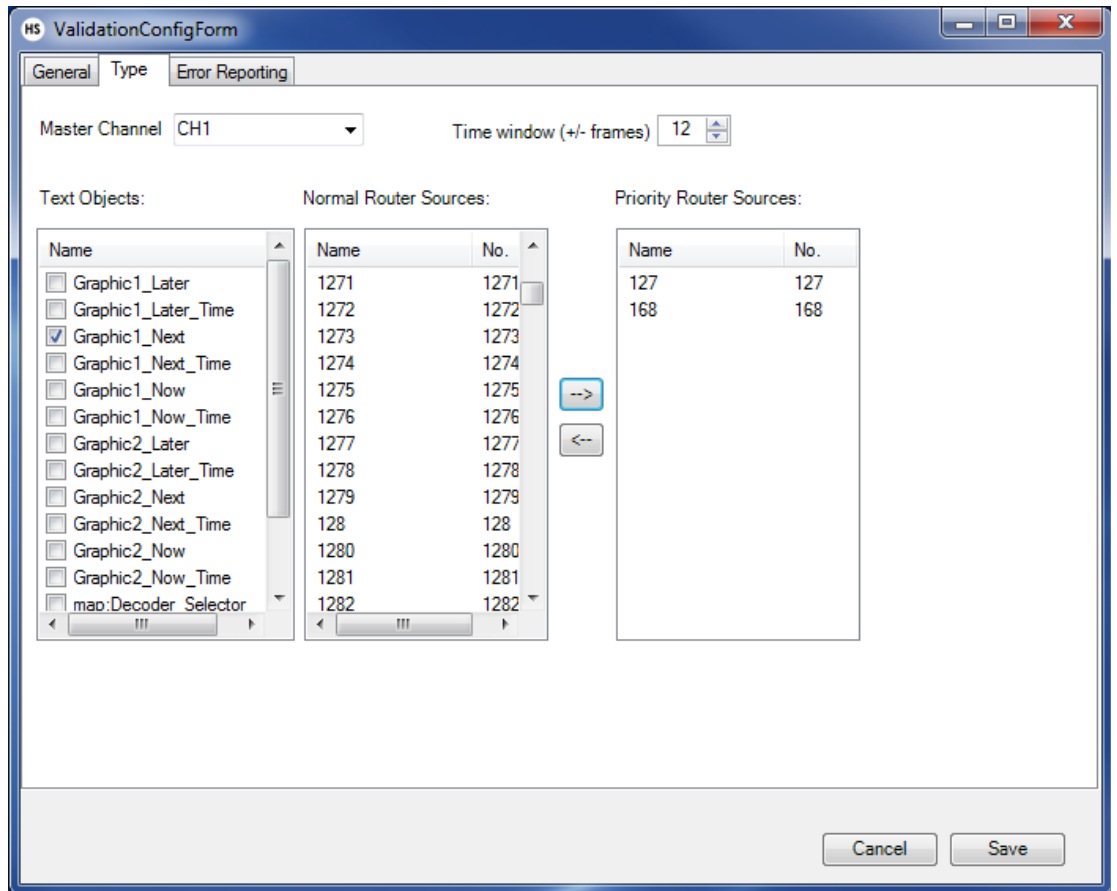


Figure 283 Generic Validation Service - Type Tab: Priority Source Validation

Each field on the Type tab is described below.

Option	Description
Master Channel	Select the master channel that is referred to when the service checks for master channel events.
Time Window	The time, in frames, before and after the regional event's start time. This is the time window within which regional and mater channel router events are compared.
Text Objects	Displays all the available text objects. When a check box is selected for one of these objects, low priority sources appear in the Normal Router Sources list.
Normal Router Sources	Displays of the low priority sources for the object selected in the Text Object list. They are disabled when compared with a high priority sourced event aimed at the same router destination.
Priority Router Sources	Displays all of the high priority sources. These override low priority sources aimed at the same router destination.

Table 28 Generic Validation Configuration - Priority Source Validation Options

Use the left / right arrow controls to move sources between the Normal Router Sources and Priority Router Sources lists. Click on a source in order to select it individually, or use <Ctrl> click or <Shift> click in order to select multiple sources.

14.12.1.8 The Type Tab - Clip Size Validation

Clip Size Validation: A Chain and B Chain Tab

The Clip Size validation type checks sizes of files on Chain A and Chain B, 'main' and 'guard'. The main source is the primary playout source for an event. The guard source is a backup playout device that can be selected if the main source becomes inoperative.

Validation failure implies that the clips differ. The following are validated:

- Device connection - Devices can be connected to use the configured options.
- File exists - The clip exists on both devices.
- File not empty - The clips are not empty (zero file size).

Equal Size - The size of the clip on both devices is within the configured tolerance.

Each tab is described below.

The screenshot shows a Windows-style dialog box titled "HS ValidationConfigForm". It has three main tabs: "General", "Type", and "Error Reporting". The "Type" tab is selected. Inside the "Type" tab, there are five sub-tabs: "A Chain", "B Chain", "Devices", "File Extensions", and "Thresholds". The "A Chain" sub-tab is active. The form contains the following fields:

- UNC Path: [Text Input]
- Username: [Text Input]
- Password: [Text Input]
- Is Omneon device:
- IP Address: [Text Input]
- Director Name: [Text Input]
- Player Name: [Text Input]
- Clip Directory: [Text Input]
- Essence UNC: [Text Input]

At the bottom right of the dialog, there are "Cancel" and "Save" buttons.

Figure 284 Generic Validation Service - Type Tab: Clip Size Validation (A/B Chains)

Option	Description
UNC Path	The UNC (Universal Naming Convention) path to the device's working clip directory.
Username/Password	The username and password required to establish the UNC connection.
Device ID	The device ID of a material event that should trigger Clip Size validation.
Is Omneon Device	Tick the checkbox if the clip is on an Omneon device.
IP Address	The IP address of the device.
Director Name	The Omneon director name.
Player Name	The player port that the service connects to. We recommend a player port that is used for preview or not used at all for validation. This ensures maximum impact on layout.
Clip Directory	The directory for the file ID. The file ID is the name that the system uses to locate a file on the video server.
Essence UNC	The UNC (Universal Naming Convention) for the essence files, video and audio files that are contained within a wrapper. For example, an Omneon uses a .mov wrapper that contains metadata about the MPEG video essence file and the AIFF audio essence files.
Omneon Remote Port	The Omneon remote port. Note: Omneon only supports a x86 version of omplrlib.dll and ommedia.dll. The default setting is 3000. If more than one Omneon Validation Type is running on a single machine, this port number must be unique for each service. For example, Omneon Validation Service 1 could use 3000 and Omneon Validation Service 2 could use 3001.

Table 29 Clip Size Validation Type Settings

Clip Size Validation: Devices Tab

Select the devices for the clip to be validated.

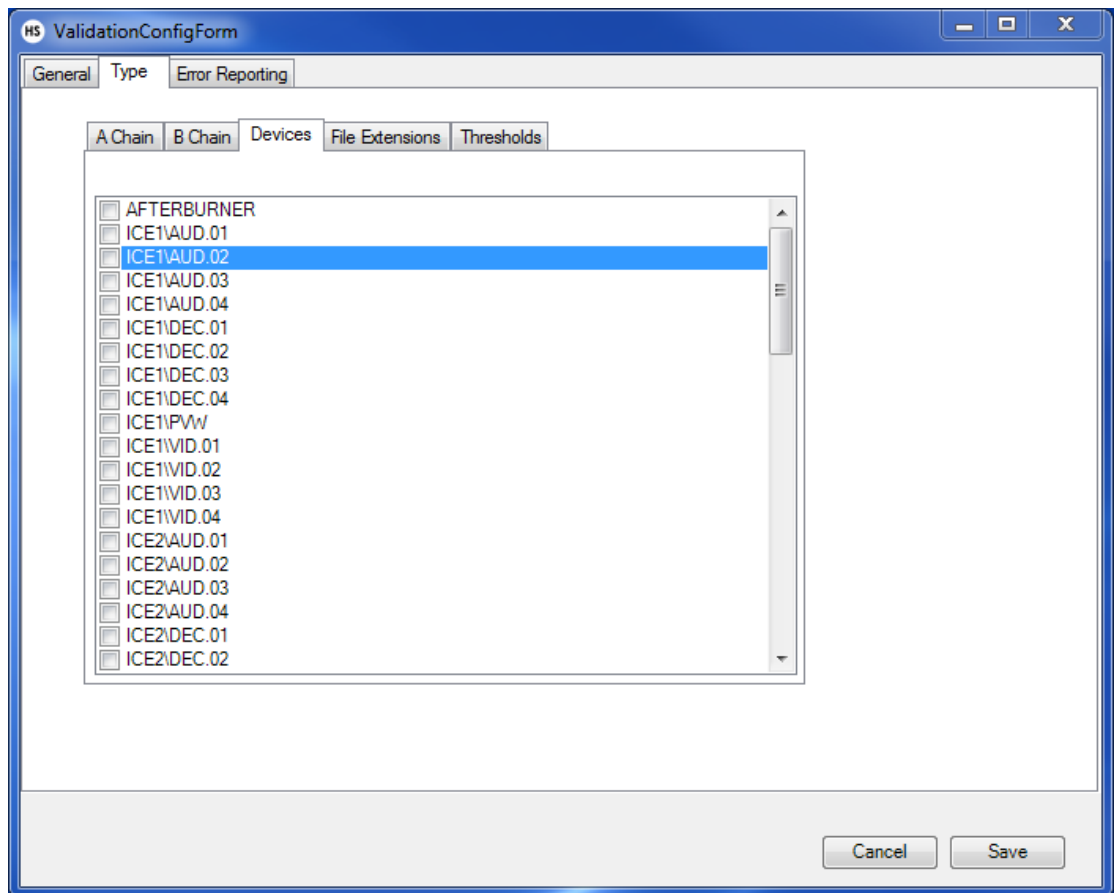


Figure 285 Generic Validation Service - Type Tab: Clip Size Validation (Devices)

Clip Size Validation: File Extensions Tab

Lists the possible file extensions for the clip. To add an extension, type it in the field provided and click on **Add**. To remove an extension, select it and click on **Remove**.

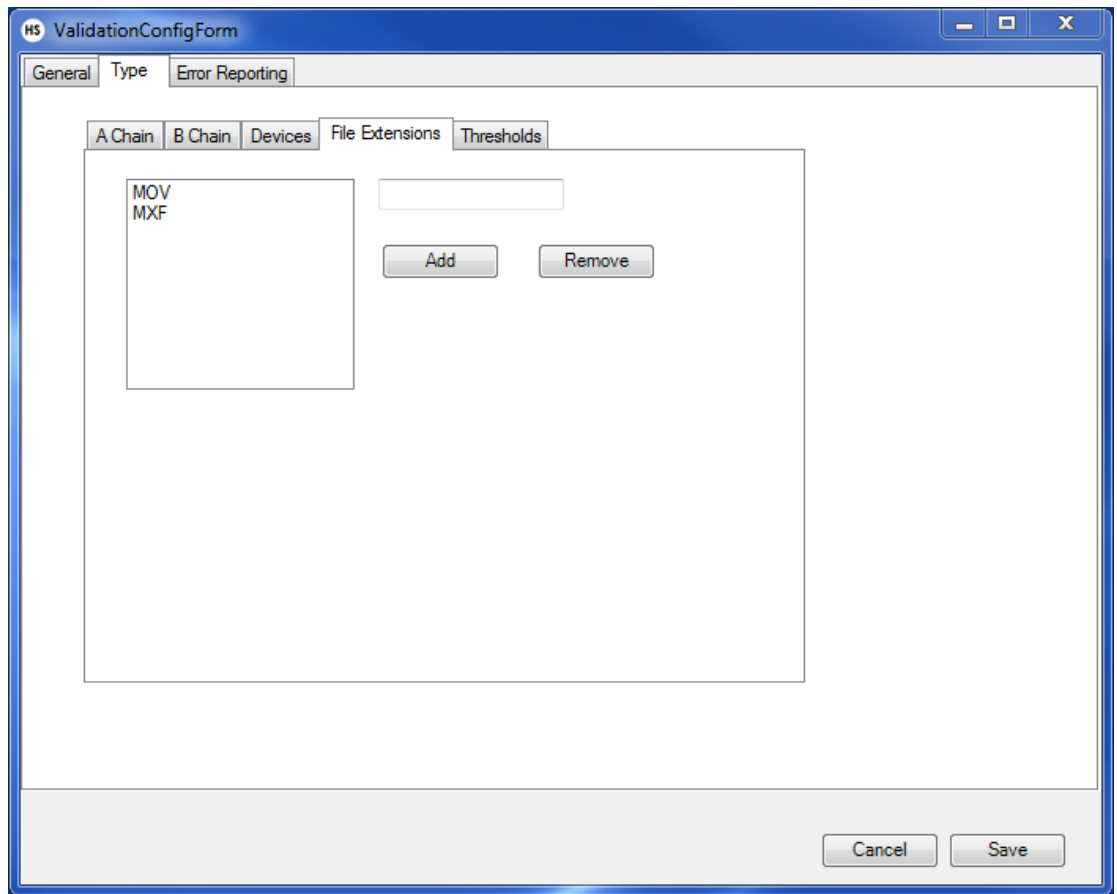
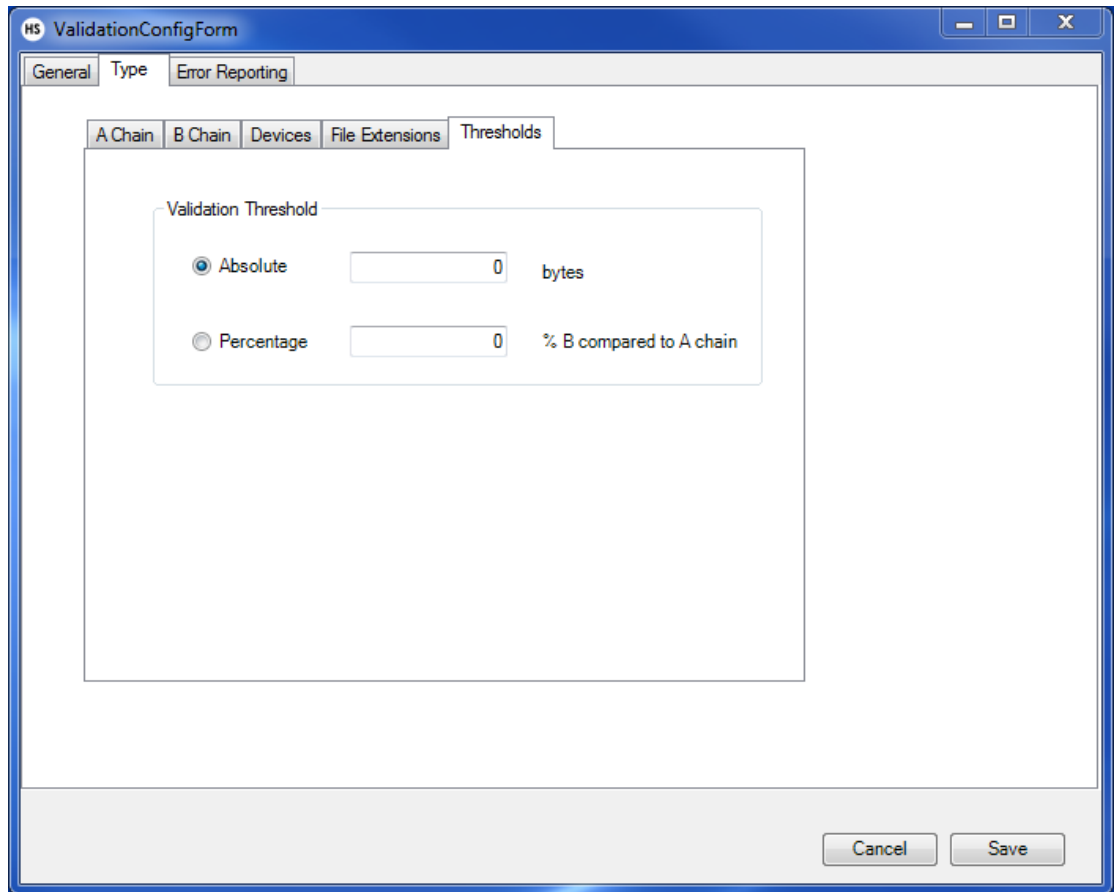


Figure 286 Generic Validation Service - Type Tab: Clip Size Validation (File Extensions)

Clip Size Validation: Thresholds Tab

The configured tolerance is either a Percentage difference or an Absolute difference in bytes between the file sizes on the devices configured on Chain A and Chain B.



The screenshot shows a Windows-style dialog box titled "HS ValidationConfigForm". It has three main tabs: "General", "Type", and "Error Reporting". The "Type" tab is active, and within it, there are sub-tabs: "A Chain", "B Chain", "Devices", "File Extensions", and "Thresholds". The "Thresholds" sub-tab is selected. Inside this sub-tab, there is a "Validation Threshold" section with two radio button options: "Absolute" (which is selected) and "Percentage". Next to the "Absolute" option is a text input field containing the number "0" followed by the text "bytes". Next to the "Percentage" option is a text input field containing the number "0" followed by the text "% B compared to A chain". At the bottom right of the dialog box, there are two buttons: "Cancel" and "Save".

Figure 287 Generic Validation Service - Type Tab: Clip Size Validation (Thresholds)

MPP Event Validation

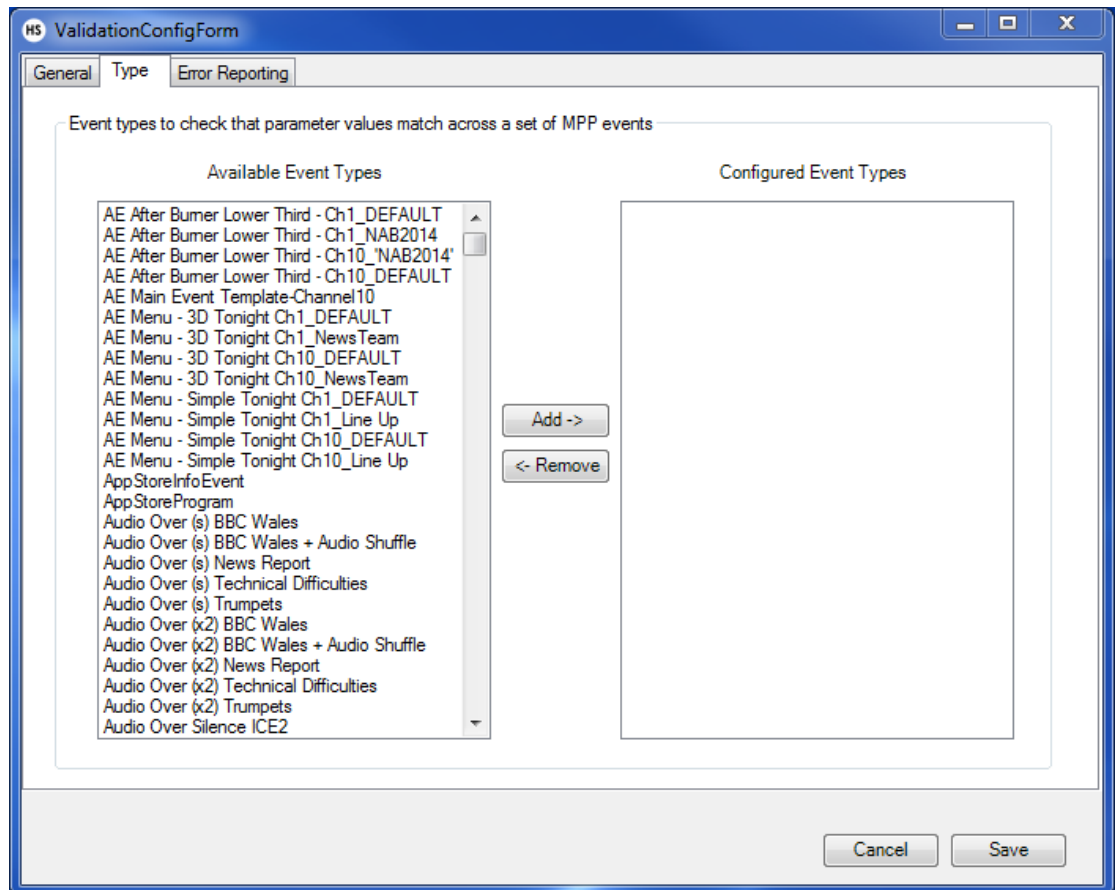


Figure 288 Generic Validation Service - Type Tab: MPP Event Validation

Use the **Add & Remove** controls to move event types between the Available Event Types and Configured Event Types lists. Click on an event type in order to select it individually, or use <Ctrl> click or <Shift> click in order to select multiple event types.

Event Time Validation

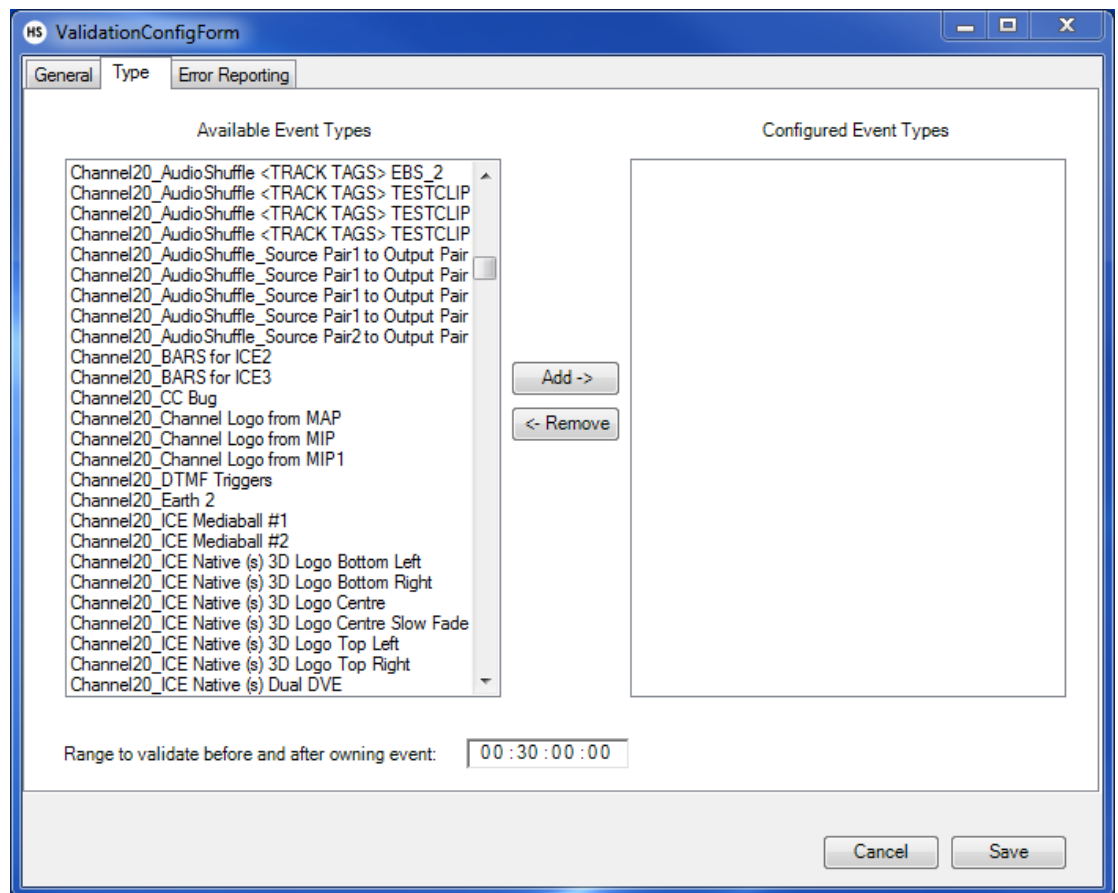


Figure 289 Generic Validation Service - Event Time Validation

Use the **Add & Remove** controls to move event types between the Available Event Types and Configured Event Types lists. Click on an event type in order to select it individually, or use <Ctrl> click or <Shift> click in order to select multiple event types.

14.12.1.9 The Error Reporting Tab

The Error Reporting tab is used to specify the icons that appear in the **Validation** column on the Editor schedule for each validation level. If a level is not associated with an icon then no icon is displayed on the Editor when an error is found.

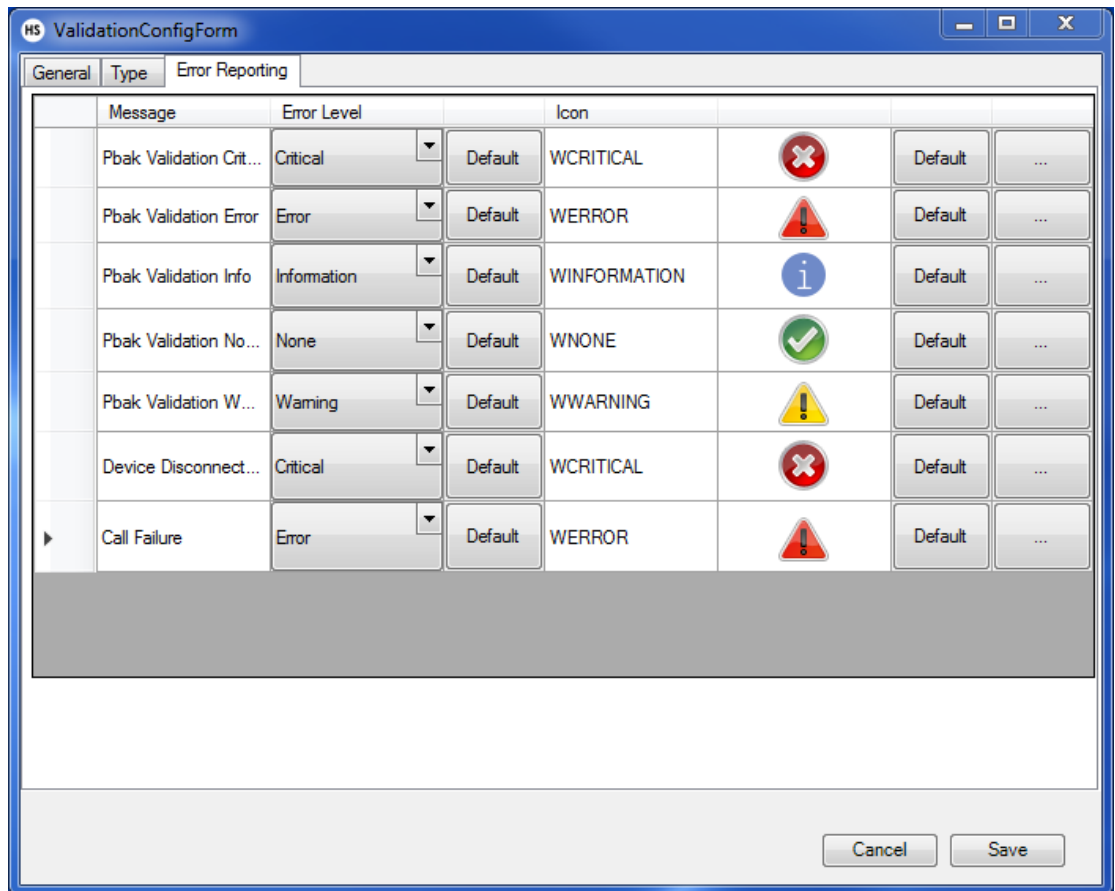


Figure 290 Generic Validation Service - Error Reporting Tab

For each message, click on the **Default** button next to the error level in order to restore the warnings to their default settings.

Click on the **Default** button next to the icon column for a message in order to restore the icon to the default setting.

Warning Levels

The following warning levels are available for the validation messages.

- **Critical** - No mov or mxp file (essence missing)
- **Error** - Timecode errors
- **Information** - Not used
- **Warning** - Mixer validation only (starttime/endtime is incorrect)
- **None** - No errors

14.13 HUD Fax Service

This service sends the contents of the HUD (refer to page 21) as a serial datastream allowing broadcasters to send current schedule data to their regions or affiliates. The configuration options for this service are shown in Figure 291 below.

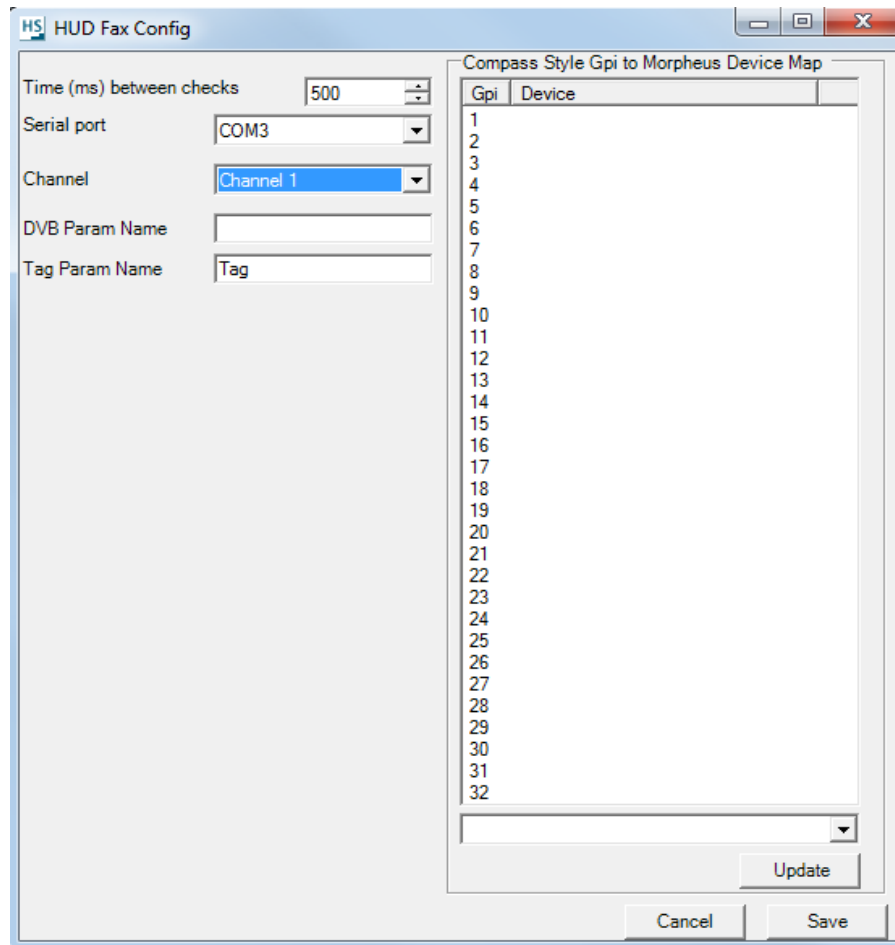


Figure 291 HUD Fax Service Configuration

14.14 Lazy Parameter Evaluation Service

This service allows the use of the following parameter script methods for an Event Type parameter:

- **LazyParameterFromTextObjectScript**
- **LazyParameterFromSingleLineScript**
- **LazyParameterFromFlexibleExpresson**

The service updates event parameters when possible rather than immediately or to an exact time frame. There is no additional configuration for this service. If an event is updated more than 10 times in any one minute, any further updates are suspended for five minutes.

For further information, refer to Section 7.2.3.7 Parameter Linking.

14.15 Lazy True Time Service

This service enables / disables events that prevent an absolute event becoming preset at its designated start time, but in a lazy way. This improves performance in a system that contains a large number of events before an absolute 'True Time' event. For further information, refer to the 'True Time Window (# root events)' parameter in Chapter 7.7.1 System Tab.

The following configuration option is available:

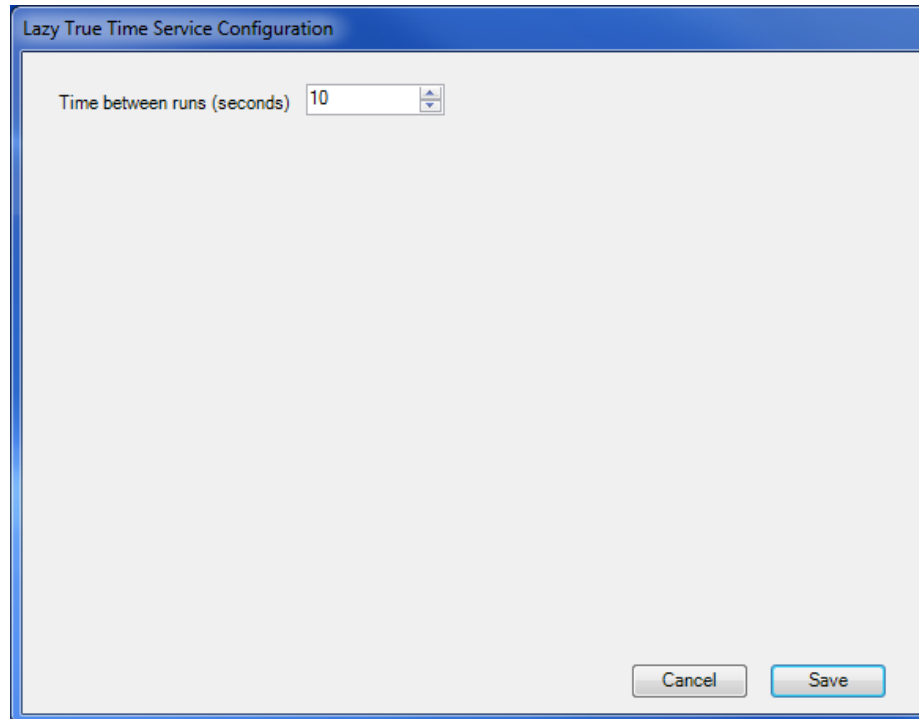


Figure 292 Lazy True Time Service Configuration Window

The service runs at the configured interval (time between runs in seconds) and manages the events in batches.

Note: Do not use this service without advice from Grass Valley.

14.16 Live Record Decorator Service

This service generates an 'Instance' record in the Morpheus media management database (refer to page 588) in preparation for a live recording using a Subevent (refer to page 648). It reserves a file ID and then, at the end of the live recording, enters the eventual duration and updates the encoded flag.

14.16.1 Configuring the Live Record Decorator Service

The Live Record Decorator service can be configured using the following window.

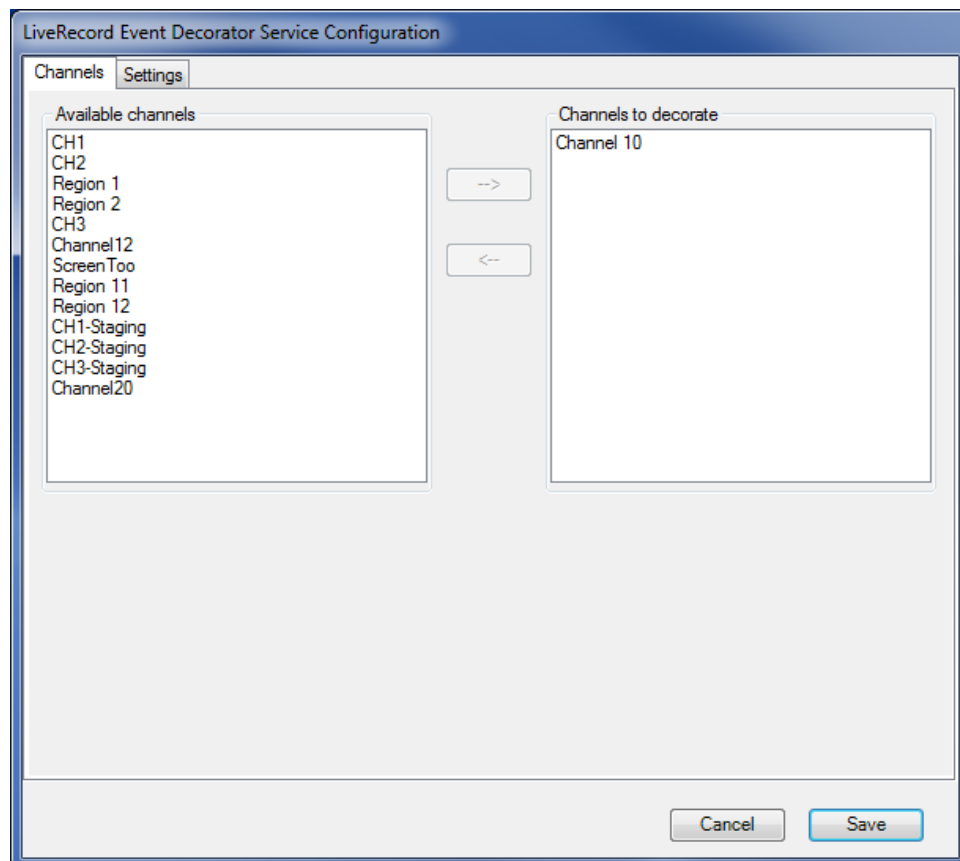
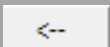


Figure 293 Live Record Decorator Service - Channels Tab

14.16.1.1 Channels Tab: Selecting the Channels to Manage

1. On the **Channels** tab, under **Available channels**, select the channels to decorate.
2. Click on  .

The channels appear under **Channels to decorate**.

Note: To prevent a channel from being decorated, select it under **Channels to decorate** and then click on  .

14.17 Lock Decorator Service

The Lock Decorator service prevents the deletion of material that is needed for playout.

This service populates the 'Locks' table in the Morpheus media management database (refer to page 588) by looking ahead by a set amount of time in the Editor schedule for a channel. The default look ahead is 24 hours.

The service also updates the 'last used' and 'last aired' fields in the database.

14.17.1 The Channels Tab

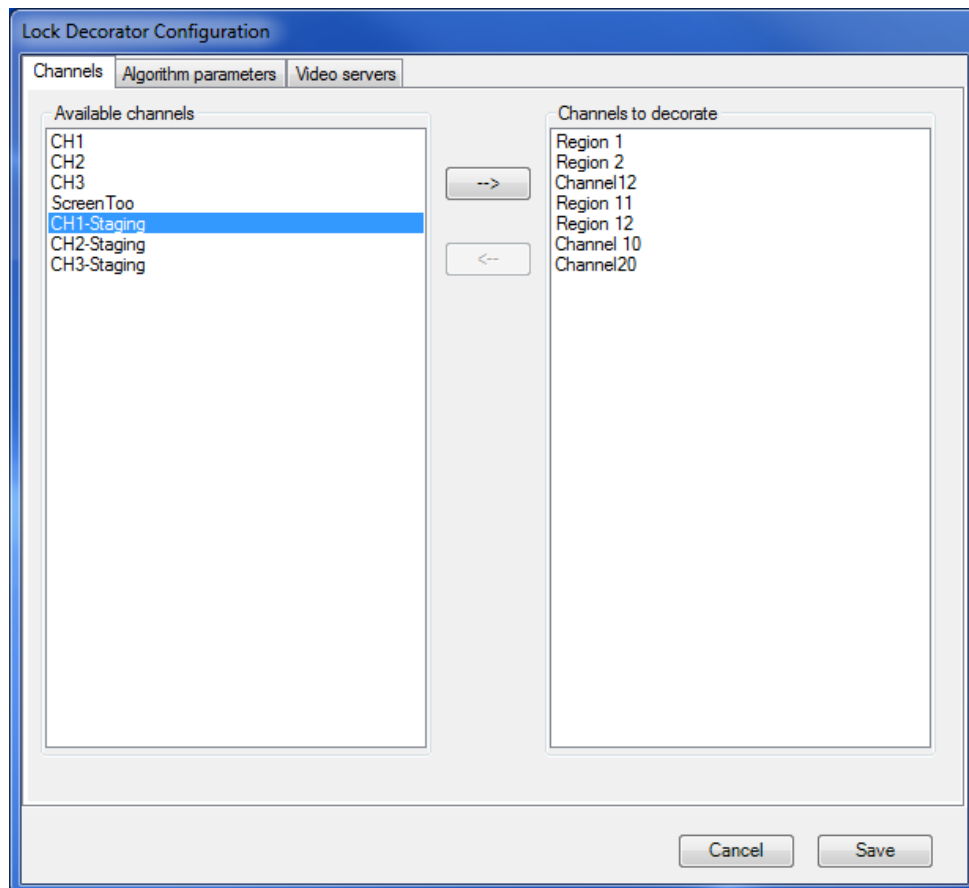



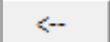
Figure 294 Lock Decorator Service - Channels Tab

Using the Channels tab, select the channels to decorate.

1. Under **Available channels**, select the channels to decorate.
2. Click on  .

The channels appear under **Channels to decorate**.

Note:

To prevent a channel from being decorated, select it under **Channels to decorate** and then click on  .

14.17.2 Algorithm Parameters Tab

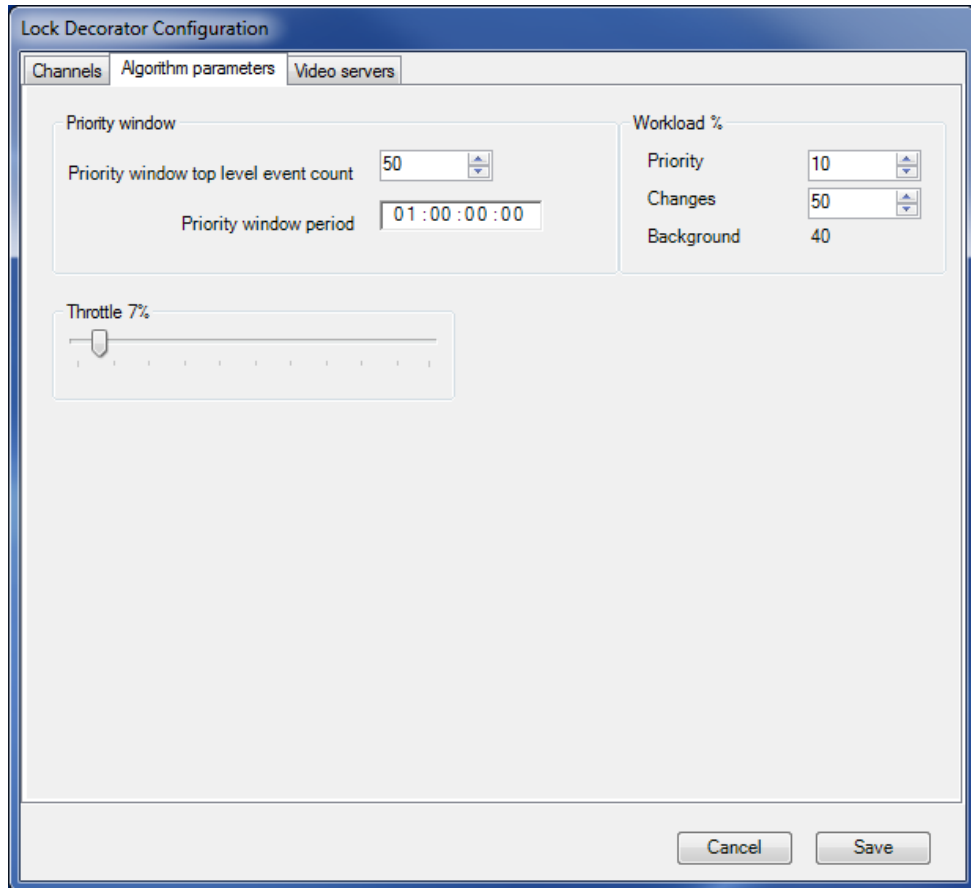


Figure 295 Lock Decorator Service - Algorithm Parameters Tab

Each option on this tab is described below.

Option	Description
Priority Window	Events in the priority window are considered to be the highest priority. The Lock Decorator service checks these events more frequently than those outside of the window. The priority window either uses the event count value or all events within a given time window, depending on which covers the largest number of events.
Workload %	Configure the workload distribution of the service. The percentage of time on priority and changes can be modified as desired with the remainder left for background checks.
Throttle	The throttle is applied in the Carburetor algorithm used while applying changes to the EventStore model (refer to page 9). The default is 7%.

Table 30 Lock Decorator Service Algorithm Parameters

14.17.2.1 Video Servers Tab

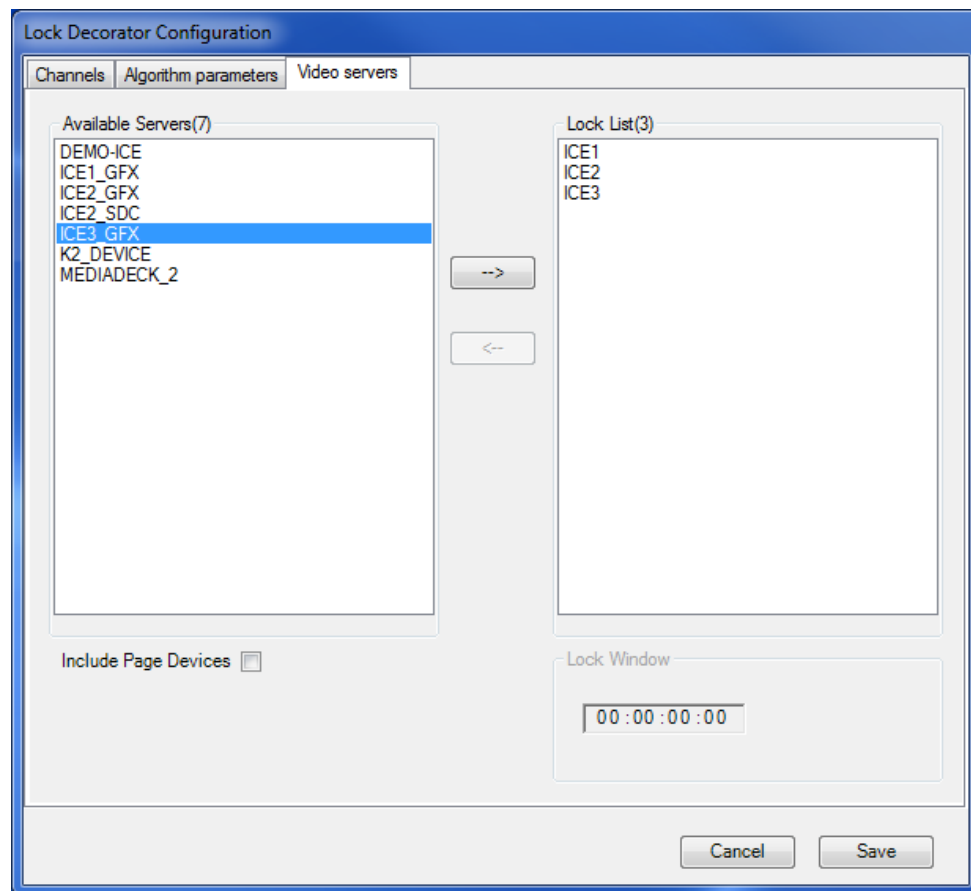




Figure 296 Lock Decorator Service - Video Servers Tab

1. On the Video servers tab, under **Available Servers** select the server to post locks for.
2. Click on  .
The servers appear in the **Lock List**.
3. In the **Lock window** field, enter the required time period.
4. To include page (for example, ImageStore) devices in the lock list, select the **Include Page Devices** checkbox. By default it is unchecked.

Note: To prevent locks from being posted for a server, select the server under **Servers to post locks for** and then click on  .

14.18 Material Decorator Service

The Material Decorator service populates fields on the Editor schedule and in the EventStore using data from the Morpheus media management database (refer to page 588). The fields that are decorated depend on the Material Decorator configuration. Refer to 'Fields to Decorate Tab' on page 466.

The service uses the 'material ID' and 'device ID' keys (refer to page 614) to query the database and add the relevant information. It retrieves this information using the Application Server (refer to page 165) and .NET remoting.

14.18.1 Status Barrels

The Material Decorator also enters a 'status barrel' in the **Main** column on the Editor schedule. The barrel shows the event's 'material status' (for example, whether or not the material is in the database or if a transfer is in progress - refer to 'Transfer Decorator Service' on page 512). It also enters a value for each event's material status into the EventStore.

If the material status is 'not available' then the Transfer Decorator posts a request for the material.

Note: If the Material Decorator is not running, the material status is not displayed correctly in the Editor and no transfer requests are posted.

Table 31 below shows the status barrels that appear on the Editor schedule.









EventStore Material Status	Meaning	Status Barrel
0	No response from the Decorator	
1	An instance of the material ID exists on the device specified in the event.	
2	The material ID exists in the database but there is no instance of it on the specified device. The Transfer Decorator scans for this status.	
3	The material does not exist anywhere in the database.	
4	The material ID exists but no instances are found.	
5	The Transfer Decorator found a red barrel and posted a transfer request.	
6	A transfer is in progress.	
7	The transfer failed.	

Table 31 Event Material Status Barrels

If the material is in the process of being transferred (status 6), Morpheus can be configured to display a progress bar behind the barrel. Refer to Section 13.1 Common Configuration Settings for further information.

14.18.2 'Decorate Always' / 'Decorate Once Only'

The Material Decorator has two settings: Decorate Always and Decorate Once Only. Each of these is described below.

- **Decorate Always**

The normal system setting, 'Decorate Always', prevents operators from changing the value for any fields that have been configured to be decorated. It constantly decorates the fields. If operators modify a value on the Property Inspector (refer to page 5) and click on **OK**, the property reverts to its original value.

The **Decorate Always** setting is set by unchecking the 'decorate once only' box in the channel settings.

- **Decorate Once Only**

The 'Decorate Once Only' system setting overrides the 'Decorate Always' setting. It allows operators to use the Property Inspector to change the initial values of fields.

The Decorate Once Only setting can be applied in the Configurator (refer to page 50). On the Configurator toolbar, click on **Configure Channels**. On the Channels window, click on the More Properties tab. Select the **Decorate once only** check box.

Note:

Operators can change a value for a property that is decorated constantly using the **Multipart Programme Id** field on the Property Inspector. This is described in the Morpheus Operators manual.

14.18.3 Configuring the Material Decorator Service

The options on the Material Decorator Configuration tabs are described below.

14.18.3.1 Channels Tab

Using the Channels tab, select the channels to decorate.

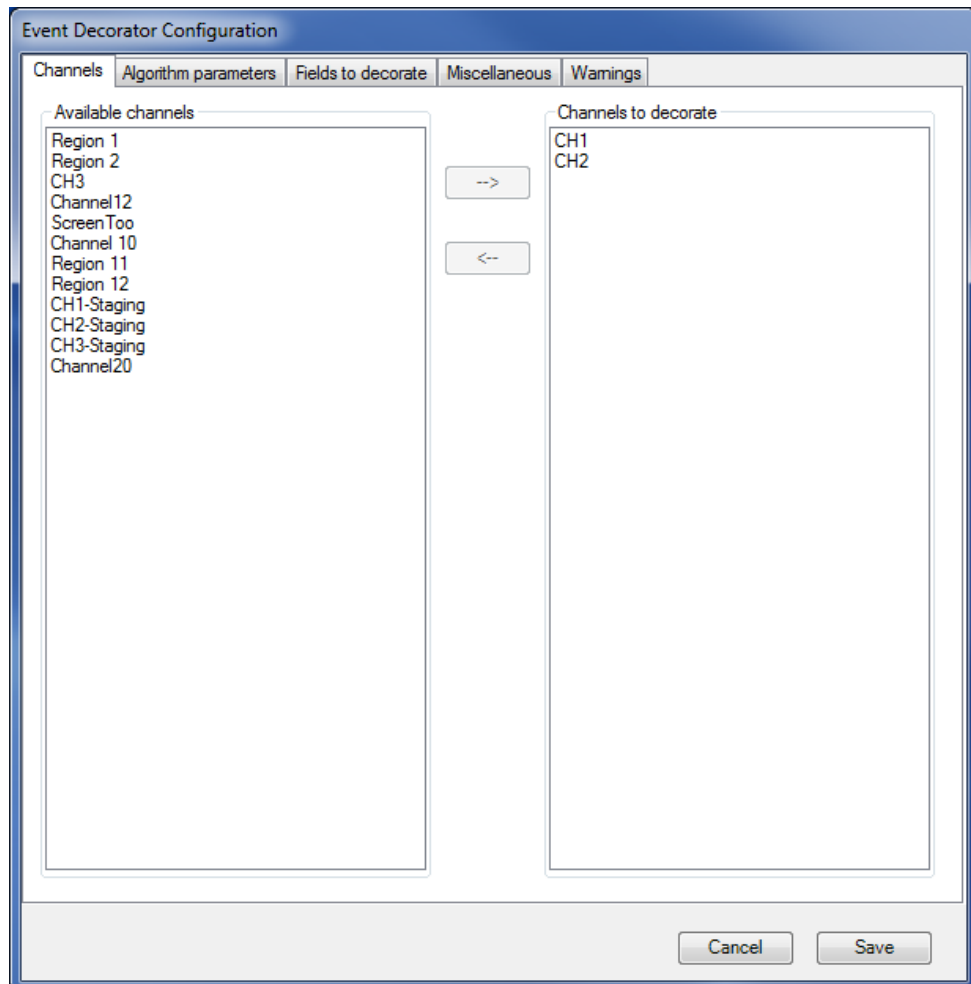

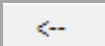


Figure 297 Material Decorator Service - Channels Tab

Select channels as follows:

1. Under **Available channels**, select the channels to be decorated.
2. Click on  .

The channels appear under **Channels to decorate**.

Note: To prevent a channel from being decorated, select it under **Channels to decorate** and then click on  .

14.18.3.2 Algorithm Parameters Tab

Sets priority and workloads.

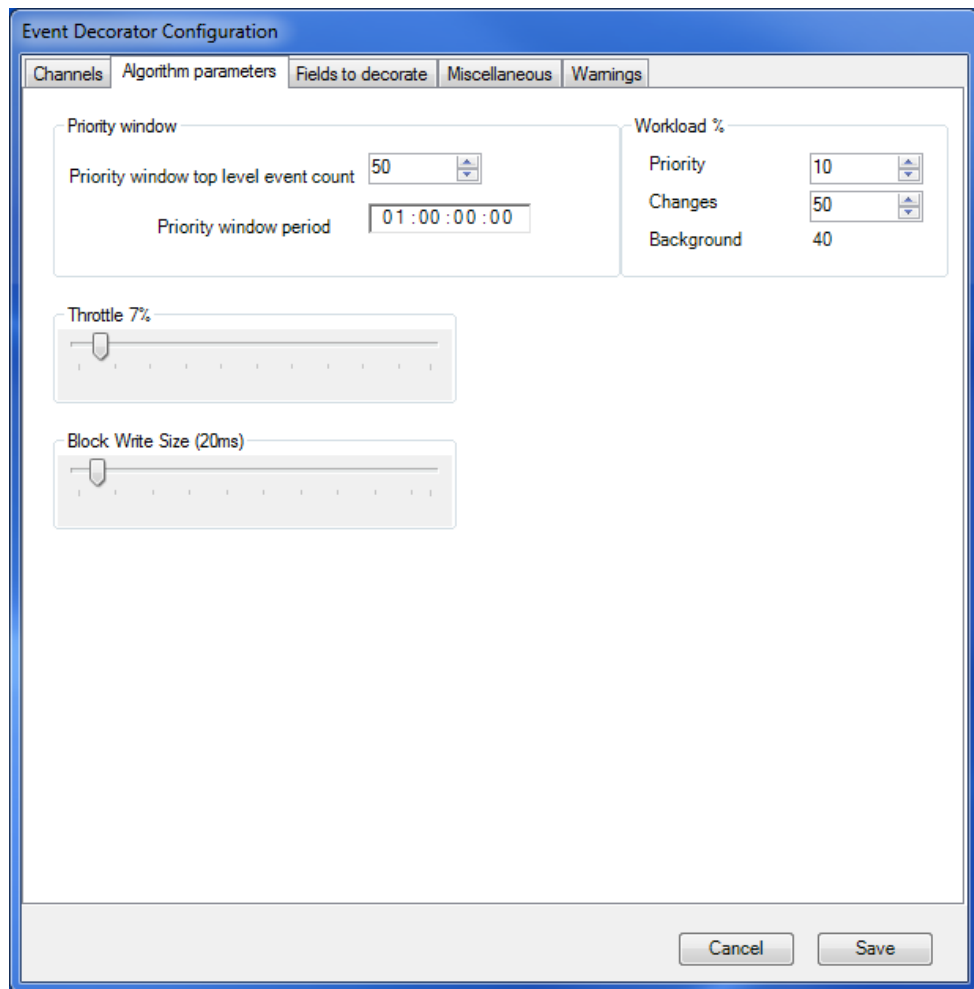


Figure 298 Material Decorator Service - Algorithm Parameters Tab

Priority Window

A configurable margin within which events are considered to be of the highest priority. The Material Decorator Service performs checks on these events more frequently than on others. The Priority Window is based upon two different measurements:

- Priority Window Top Level Event Count

The next 50 events after the programme event.

- Priority Window Period

All events that fall within the specified period of time.

The Priority Window automatically switches to the measurement that covers the greatest number of events.

Workload %

Configure the workload distribution of the service. The percentage of time on priority and changes can be modified as desired with the remainder left for background checks.

Additional Controls

- Throttle

The throttle is applied in the Carburetor algorithm used while applying changes to the EventStore model. The default is 7%.

- Block Write Size

The maximum duration that the service locks the EventStore model (refer to page 9) for to perform write transactions. The default is 25ms.

14.18.3.3 Fields to Decorate Tab

Use the **Fields to decorate** tab to select those fields that the Material Decorator will populate.

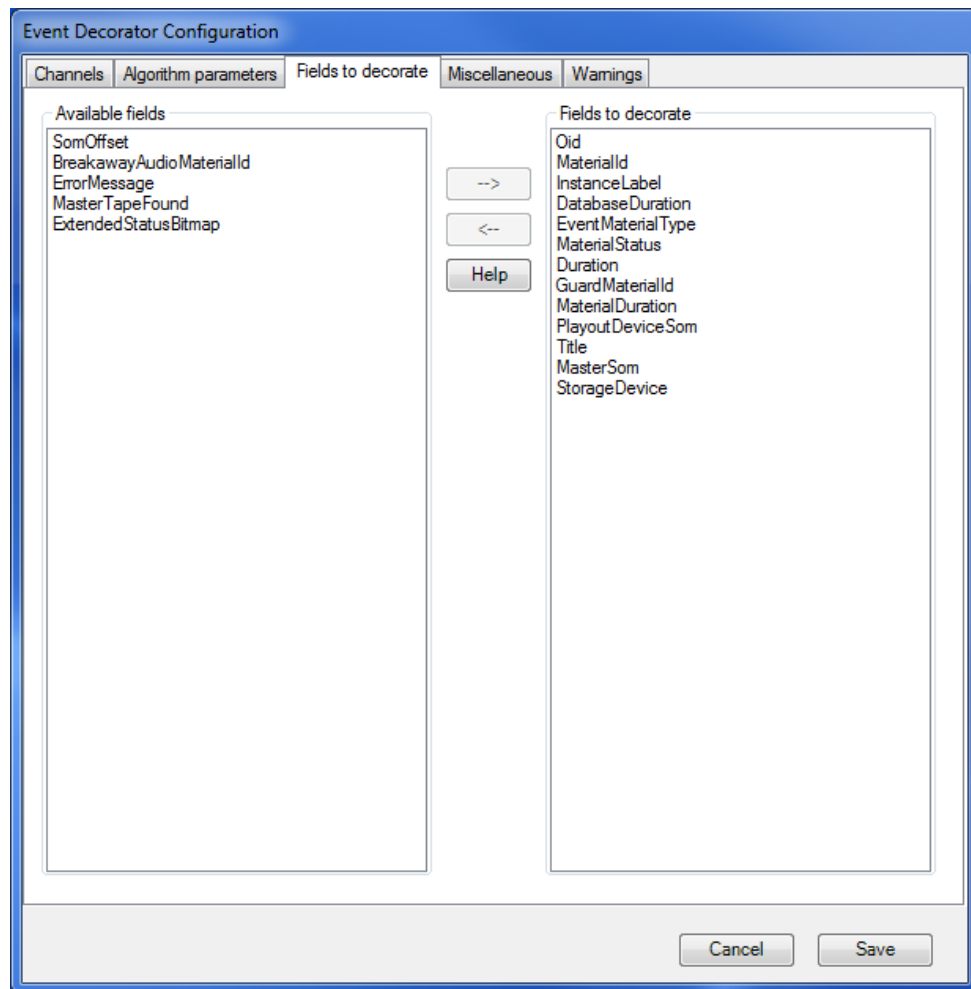


Figure 299 Material Decorator Service - Fields to Decorate Tab

Fields will only be populated by the Material Decorator if they are listed in the **Fields to decorate** table. To move fields between the **Available fields** and **Fields to decorate** tables, click on a field to highlight it and use the left and right arrow buttons.

Use the **Help** button to obtain a brief explanation of the individual fields.

Table 32 lists all of the available fields, and identifies those that are essential and those that are optional.

Field	Essential/Optional/Not Required
Oid (Object Identifier)	Optional
MaterialID	Optional
Breakaway audio material ID	Optional
Guard material ID	Optional
Error message	Optional
Master tape found	Optional
Instance label	Essential
Storage device	Optional but desirable
Master SoM	Optional
Title	Optional but desirable
Event material type	Optional
Duration	Optional but desirable
Material duration	Optional
Database duration	Optional
Material status	Required for status barrels
SoM offset	Optional
Playout device SoM	Optional but desirable

Table 32 Fields to Decorate

14.18.3.4 Miscellaneous tab

This tab provides additional configurations for the service.

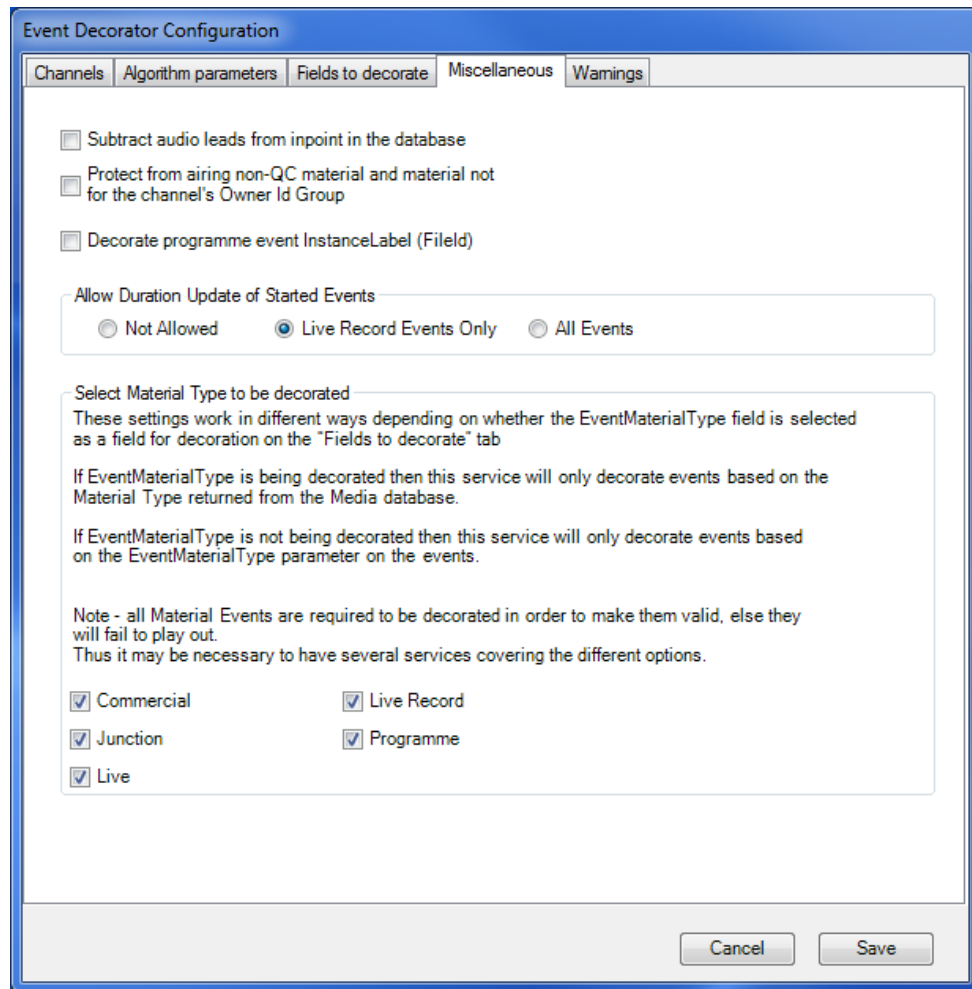


Figure 300 Material Decorator Service - Miscellaneous Tab

- Select Material Type to be Decorated

Select the material types to be decorated by the Morpheus system. By default, all material types are selected.

If the EventMaterialType is not decorated and the material type in this option *is not* selected, the schedule provides the event data (for example, inpoint). If the material is selected, the event data is decorated by the database.

If the EventMaterialType is decorated, the service queries the database for the correct event data. If material type in this option *is not* selected, the schedule provides the event data (for example, inpoint). If the material is selected, the event data is decorated by the database.

14.18.3.5 Warnings Tab

Apply warning icons to the **Validation** field on the Editor schedule. These are displayed if the service detects a discrepancy between the field value in the event and the Morpheus media management database.

Double-click on the Icon name column next to the required field to type in a path to the icon.

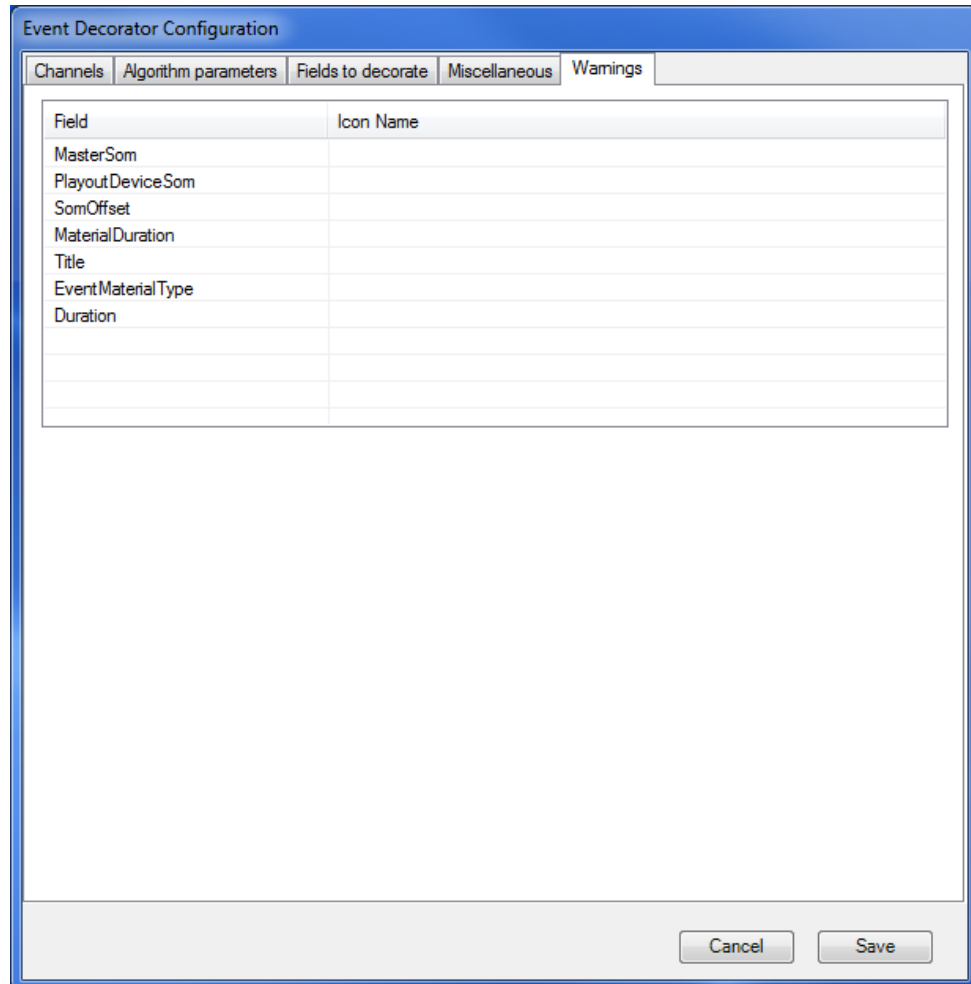


Figure 301 Material Decorator Service - Warnings Tab

Note:

If the service is configured to decorate a field with a configured icon, the service overwrites the field to match the value from the Morpheus Media Management database and no warning icon is displayed.

14.19 MediaBall Decorator Service

Creates MediaBalls for the selected channels using information from the EVENT_TYPE ASSOCS and CUSTOM_PARAMS tables in the Media Management database.

Configure this service using the Mediaball Decorator configuration window as shown below:

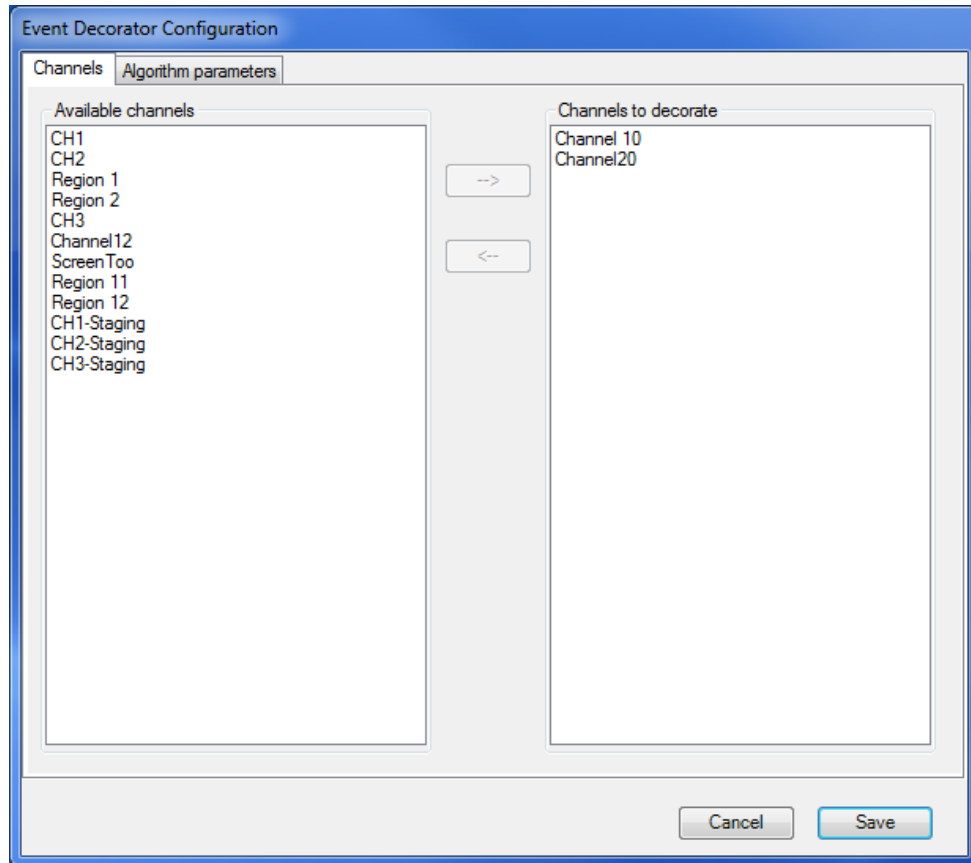



Figure 302 MediaBall Decorator Service - Channels Tab

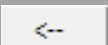
14.19.1 Channels Tab

Select channels as follows:

1. Under **Available channels**, select the channels to be decorated.
2. Click on  .

The channels appear under **Channels to decorate**.

Note:

To prevent a channel from being decorated, select it under **Channels to decorate** and then click on  .

14.19.2 Algorithm Parameters Tab

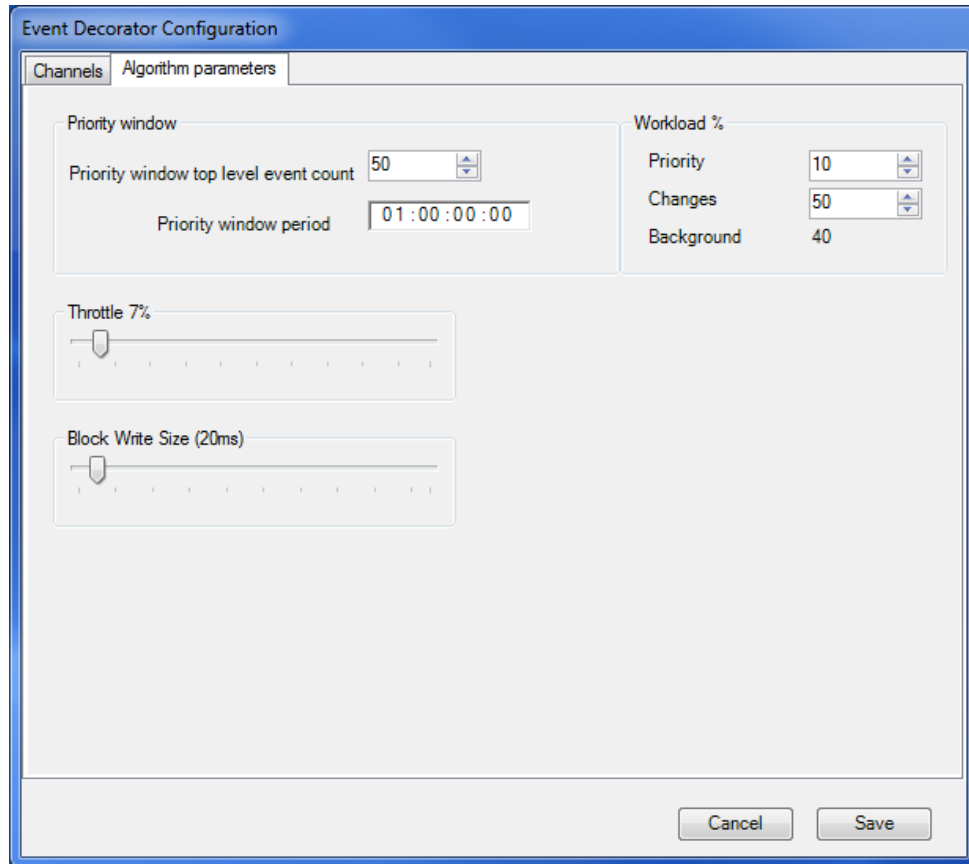


Figure 303 MediaBall Decorator Service - Algorithm Parameters Tab

Select the channels to decorate on the **Channels** tab and set priority and workloads on the **Algorithm Parameters** tab as described in Section 14.18.3.2 Algorithm Parameters Tab.

14.20 MediaBall Inserter Service

This service automatically adds secondary events (refer to page 648) or MediaBalls (refer to page 53) to specific Event Types (refer to page 52) in one or more selected channels.

1. To configure the service, click on the **Add** button in the Mediaball Inserter Service Configurations window.

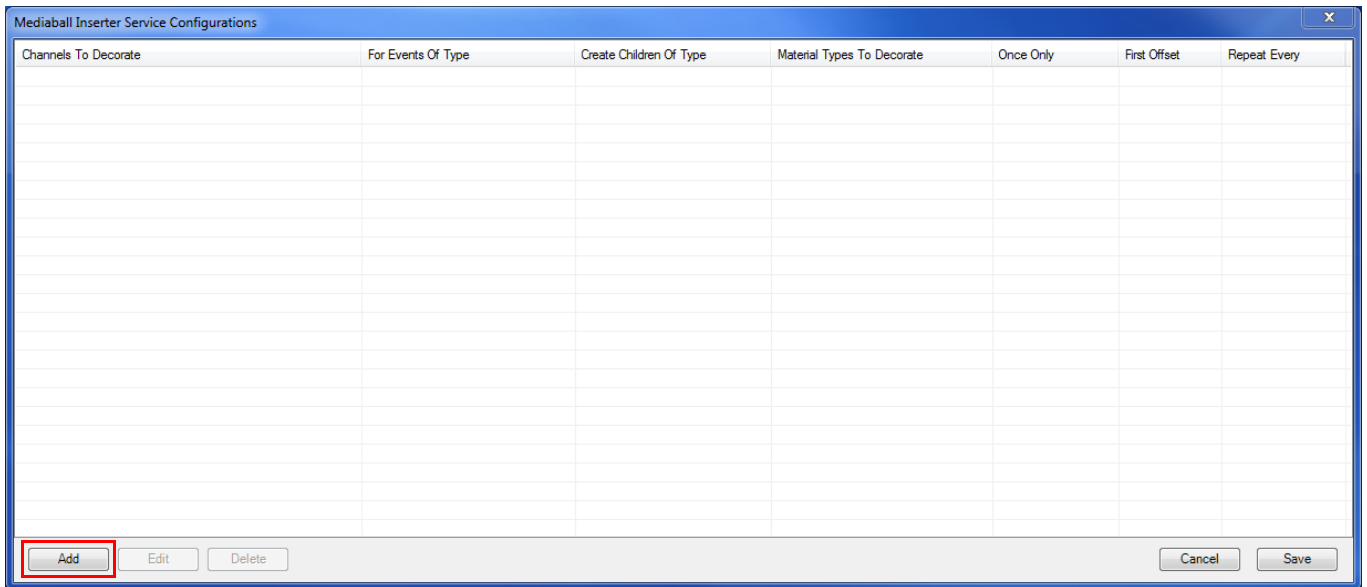


Figure 304 MediaBall Inserter Service Configurations Window

2. The Mediaball Inserter Config window will be displayed (Figure 305).

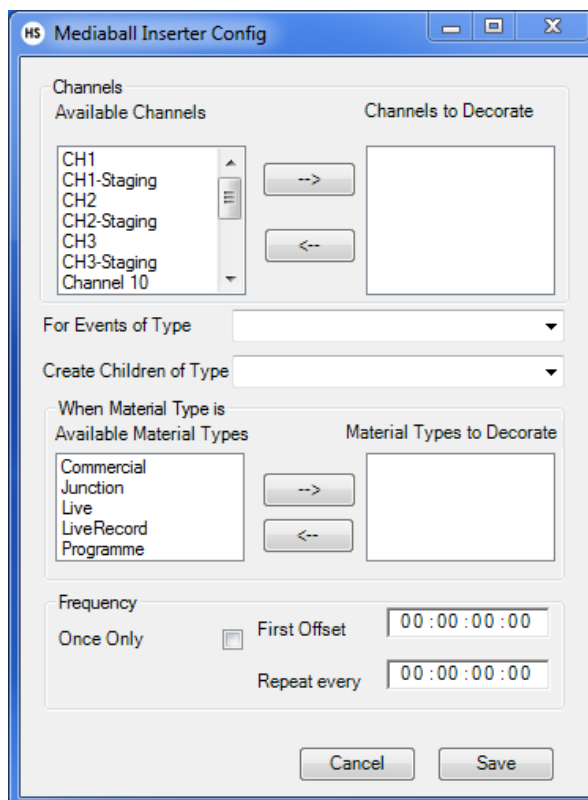


Figure 305 MediaBall Inserter Config Window

Before applying settings, select the channels to configure. It is only possible to select Event Types that are valid for all channels. To populate events regardless of their material type, select all material types. If no material types are selected then no events are decorated.

Channels Pane

- Available Channels / Channels to Decorate

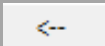
Select the channels that the MediaBall will appear in.

Under **Available Channels**, select the required channels.

Click on  .

The channels appear under **Channels to Decorate**.

Note:

To prevent a channel from being decorated, select it under **Channels to decorate** and then click on  .

Main Window

- For Events of Type

Select the Event Type to which the MediaBalls will be added.

- Create Children of Type

Select the type of MediaBall or secondary event that is to be added.

'When Material Type Is' Pane

- Available Material Types / Material Types to Decorate

From the **Available Material Types** list, select the material type to add. Use the right arrow to move it to the Material Types to Decorate list.

Frequency Pane

- Once Only

Select this check box if only a single occurrence is required.

- First Offset

The offset for the first addition of the selected MediaBall. The offset is the time difference between the start of a secondary event and the start/end of the primary event above it. It is possible to set a negative offset.

- Repeat Every

The interval at which the Mediaball/secondary event is added after the First Offset.

14.21 Missing Material Recovery Service

A feature to provide for continuous playout when media, specified in an event on the schedule, is missing or unavailable.

When this service is running, it monitors events within a configurable look-ahead to establish whether or not the MaterialID specified for the main source is available - in the absence of the material, the MaterialID is substituted with an alternative from a guard event on a 'dummy' source.

Note: The material specified by the MaterialID on the 'dummy' guard source must be stored on the main source device, as no material request will be issued.

The configuration process, detailed below, requires the following:

- Creation of an instance of the Missing Material Recovery Service
- Creation of a 'dummy' device
- Creation of a 'dummy' source
- Insertion of a 'dummy' guard event into the schedule

14.21.1 Configuring the Missing Material Recovery Service

1. Click on **Add** in the Missing Material Recovery Service Configuration window (Figure 306).

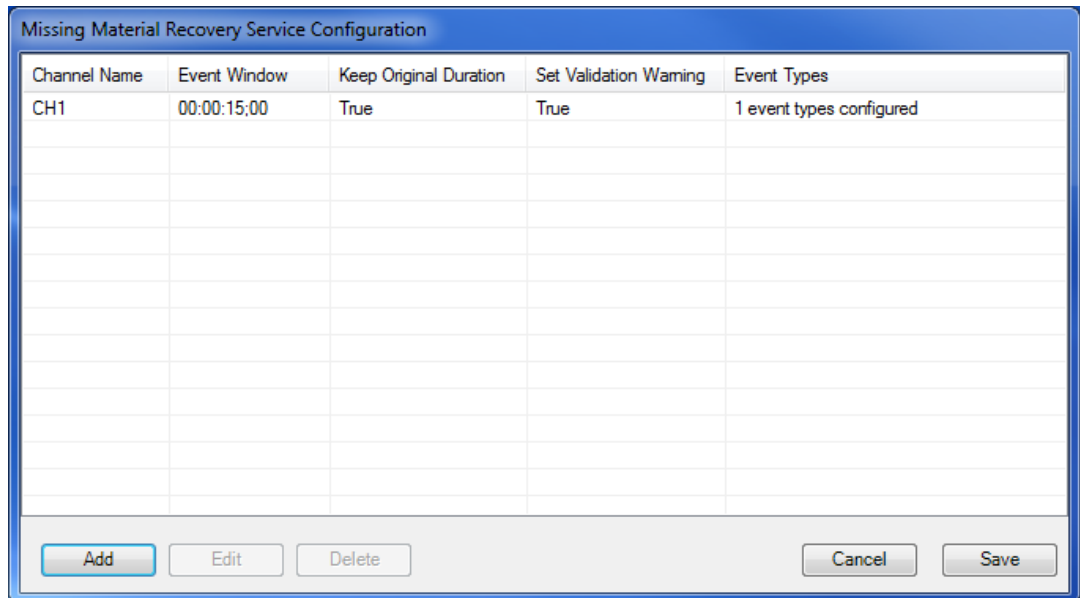


Figure 306 Missing Material Recovery Service Configuration Window

2. The Service Configuration window is displayed.

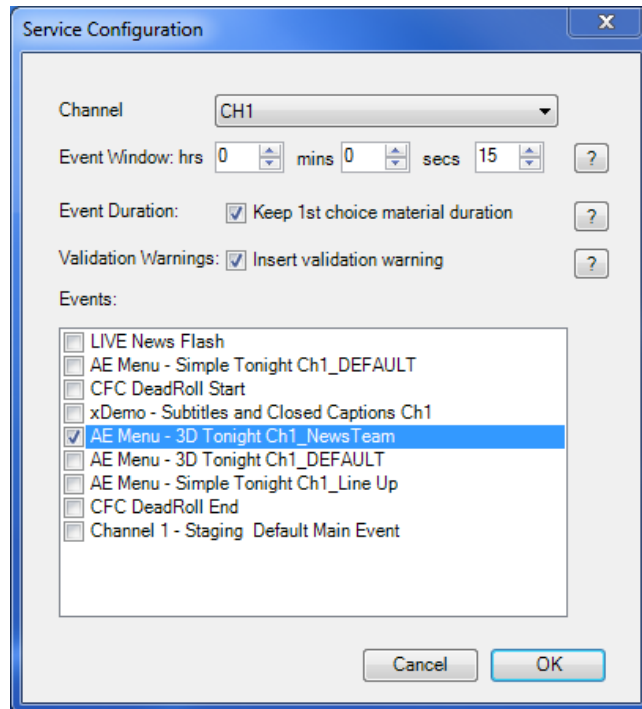


Figure 307 Missing Material Recovery Service - Service Configuration Window

- Channel

Select the channel that the service will monitor.

- Event Window

Enter an amount of time, ahead of the event on the main source going to air, from which point the service will check its material status for the availability of the media. The service will continually check the material status for the duration of the Event Window up to the scheduled start time.

It is possible that more than one event will simultaneously fall within the Event Window - in which case the material status of each will be checked.

The default value is 15 seconds.

- Event Duration: Keep 1st Choice Material Duration

Event duration is configurable - so as not to disrupt the schedule, the duration of the original event on the main source can be preserved by applying it to the substituted 'dummy' guard event.

Tick the checkbox to enable.

- Validation Warnings: Insert Validation Warning

Post validation warnings in the validation column of the Editor in order to indicate that the service has swapped the MaterialID of the event on the main source for that from the guard source. This occurs when the service detects that the media associated with the MaterialID for the event on the main source is either missing or unavailable within the time specified by the Event Window.

Tick the checkbox to enable.

- Events

Select all of the event types, assigned to the defined channel, that this instance of the service will monitor.

Note:

For the service to function, the following must apply:

- The Material Status of the event on the main source must not be any of the following: 'Exists on Required Server', 'Unknown'.
- The Material Status of the event on the guard source must be 'Exists on Required Server'.

Material Status is indicated by the barrels in the Editor.

14.21.2 Configure the EventStore

Since the guard event cannot be used in its conventional 'guard' manner, its associated source device must be a test / dummy device created specifically for the unique purpose of storing an alternative MaterialID for the main source.

1. Create a 'Dummy' Device
 - a) From the Configurator, clone the device that is to play the media, and on which the channel, monitored by the Missing Material Recovery Service, is enabled.
 - b) Select a new name for this 'dummy' device - all other properties must remain unchanged. The device ID must be that of the main device (it is used when the Material Decorator accesses the MAPP database).

2. Create a 'Dummy' Guard Source
 - a) Configurator > Configure Channels > Sources Tab
Clone the source of the main play clip event to create a 'dummy' guard source.
 - b) Select a new name for this 'dummy' guard source.
 - c) Tick the **Dummy Source** checkbox.

Note:

A 'dummy' guard source cannot be used as a main or a real guard source. When the **Dummy Source** checkbox is ticked, the following are disabled in order to prevent a Take Guard from being performed on the source:

- The **Take Guard Enabled** checkbox (for the source in the Configurator)
- The **Toggle Guard** right-click menu option in the Editor
- **Take Guard PGM** and **Take Guard PST** buttons on the MIP

When configured with a 'dummy' guard source, the main source cannot also have a real guard source.

3. Configure the Main Source

On the main source: in Configurator > Configure Channels > Sources Tab, from the **Guard Source** drop-down menu, select the source that will act as the 'dummy' guard source.

4. Build the Schedule

Select a material event for the 'dummy' guard source, and insert it directly below the main material event in the schedule.

The MaterialID for the event on the 'dummy' guard source must be different from that specified on the main source, and it should be a clip that is always present on the target device, such as an 'evergreen' clip.

14.22 Morpheus DB Decorator Service

The Morpheus DB Decorator service can query any field in the ITEM (refer to page 593) and INSTANCE (refer to page 597) tables in the Morpheus media management database (refer to page 588) and use these to obtain metadata (refer to page 588). The service makes the data available to the EventStore as a parameter to send to a device.

For the service to work, both of the following need to be configured:

- The Host Shell service
- The EventStore

The Host Shell service must be configured to decorate the details required. Refer to 'Configuring the Morpheus DB Decorator Service' below.

When the Host Shell service has been configured, it searches through the EventStore, looking for any parameters that have the 'Parameter Script Method' set to Decorator and the 'Parameter Script Arguments' set to a valid value for the DB Decorator Service. Refer to Chapter 14.22.3 Configuring the EventStore.

Note:


The Morpheus DB Decorator service must be running if the **QC** and **Notes** columns are to be displayed on the Editor schedule. It is also necessary for some types of parameter linking (refer to page 590).

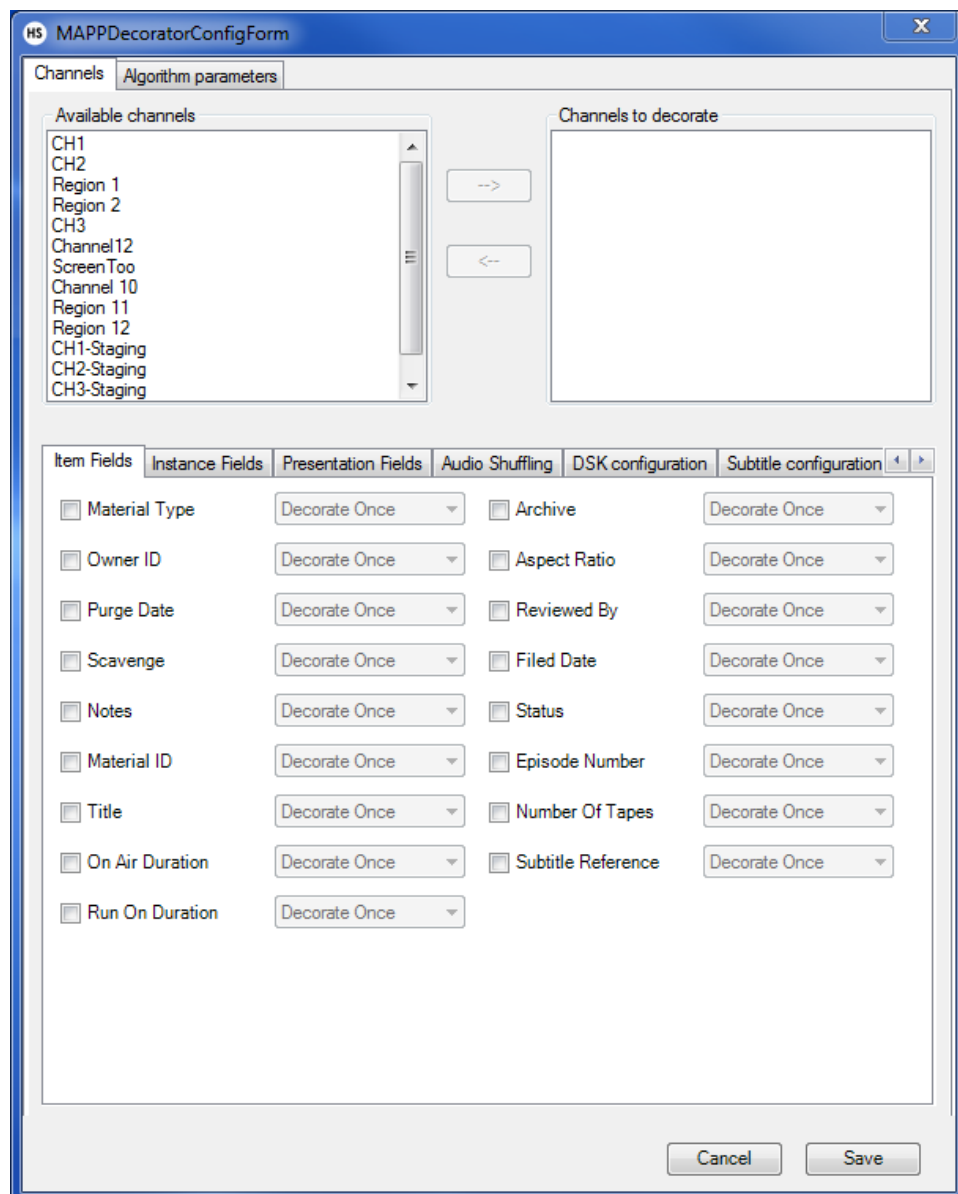
14.22.1 Channels Tab

Select the channels to decorate as follows:

1. Under **Available Channels**, select the required channels.
2. Click on  .

The channels appear under **Channels to Decorate**.

Note: To prevent a field from being decorated, select it under **Channels to decorate** and then click on  .



The screenshot shows the 'MAPPDecoratorConfigForm' window with the 'Channels' tab selected. The 'Available channels' list includes: CH1, CH2, Region 1, Region 2, CH3, Channel12, ScreenToo, Channel 10, Region 11, Region 12, CH1-Staging, CH2-Staging, and CH3-Staging. The 'Channels to decorate' list is currently empty. Below the lists are several configuration options for each channel, organized into tabs: Item Fields, Instance Fields, Presentation Fields, Audio Shuffling, DSK configuration, and Subtitle configuration. Each option consists of a checkbox and a dropdown menu set to 'Decorate Once'.

Item Fields	Instance Fields	Presentation Fields	Audio Shuffling	DSK configuration	Subtitle configuration
<input type="checkbox"/> Material Type		Decorate Once	<input type="checkbox"/> Archive		Decorate Once
<input type="checkbox"/> Owner ID		Decorate Once	<input type="checkbox"/> Aspect Ratio		Decorate Once
<input type="checkbox"/> Purge Date		Decorate Once	<input type="checkbox"/> Reviewed By		Decorate Once
<input type="checkbox"/> Scavenge		Decorate Once	<input type="checkbox"/> Filed Date		Decorate Once
<input type="checkbox"/> Notes		Decorate Once	<input type="checkbox"/> Status		Decorate Once
<input type="checkbox"/> Material ID		Decorate Once	<input type="checkbox"/> Episode Number		Decorate Once
<input type="checkbox"/> Title		Decorate Once	<input type="checkbox"/> Number Of Tapes		Decorate Once
<input type="checkbox"/> On Air Duration		Decorate Once	<input type="checkbox"/> Subtitle Reference		Decorate Once
<input type="checkbox"/> Run On Duration		Decorate Once			

Figure 308 MAPP Decorator Configuration Form - Channels Tab

Configure the channels as follows:

1. From each of the sub-tabs, tick the checkboxes against the fields that the service is to decorate:
 - Item Fields
 - Instance Fields
 - Presentation Fields
 - Audio Shuffling
 - DSK Configuration
 - Subtitle Configuration
 - GPI Configuration
 - Aspect Ratios

2. For each desired field, select either **Decorate Once** or **Decorate Always** from the adjacent drop-down menu.

If **Decorate Always** is selected, any changes made to that parameter is overwritten by data from the database. If **Decorate Once** is selected, the parameter is only decorated once and after that any changes made by an operator are kept.

14.22.2 Algorithm Parameters Tab

Set priorities and workloads.

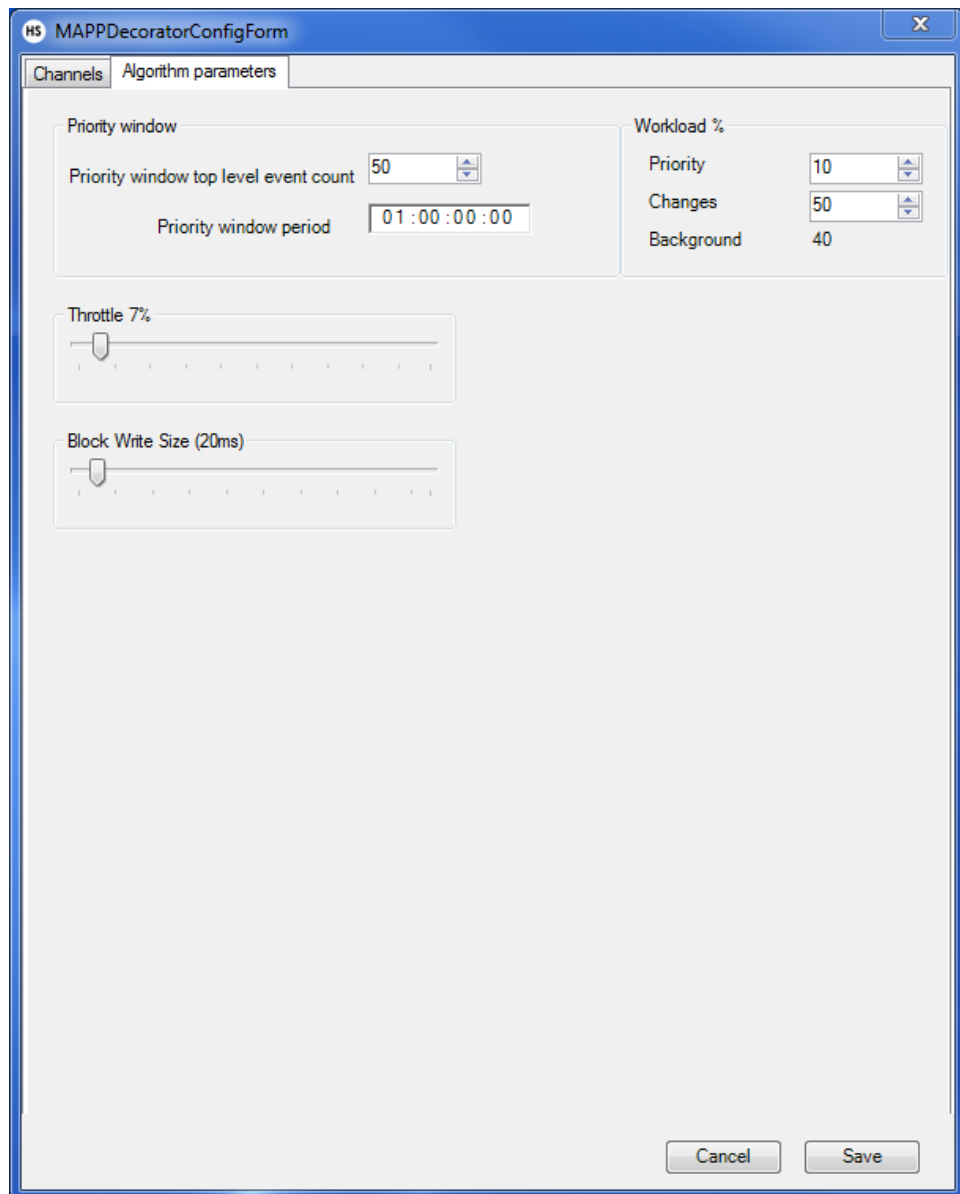


Figure 309 MAPP Decorator Configuration Form - Algorithm Parameters Tab

Option	Description
Priority Window	Events in the priority window are considered to be the highest priority. The Morpheus DB Decorator service checks these events more frequently than those outside of the window. The priority window either uses the event count value or all events within a given time window, depending on which covers the largest number of events.
Workload %	Configure the workload distribution of the service. The percentage of time on priority and changes can be modified as desired with the remainder left for background checks.
Throttle	The throttle is applied in the Carburetor algorithm used while applying changes to the EventStore model (refer to page 9). The default is 7%.
Block Write Size	The Maximum duration that the service will lock the EventStore model for to perform write transactions. The default is 25ms.

Table 33 Morpheus DB Decorator Algorithm Settings

14.22.3 Configuring the EventStore

When the fields to be decorated have been configured for the Morpheus DB Decorator service, it is necessary to configure the EventStore. Required Event Types (refer to page 52) must have 'parameter script arguments' set using the 'AddParameter' window, as follows:

1. Start the Configurator and click on **Configure Events** on the toolbar.
2. On the list of Event Types, click on the required Event Type.
3. On the All Parameter Definitions tab, double-click on the required event parameter (refer to page 79).

The AddParameter window is displayed.

4. Set the **Parameter Script Method** field to **Decorator**.
5. Enter the required **Parameter Script Arguments**. This field should be set to a valid value for the DB Decorator Service and should start with **MORPHEUS DB::** (refer to 'Parameter Script Arguments' on page 483).

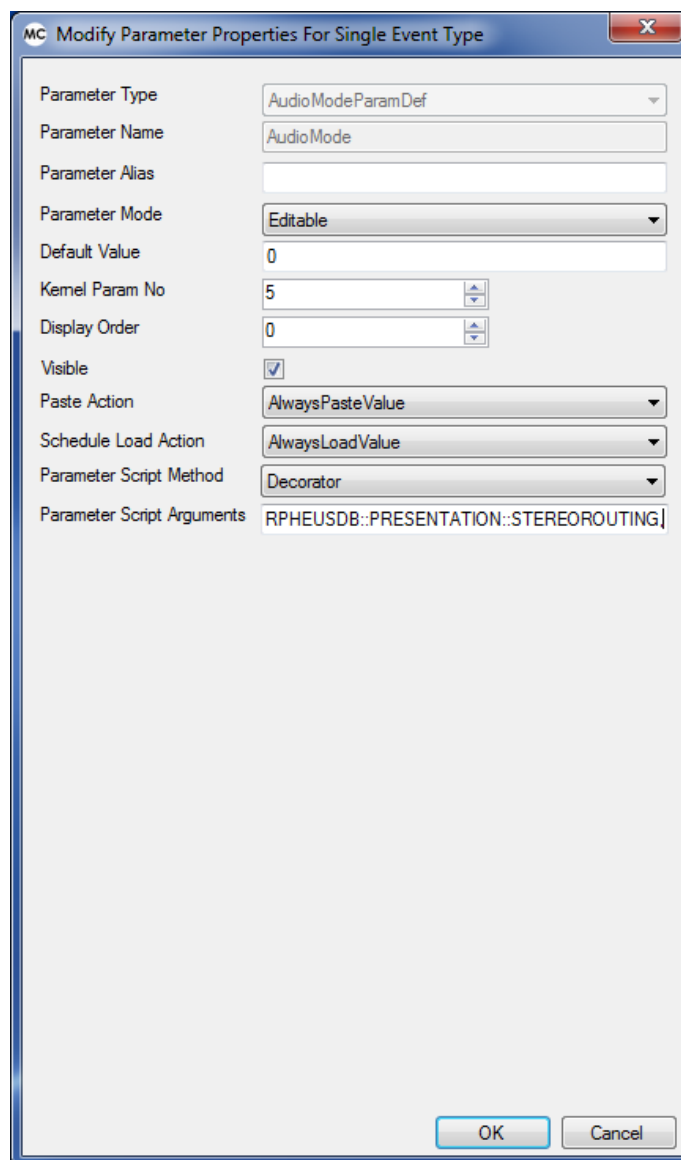


Figure 310 EventStore Parameter Properties for Single Event Type

14.22.3.1 Parameter Script Arguments

The following is a full list of the Parameter Script Arguments.

Presentation Table Fields (refer to 'Presentation Table' on page 602)

```
MORPHEUSDB::PRESENTATION::PROGRAMTYPE,
MORPHEUSDB::PRESENTATION::PDC,
MORPHEUSDB::PRESENTATION::STEREOROUTING,
MORPHEUSDB::PRESENTATION::PROGRAMLEVEL,
MORPHEUSDB::PRESENTATION::DSK1DURATION,
MORPHEUSDB::PRESENTATION::DSK2DURATION,
MORPHEUSDB::PRESENTATION::DSK3DURATION,
MORPHEUSDB::PRESENTATION::DSK4DURATION,
MORPHEUSDB::PRESENTATION::DSK1INPOINT,
MORPHEUSDB::PRESENTATION::DSK2INPOINT,
MORPHEUSDB::PRESENTATION::DSK3INPOINT,
MORPHEUSDB::PRESENTATION::DSK4INPOINT,
MORPHEUSDB::PRESENTATION::DSK1MATERIALID,
MORPHEUSDB::PRESENTATION::DSK2MATERIALID,
MORPHEUSDB::PRESENTATION::DSK3MATERIALID,
MORPHEUSDB::PRESENTATION::DSK4MATERIALID,
MORPHEUSDB::PRESENTATION::DSK1DEVICE,
MORPHEUSDB::PRESENTATION::DSK2DEVICE,
MORPHEUSDB::PRESENTATION::DSK3DEVICE,
MORPHEUSDB::PRESENTATION::DSK4DEVICE,
MORPHEUSDB::PRESENTATION::AUDIOCHANNELGAIN,
MORPHEUSDB::PRESENTATION::SUBTITLETYPE
```

Item Table Fields (refer to 'Item Table' on page 593)

```
MORPHEUSDB::ITEM::TITLE, MORPHEUSDB::ITEM::ONAIRDURATION,
MORPHEUSDB::ITEM::RUNONDURATION, MORPHEUSDB::ITEM::SUBTLITEREF,
MORPHEUSDB::ITEM::REVIEWEDBY, MORPHEUSDB::ITEM::NOTES,
MORPHEUSDB::ITEM::FILEDDATE, MORPHEUSDB::ITEM::STATUS,
MORPHEUSDB::ITEM::EPISODENUMBER, MORPHEUSDB::ITEM::NUMBEROFTAPES,
MORPHEUSDB::ITEM::ASPECTRATIO, MORPHEUSDB::ITEM::MATERIALTYPE,
MORPHEUSDB::ITEM::OWNERID, MORPHEUSDB::ITEM::PURGEDATE,
MORPHEUSDB::ITEM::SCAVENGE, MORPHEUSDB::ITEM::ARCHIVE,
MORPHEUSDB::ITEM::CATEGORYID
```


Instance Fields (refer to 'Instance Table' on page 597)

MORPHEUSDB::INSTANCE::SOURCEDEVICEID,
MORPHEUSDB::INSTANCE::LASTAIREDDATE,
MORPHEUSDB::INSTANCE::LASTUSEDDEDATE,
MORPHEUSDB::INSTANCE::USAGECOUNT,
MORPHEUSDB::INSTANCE::TIMECODEIN,
MORPHEUSDB::INSTANCE::TIMECODEOUT, MORPHEUSDB::INSTANCE::VITC,
MORPHEUSDB::INSTANCE::LTC, MORPHEUSDB::INSTANCE::DELETEAFTER,
MORPHEUSDB::INSTANCE::TECHNICALCOMMENT,
MORPHEUSDB::INSTANCE::VIDEOCOMPRESSION,
MORPHEUSDB::INSTANCE::AUDIOMODE,
MORPHEUSDB::INSTANCE::AUDIOSAMPLERATE,
MORPHEUSDB::INSTANCE::AUDIOCOMPRESSION,
MORPHEUSDB::INSTANCE::QUALITYCHECK, MORPHEUSDB::INSTANCE::RUNON,
MORPHEUSDB::INSTANCE::RECORDEDDEDATE, MORPHEUSDB::INSTANCE::ENCODED,
MORPHEUSDB::INSTANCE::CLIPREF

14.23 MTV Rules Engine Decorator Service

This service populates a schedule, or a segment of it, according to a playlist created automatically by a rules engine linked to a web-based voting system.

14.24 NplusOne Service

This service posts transfer requests for material for all events within the next hour, for all channels that are configured to use the N+1 channel. This means that the video servers always have the next hour of material ready in the event of one of the N+1 channels goes to air.

It also locks the material for all events in the next hour, for all channels that are configured to use that N+1 channel. This is to prevent the Video Network Manager (VNM) from performing any background deletion of the files.

14.24.1 Channels Tab

Select the channels to decorate.

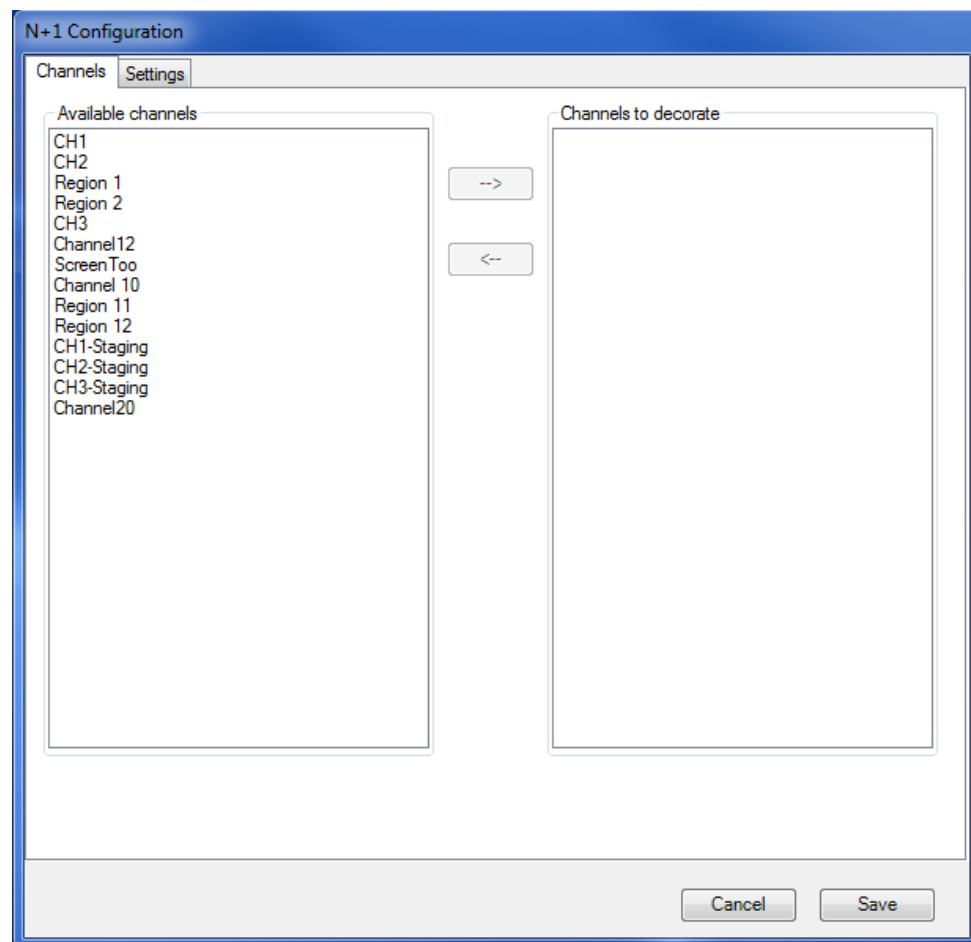




Figure 311 NplusOne Service Configuration Window - Channels Tab

Select the channels to decorate as follows:

1. Under **Available Channels**, select the required channels.
2. Click on  .

The channels appear under **Channels to Decorate**.

Note: To prevent a field from being decorated, select it under **Channels to decorate** and then click on  .

14.24.2 Settings Tab

This tab contains additional NplusOne options as shown below:

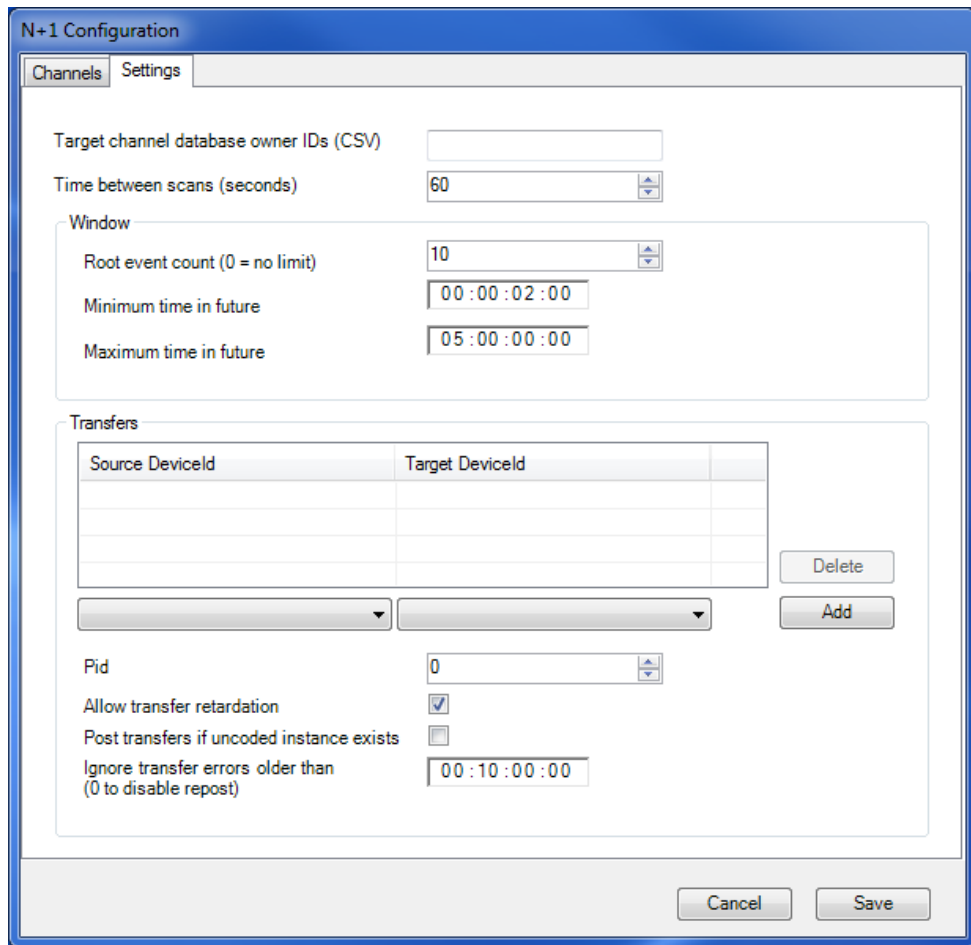


Figure 312 NplusOne Service Configuration Window - Settings Tab

- Target Channel Database Owner IDs (CSV)

Enter the owner IDs for the selected channels in a comma separated list.

- Time Between Scans (seconds)

the length of time that the service pauses before looking for new work.

Window Pane

- Root Event Count (0 = no limit)

The number of events for the service to process. A value of 0 (zero) means process all events.

- Minimum Time in Future

The earlier time to stop processing events, regardless of the root event count.

- Maximum Time in Future

The latest time to stop processing events, regardless of the root event count.

Transfers Pane**- Pid**

The Process ID to receive the transfer requests.

- Allow Transfer Retardation

Allows the service to adjust a transfer request's 'Requested Time' to a later time. If this request is in use by multiple systems, deselect this option as it can cause a transfer to be late for another system.

- Post Transfers if Uncoded Instance Exists

Allows the system to post a request to transfer material even if only an *unencoded* Instance exists. If this option is not selected, the system only posts requests if an *encoded* instance exists.

- Ignore Transfer Errors Older Than

Allows the user to configure the length of time after a failed request before posting a new request. A value of 0 (zero) disables reposting.

14.25 Pbak Event Validation Service

Note: This service is deprecated and therefore no longer supported. Please use the 'Generic Validation Service', selecting the Pbak Event Validation type.

14.26 Pbak Interface Driver Service

A service that queries the duration of one or more events on a device and decorates the schedule with the new durations.

14.26.1 Algorithm Tab

- **Device Transaction Frequency** - the frequency between transactions with the device.
- **Schedule Validation Frequency** - the frequency at which the service searches the schedule for background work.

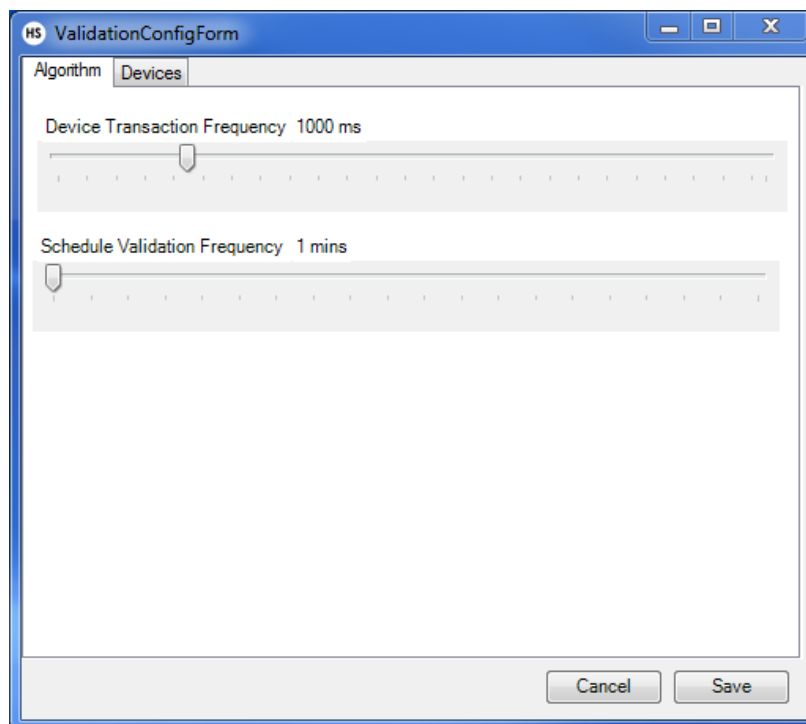


Figure 313 Pbak Interface Driver Service - Algorithm Tab

14.26.2 Devices Tab

1. To add a new device, click on **Add**.

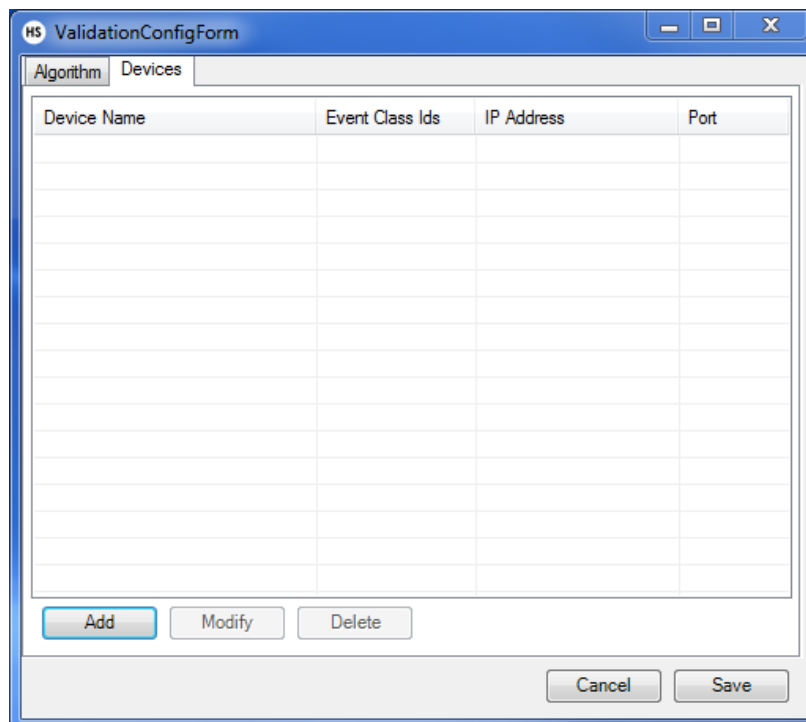


Figure 314 Pbak Interface Driver Service - Devices Tab

2. Specify a device name, IP address and port.
3. Select one or more Event Types to query on the device using the Event Types field as shown below:

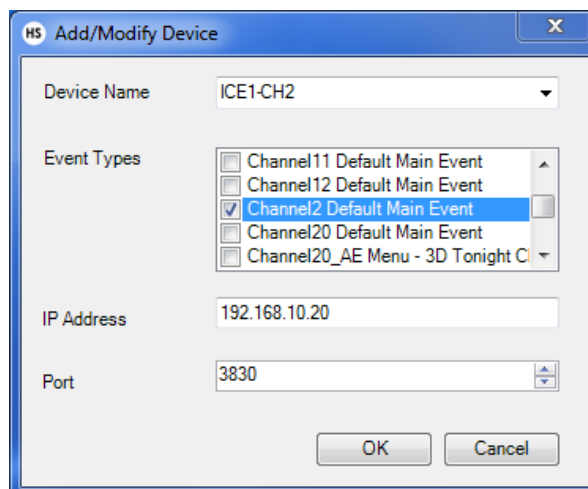


Figure 315 Pbak Interface Driver Service - Add / Modify Device

4. Click on **OK** to save the device.

There are also options to **Modify** and **Delete** an existing device.

14.27 Pernicious Time Service

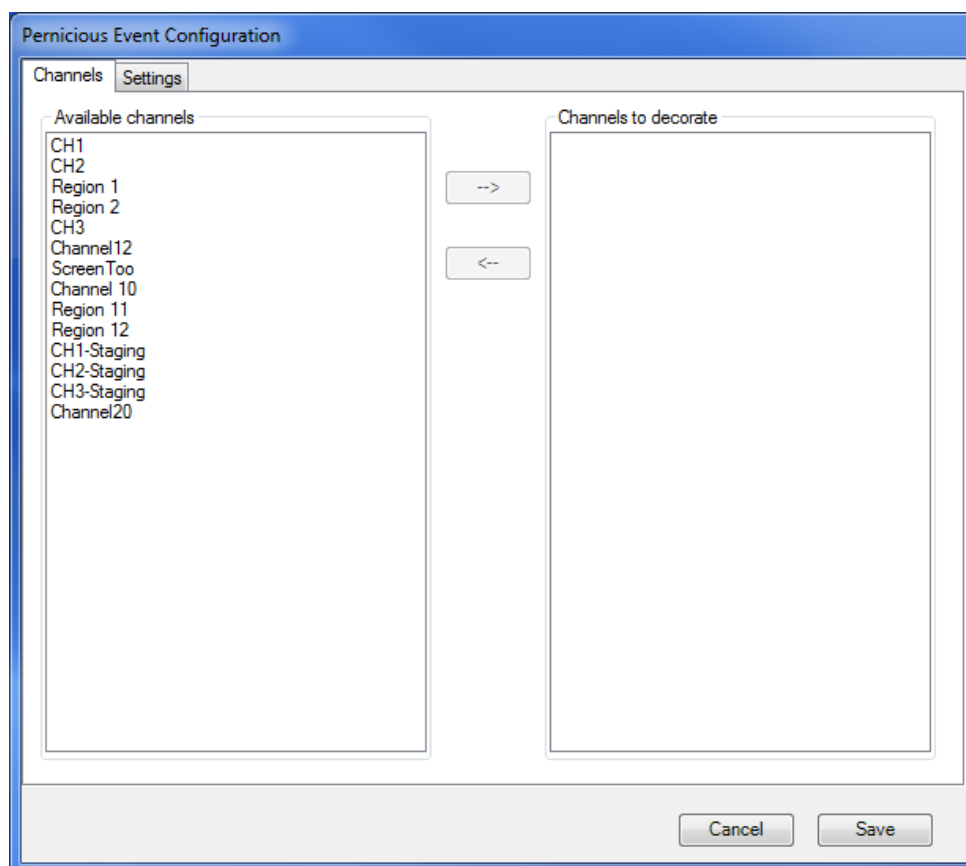

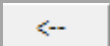


Figure 316 Pernicious Time Service - Channels Tab

14.27.1 Channels Tab

1. On the **Channels** tab, under **Available channels**, select the channels to decorate.
2. Click on  .

The channels appear under **Channels to decorate**.

Note: To prevent a channel from being decorated, select it under **Channels to decorate** and then click on  .

14.28 Reactive Live Record service

This service permits more flexible recording than the Live Record Decorator Service. It uses separate events for Start recording (ICE Class ID 917) and Stop recording (ICE Class ID 918). The service updates the Media Management database only after the Start event is complete and the metadata, for example, the inpoint, is known. Even if the metadata is insufficient, it allows the recording to continue.

The service is compatible with Panoplay.

14.28.1 Channels Tab

Select channels to use with the service.

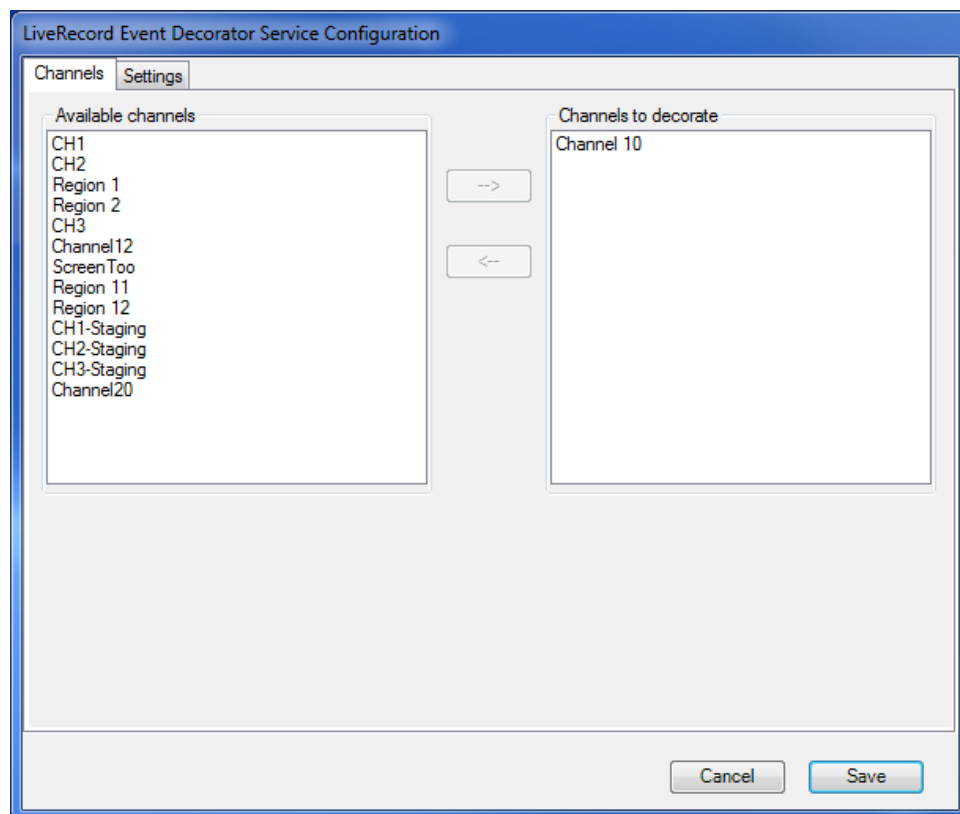

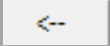


Figure 317 Reactive Live Record Service - Channels Tab

1. On the **Channels** tab, under **Available channels**, select the channels to decorate.
2. Click on  .

The channels appear under **Channels to decorate**.

Note: To prevent a channel from being decorated, select it under **Channels to decorate** and then click on  .

14.28.2 Settings Tab

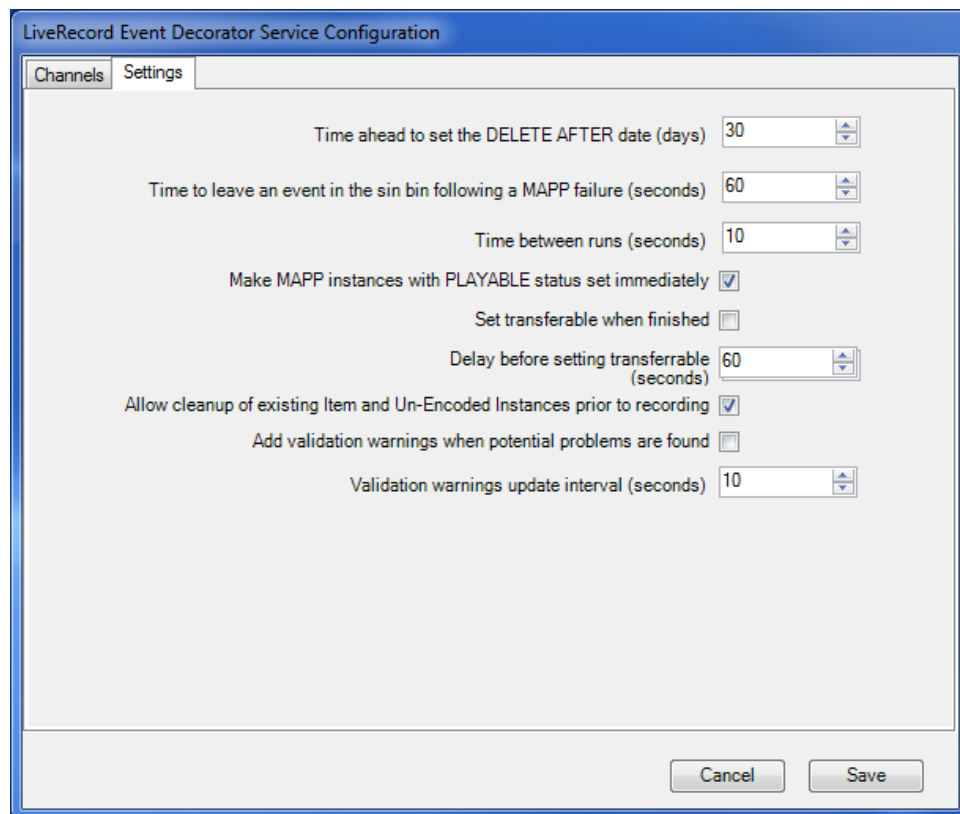


Figure 318 Reactive Live Record Service - Settings Tab

- Allow Cleanup of Existing Item and Un-Encoded Instances Prior to Recording

If a secondary record event contains a Material ID that already exists, Morpheus removes the existing item and un-encoded instances before beginning the new recording.

- Add Validation Warnings when Potential Problems are Found

If a secondary record event contains a Material ID that already exists, Morpheus creates a validation warning in the Editor. Morpheus does not attempt to delete the existing material or any un-encoded instances. The Material ID must be changed manually.

14.29 Schedule Appender Service

This service automatically appends schedule files created off-line when they are placed in the path entered in the Schedule Appender Configuration window.

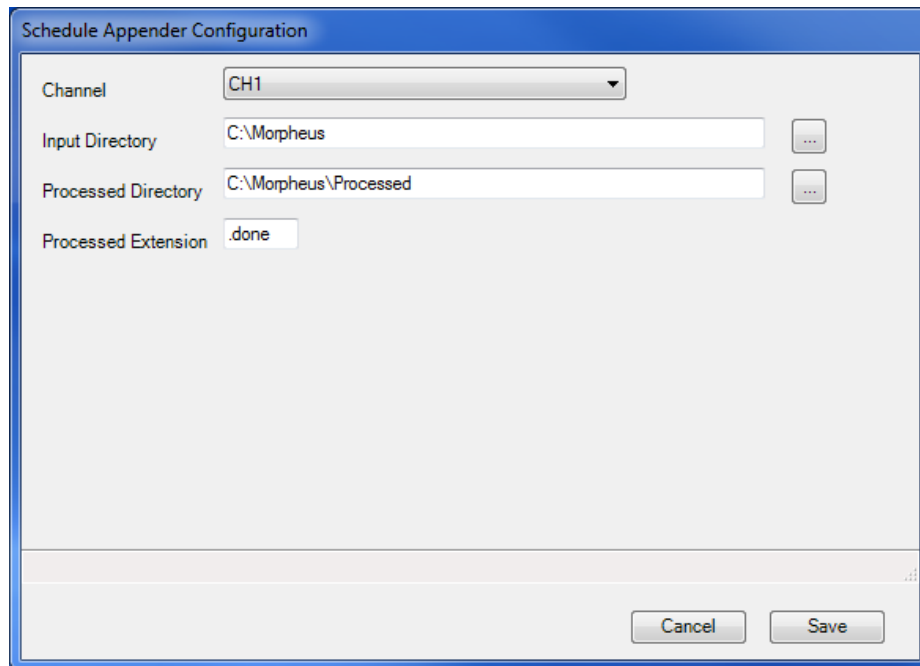


Figure 319 Schedule Appender Service Configuration Window

14.30 Schedule Export Service

The 'Schedule Export Service' periodically exports the channel's current schedule into a schedule file in Morpheus XML format. The service can be configured to export events that meet specific criteria and fall within a certain time period.

Note: When a configured event is deleted, an export is performed regardless of whether the event is inside the configured time window or not. This is because the event information is not retrievable after it has been deleted so its start time cannot be checked.

14.30.1 Configuring the Schedule Export Service

From the Schedule Export Service Configuration window, click on **Add**.

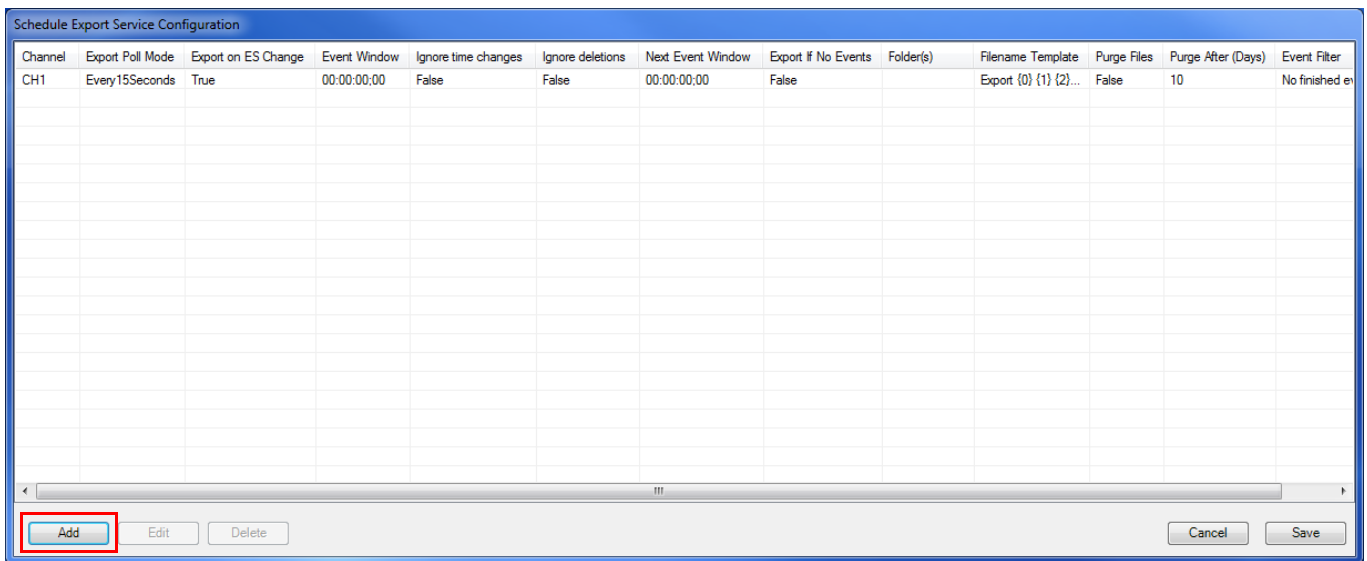


Figure 320 Schedule Export Service Configuration Window

The Export Config window is displayed.

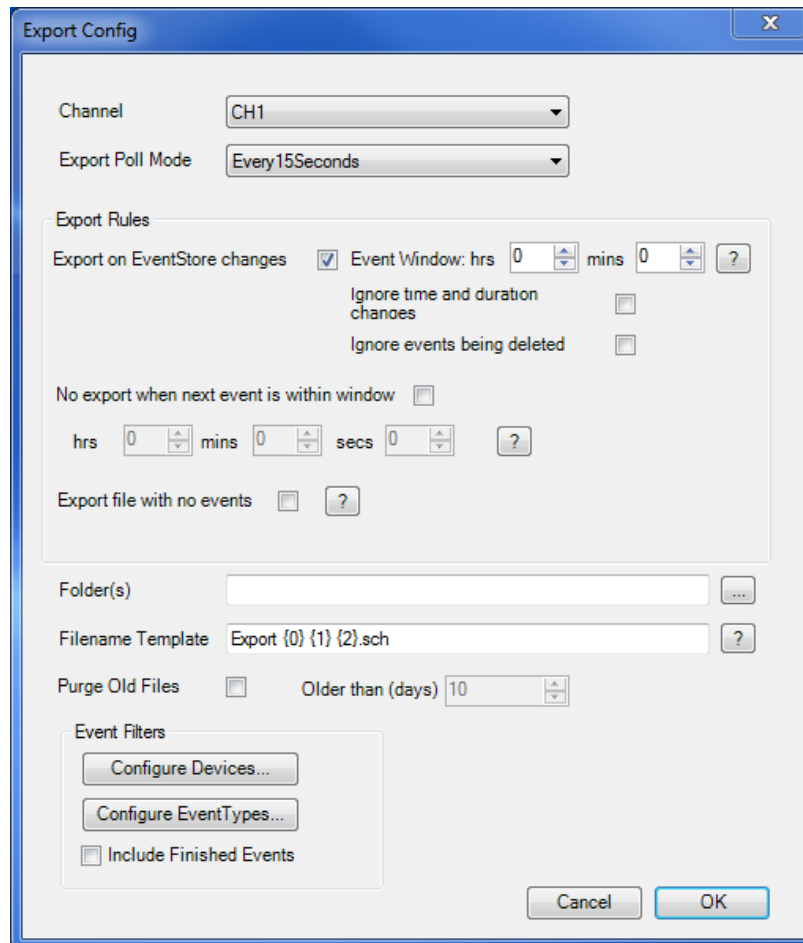


Figure 321 Schedule Export Service - Export Config Window

- Channel

Select the channel that includes the schedule to be exported.

- Export Poll Mode

Specify the frequency at which the schedule is to be exported.

Export Rules Pane

- Export on EventStore Changes

When selected, the service performs an export as soon as a configured event is changed in the EventStore in any of the following ways.

- The start time or duration of the event changes.
- An event is added or deleted.
- A kernel parameter (refer to page 79) is changed.

Note:

If no event filters are configured, the service exports the schedule for all events. In hold mode, event time changes are ignored.

- Event Window

If the Export on EventStore Changes check box is selected, the Event Window option becomes available. Use this option to configure a time window during which an export takes place.

Any events outside the event window are not included in the export. If the window is set to 0 hrs and 0 minutes, all configured events in the schedule are imported.

- Ignore Time and Duration Changes

This setting applies when the **Export on EventStore Change** check box is selected. The **Ignore time and duration changes** option prevents a schedule export from being performed when the start time or duration of an event changes.

- Ignore Events Being Deleted

This setting applies when the **Export on EventStore Change** check box is selected. The **Ignore events being deleted** option prevents a schedule export from being performed when an event is deleted.

- No Export When Next Event is Within Window

Prevents an export from being performed when a configured event is due on air within the specified window. The export is re-scheduled for the time that the event goes off air.

- Export File with no Events

When selected, a file is exported even when there are no events that meet the specified criteria.

Main Pane

- Folder(s)

Select a directory in which the schedule files will be placed. If required, more than one location can be configured (use a semi-colon as a separator between the paths).

- Filename Template

Enter a template for the filename of exported schedules. This template dictates how the filename is constructed.

The template can include, one, some, all, or none of the following:

- {0}: the channel name
- {1}: the date of export in the format yyyy-MM-dd
- {2} the time of export in the format hhmm

For example a template of 'Export {0} on {1} {2} for backup.sch' would produce a filename in the following format:

```
Export Channel1 on 2010-02-20 1600 for backup.sch.
```

Note: A file extension is required.

- Purge Old Files

Select in order to purge files in the export folder that are older than the number of days specified.

Event Filters Pane

- Configure Devices

Select devices to include in the event filter.

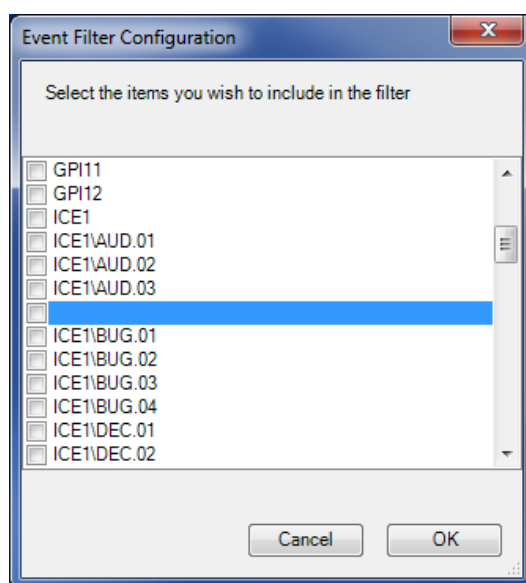


Figure 322 Schedule Export Service - Configure Devices

- Configure EventTypes

Select the Event Types to include in the event filter.

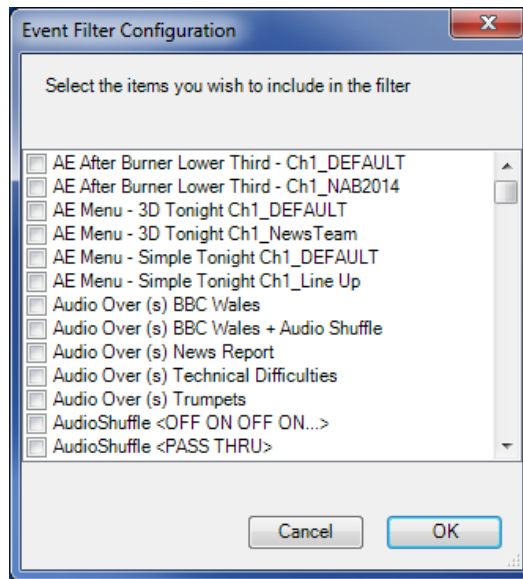


Figure 323 Schedule Export Service - Configure EventTypes

- Include Finished Events

Tick the check box in order to include finished events in the file.

14.31 Schedule Loop Service

This service allows a specified region of a schedule to repeat a number of times using a 'loop header' (see below).

14.31.1 Loop Header

A 'loop header' is a header, inserted into a schedule, that allows its child events to be looped (repeated continuously) until the next event starts. The next event must be a fixed event (refer to page 644).

Looping is typically used to fill a period of time, for example a few hours during the night, when a channel does not have programmes scheduled. Instead it can have a repeating 'wheel' of items such as promos, information and news. The 'wheel' contents are placed in the loop header.

When the loop header starts, it automatically inserts a copy of itself and its contents into the schedule. This process carries on as long as there is time to run the whole loop before the next schedule event starts.

As the start time of the next (fixed) event on the schedule approaches, there is likely to be insufficient time to run the whole loop. (The Schedule Loop Service can be configured to allow partial loops). At this point a 'padding event' is inserted automatically in the schedule, between the loop header and the fixed event.

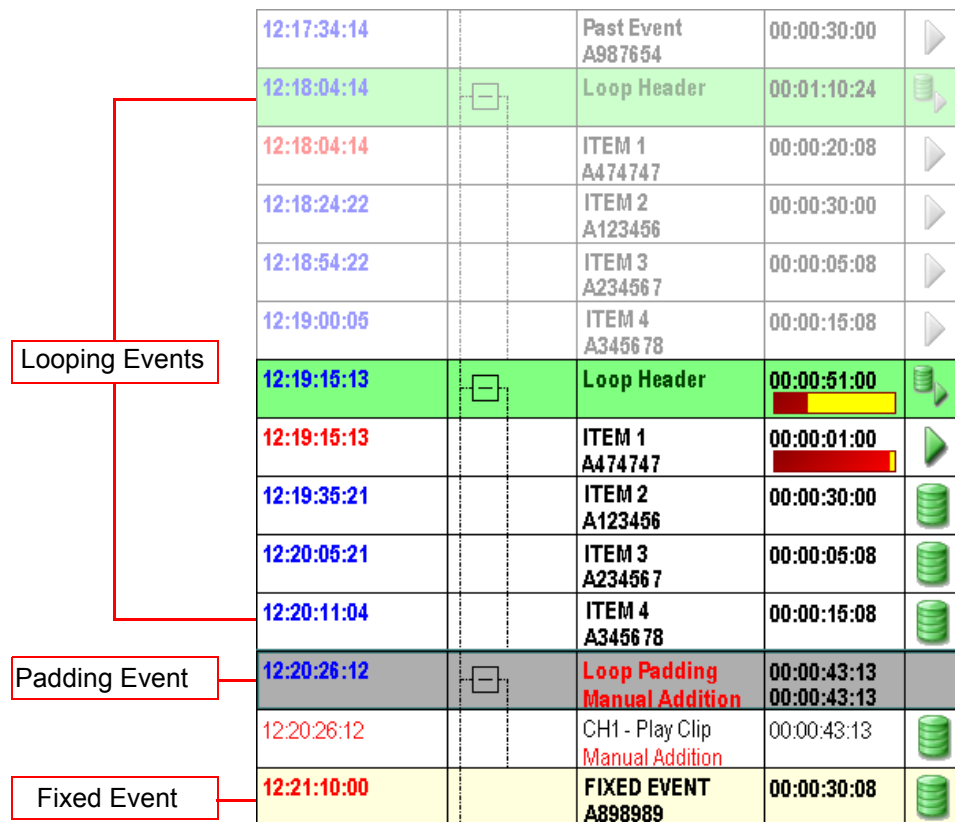


Figure 324 Loop Headers on the Editor Schedule

The following conditions must be met before adding a loop header the schedule:

- The Schedule Loop service must be configured and running (refer to page 502).
- If the loop header Event Type (refer to page 52) does not exist, it must be created (refer to page 504).

Note: The as run log (refer to page 569) contains a record of every looped event.

14.31.1.1 Adding Events to an Active Loop Header

Consider the following operational characteristics when adding events to a loop header:

As a loop header goes on air, it is automatically duplicated in the schedule for broadcasting immediately after the preceding loop has completed. In order for the insertion of a new event to be replicated across all subsequent loops, it must be added to the pending loop, not the on-air loop.

14.31.2 Configuring the Schedule Loop Header Service

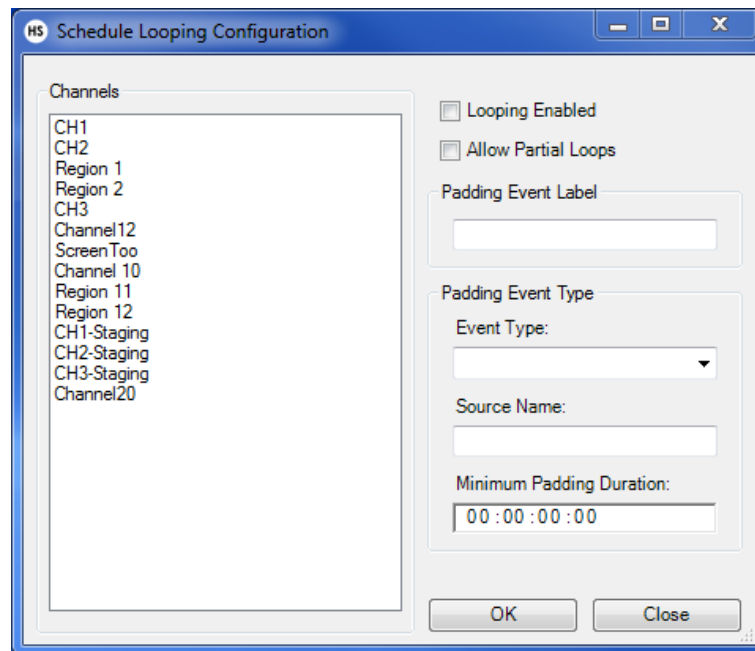


Figure 325 Schedule Looping Configuration Window

- Channels

Select the channel for the loop header.

- Looping Enabled

Tick the check box to enable looping in the Editor schedule.

- Allow Partial Loops

Tick the checkbox in order to allow partial loops, if there is insufficient time for the full loop to run.

Padding Event Type Pane

- Event Type

Select the type of event to use for the padding event. The padding event is inserted into the schedule automatically if there is not enough time for the full loop to run. The Event Type should be one that can be interrupted at any point, such as a still or moving 'filler'.

- Source Name

Select the source name for the padding event.

- Minimum Padding Duration

Enter the minimum duration for the padding event.

14.31.3 Creating a Loop Header Event Type

1. In the Configurator application (refer to page 50), click on the Configure Events icon:



The Event Types window is displayed.

2. On the list of Event Types (refer to page 52), select **System Default - Break Header** (or whichever is the configured break header Event Type).
3. Click on **Add Clone**, enter the name **Loop Header** and click on **OK**.
4. With the Loop Header Event Type selected on the list of Event Types, click on the All Parameter Definitions tab, then click on **Add Parameter**.

The Add Parameter window is displayed.

5. From the Parameter Type list, select BooleanParamDef.
6. In the Parameter Name field, type Loop.
7. From the Default Value field, select True.

Parameter Type	BooleanParamDef
Parameter Name	Loop
Parameter Alias	
Parameter Mode	Editable
Default Value	True
Kernel Param No	-1
Display Order	0
Visible	<input type="checkbox"/>
Paste Action	AlwaysPasteValue
Schedule Load Action	AlwaysLoadValue
Parameter Script Method	
Parameter Script Arguments	

Figure 326 Configurator - Add Parameter to Single Event Type Window

8. Click on **OK**.
9. On the All Parameter Definitions tab, double-click on on the Parameter name *DurationMode*.

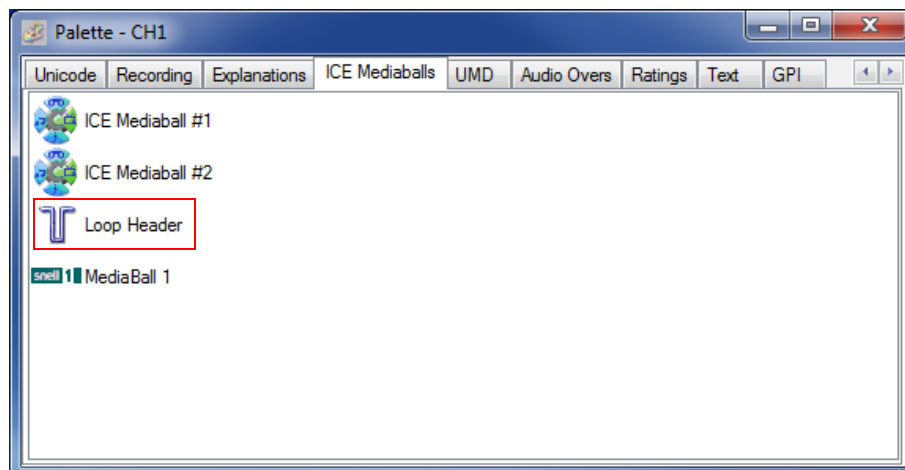
The AddAParameter window is displayed.

10. From the Default Value list, select UseChildren and click on **OK**.
11. From the Category list, select the required category. This is the Palette tab from which the loop header Event Type can be selected.

14.31.4 Adding the Loop Header to the Schedule

Operators can add the loop header to the Editor schedule by dragging and dropping it from the Palette (refer to page 5). The Palette is described in detail in the Morpheus Operators manual.

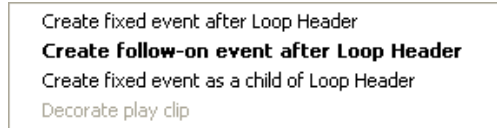
1. In the Editor schedule, open the Palette.
2. Click on the Palette tab that includes the loop header.



3. Click and drag the loop header above the required fixed event on the schedule.

14.31.4.1 Adding Child Events to the Loop Header

1. On the Palette, search for the first event to place under the loop header.
2. Hold down the right mouse button and drag the event from the schedule on to the break header.
3. Release the mouse button to display the following menu:



4. Select **Create fixed event as a child of Loop Header**.
5. Continue to add further material as required in the same manner.






11:40:50:18		Loop Header	00:01:15:24	
11:40:50:18		EVENT 1 A123456	00:00:30:08	
11:41:21:01		EVENT 2 A234678	00:00:15:08	
11:41:36:09		EVENT 3 A987654	00:00:30:08	

Figure 327 Loop Header on the Editor Schedule

14.32 Schedule Validation Service

A service to ensure that the context in which every commercial in a break header will be used is acceptable before going to air. For example, to ensure that commercials that contain characters from a film or television programme are not shown during or around the film / television programme itself.

An operator can review and mark a commercial break's location in a schedule as valid in advance of going to air. The results of the check appear in the Validation column in the Editor. If a commercial is subsequently moved or deleted within a break, the validation status is updated.

This Host Shell Service updates the schedule with the validation results.

To configure the service:

1. Add an instance of the Schedule Validation Service in the Shell Service Host application.
2. Set the Launch to **Always** and click on **Update**.
3. Click on **Detailed Config**. The following window is displayed:

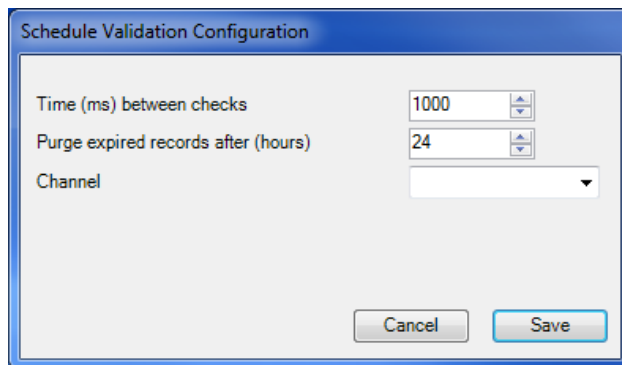


Figure 328 Schedule Validation Service Configuration Window

- Time (ms) Between Checks

The length of time in milliseconds between status checks of the material

- Channel

The Channel to check.

Note:

This feature will display two icons on the Validation column in the Editor: one to report that a commercial is in a valid location, and another to report that a commercial is in an invalid location in a break header. These should reside in the Morpheus icons folder, and have the following names:

- CommercialIsValid, to represent a positive result.
- CommercialInvalid, to represent a negative result.

14.33 Second Screen Service

This service sends XML messages to specified web server addresses, over HTTP, that contain information about the current playlist of one or more channels.

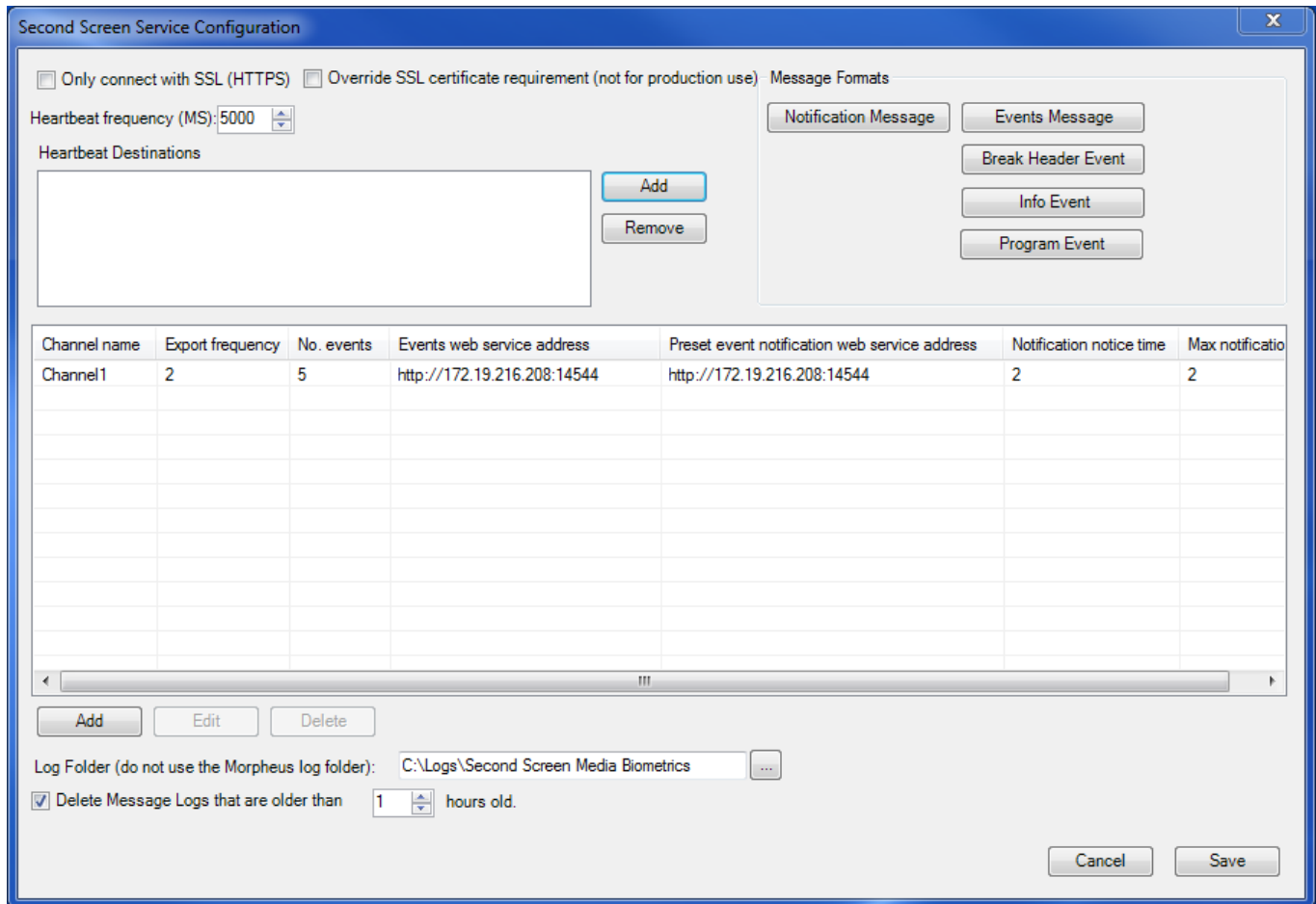


Figure 329 Second Screen Service Configuration Window

The service can deliver the following message types:

- **Notification Message**

Notifies the server up to N seconds before the preset event becomes the program event for the specified channel. N can be configured to be 1, 2, 5, 10, 20, 40 or 60s. If the program event changes very suddenly and the service was therefore unable to send a notification message in advance, then a notification message is sent when the preset event becomes the program event. The notification message contains the system time, channel name, event name, event OID, material id and the actual start time of the preset event.

- **Events Message**

Contains metadata for consecutive events on the specified channel's playlist, starting with the current program event. The events message can be configured to contain 2, 5, 10 or 50 events. It can also be configured to be sent once every 15s, 30s, 1min, 5min or 10min.

- **Break Header Event**
- **Info Event**
- **Program Event**
- **Heartbeat Message**

Contains the system time, service name (SSS), the hostname of the server on which the service is running and the list of the channels for which the service has been configured to send playlist messages. This message can be configured to be sent once every 1, 2, 5 or 10 minutes.

Each of these message types can be assigned the same or different web service addresses. A single service has a single heartbeat message configuration and can be configured to send messages for multiple channels.

14.33.1 Logging

The service can also be configured to log the messages sent in an assigned directory, and also to purge those older than after a specified number of minutes. Each message has its own log file having the following syntax:

'Events log<channel> <date> <time>.xml'

'Notification log<channel> <date> <time>.xml'

'Heartbeat log <date> <time>.xml'

Inside each log file is a statement of when the message was sent and the response from the server, followed by the XML content. If the message could not be sent, for example, because the endpoint was not available, then this is also stated.

- Log Folder (do not use the Morpheus log folder)

Use the ellipsis button to open a file browser, and select a directory in which to file the logs.

14.34 Subevent Timing Service

This service causes Subevents (secondary events, refer to page 648) of a specific type to end at a particular time. This is the start time of a 'stop' subevent. This service is designed for sub events that need their durations to be determined by events further down the schedule.

The two sub Event Types are joined by a 'link parameter'. The start Subevent uses the contents of this link parameter to find the corresponding stop Subevent.

One or more configurations can be created.

14.34.1 Creating a Subevent Timing Configuration

To create a Subevent timing service:

From the Subevent Timing Service Configuration window, click on **Add**. The Subevent Timing Config window is displayed as shown below:

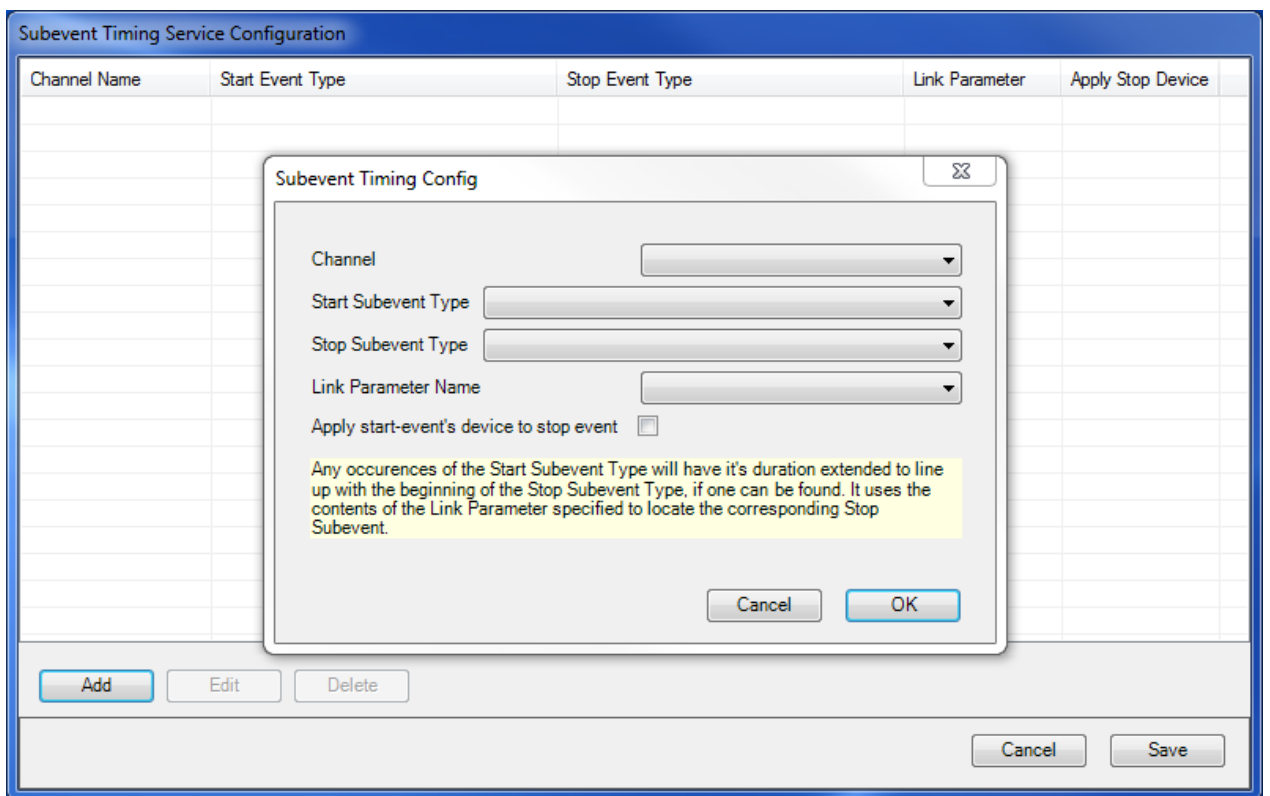


Figure 330 Subevent Timing Service - Configuration Window

- Channel

The channel on which the configured Subevents will apply - only one channel can be selected for each configuration.

- Start Subevent Type

Select the required Event Type. Secondary events of this type on the schedule will end at the start time of the stop Subevent.

- Stop Subevent Type

Select the required Event Type. The start time of secondary events of this type on the schedule is used to dictate the end time of the start Subevent.

- Link Parameter Name

Select the name of the parameter that is used to link a start and stop event. The link parameter should be present in both the start and stop event and should have the same value. We recommended that this contains unique values (if there is repetition of the values, the service finds the first matching one and uses that).

- Apply Start-Event's Device to Stop Event

If selected, this option applies the device from the start event to the stop event.

Note:

The duration of a start event is only managed if a corresponding stop event can be found. Events in the future are checked approximately every 10 seconds. Events that have started are checked at every clock tick.

14.35 Swift TX Service

This service uses the SwiftTX API to upload a number of subtitle events to the device. Without it, Morpheus only loads subtitle files for the programme and preset events.

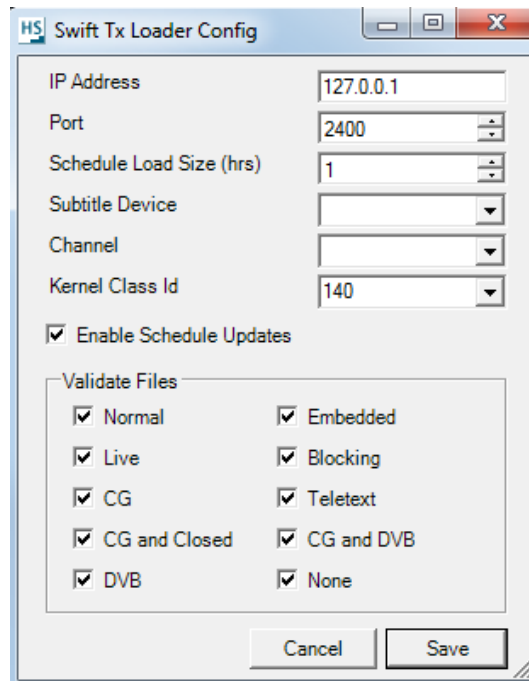


Figure 331 Swift TX Service

14.36 Transfer Decorator Service

The Transfer Decorator service sets the media management process (refer to page 615) in action and looks for events with the following characteristics:

- Have not yet started.
- Have a valid material ID specified (refer to page 614).
- Have a storage device supplied by the Material Decorator (refer to 'Material Decorator Service' on page 461).
- Have a playout device specified.
- Have a video server requested as the playout device.
- Have a playout device that is enabled in the Transfer Decorator configuration.
- Have a material status indicating that the required material ID is not available on the chosen device (refer to 'Transfer Requests' on page 518).

Note:

In order for the Transfer Decorator Service to run, the Material Decorator service must also be running.

14.36.1 Configuring the Transfer Decorator Service

14.36.1.1 Channels Tab

On the channels tab, select the channels to decorate.

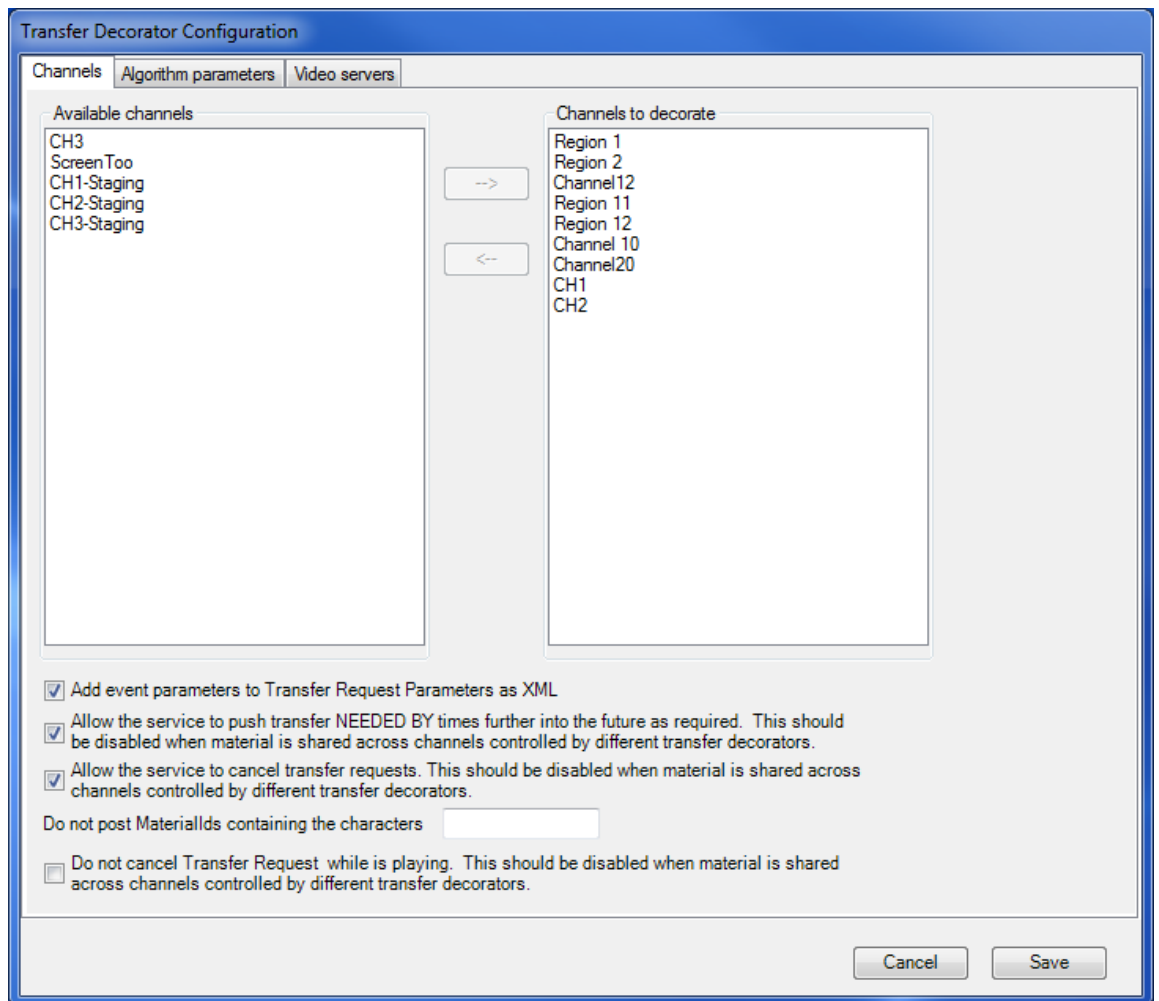




Figure 332 Transfer Decorator Service - Channels Tab

- Available Channels / Channels to Decorate

1. Under Available Channels, select the channels to be decorated.
2. Click on  .

The channels appear under Channels to Decorate.

Note: To prevent a channel from being decorated, select it under Channels to Decorate and then click on  .

14.36.1.2 Algorithm Parameters Tab

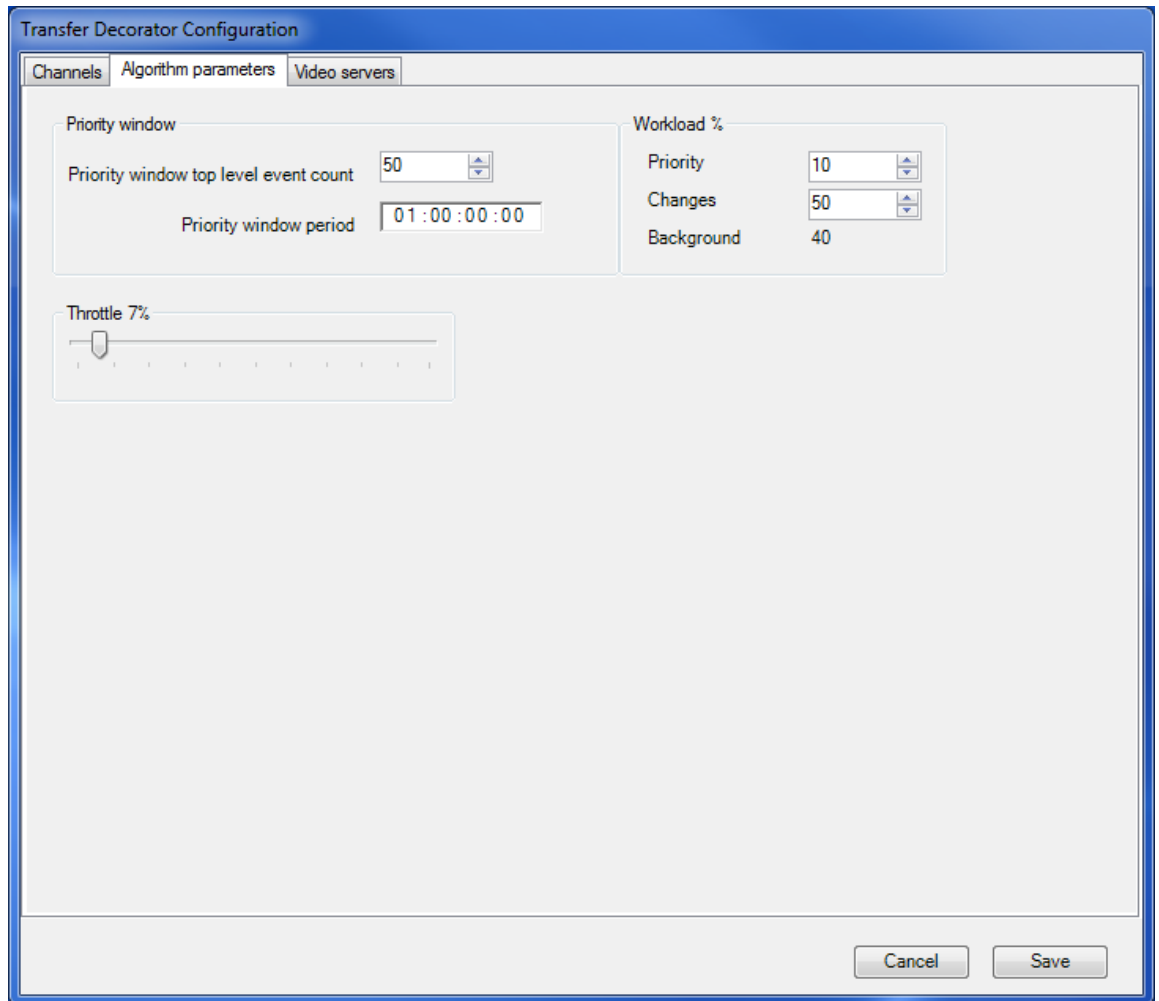


Figure 333 Transfer Decorator Service - Algorithm Parameters Tab

Priority Window

A configurable margin within which events are considered to be of the highest priority. The Material Decorator Service performs checks on these events more frequently than on others. The Priority Window is based upon two different measurements:

- Priority Window Top Level Event Count

The next 50 events after the programme event.

- Priority Window Period

All events that fall within the specified period of time.

The Priority Window automatically switches to the measurement that covers the greatest number of events.

Workload %

Configure the workload distribution of the service. The percentage of time on priority and changes can be modified as desired with the remainder left for background checks.

Additional Controls

- Throttle

The throttle is applied in the Carburetor algorithm used while applying changes to the EventStore model. The default is 7%.

14.36.1.3 Video Servers Tab

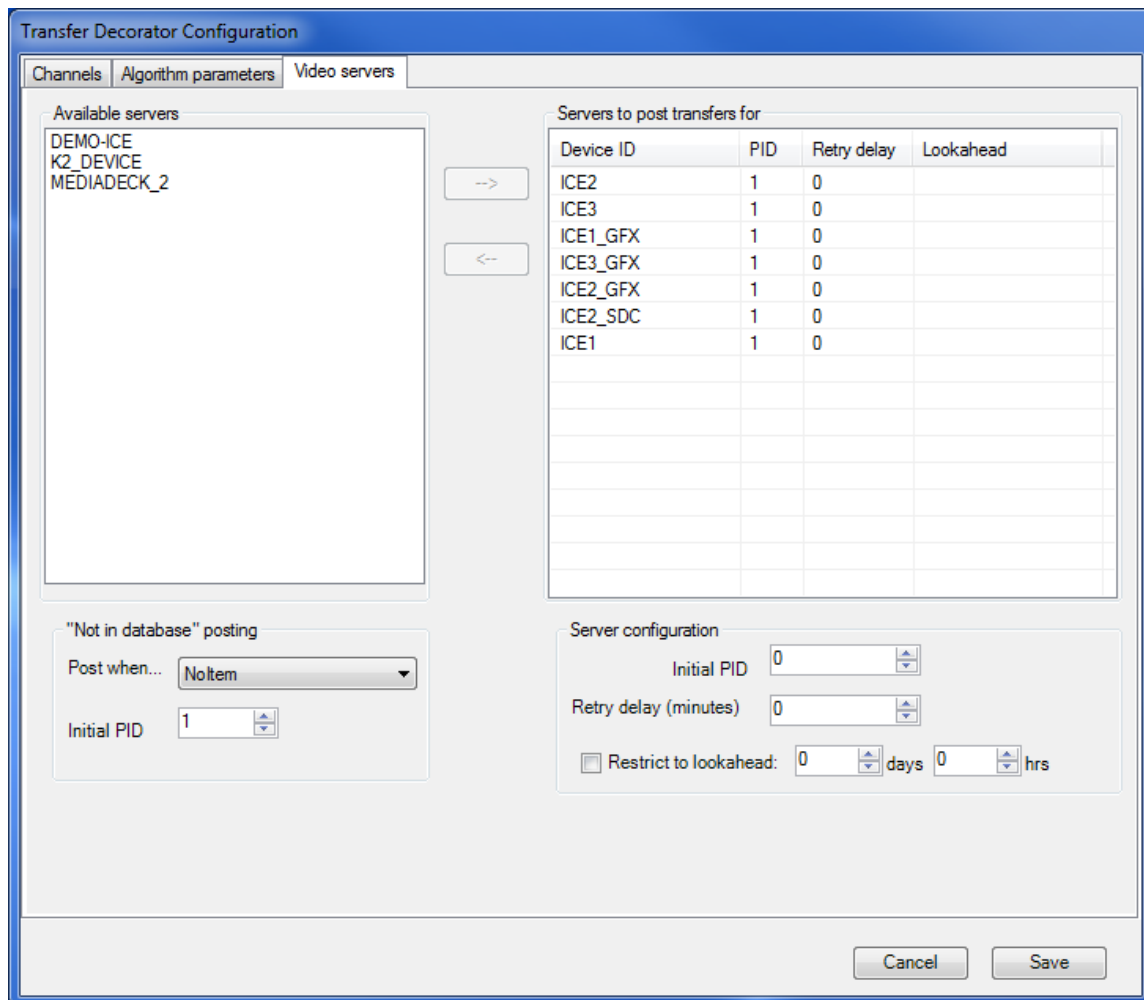




Figure 334 Transfer Decorator Service - Video Servers Tab

- Available Servers / Servers to Post Transfers For

1. Under Available Servers, select the servers to be post transfers for.
2. Click on  .

The servers appear under Servers to Post Transfers For.

Note: To remove a server from Servers to Post Transfer For, select it and then click on  .

- Restrict to Lookahead

A 'look ahead' period can be configured for the Transfer Decorator in order to limit its activity to within a specified number of days and/or hours on the schedule. If the Restrict to Lookahead check box is cleared, the Transfer Decorator acts on the entire schedule.

14.36.2 Transfer Requests

If material is missing for an event, a red barrel is displayed on the left hand side of the **Main** column on the schedule.

The **Post Transfers** button on the Missing Material Report, inside the Morpheus Editor, allows a user to enter requests into the 'Transfer Requests' table in the Morpheus media management database, via the Transfer Decorator (refer to page 588). The Transfer Requests table maintains a record of all requests for material to be moved or ingested.

The Transfer Decorator then updates the status of the transfer on the **Main** column on the Editor schedule, by means of barrels. Each possible status is shown in Table 34 below.




Barrel	Status
	A transfer request has been posted.
	A transfer request is in progress.
	The transfer request has failed.

Table 34 Transfer Request Status Barrels

Note:

For information on the Transfer Request table in the Morpheus Media Management database, refer to page 603. For information about the media management process, refer to page 615.

15. HydraHUD

HydraHUD is a web-based application that can display the contents of up to 10 channels at once. This section contains instructions on configuring the roles and appearance of the application. We recommend Google Chrome as it is the de facto standard browser for all professional Web applications due to its rich feature set.

To use HydraHUD, install the EventStore Service App and ensure that the MessageBroker database is correctly configured in the Deploy application.

To configure HydraHUD, navigate to the following web address:

<IP address or name of HydraHUD server>/HydraHUD/

The following page is displayed:

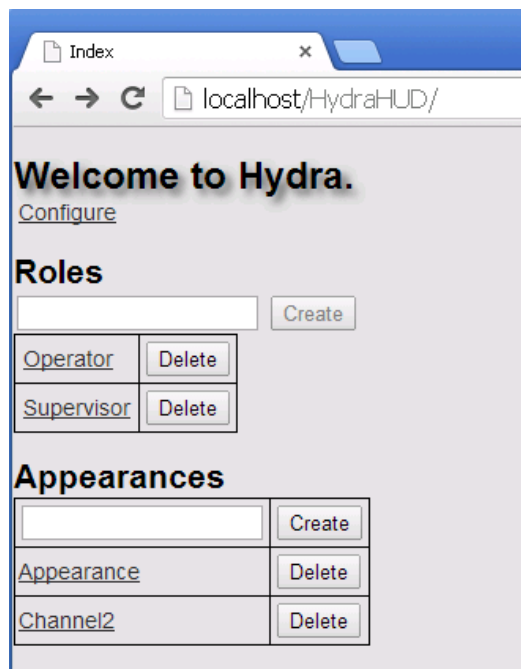


Figure 335 HydraHUD Configuration

15.1 Viewing the Channel Information

In common with the Morpheus Editor, HydraHUD uses roles to determine channel viewing rights.

In order to view channel information, select a role name as shown in the example below:

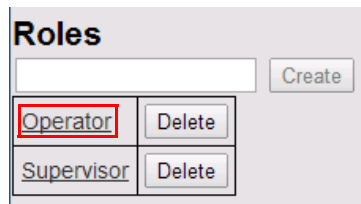


Figure 336 Selecting a Role

In the example below, a restricted page is displayed, as would be configured for an operator.

Logged in as [Operator](#) [Home](#)

My Morpheus, Channel1 12:58:17					My Morpheus, Channel2 12:58:17					My Morpheus, Channel3 12:58:17				
Title	MaterialID	Duration	Device	Main	Title	MaterialID	Duration	Device	Main	Title	MaterialID	Duration	Device	Main
Event 1	C034016	00:04:41:03	HDOMN1		Event 1	C034016	00:04:41:03	Server2		Event 1	C034016	00:04:41:03	Server3	
Event 2	C054694	00:04:07:15	HDOMN1		Event 2	C054694	00:04:07:15	Server2		Event 2	C054694	00:04:07:15	Server3	
Event 3	C054825	00:05:25:10	HDOMN1		Event 3	C054825	00:05:25:10	Server2		Event 3	C054825	00:05:25:10	Server3	
Event 4	C061099	00:03:32:06	HDOMN1		Event 4	C061099	00:03:32:06	Server2		Event 4	C061099	00:03:32:06	Server3	
Event 5	C061069	00:03:37:08	HDOMN1		Event 5	C061069	00:03:37:08	Server2		Event 5	C061069	00:03:37:08	Server3	

Figure 337 Viewing a Channel for a Role

15.2 Configuring Roles

To view the currently configured roles and their channels:

1. On the welcome page, click on **Configure**. The Configuration page contains the following list of roles and channels:

Roles	
Name	Channels
Operator	My Morpheus: Channel1,Channel2
Supervisor	My Morpheus: Channel1,Channel2,Channel3

Figure 338 Configured Roles and Channels

HydraHUD displays the following information:

- The role name
 - The Morpheus system name, for example, MyMorpheus
 - The list of channels that the role user can view
2. Click on **Back to Hydra** to return to the main page.

15.2.1 Creating a New Role

To create a new role:

1. On the **Welcome to Hydra** page, enter a name for the role in the text field as shown below:

The screenshot shows a web interface titled "Roles". At the top, there is a text input field containing the word "Manager" and a "Create" button to its right. Below this, there is a table with two rows: "Operator" and "Supervisor". Each row has a "Delete" button next to it.

Figure 339 Adding a Role

2. Click on **Create**. The new role is displayed in the list as shown in the example below.

The screenshot shows the "Roles" page after the "Manager" role has been added. The text input field is now empty, and the "Create" button is disabled. The table below now has three rows: "Operator", "Supervisor", and "Manager". Each row has a "Delete" button next to it.

Figure 340 List of Appearances

To remove a role, click on **Delete**.

15.2.2 Configuring a Role

To change the role configuration:

1. Click on the role name
2. Click on the link to the role name as shown below:

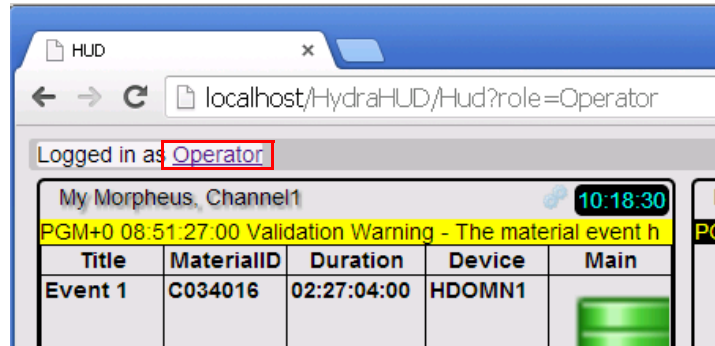


Figure 341 Configuring Roles

The following window is displayed:

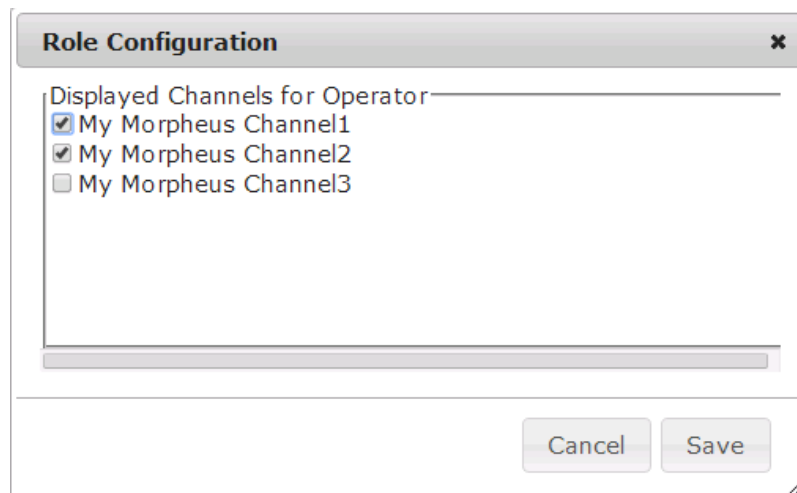


Figure 342 Adding and Removing Channels From a Role

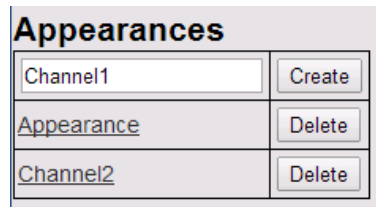
3. Select the channels required for the role.
4. Click on **Save**. The channel page automatically refreshes to display the new configuration.

15.3 Creating Appearances

An Appearance, in HydraHUD, is a set of display characteristics that can be configured in order to restrict the viewing of information on a per role basis.

15.3.1 Creating an Appearance

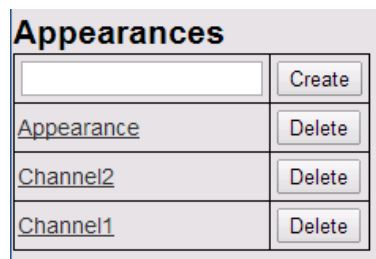
1. On the **Welcome to Hydra** page, enter a name for the appearance in the text field as shown below:



Appearances	
Channel1	Create
Appearance	Delete
Channel2	Delete

Figure 343 Adding an Appearance

2. Click on **Create**. The new appearance is displayed in the list as shown in the example below.



Appearances	
	Create
Appearance	Delete
Channel2	Delete
Channel1	Delete

Figure 344 Appearance List

To remove an appearance, click on **Delete**.

15.3.2 Configuring an Appearance

1. Click on the appearance name as shown in the example below:



Figure 345 Selecting an Appearance

The following window is displayed

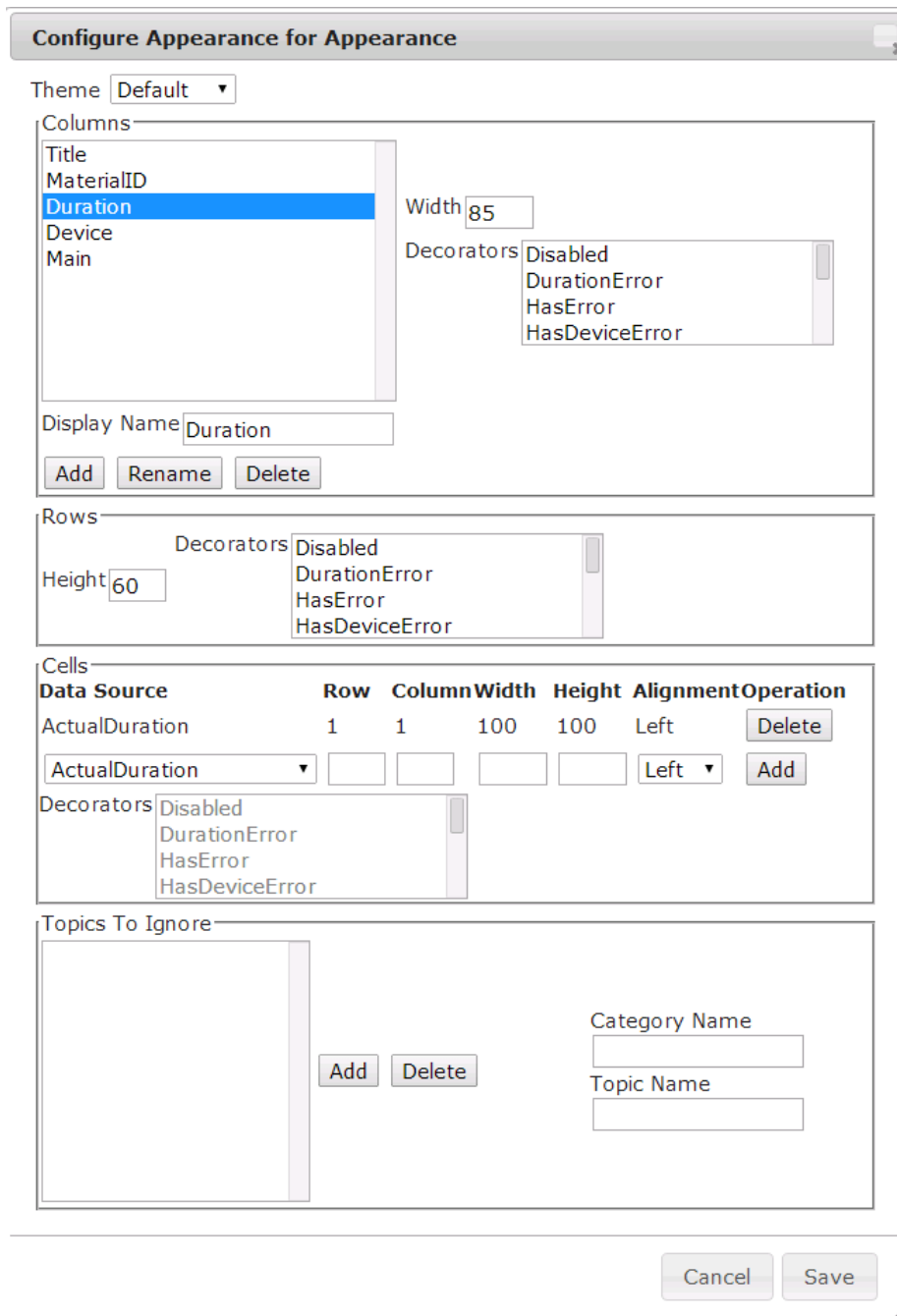


Figure 346 Configuring an Appearance

2. Create each column required by entering a column name into the **Display name** text field in the **Columns** section and clicking **Add**. Set a width for each column (can be readjusted at any time). Select the Morpheus decorators that will operate on this column. Columns can also be renamed or deleted at this point.

The columns appear on the role page as shown in the example below:

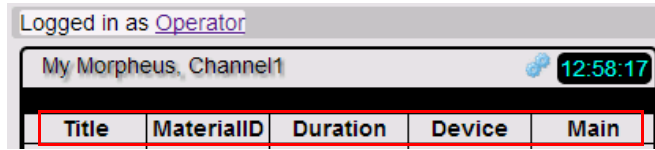


Figure 347 Channel Display Names

3. For each column, click on the column name and, in the **Cells** section of the page, select a data source. For example, to display the Material IDs that are currently in a schedule in Morpheus, in a column labeled Material ID, create a column named Material ID and select a data source of Material ID from the drop-down list in the Cells section.
4. After selecting a data source from the drop-down list, enter a row number, column number, width and height for the cell and click on **Add**. Select the Morpheus decorators that will operate on this cell. Columns can also be renamed or deleted in this section.

The cells appear on the role page as shown in the example below:

MaterialID
C034016
C054694
C054825
C061099
C061069

Figure 348 Cell Contents

5. To configure the height of each row, enter a new value into the height field in the Rows section of the page and select the Morpheus decorators that will operate on the rows.
6. Click on **Save** to retain the new settings or **Cancel** to close the window without saving the changes.

15.4 Configuring a channel

To apply an appearance to a channel:

1. On the welcome page, click on the required role. The main channel page is displayed.
2. For the required channel, click on the settings symbol as shown below:

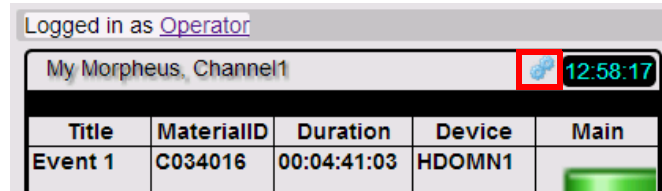


Figure 349 Configuring a Channel

The following window is displayed:

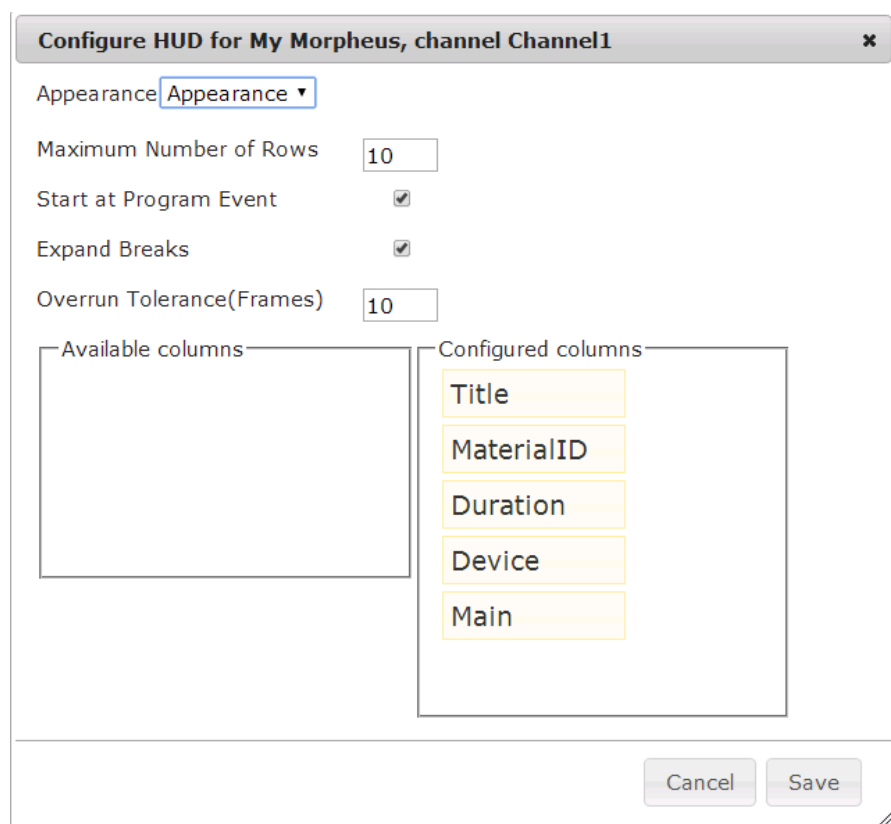


Figure 350 Selecting a Channel Appearance

3. Select an appearance from the drop-down list.
4. Set the maximum number of rows for the channel.
5. If required, select the **Start at Program Break**, **Expand Breaks** options and set an overrun tolerance in frames.
6. Click and drag the column headings from the **Available columns** box to the **Configured columns** box. The columns do not appear on the page unless they are listed in the **Configured columns** box.
7. Click on **Save** to retain the new settings or **Cancel** to close the window without saving the changes. The channel page automatically refreshes to the new settings.

15.5 Backup and restore

To backup and restore the HydraHUD configuration:

1. On the main welcome page, click on **Configure**. The following page is displayed:

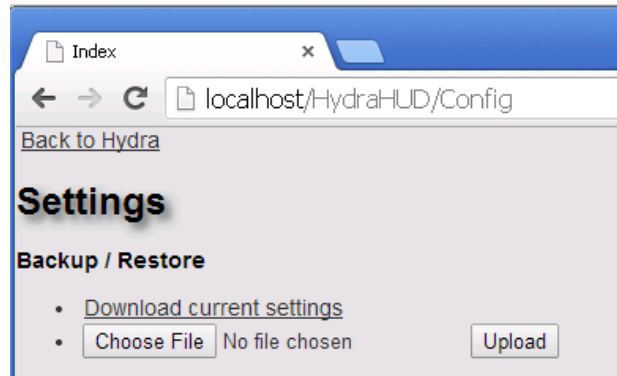


Figure 351 Backup and Restore

2. To backup the current HydraHUD settings, click on **Download current settings** - they are saved to the file HydraHUD.json in the browser default Downloads folder.
3. To restore an exiting HydraHUD configuration, click on **Choose File**. Select a HydraHUD.json file and click on **Open**. Morpheus loads the file. Click on **Upload** to apply the file settings to HydraHUD.
4. Click on **Back to Hydra** to return to the main HydraHUD page.

16. Panoplay

The purpose of Panoplay is to synchronize schedules between channels that access different Event Stores. For example, using Panoplay, a Follower schedule can be modified so that it is identical to a Leader channel schedule - any change to a Leader channel is applied immediately to the Follower channel. A change made in a Follower channel is overwritten immediately by the Leader channel.

During the synchronization process, automation is switched off on the Follower system, and no automation commands are issued during this period. This state is indicated in the Editor.

A Follower channel cannot be the on-air channel - if Panoplay detects that a Follower channel is on-air, it will be un-synchronized from the Leader channel in order to prevent playout problems.

16.1 Sync Sets

A Leader channel and all of its Followers can be grouped to form a 'sync set' and one Panoplay agent manages this sync set. Sync sets can be synchronized with each other.

One or more agents run within a host program (the Panoplay application). Each EventStore has one instance of this associated with it, although not necessarily on the same machine. Each agent manages one sync set.

A Follower system cannot have any channels in the sync set with the OnAir flag set to true. If a Follower system detects that a channel in the sync set is on-air, all channels in that sync set become un-synchronized. If a system is in an un-synchronized state, an alarm is raised.

If a system contains channels that are already on-air, then it cannot be made to act in Follower mode. Attempts to set the system to Follower mode in the Oracle application initially appear to be successful but reset to the previous mode moments later and the system returns to an un-synchronized state.

16.2 Multisystem Synchronization

Panoplay supports synchronization with a third (or more) EventStore for disaster recovery and upgrade purposes. Each additional EventStore requires its own Panoplay Agent. These additional systems (mirrors) cannot become the Panoplay Leader.

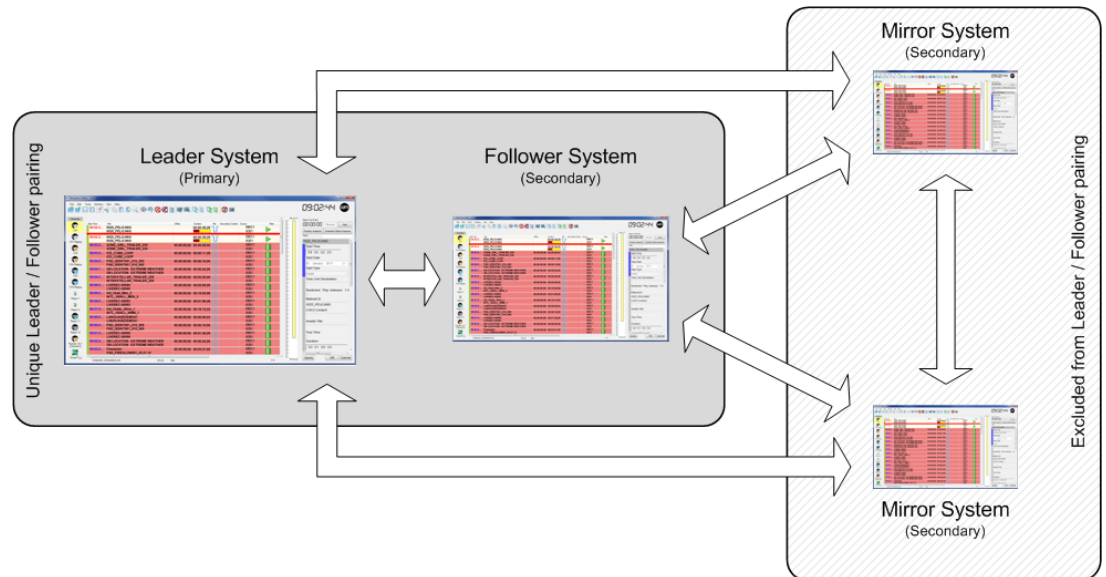


Figure 352 Panoplay Multisystem Synchronisation

Note: It is important that any additional EventStores and their Agents remain fully connected to both the Primary and Secondary systems at all times. Disconnection of any Agent prevents Panoplay operation on the remaining Agents until the disconnected Agent reconnects to the other Panoplay Agents.

16.3 Panoplay Configuration

Panoplay is configured from an editable XML file: *PanoplayConfiguration.xml*, an example of which is provided in Chapter 28. Appendix - Panoplay Example XML Configuration File. By default the file is installed in C:\Morpheus by default, however, the location is configurable

The current_system.xml file for each system must contain identical device names, sources and Event Types (refer to page 131). The device configuration of each system must link these to the correct storage device for that system.

16.4 Panoplay Status

The Panoplay status is displayed the Editor window as either Leader, Follower or Unsynchronized. It is shown in the title bar of the window and in a panel to the bottom-left as shown below:

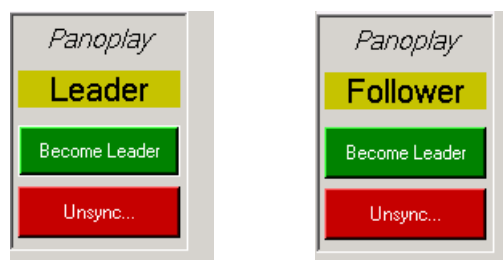


Figure 353 Panoplay Panel on the Editor

Note: The Leader / Follower names are the defaults and may have been changed in the system configuration. Refer to Chapter 7.7.5 Other Tab.

Panoplay alarm messages appear on the bottom toolbar and can be acknowledged using the Editor Alarms functionality.

The Leader, Follower and un-synchronized status is specified in a radio button matrix in the Panoplay Oracle.

16.5 Communication

Communication with the EventStore is by means of UDP multicasting (refer to page 35).

Communication between Panoplay applications uses a TCP port and an IP address or machine name specified in the configuration XML (refer to TCP/IP on page 649).

16.6 As Run Logs

Panoplay uses the Event Journal Collector Service (see section 13.12) for the collection and generation of As Run logs.

Morpheus can automatically merge the Panoplay Leader and Follower As Run logs into one As Run log. For further information, refer to Section 20.5 As Run Merging on page 586.

Note:

To use the Event Journal Collector Service, the As-run DB Service must be disabled *before* creating an Event Journal Collector service in order to prevent it from collecting the Panoplay events.

The As-run DB Service only needs to be turned off or on for each channel that is using it. The As-run DB Service can be run on other channels, but the Event Journal Collector Service and the As-run DB Service cannot be run on the same channel at the same time.

16.7 Panoplay Applications

Panoplay consists of several applications that work together:

- **Panoplay Agent** - manages the synchronization of Leader and Follower channels. This application must be running in order to enable synchronization.
- **Panoplay Oracle** - determines which sync set / channel is the Leader and which is the Follower. This application must be running in order to enable synchronization.
- **Panoplay Schedule Loader** - allows a loaded schedule to be distributed across synchronized channels.
- **Panoplay Schedule Client** - shows which schedules are being loaded onto which channels.

Typically all of the Panoplay applications run on one machine.

16.7.1 Panoplay Oracle

16.7.1.1 PanoplayConfig.xml

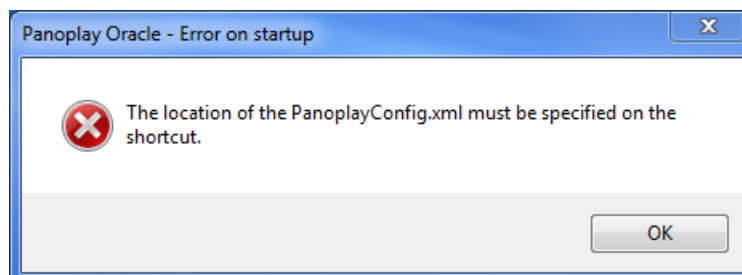
The *PanoplayConfig.XML* file provides the entire Panoplay functional configurations. An example of which is provided in Chapter 28. Appendix - Panoplay Example XML Configuration File.

Define the location of the PanoplayConfig.xml:

1. Right click on the Panoplay Oracle Shortcut - the Panoplay Oracle Properties window is displayed.
2. In the Target text box on the Shortcut tab, following the path of the Oracle application, enter the full path and name of the Panoplay Oracle .xml configuration file in speech marks , using the format shown in the example below (a <space> separates the two paths):

C:\Morpheus\PanoplayOracle.exe "C:\Morpheus\PanoplayOracle.exe"

When Panoplay Oracle is started, the location of the PanoplayConfig.xml file must be defined otherwise the application will not start, and the following error message is displayed:



16.7.1.2 Configuration Guide to the PanoplayConfig.xml File

A guide to configuring the elements in the PanoplayConfig.xml file, an example of which can be found in Chapter 28. Appendix - Panoplay Example XML Configuration File.

- <GoUnsynchronisedWhenSlaveOnAir>

A situation can arise whereby Centra and Panoplay become in conflict over the legitimate on-air state of the Morpheus systems following a manual changeover of the Leader and Follower, forcing the systems to become unsynchronised. This configuration option overcomes this undesirable condition.

False = Do not unsynchronise the Panoplay systems if the 'Follower' has been changed to Master state and is currently on-air (OnAir flag is set).

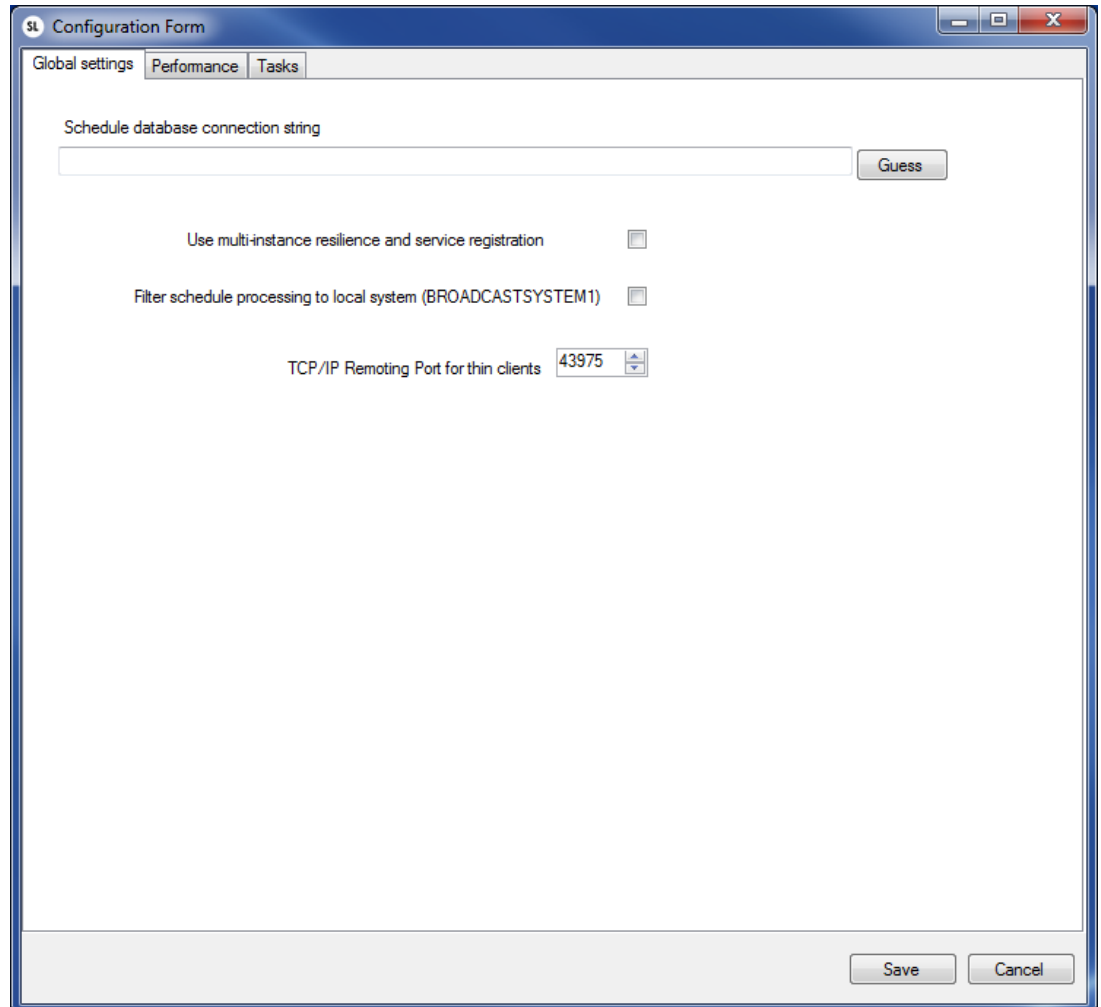
True = Unsynchronise the Panoplay systems if the 'Follower' has been changed to Master and is currently on-air (OnAir flag is set). This setting is the default.

16.7.2 Panoplay Schedule Loader Configuration Settings

To configure the Panoplay Schedule Loader, run the application and then select **File > Settings**. The settings are grouped into tabs, each of which is described below.

16.7.2.1 Global Settings Tab

This section contains information on global settings.



The screenshot shows a window titled "Configuration Form" with three tabs: "Global settings", "Performance", and "Tasks". The "Global settings" tab is active. It contains the following fields and controls:

- A text input field for "Schedule database connection string" with a "Guess" button to its right.
- A checkbox labeled "Use multi-instance resilience and service registration" which is currently unchecked.
- A checkbox labeled "Filter schedule processing to local system (BROADCASTSYSTEM1)" which is currently unchecked.
- A spin box for "TCP/IP Remoting Port for thin clients" with the value "43975" displayed.
- "Save" and "Cancel" buttons at the bottom right of the window.

Figure 354 Panoplay Schedule Loader Global Settings

- Schedule Database Connection String

Enter the required connection string to the database.

- Use Multi-Instance Resilience and Service Registration

Select this check box to allow multiple Panoplay Schedule Loader servers to run for resilience purposes. This prevents any issues that may otherwise arise from running multiple Schedule Loaders on one EventStore.

- Filter Schedule Processing to Local System (<system name>)

The schedule database stores schedules for multiple systems. However, only one instance of the server application is connected to one local system. When selected, this option only allows schedules that can be loaded by the local system. When clear, it allows the control of the whole system.

- TCP/IP Remoting Port for thin Clients

Enter the required TCP/IP remoting port for thin clients.

16.7.2.2 Performance Tab

This section contains information on performance settings.

Configuration Form

Global settings Performance Tasks

Database poll interval for status display purposes (seconds) 1

Maximum number of events to load in one batch 10

Maximum amount of system time to dedicate per batch (milliseconds)
Note that each batch is subdivided into 50ms transactions 500

Amount of time to spend idle between processing batches (milliseconds) 500

Cache TTL (seconds)
Database data is cached to speed up retrieval. Large cache TTLs allow a large number of schedules to be loaded concurrently, but also require more physical memory. 300

Save Cancel

Figure 355 Panoplay Schedule Loader Performance Settings

- Database Poll Interval for Status Display Purposes

The frequency at which the client requests a full list of schedule load job statuses from the server and updates its UI as a result. A lower number results in a more transient display but provides a more accurate overview.

- Maximum Number of Events to Load in One Batch

Limits the number of events loaded into the schedule in one batch.

- Maximum Amount of System Time to Dedicate per Batch (milliseconds)

Limits the time allowed per batch of events.

- Amount of Time To Spend Idle Between Processing Batches (milliseconds)

Sets the amount of time, between loading each batch of events into the schedule, that the system is idle.

- Cache TTL (seconds)

The Cache TTL (Time To Live) option dictates how long items remain in a cache. The entities that make up a schedule in the database can be time consuming to retrieve and are cached for a set amount of time.

If a Schedule Loader application is controlling only a few active jobs at a time, a small TTL can be specified. However, if a Schedule Loader application is loading several channels at a time, a larger TTL is required. A TTL value that is too large may take up too much memory so on a big system, some fine tuning may be required.

16.7.2.3 Tasks Tab

This section contains information on saving synchronization settings for channels.

The screenshot shows the 'Configuration Form' window with the 'Tasks' tab selected. On the left, a list contains 'New Task'. The main area is filled with configuration options for this task:

- Task Name:** A text box containing 'New Task'.
- Source files:**
 - Path:** A text box with a browse button (...).
 - File mask:** A text box containing '*.sch'.
 - Append schedules into Automation as they arrive
- Post processing of source file:**
 - Move to another directory [text box] [browse button (...)]
 - Change file extension e.g.: imported [text box] .done
 - Delete
- Schedule name and version extraction:**
 - Based on filesystem filename From schedule name embedded inside schedule file
 - Schedule Name:** e.g.: ^(<match>*)_v.*\$ [text box]
 - Schedule Version:** e.g.: ^*_v(<match>[0-9]+).*\$ [text box]
- Limits:**
 - Stall loading while a channel is overfilled, or when there are more than 24 [spin box] hours loaded

At the bottom left are 'Add' and 'Delete' buttons. At the bottom right are 'Save' and 'Cancel' buttons.

Figure 356 Panoplay Schedule Loader Task Settings

- Add

Add a new task. The new task is displayed at the top left of the window and is given a default name - click on the name in order to display the configuration options for the task (displayed on the right).

- Delete

Delete an existing task. Select the task on the list and click on **Delete**.

- Task Name

Type a name to replace the default name.

- Source Files

Apply settings to source schedule files.

- Path

Enter or browse to the path containing the source schedule files.

- File Mask

A file extension filter to specify the type of files should be examined in the specified directory. For example, '*.sch' specifies all files ending with the .sch extension.

- Append Schedules into Automation as they Arrive

Add schedules to automation as they arrive, otherwise, leave this check box clear.

- Post Processing of Source Files

Define the fate of a source file after it has been processed.

- Move to Another Directory

Select this to move the source file to another directory. Enter or browse to the required path.

- Change File Extension e.g. Imported

Apply a different extension to the file to indicate its status, for example, **.imported** or **.done**.

- Delete

Select this to delete the source file after processing.

- Schedule Name and Version Extraction

Configure a schedule name and version number.

The Schedule Loader must have the name of a schedule and its version number, information that can be extracted either from a schedule filename or from the contents of the schedule file.

- Based on Filesystem Filename

Extracts the schedule name and version number from the file name. For example, a schedule may have the name 'ChannelOne_evening_v2.sch', identifying the schedule name as 'ChannelOne_evening' and the version as '2'.

- From Schedule Name Embedded Inside Schedule File

The schedule file is an XML file that contains an XML tag describing the schedule. For example, it might contain: <Schedule Name="ChannelOne_Evening_v2">. The Schedule Loader can extract the required information from the schedule name inside the file.

- Schedule Name

A regular expression that describes how to extract the true schedule name from the schedulename/version combination in either the filename or XML tag.

- Schedule Version

A regular expression that describes how to extract the schedule version number from the schedulename/version combination in either the filename or XML tag.

- Limits

The **Stall Loading...** setting ensures that there is always a certain number of hours of schedule loaded. Select **Stall Loading...** to prevent a source schedule file from loading when a channel is overfilled or when more than the stated number of hours are loaded.

16.8 Morpheus 'Maximum Event Count'

Morpheus can set a maximum event count for each channel. This raises an alarm within Morpheus and also in the System Health Monitor (refer to page 553).

The maximum event count is also used to control the Panoplay Schedule Loader. When the Schedule Loader is close to the event count limit, it pauses and resumes loading when another, lower threshold is crossed.

To configure the event count:

1. Start the Configurator (refer to page 50).
2. On the toolbar, click on **Configure Channels**.
The Channels window is displayed.
3. Under **Channel Properties**, type the event count setting under **Maximum Number of Events**.

17. Device Manager Viewer

View the allocation of devices using the Morpheus ‘Device Manager Viewer’ application.

The Device Manager Viewer allows engineers to detect whether a device is over or under-used and therefore to determine whether this may pose an unacceptable risk to the system. For example, the Device Manager Viewer may indicate that a device is in use too frequently or that a failing device can be swapped out.

This application provides a dynamic, graphical representation of devices (horizontal axis) over time (vertical axis). This is determined by the scheduled events across one or more channels.

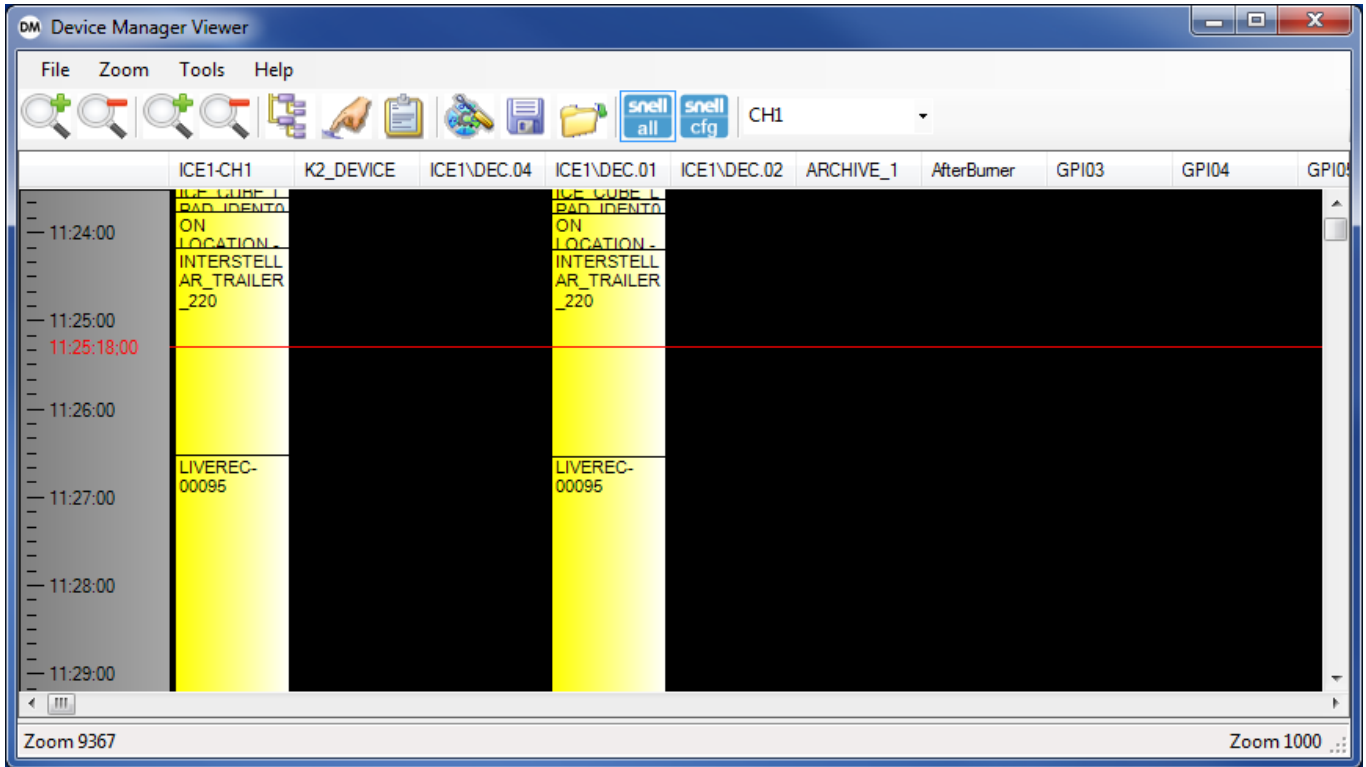


Figure 357 Device Manager Viewer

Each device has its own column. Time flows downwards and, as time elapses, the display moves upwards. The red line shows the current time.

If the bars in the device columns are shown in red, this indicates that the device is not configured to be managed using the Device Manager.

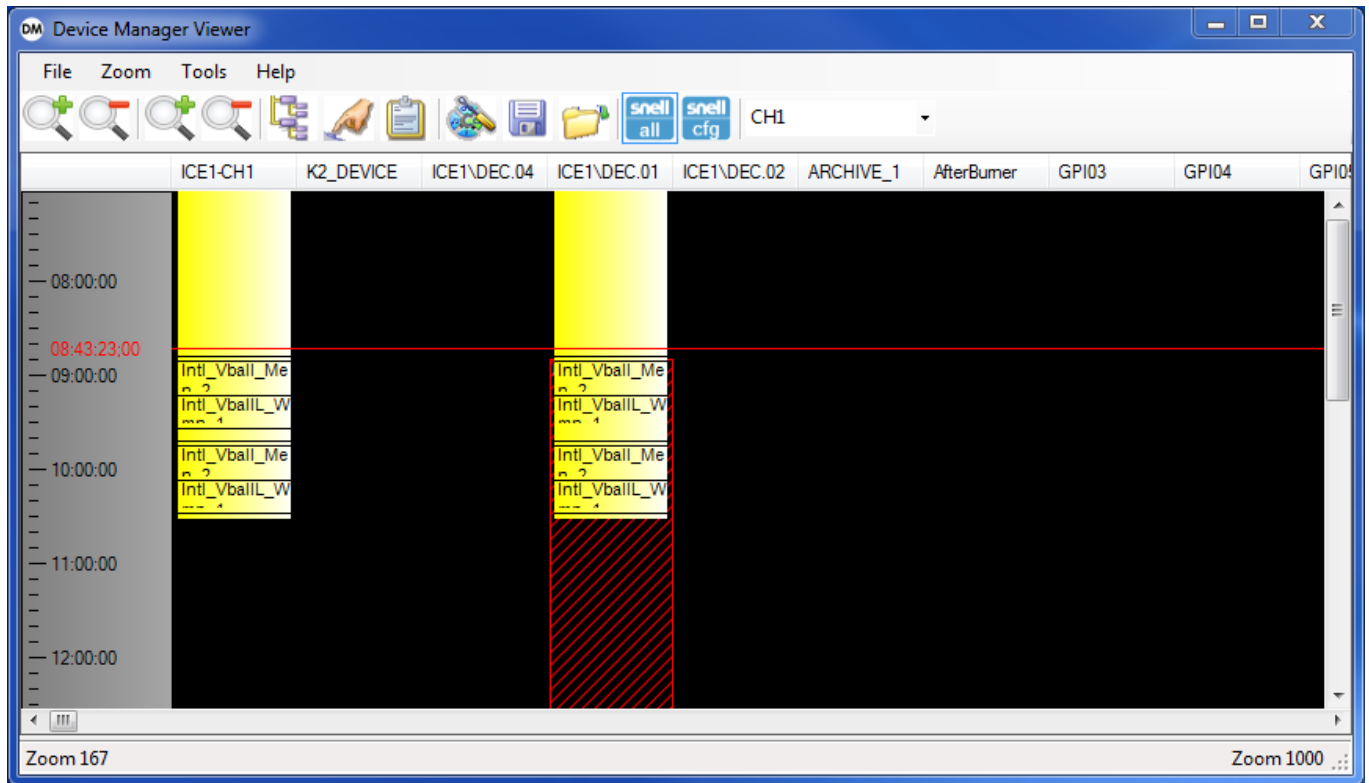


Figure 358 Device Manager Viewer - Red Cross-Hatching

17.1 Device Manager Viewer Controls

The following controls are available from the main application window:













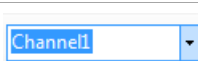
Icon	Description
	Zooms in on the schedule. Refer to Section 17.3 Zoom Tab.
	Zooms out on the schedule. Refer to Section 17.3 Zoom Tab.
	Zooms in with finer granularity on the schedule. Refer to Section 17.3 Zoom Tab.
	Zooms out with finer granularity on the schedule. Refer to Section 17.3 Zoom Tab.
	Resynchronize schedule information with the Configurator.
	Resolve individual allocation issues by allocating a different device for the event. Press to open the 'Manual Intervention of Allocation Issues' window.
	View the device diary. Press to open the 'Device Diary Form' window. Refer to Section 17.4.1 Device Diary Form.
	Configure the application settings.
	Save the current state of the system to an XML file.
	Load a previous state of the system from an XML file.
	Display all of the current channels on the application window.
	Display the configured channels on the application window.
	Select a channel to display in the Device Manager Viewer window.

Table 35 Start Time Icons

17.2 Configuring Device Manager Viewer

The following tabs are available:

- **Colours**

Select colors and fonts for the events - these are applied when the **Track Device Manager use** option is selected (if the option is not selected, the events appear in red).

- **Columns**

Select the order in which devices are displayed. The display is based on columns on a per channel basis - the width of the columns can be altered.

- **Other**

- **Warning Look Ahead:** for Grass Valley use only.

- **Operator Station:** selects the operator station. The application automatically changes channel according to the channel that is being viewed in the Editor.

- **Captures:** selects the folder in which to store the system state XML file. A communal folder can be used in order to allow operators to share files.

17.3 Zoom Tab

- **Zoom In**

Zoom in on the displayed schedule in order to view a shorter period of time.

- **Zoom Out**

Zoom out of the displayed schedule in order to view a longer period of time.

- **Fine Zoom In**

Zooms in at half the rate of 'Zoom In'.

- **Fine Zoom Out**

Zooms out at half the rate of 'Zoom Out'.

17.4 Tools Tab

17.4.1 Device Diary Form

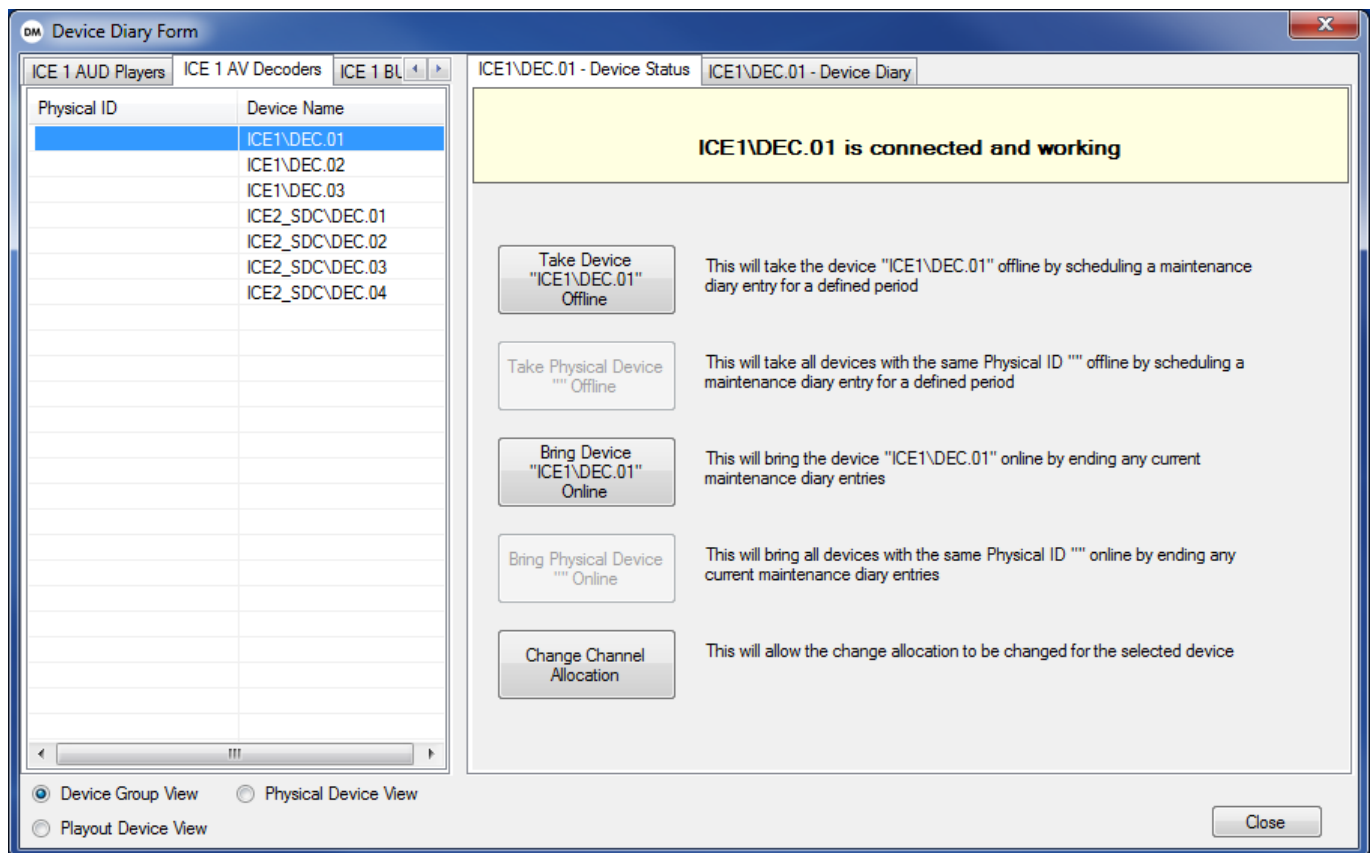


Figure 359 Device Diary Form - Device Status Tab

17.4.1.1 Device Views

Selects the organisation of the system's configured devices, in the left-hand pane. Select from the following:

- Device Group View

Displays devices according to their configured groups - a separate tab is displayed for each group.

- Playout Device View

Displays devices according to their nature: Playout Device or Non-playout Device - a separate tab is displayed for each.

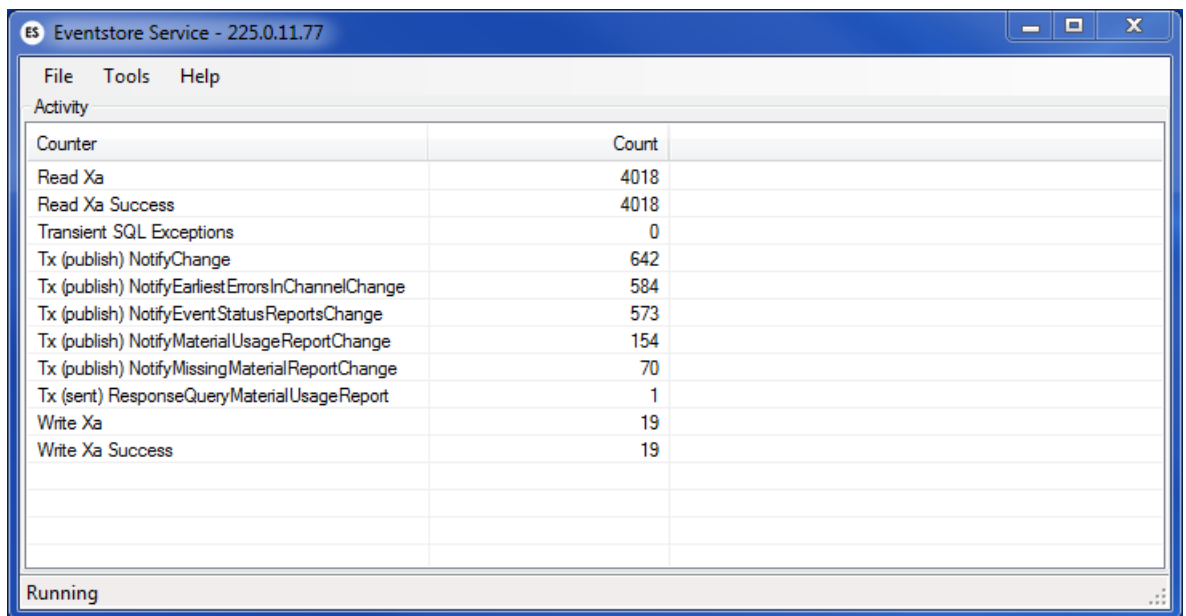
18. EventStore Service Application

The EventStore Service Application receives requests for information from other Morpheus applications through the Morpheus Message Broker. Additionally, applications can issue notification messages when events change.

Messages can include reports based on event information - for example, HydraHUD can send a message to the EventStore Service application to request events for a particular channel. If changes are made to the events then a message is broadcast to all interested clients (including Hydra).

The application can communicate with the following Morpheus services:

- HydraHUD
- The Channel Overview Service (provides all data and updates for Hydra Active)
- The Missing Material Report service
- The Material Usage (Rolling Hour) Report service



The screenshot shows a window titled "Eventstore Service - 225.0.11.77". The window contains a menu bar with "File", "Tools", and "Help". Below the menu bar is a table with the following data:

Counter	Count
Read Xa	4018
Read Xa Success	4018
Transient SQL Exceptions	0
Tx (publish) NotifyChange	642
Tx (publish) NotifyEarliestErrorsInChannelChange	584
Tx (publish) NotifyEventStatusReportsChange	573
Tx (publish) NotifyMaterialUsageReportChange	154
Tx (publish) NotifyMissingMaterialReportChange	70
Tx (sent) ResponseQueryMaterialUsageReport	1
Write Xa	19
Write Xa Success	19

At the bottom of the window, there is a status bar that says "Running".

Figure 363 EventStore Service Application Window

18.1 Configuring the Event Store Service Application

To configure the application, click on **Tools -> Configure** - the Eventstore Service Configuration window is displayed.

Each tab on the window provides a **Dismiss** button and a **Save** button - click on **Dismiss** in order to cancel any unsaved changes, and close the configuration window.

18.1.1 Missing Material Tab

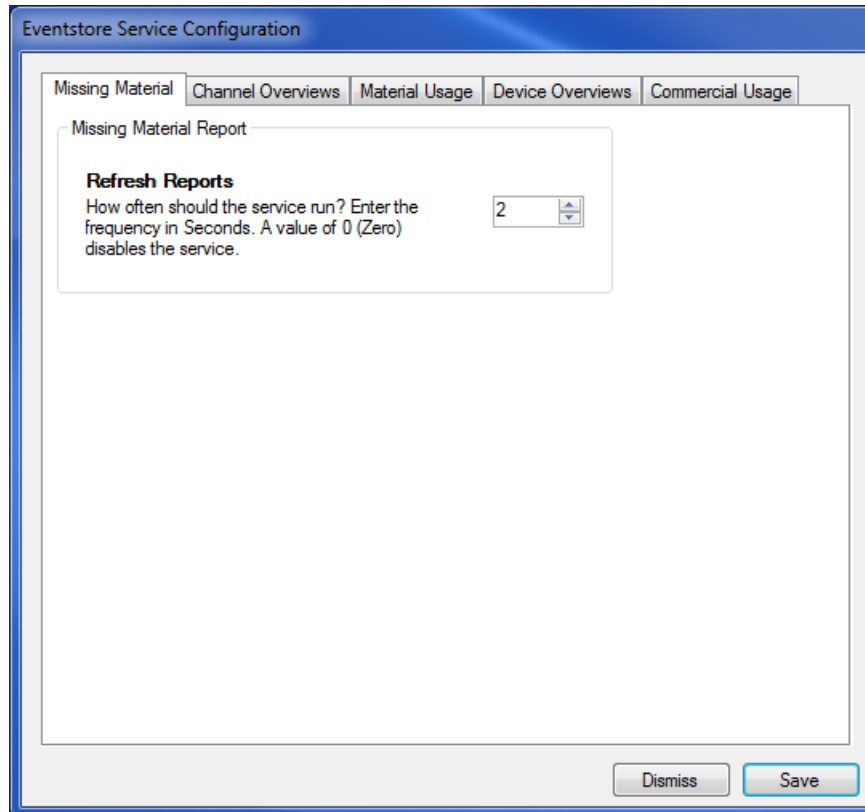


Figure 364 Eventstore Service Configuration Window - Missing Material Tab

- Refresh Reports

Creates reports for the Missing Material Report in the Editor.

18.1.2 Channel Overviews Tab

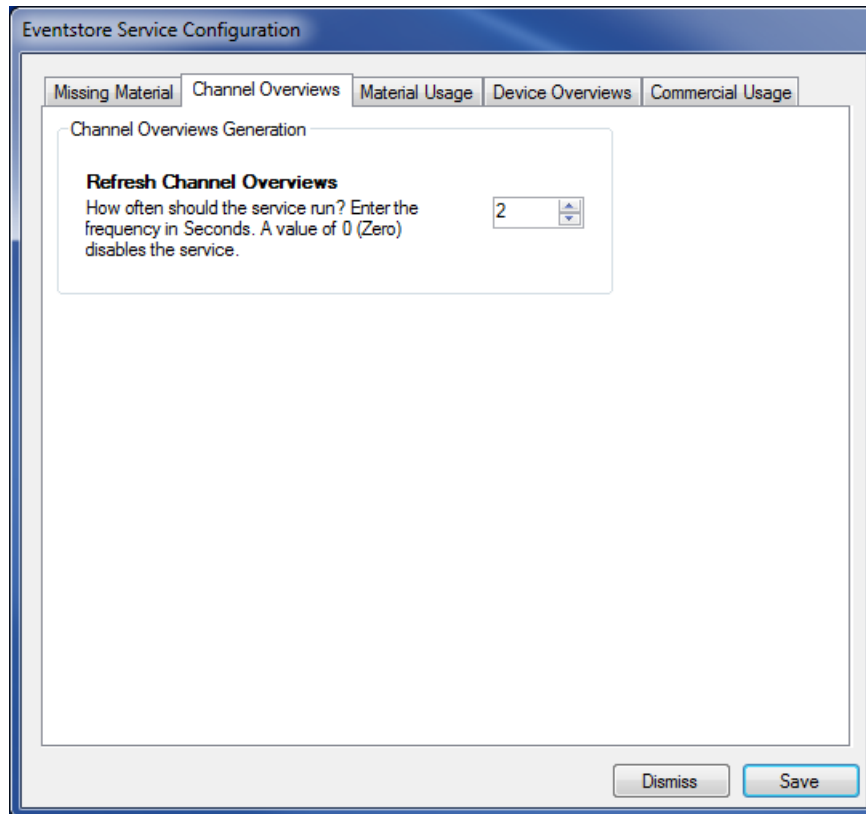


Figure 368 Eventstore Service Configuration Window - Channel Overviews Tab

- Refresh Channel Overviews

For use with HydraActive.

18.1.3 Material Usage Tab

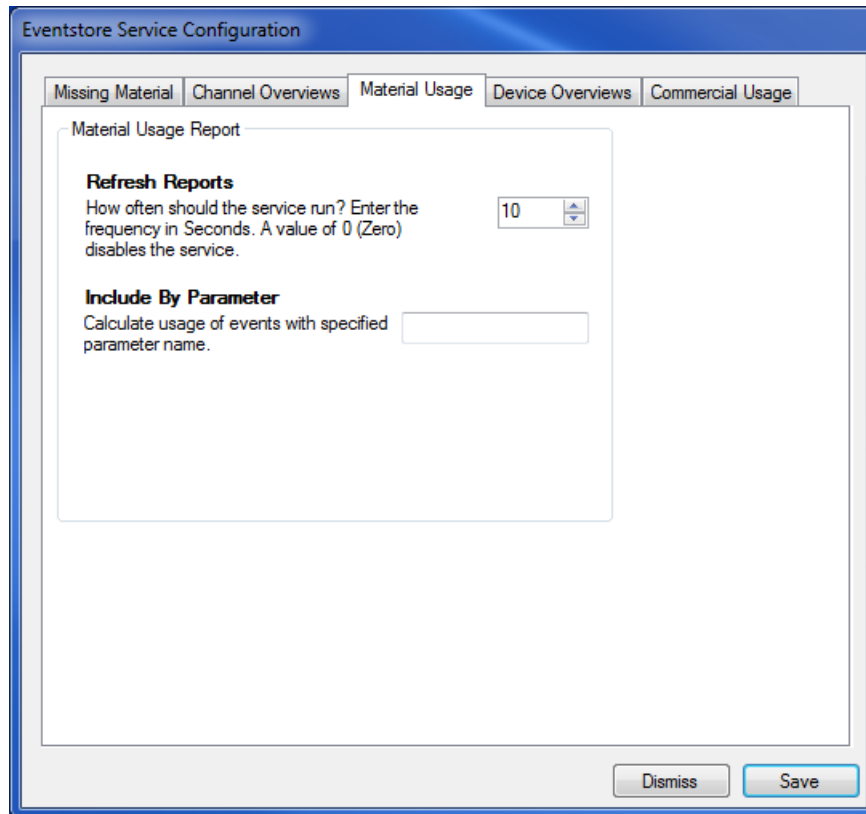


Figure 372 Eventstore Service Configuration Window - Material Usage Tab

- Refresh Reports

Set the frequency, in seconds, at which the application generates a Material Usage Report (Rolling Hour Report).

A value of 0 disables the service.

- Include by Parameter

In order to include a specific event in the Rolling Hour calculations, create a visible, boolean Event Type parameter for the event and enter the parameter name into this setting. This parameter appears on the Property Inspector for the event. If the parameter is selected (set to True), the event is included in the Rolling Hour calculations.

18.1.4 Device Overviews Tab

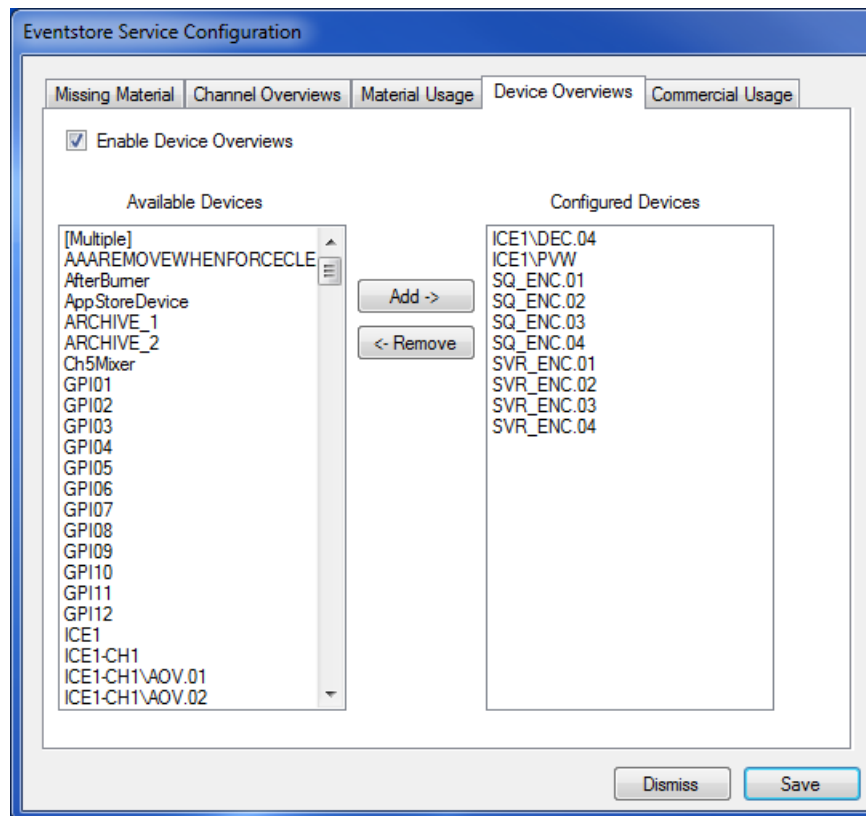


Figure 376 Eventstore Service Configuration Window - Device Overviews Tab

- Add / Remove

Select a device from the Available Devices pane and click on **Add** in order to transfer it to the Configured Devices pane. Use the **Remove** button to extract a device from the Configured Devices pane and return it to the Available Devices pane.

18.1.5 Commercial Usage Tab

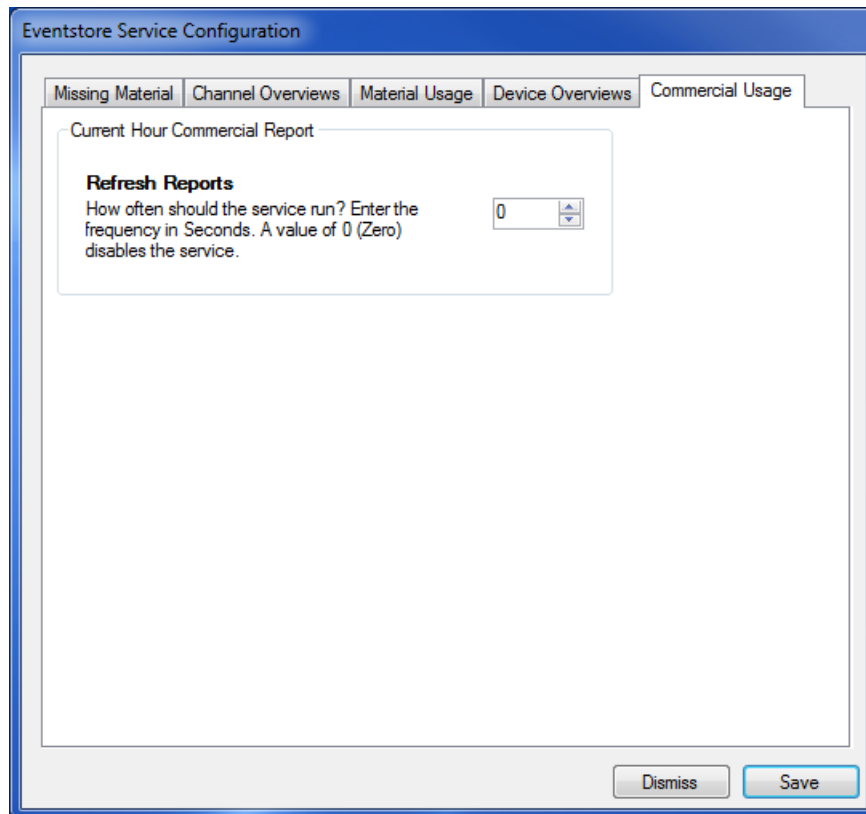


Figure 380 EventStore Service Configuration Window - Commercial Usage Tab

- Refresh Reports

Set the frequency, in seconds, at which the application generates a Current Hour Commercial Report.

A value of 0 disables the service.

19. Morpheus System Health Monitor

The System Health Monitor alerts engineers to potential issues with their Morpheus installation. Multiple system and Morpheus parameters are monitored with respect to:

- The Rescale MSSQL database (refer to page 10)
- Time (PC time and external time sources)
- Operating system platform
- Various performance counters (for example, available memory, paging file size and available disk size).

Most of these will raise an alarm if a particular condition is true, whereas others are provided for information only. If any alarms are raised, a red **M** will flash on the Windows task bar.



If no alarms exist, a static green **M** is displayed.



The System Health Monitor is installed on every PC on which Morpheus is deployed. It starts automatically and must be kept running in order for log files to be updated (these are required by Grass Valley support engineers).

Note:

If stopped, the System Health Monitor will be reactivated when a Morpheus application is started.

All installations of the System Health Monitor that communicate using the same multicast address (refer to page 35) will show alarms from all other installations - all individual system logs will therefore contain alarms from all installations.

19.1 The System Health Monitor Alarms Window

To view the System Health Monitor's alarms window, double-click on the **M** icon on the Windows task bar. This window displays either unacknowledged alarms or all alarms, depending on the selection at the bottom of the window.

Machine	Source	Alarm name	Value	Alarm State
LW7ENGA5924-4	Database	DB file and log file on different physical disks	False	RaisedUnacknowledged
LW7ENGA5924-4	Database	DB file disk drive has other files installed	c:	RaisedUnacknowledged
LW7ENGA5924-4	Database	DB log disk drive has other files installed	c:	RaisedUnacknowledged
LW7ENGA5924-4	Database	Main DB (localhost) maximum server memory may not be set	2147483647 MB	RaisedUnacknowledged
LW7ENGA5924-4	UdpTime	Number of time sources	1	ClearedPendingAckno...
LW7ENGA5924-4	Version	Morpheus Version	[MCI]=MCI Patch 1.1.14.470 Not authorised for issue, untrack...	RaisedUnacknowledged

All
 Unacknowledged

Figure 384 Morpheus System Health Monitor Alarms Window

- To acknowledge an alarm, right-click on the alarm and click on the displayed **Acknowledge** button.
- To display unacknowledged alarms only, click on the **Unacknowledged** radio button.
- To display all alarms, click on the **All** radio button.

19.2 The Morpheus System Health Monitor Menu

If enabled, the Morpheus System Health Monitor menu provides several options to create system reports and log files, and edit alarm filters.

To display the Morpheus System Health Monitor menu, right click on the **M** icon on the Windows taskbar. The following menu is displayed:

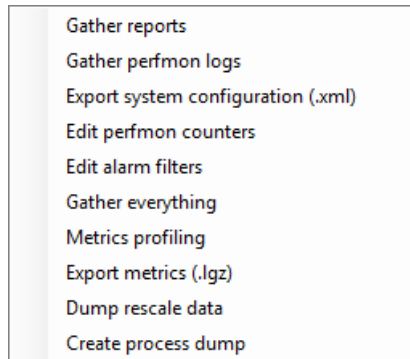


Figure 385 System Health Monitor Menu

19.2.1 Enable / Disable the System Health Monitor Right-Click Menu

By default the right-click menu system is enabled - it can be disabled in order to prevent an operator from using any of the functions. Configure visibility of the menu system in the following manner:

1. Using Windows Explorer, open the Morpheus installation folder, by default *C:\Morpheus*.
2. Open the *SystemHealthMonitor.xml* file using Notepad++
3. Edit the following entry:

```
<HideToolbarIconOptions>false</HideToolbarIconOptions>
```

false = right-click menu system is enabled

true = right-click menu system is disabled

4. Save the changes and exit the file.
5. Restart the System Health Monitor application in order for the change to take effect.

Note:

If the `<HideToolbarIconOptions>` line is removed from the *SystemHealthMonitor.xml* file, then the right-click menu system will be enabled.

19.2.2 Gather Reports

Save a list of system reports to a folder of choice. The reports saved are placed either in a folder with the current machine name or in a zip file.

The reports included are as follows:

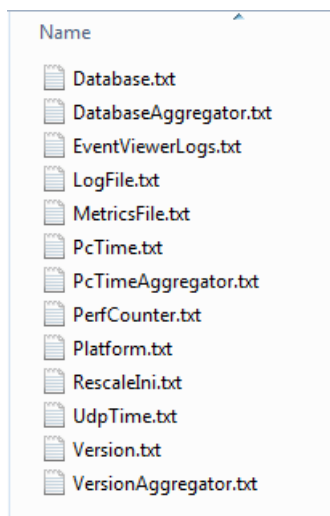


Figure 386 Gathering Reports

To gather the reports:

1. From the System Health Monitor menu, select **Gather reports**.

The 'Location to Save Reports' window is displayed.

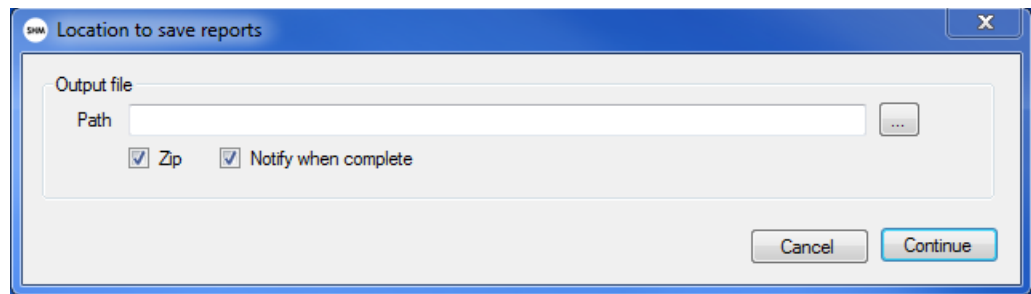


Figure 387 Location to Save Reports Window

2. Using the ellipsis button, browse to the directory in which to save the reports - the Path field will be populated with the selected directory.
3. By default, the reports are saved to a zip file (the **Zip** checkbox is ticked) - un-tick in order to save the reports directly to a folder in the chosen directory.

The 7zip filename is generated using the following naming convention:

`SystemHealthMonitor_Reports_yymmdd_hhmmss`

The folder containing the reports is generated using the following naming convention:

`<machine name>_<GUID>`.

4. **Notify When Complete** - enabled by default. When ticked, a notification window informs that the process has been completed.
5. Click on **Continue** in order to generate the reports.

19.2.3 Gather Perfmon Logs

Save a system performance log to a folder of choice.

1. From the System Health Monitor menu, select **Gather Perfmon Logs**.

The 'Location to Save Perfmon Logs' window is displayed.

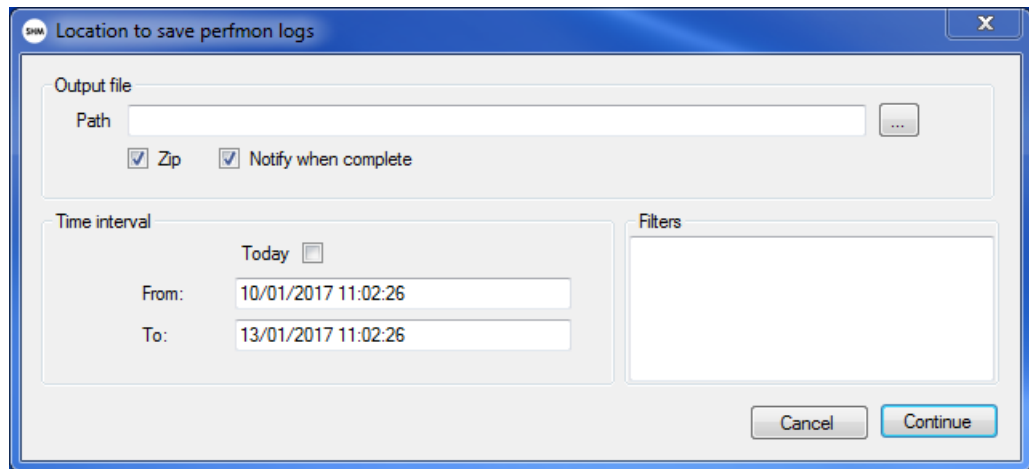


Figure 388 Location to Save Perfmon Logs Window

2. Using the ellipsis button, browse to the directory in which to save the reports - the Path field will be populated with the selected directory.
3. By default, the logs are saved to a zip file (the **Zip** checkbox is ticked) - un-tick in order to save the reports directly to an xml file in the chosen directory.

The resulting file is generated using the following naming convention:

<machine name>_<GUID>

4. **Notify When Complete** - enabled by default. When ticked, a notification window informs that the process has been completed.
5. In the **Time Interval** pane, select **Today** to save a log for the current day only. Alternatively, enter a start and end date for the log entries - by default logs are created to cover the previous 72 hours.
6. Click on **Continue** in order to generate the reports.

19.2.4 Export System Configuration (.xml)

Export the system configuration to an xml file. This option is identical to the Export System button in the Configurator (Chapter 7.6.1 Export System).

1. From the System Health Monitor menu, select **Export System Configuration (.xml)**.

The 'Location to Save System Configuration' window is displayed.

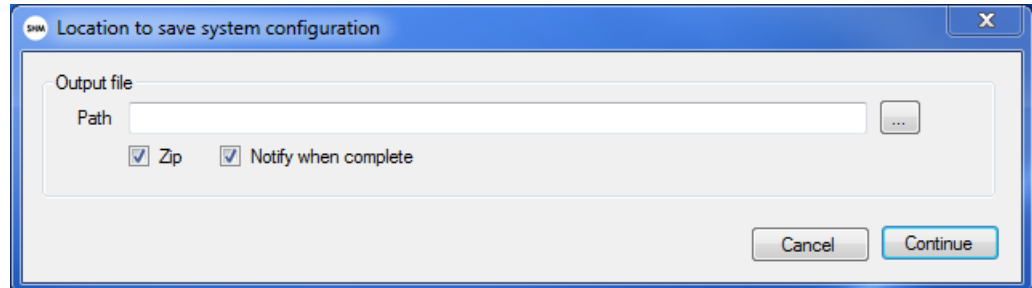


Figure 389 Location to Save System Configuration Window

2. Using the ellipsis button, browse to the directory in which to save the files - the Path field will be populated with the selected directory.
3. By default, the configuration is saved to a zip file (the **Zip** checkbox is ticked) - un-tick in order to save the reports directly to an xml file in the chosen directory.

The 7zip file or xml file is generated using the following naming convention:
yyyy-mm-dd_hh-mm-ss_<system name>

4. **Notify When Complete** - enabled by default. When ticked, a notification window informs that the process has been completed.
5. Click on **Continue** in order to generate the reports.

19.2.5 Edit Perfmon Counters

Edit performance counters.

1. From the System Health Monitor menu, select **Edit Perfmon Counters**.

The 'System Health Monitor - Performance Counters' window is displayed.

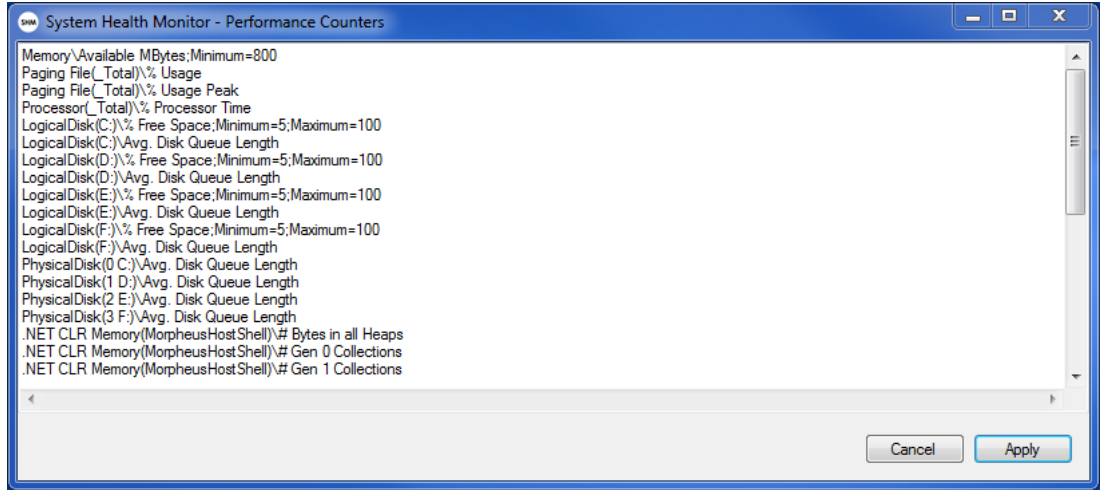


Figure 390 System Health Monitor - Performance Counters Window

Note: The counters are displayed directly within the window - no file based report is generated.

19.2.5.1 Right Click Edit Menu

Right click on the 'System Health Monitor - Performance Counters' window to open an edit menu.



Any edits to the counters that have been confirmed with the Apply button are permanent. In order to reset the counters to their default appearance, it is necessary to restart the System Health Monitor.

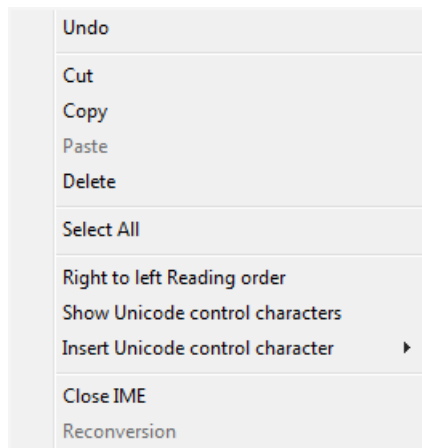


Figure 391 'System Health Monitor - Performance Counters' Edit Menu

- Undo

Undo an edit to the content of the 'System Health Monitor - Performance Counters', such as the deletion of an entry.

- Cut

Cut displayed content from the 'System Health Monitor - Performance Counters' window.

- Copy

Copy displayed content from the 'System Health Monitor - Performance Counters' window.

- Paste

Paste additional content into the 'System Health Monitor - Performance Counters' window.

- Delete

Delete displayed content from the 'System Health Monitor - Performance Counters' window.

- Select All

Select all of the content displayed in the 'System Health Monitor - Performance Counters' window.

- Right to Left Reading Order

Left or right justify all of the content displayed in the 'System Health Monitor - Performance Counters' window.

19.2.6 Edit Alarm Filters

Configure alarm filters.

From the System Health Monitor menu, select **Edit Alarm Filters**. The 'System Health Monitor - Alarm Masking' window is displayed.

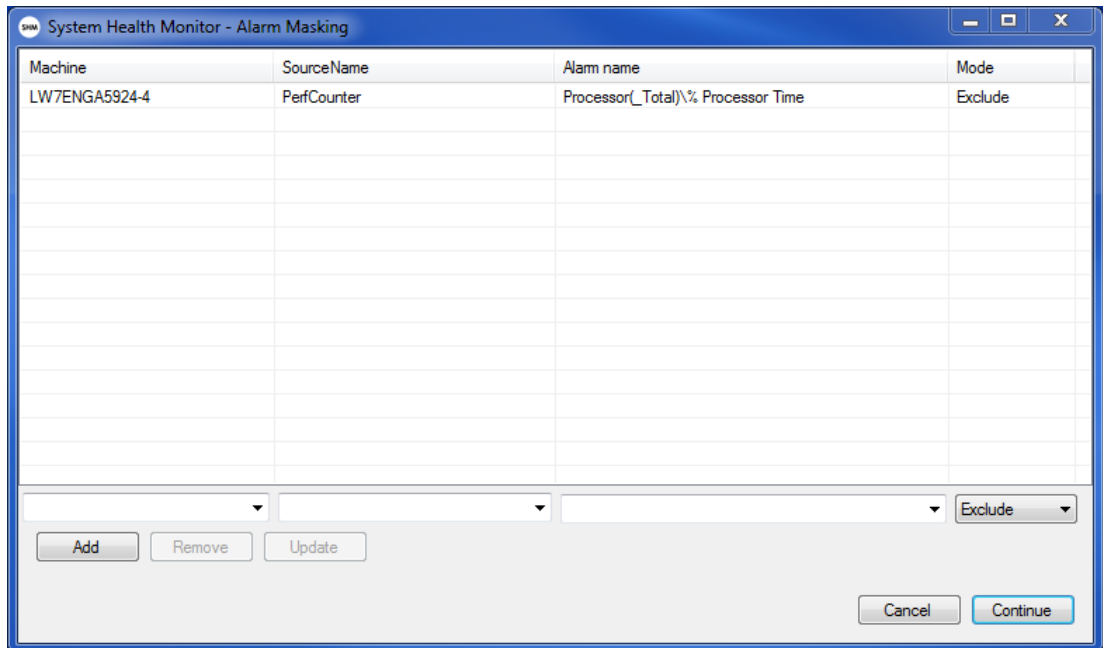


Figure 392 System Health Monitor - Alarm Masking Window

- Using the drop-down menus at the foot of each of the columns, select the following in order to create an alarm mask:
 - Machine: the machine that is the source of the alarm
 - SourceName: the type of alarm to filter
 - Alarm Name: the precise identity of the alarm to filter
 - Mode: whether to include or exclude the configured alarm from the reports
- Click on **Add** in order to create the mask.

- Remove

Highlight the alarm mask and click on Remove in order to delete it from the list.

- Update

Highlight the alarm mask, edit the characteristics of the mask and click on Update in order to save the changes.

- Continue

Closes the window.

19.2.7 Gather Everything

Creates a folder (or zip file) containing system information (detailed in Section 19.2.7.1).

1. From the System Health Monitor menu, select **Gather Everything**.

The 'Location to Save Files' window is displayed.

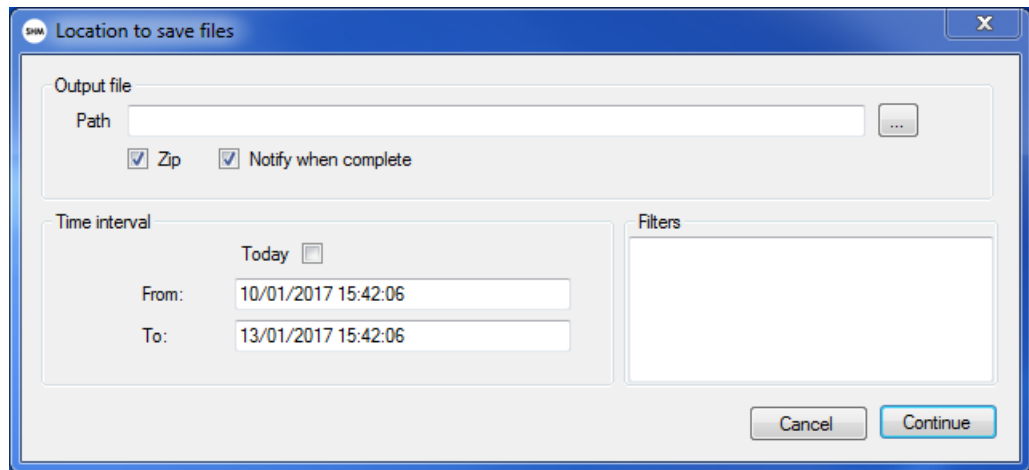


Figure 394 Location to Save Files Window

2. Using the ellipsis button, browse to the directory in which to save the files - the Path field will be populated with the selected directory.
3. **Notify When Complete** - enabled by default. When ticked, a notification window informs that the process has been completed.
4. By default, the configuration is saved to a zip file (the **Zip** checkbox is ticked) - un-tick in order to save the reports directly to files the chosen directory.

The 7zip file or folder containing the reports is generated using the following naming convention:

```
SystemHealthMonitor_Reports_yymmdd_hhmmss
```

5. **Notify When Complete** - enabled by default. When ticked, a notification window informs that the process has been completed.
6. In the **Time Interval** pane, select **Today** to save a log for the current day only. Alternatively, enter a start and end date for the log entries - by default logs are created to cover the previous 72 hours.
7. Click on **Continue** in order to generate the reports.

19.2.7.1 System Information Included in the 'Gather Everything' Process

- **EventViewerLogs** - contains the listed text files:
 - EventLog-Application.txt
 - EventLog-HardwareEvents.txt
 - EventLog-Internet Explorer.txt
 - EventLog-Key Management Service.txt
 - EventLog-Media Center.txt
 - EventLog-ODiag.txt
 - EventLog-OSession.txt
 - EventLog-Security.txt
 - EventLog-System.txt
 - EventLog-Windows PowerShell.txt

- **Log File** - contains all Morpheus logs.

- **Machine Name** - contains the listed text files:
 - Database.txt
 - DatabaseAggregator.txt
 - EventViewerLogs.txt
 - LogFile.txt
 - MetricFile.txt
 - PcTime.txt
 - PcTimeAggregator.txt
 - PerfCounter.txt
 - Platform.txt
 - RescaleIni.txt
 - UdpTime.txt
 - Version.txt
 - VersionAggregator.txt

- **Metrics file** - contains all Morpheus metrics files.
- **PerfCounter** - contains a performance counter file.
- **Version** - contains the version report file.
- **System.xml** - the configuration of the Morpheus system (identical to the file that can be generated individually using the **Export System Configuration (.xml)** option in this menu system, or from the Configurator (Chapter 7.6.1 Export System).

19.2.8 Metrics Profiling

19.2.8.1 Enable System Wide Metrics Profiling on the System.

1. From the System Health Monitor menu, select **Metrics profiling**.

The following message is displayed:

'Are you certain that you want to enable metrics logging on this system?'

2. Click **Yes** to confirm.

19.2.8.2 Disable System Wide Metrics Profiling on the System.

1. From the System Health Monitor menu, select **Metrics profiling**.

The following message is displayed:

'Are you certain that you want to disable metrics logging on this system?'

2. Click **Yes** to confirm.

19.2.9 Export Metrics

1. From the System Health Monitor menu, select **Export Metrics**.

The 'Location to Save Metrics.lgz File' window is displayed.

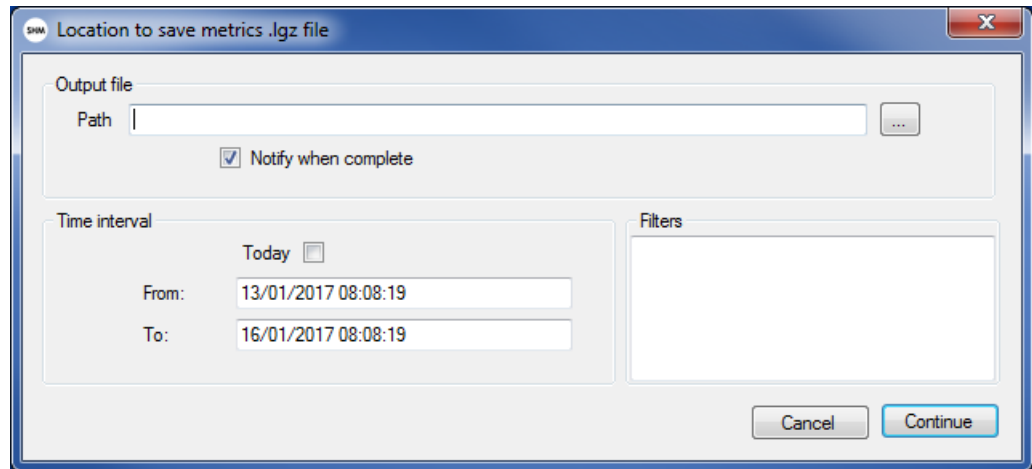


Figure 396 Location to Save Metrics Window

2. Using the ellipsis button, browse to the directory in which to save the files - the Path field will be populated with the selected directory.
3. **Notify When Complete** - enabled by default. When ticked, a notification window informs that the process has been completed.

The metrics are saved to a .lgz file using the following naming convention:
`SystemHealthMonitor_Logs_yymmdd_hhmmss`

4. **Notify When Complete** - enabled by default. When ticked, a notification window informs that the process has been completed.
5. In the **Time Interval** pane, select **Today** to save a log for the current day only. Alternatively, enter a start and end date for the log entries - by default logs are created to cover the previous 72 hours.
6. Click on **Continue** in order to generate the reports.

19.2.10 Dump Rescale Data

1. From the System Health Monitor menu, select **Dump Rescale Data**.

The 'Location to Save Files' window is displayed.

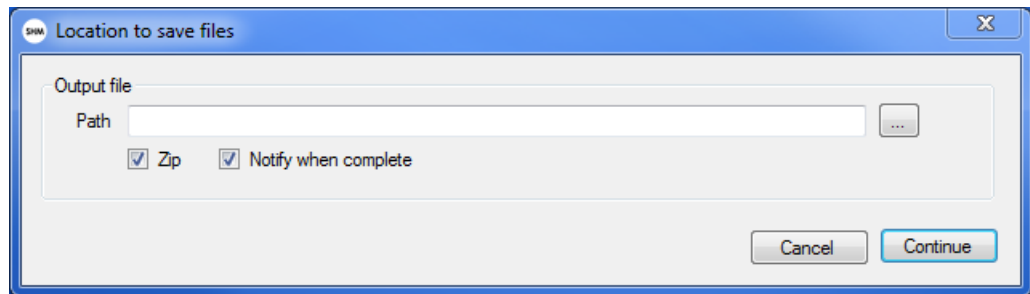


Figure 398 Location to Save Files Window

2. Using the ellipsis button, browse to the directory in which to save the files - the Path field will be populated with the selected directory.
3. By default, the configuration is saved to a zip file (the **Zip** checkbox is ticked) - un-tick in order to save the reports directly to an xml file in the chosen directory.

The 7zip file or xml file is generated using the following naming convention:

RescaleDump_225_0_11_77

4. **Notify When Complete** - enabled by default. When ticked, a notification window informs that the process has been completed.
5. Click on **Continue** in order to generate the reports.

Note: A new rescale data dump will overwrite a previous one that is in the target directory for the output file.

19.2.11 Create Process Dump

Displays all of the current Windows processes (in the same manner as Windows Task Manager) and provides the facility to produce a dump file.

1. From the System Health Monitor menu, select **Create Process Dump**.

The 'System Health Monitor - Process Dumper' window is displayed.

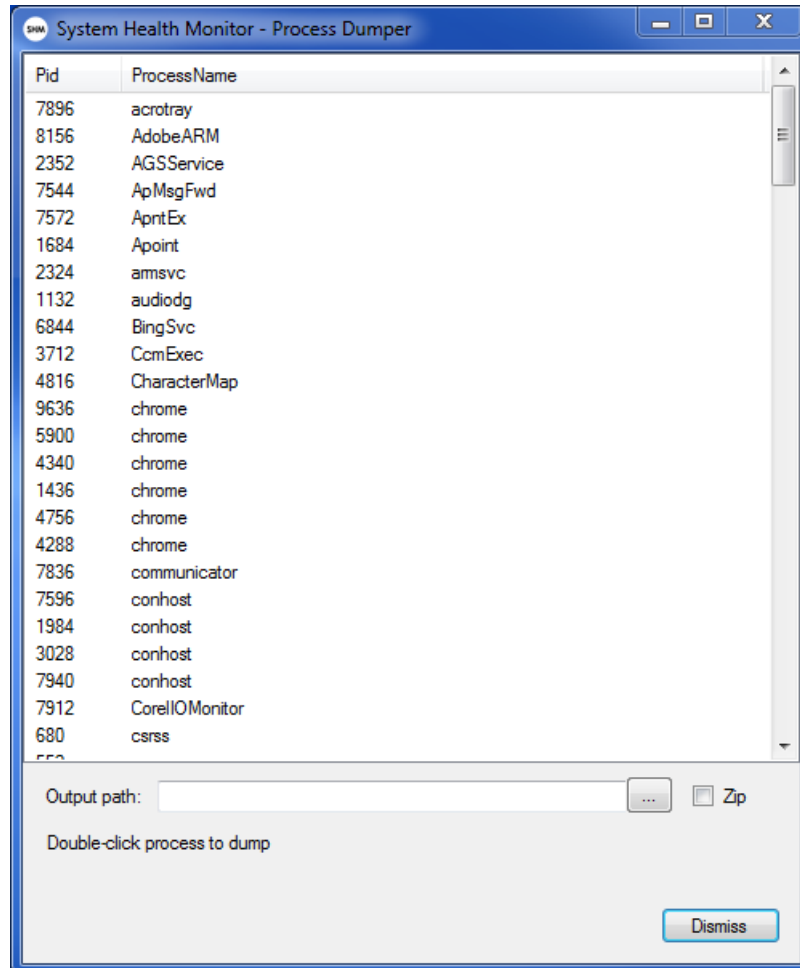


Figure 399 System Health Monitor - Process Dumper

2. Using the ellipsis button, browse to the directory in which to save the files - the Output Path field will be populated with the selected directory.
3. Tick the **Zip** checkbox in order to produce a 7zip file containing the selected process dump, otherwise the output file will be placed directly into the target directory (the default).
4. Double click on a process to create the dump file.
5. Click on **Dismiss** in order to close the Process Dumper window.

20. Automation Database Reporter

The Automation Database Reporter is used to create and configure the following:

- As Run logs
- Engineering logs
- Event Journal logs

20.1 As Run Log

When an event has played, it is greyed out on the Editor schedule for whatever 'dwell time' is configured (refer to 'Setting the Dwell Time for the As Run Log' below). The default is one minute.

The event is then removed from the schedule and placed in the As Run database by the As Run DB Host Shell service (refer to page 201).

The Automation Database Reporter takes events from the As Run database and publishes them to a file known as the As Run log. The file has the following format:

<Channel name>_yyyy-mm-dd-hh-mm.sch

To create As Run logs, both the Automation Database Reporter and the As Run DB Host Shell service must be running.

20.1.1 Setting the Dwell Time for the As Run Log

1. Start the Configurator (refer to page 50).
2. On the Configurator toolbar, click on the **Configure Channels** icon:



The Channels window is displayed.

3. Click on the Channel Properties tab.
4. In the **As-Run Collect Dwell (seconds)** field, enter the required time.

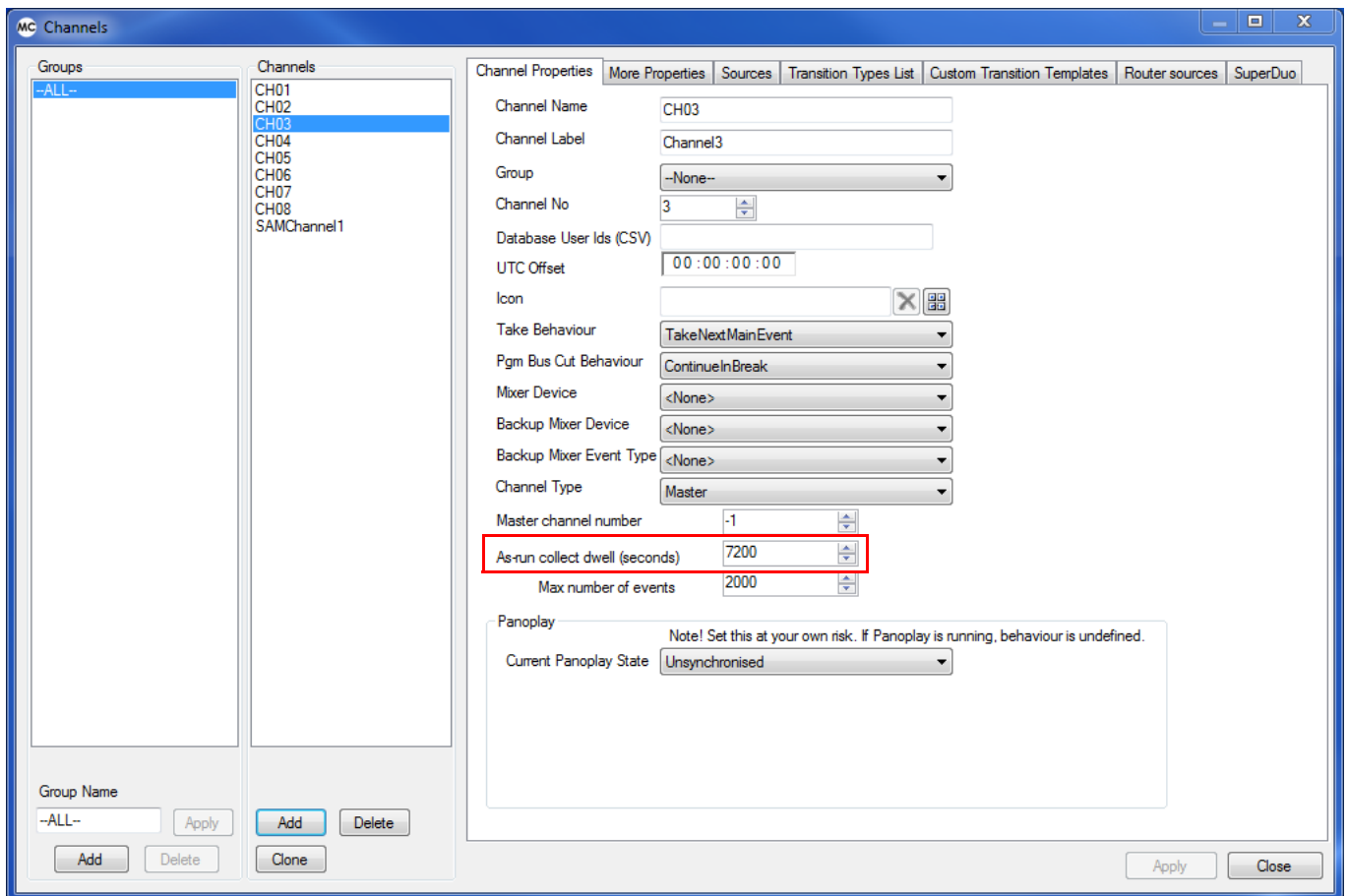
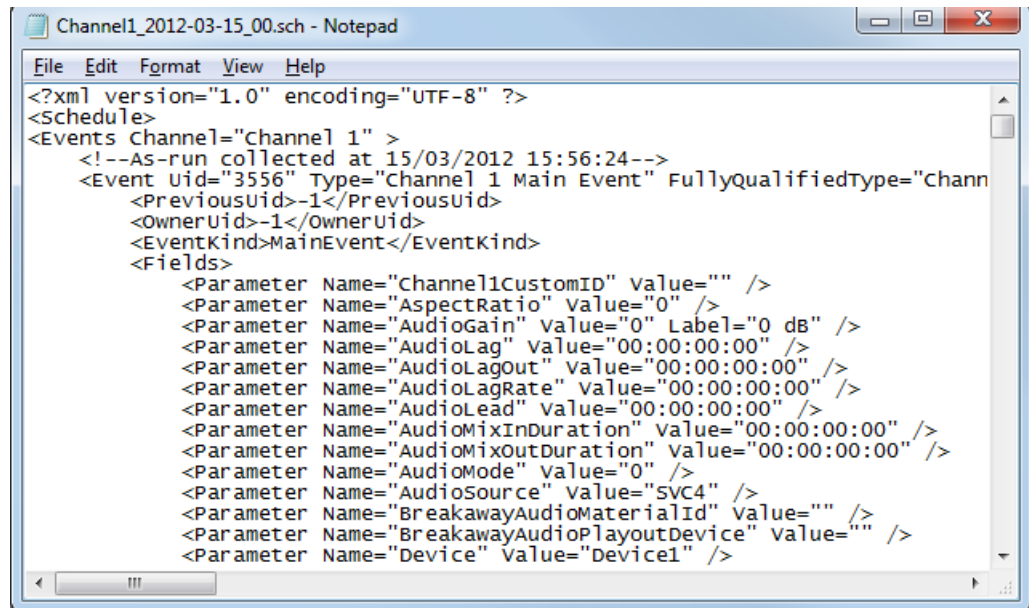


Figure 401 Configurator > Channels > Channel Properties Tab

20.1.2 Example As Run Log



```

Channel1_2012-03-15_00.sch - Notepad
File Edit Format View Help
<?xml version="1.0" encoding="UTF-8" ?>
<Schedule>
<Events channel="channel 1" >
  <!--As-run collected at 15/03/2012 15:56:24-->
  <Event Uid="3556" Type="Channel 1 Main Event" FullyQualifiedType="Chann
    <PreviousUid>-1</PreviousUid>
    <OwnerUid>-1</OwnerUid>
    <EventKind>MainEvent</EventKind>
    <Fields>
      <Parameter Name="Channel1CustomID" value="" />
      <Parameter Name="AspectRatio" value="0" />
      <Parameter Name="AudioGain" value="0" Label="0 dB" />
      <Parameter Name="AudioLag" value="00:00:00:00" />
      <Parameter Name="AudioLagOut" value="00:00:00:00" />
      <Parameter Name="AudioLagRate" value="00:00:00:00" />
      <Parameter Name="AudioLead" value="00:00:00:00" />
      <Parameter Name="AudioMixInDuration" value="00:00:00:00" />
      <Parameter Name="AudioMixOutDuration" value="00:00:00:00" />
      <Parameter Name="AudioMode" value="0" />
      <Parameter Name="AudioSource" value="SVC4" />
      <Parameter Name="BreakawayAudioMaterialId" value="" />
      <Parameter Name="BreakawayAudioLayoutDevice" value="" />
      <Parameter Name="Device" value="Device1" />
    </Fields>
  </Event>
</Events>

```

Figure 402 The As Run Log

20.2 Engineering Log

The engineering log is for diagnostic purposes. A new engineering log is created each time a change occurs in Morpheus, for example if:

- An event is held on the schedule
- A Host Shell service is no longer available.

The Automation Database Reporter works with the Eng Log Collector Host Shell service (refer to page 211) to write the engineering log to a file. The Eng Log Collector needs to be configured to write the log to the AsRun database. The Automation Database Reporter can then be configured to write the engineering log to a file.

Note:

It is possible to write the log to a file using only the Eng Log Collector by taking the messages directly from the EventStore. However, it is better if the Eng Log Collector is configured to write the logs to the AsRun database.

The engineering log file has the format:

EngLog-<Multicast Address>_yyyy-mm-dd.eng

For further information, refer to 'Multicast Addresses' on page 35.

20.2.1 Example Engineering Log

```

EngLog-225_0_11_225_2012-03-16_00_00.eng - Notepad
File Edit Format View Help
# Engineering log published at 16/03/2012 12:54:15
0076369 | 15-MAR-2012 09:18:06:00 | 15-MAR-2012 09:18:06:13 |
Moderate | Alarm | | AUTO-LAB1 | PbakBridge | | Alarm [SVRvw1]
changed from ClearedPendingAcknowledge to
RaisedPendingAcknowledge
0076370 | 15-MAR-2012 09:18:06:00 | 15-MAR-2012 09:18:06:13 |
Moderate | Device | | AUTO-LAB1 | PbakBridge | |
DeviceStatusCode on [SVRvw1] changed from connected to
Disconnected: Controller device status changed
0076371 | 15-MAR-2012 09:25:20:00 | 15-MAR-2012 09:25:20:04 |
Moderate | Alarm | | AUTO-LAB1 | PbakBridge | | Alarm [SVRvw1]
changed from RaisedPendingAcknowledge to
ClearedPendingAcknowledge
0076372 | 15-MAR-2012 09:25:20:00 | 15-MAR-2012 09:25:20:04 |
Moderate | Device | | AUTO-LAB1 | PbakBridge | |
DeviceStatusCode on [SVRvw1] changed from Disconnected to
Connected: Controller device status changed
0076373 | 15-MAR-2012 10:04:03:00 | 15-MAR-2012 10:04:03:00 |
Moderate | Alarm | | AUTO-LAB1 | PbakBridge | TimeChange |
Alarm [Omneon Validation Availability] changed from
ClearedPendingAcknowledge to RaisedPendingAcknowledge
0076374 | 15-MAR-2012 10:04:03:00 | 15-MAR-2012 10:04:03:00 |
Mild | Service | | AUTO-LAB1 | PbakBridge | TimeChange |
Service [Omneon Validation] no longer available: Expired
0076375 | 15-MAR-2012 10:04:15:00 | 15-MAR-2012 10:04:15:01 |
Moderate | Alarm | | AUTO-LAB1 | MorpheusHostShell | | Alarm
[Omneon Validation Availability] changed from
RaisedPendingAcknowledge to ClearedPendingAcknowledge
0076376 | 15-MAR-2012 10:04:15:00 | 15-MAR-2012 10:04:15:01 |
Mild | Service | | AUTO-LAB1 | MorpheusHostShell | |
Service [Omneon Validation] now available: service acquisition
attempted

```

Figure 403 The Engineering Log

20.3 Event Journal log

When an event has played on a Panoplay system, it is greyed out on the Editor schedule for whatever 'dwell time' is configured (refer to 'Setting the Dwell Time for the Event Journal Log' below). The default is one minute.

The event is then removed from the schedule and placed in the As Run database by the Event Journal Collector Service (refer to page 201).

The Automation Database Reporter takes the events out of the As Run database and publishes them to a file known as the Event Journal log, which has the following format:

<Channel name>_yyyy-mm-dd-hh-mm.sch

To create Event Journal logs, both the Automation Database Reporter and the Event Journal Collector Service must be running on each Morpheus system.

20.3.1 Setting the Dwell Time for the Event Journal Log

1. Start the Configurator (refer to page 50).
2. On the Configurator toolbar, click on **Configure Channels**:



The Channels window is displayed.

3. Click on the Channel Properties tab.
4. In the **As-run collect (seconds)** field, enter the required time.

20.3.2 Example Event Journal Log

```

<?xml version="1.0" encoding="utf-8"?>
<Schedule>
  <Events Channel="Channel5">
    <!--This event came from Machine Morpheus1 and SystemID 1-->
    <!--Collected at Monday 26 03 2012 09:25:57 AM-->
    <Event Uid="32" Type="Channel 1 Main Event" FullyQualifiedType="Channel 5 D
    <PreviousUid>-1</PreviousUid>
    <OwnerUid>-1</OwnerUid>
    <IsFixed>True</IsFixed>
    <EventKind>MainEvent</EventKind>
    <ManuallyTaken>True</ManuallyTaken>
    <RequestedManualTake>True</RequestedManualTake>
    <Fields>
      <Parameter Name="AspectRatio" value="0" />
      <Parameter Name="AudioGain" value="0" Label="0 dB" />
      <Parameter Name="AudioLag" value="00:00:00:00" />
      <Parameter Name="AudioLagOut" value="00:00:00:00" />
      <Parameter Name="AudioLagRate" value="00:00:00:00" />
      <Parameter Name="AudioLead" value="00:00:00:00" />
      <Parameter Name="AudioMixInDuration" value="00:00:00:00" />
      <Parameter Name="AudioMixOutDuration" value="00:00:00:00" />
      <Parameter Name="AudioMode" value="33825" />
      <Parameter Name="AudioSource" value="5MAINA" />
    </Fields>
  </Events>
</Schedule>

```

Figure 404 The As Run Log

20.4 Running the Automation Database Reporter

To run the Automation Database Reporter, double-click on the Automation Database Reporter shortcut in the Morpheus Shortcuts folder.

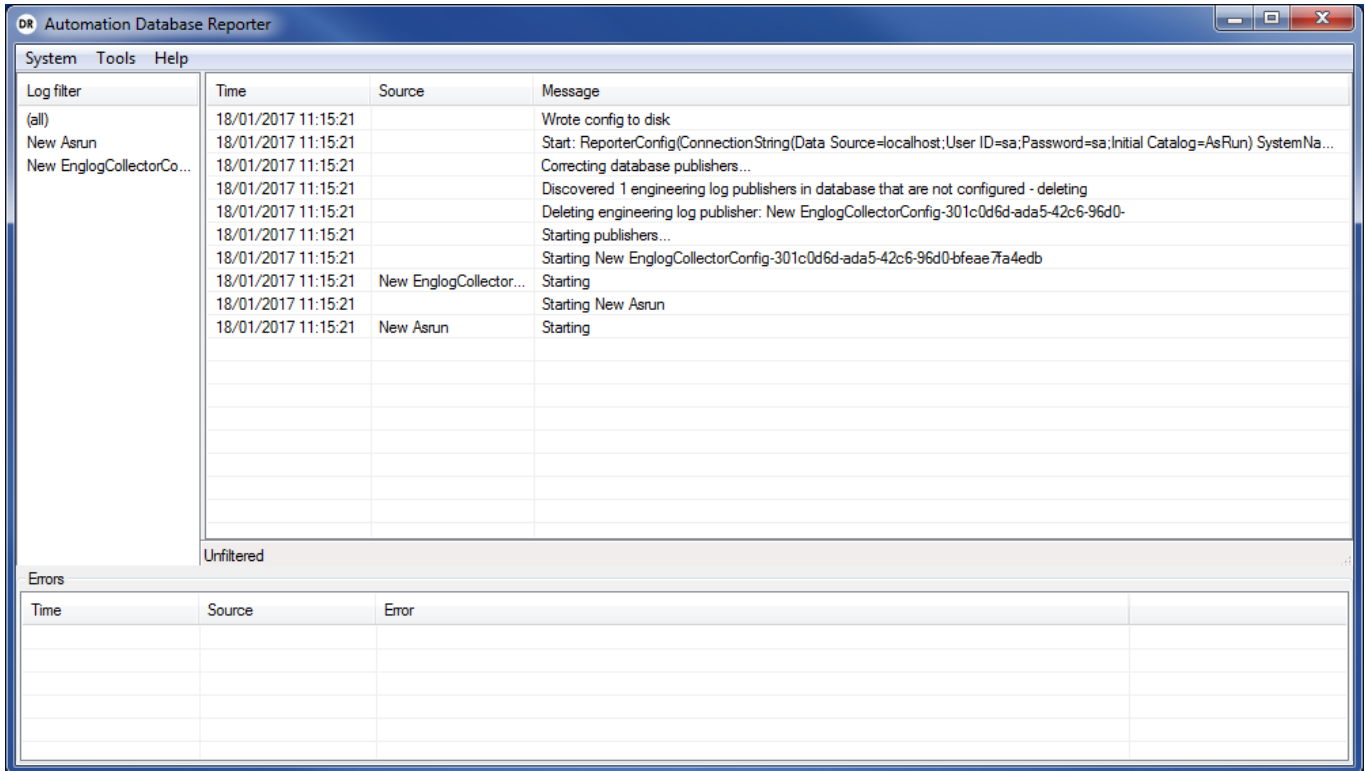


Figure 405 Automation Database Reporter

The configured log publishers appear in the **Log Filter** pane on the left, with messages on the right. Any errors are shown at the bottom of the window.

Important: The Automation Database Reporter should always be running. If it is not running, the AsRun database grows too large, causing performance problems or even a system crash. This is because all events must be collected from the EventStore and written to the AsRun database to prevent the EventStore becoming overloaded. The AsRun database is always growing and the Automation Database Reporter trims it down.

Publishers

Publish one of the following types of reports:

- AsRun log
- Engineering log
- Live record asrun log
- Event Journal

Note: The Automation Database Reporter can be configured with multiple publishers for an AsRun log. This allows, for example, for daily 'asruns' and event by event 'asruns'.

20.4.1 Using the Automation Database Report Configuration Tool

On the Automation Database Reporter menu bar, click on **Tools**, and select **Configure** from the drop-down menu. The Automation Database Configuration window is displayed.

20.4.1.1 Configuring the Global Parameters for all Publishers

The global parameters apply to all Publishers.

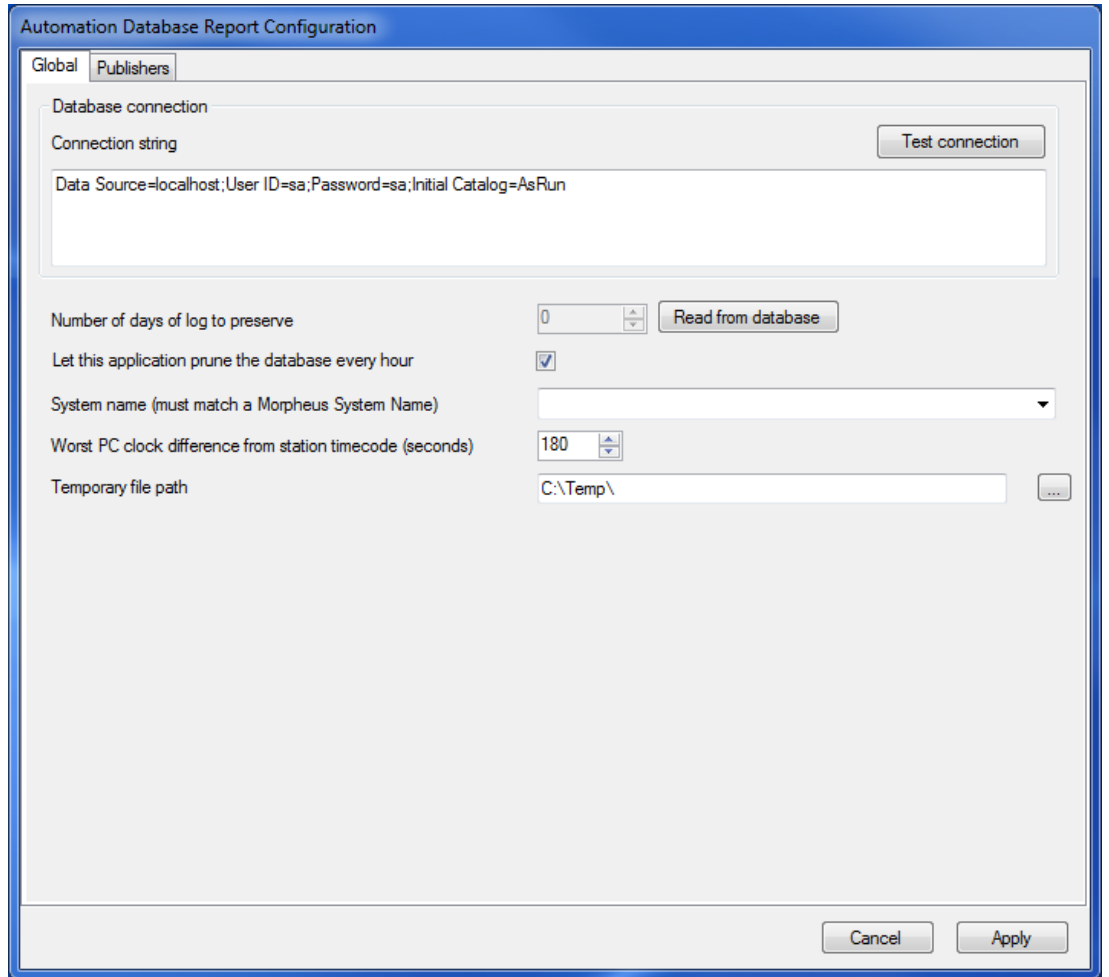


Figure 406 Automation Database Reporter Configuration - Global Tab

Global Parameters

- Connection String

Define the connection string as SQL Server SqlConnection value pairs separated by semi-colons (;) in the following format:

'Data Source=<SQL server address [typically the machine name]>;

User ID=<SQL server login account [default = sa]>;

Password=<SQL server login account password [default = sa]>;

Initial Catalogue=<DatabaseName> (name of the database with which to connect).

Example

Data Source=localhost;User ID=sa;Password=sa;Initial Catalog=AsRun

- Test Connection

Click to test the connection to the specified database.

Both a successful and a failed connection are notified via a pop-up window.

20.4.1.2 Creating a Publisher

Click on the 'Publishers' tab, then click on **New** to display the New Publisher window.

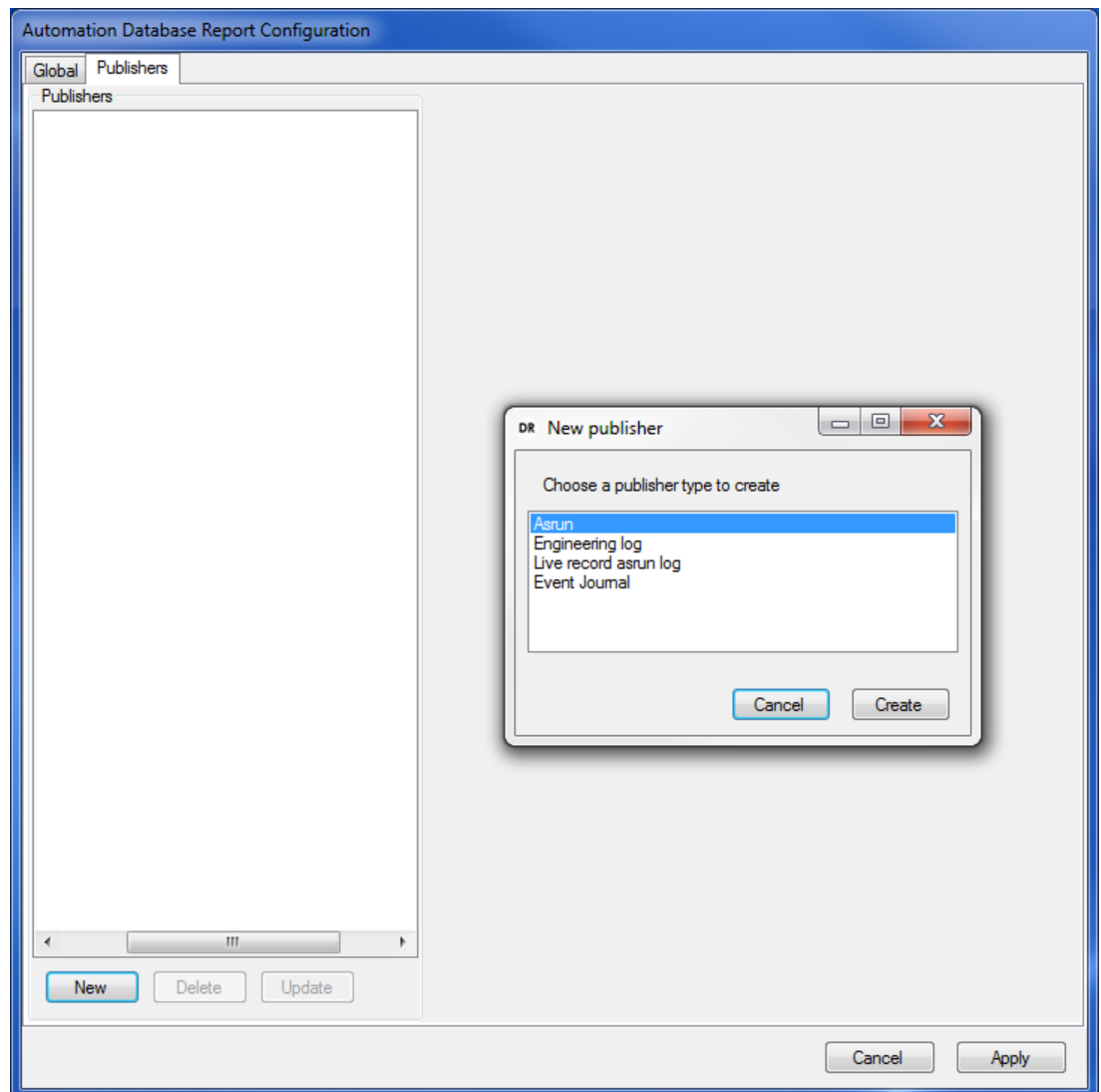


Figure 407 Publisher Tab - New Publisher Window

Highlight one of the following:

- Asrun
- Engineering Log
- Live Record Asrun
- Event Journal

Click on **Create** to generate the publisher.

Click on the new Publisher in order to access its configuration parameters (Figure 408).

Function Buttons

- New

Opens the New Publisher window for the creation of a publisher.

- Delete

Select an existing publisher and click on Delete in order to remove it.

Note:

There is no confirmation window.

- Update

When a change is made to the configuration of a publisher, the Update button will turn red. In order to confirm the changes, the Update button must be used - if not any changes will not be applied.

- Cancel

Cancels any changes to the configuration of a publisher, even if the Update button has been used.

- Apply

Closes the Automation Database Configuration window after configuration changes have been made.

20.4.1.3 Publisher Specific Configuration Parameters

All Publisher configuration parameters are detailed in this section, although some are greyed out in the GUI to indicate that they do not apply to a particular Publisher, as shown by the example in Figure 408.

Note: When using Panoplay, an Event Journal publisher must be created on both Morpheus systems.

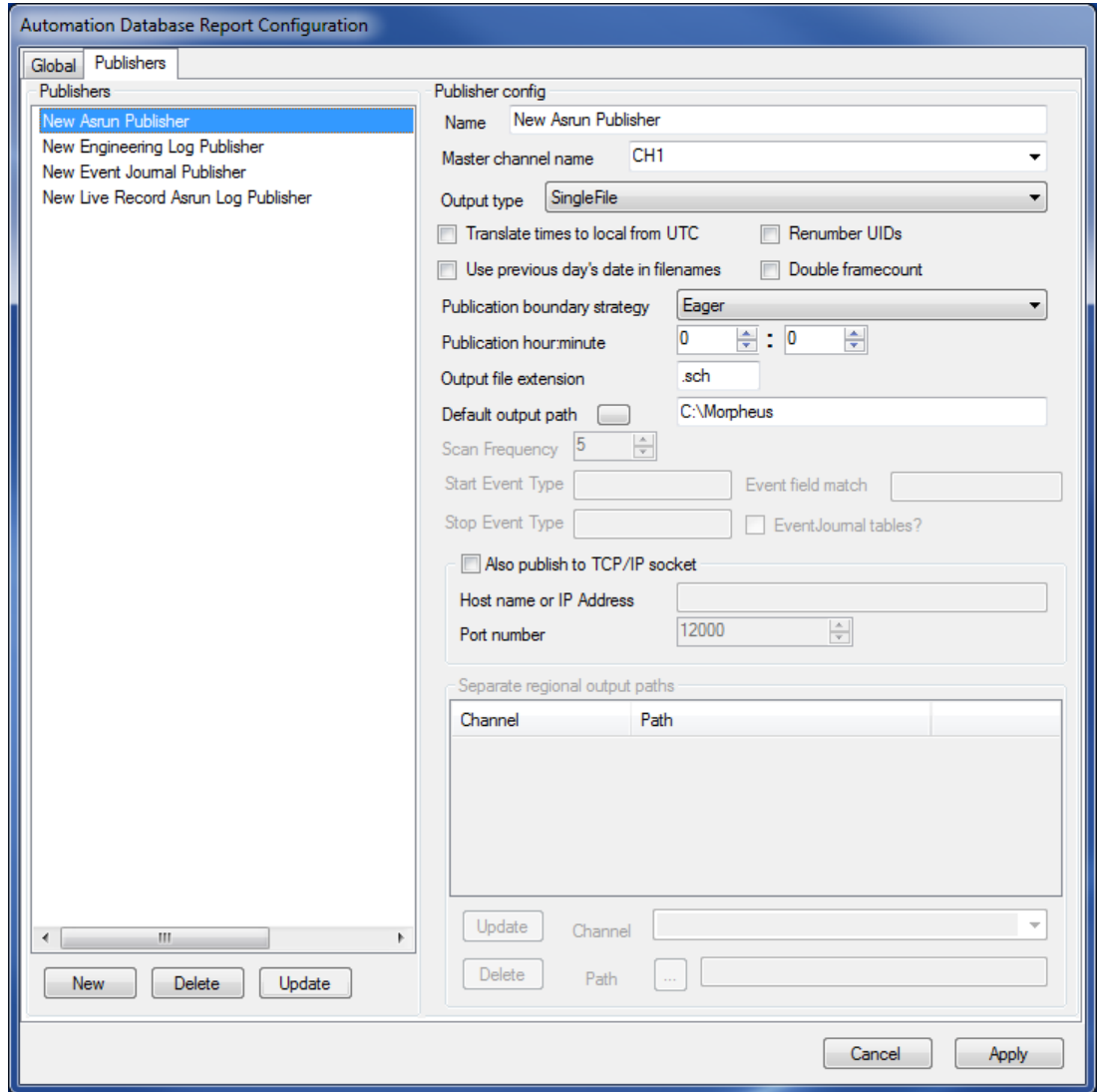


Figure 408 Example: Configuration of an Asrun Publisher

- Name

A default name for the publisher is allocated upon creation, but, if required, enter a new name by over-typing the existing one - the change is reflected in the Publishers pane.

- Master Channel Name

Select a Master Channel Name from those available in the drop down menu.

- Output Type

The **Output type** drop-down menu provides options for filing the as run logs, as detailed below.

- **SingleFile**

The AsRun log from the master channel (including all Regions) is output to a single file, covering a period of the last 24 hours. The output file format is <Channel Name>_yyy-mm-dd-hh-mm.sch (where the date and time relate to the when the .sch file was created).

- **SeparateFiles**

The AsRun log for the master channel is output to one file, and separate files are created for the AsRun logs of each of the regional channels. The output file format is <Channel Name>_yyy-mm-dd-hh-mm.sch (where the date and time relate to the when the .sch file was created).

- **SeperatePaths**

Provides the same output mechanism as 'SeparateFiles', but with the added functionality of being able to specify individual fully qualified path names for the folders in which the output files are to be stored - enter the paths in the 'Separate regional output paths' table (this table is greyed out for all other output types). The output file format is <Channel Name>_yyy-mm-dd-hh-mm.sch (where the date and time relate to the when the .sch file was created).

- **OneEntryPerFile**

Each event in the AsRun log is output to a separate file. The output file format is <10 digit incrementing number>_<channel name>.sch.

- **AsRunEndFlag**

If the AsRunEndFlag parameter has been set to TRUE as a parameter on an event, the publisher will output the contents of the AsRun log from the previous AsRunEndFlag entry, up to the latest AsRunEndFlag entry in the log. The output file format is <Channel Name>_yyy-mm-dd-hh-mm.sch (where the date and time relate to the when the .sch file was created).

- Publication Boundary Strategy

- **Very Eager**

When the configured publication time arrives, events that FINISH <= PUBLICATION_TIME are published. Because the log is published on time, some events with FINISH <= PUBLICATION_TIME may end up in the next day's log.

- **Eager**

Events that FINISH <= PUBLICATION_TIME are guaranteed to appear in the log. It is likely that the log will be published close to the publication time that has been configured, but it may be delayed until the system proves that there are no further events that should be included in the log.

- **Lazy**

Events that START <= PUBLICATION_TIME are guaranteed to appear in the log, however, in order for this requirement to be met, the log may not necessarily be generated until sometime after the publication time that has been set.

- Publication Hour:Minute

Enter the time at which the log is to be published.

- Output File Extension

Enter the desired extension for the log - the default is **.sch**.

- Default Output Path

Enter the path of a destination folder in which to store the logs

- Scan Frequency

Live Record Asrun Log publisher only.

- Start Event Type

Live Record Asrun Log publisher only.

In order to use live recordings with a Panoplay system, it is necessary to use the Event Journal instead of the As Run functionality.

Enter the wildcard '%' followed by the live record start event name, for example:

%LiveRecord Start.

The wildcard represents any parent events of the selected event.

- Stop Event Type

Live Record Asrun Log publisher only.

Enter the wildcard '%' followed by the live record stop event name, for example:

%LiveRecord Stop.

The wildcard represents any parent events of the selected event.

- Event Field Match

Live Record Asrun Log publisher only.

- Event Journal Tables?

Live Record Asrun Log publisher only.

- Also Publish to TCP/IP Socket

The socket is the combination of an IP address and a port number.

- **Host Name or IP Address**

The host name or IP address of the device to which to publish

- **Port Number**

The TCP / UDP port number on the device identified above, to which to publish.

20.4.2 Reporting Database Statistics

The Automation Database Reporter application also provides an overview of the database statistics for the Morpheus system. It contains information on currently configured Engineering, As Run logs and Event Journals.

To view the report, click on **Tools -> Configure** on the main Automation Database Reporter window. The report window is displayed as shown below:

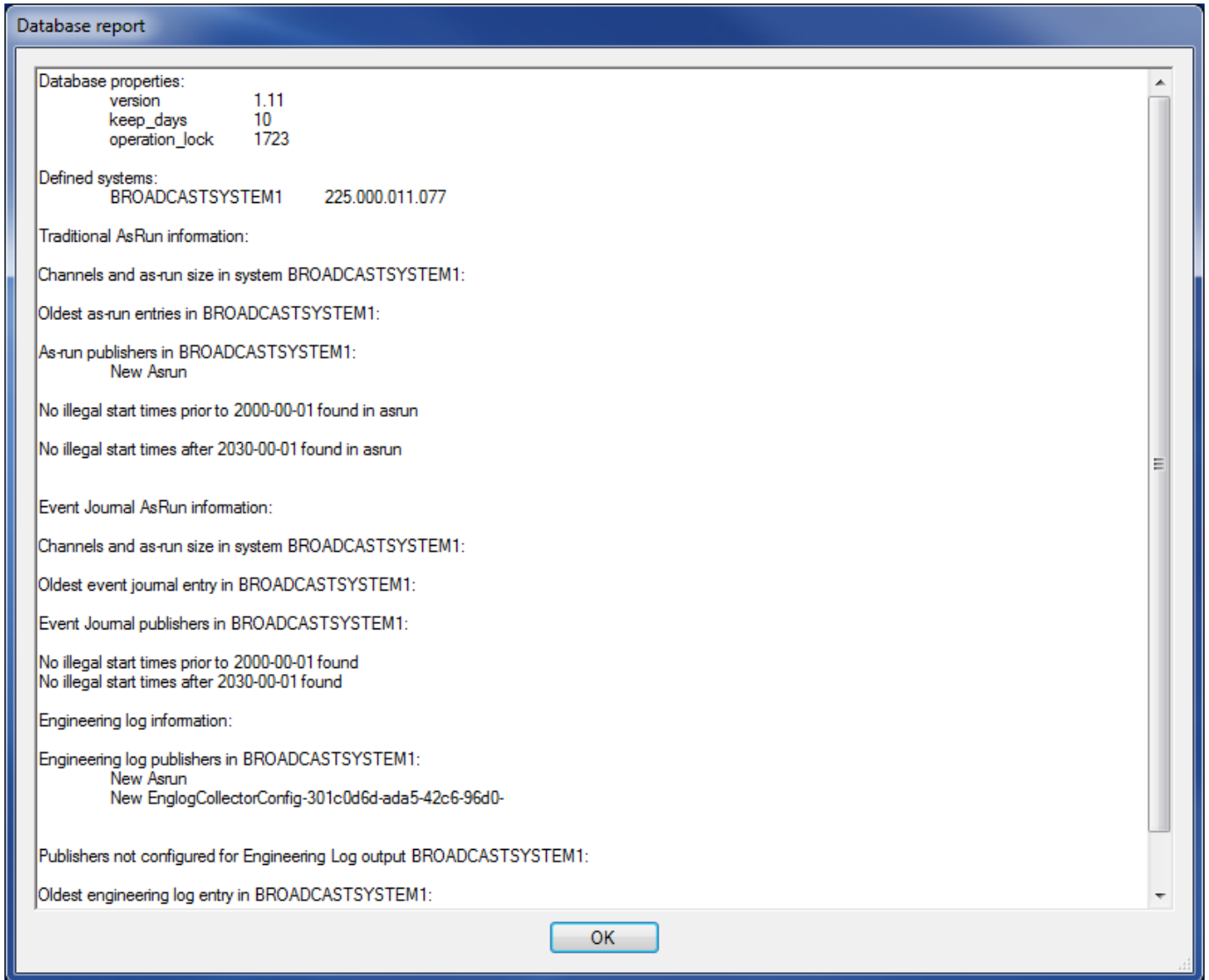


Figure 409 Database Statistics Report

20.4.3 Manually Publishing Logs

From the Tools menu on the Automation Database Reporter, select **Manual Publish** - the Manual Publication window is displayed (Figure 410).

Once configured, click on **Begin** to publish the log to the 'Default Output Path' folder selected on the 'Publisher Config' form.

The screenshot shows the 'Manual Publication' dialog box. At the top, under 'Type of Publication', the 'As-Run Log' radio button is selected. Below this is a table with the following data:

Select	Channel	From	To	TimeZone
<input checked="" type="checkbox"/>	CH1	11/01/2017 12:12:44	18/01/2017 11:53:19	UTC

The 'Time Range' section shows the available range: 'Available: 11/01/2017 12:12:44 -> 18/01/2017 11:53:19, TimeZone=UTC'. The 'From' field is set to '11 January 2017 12:12:44:28' and the 'To' field is set to '18 January 2017 11:53:19:23'. The 'Options' section includes checkboxes for 'Translate UTC times to local', 'Single entry per file', 'Renummer UIDs', 'Opt-outs in separate files', 'Double framecount', and 'Also publish to TCP/IP socket'. The 'LiveRecord Details' section has text boxes for 'StartEvent Type', 'StopEvent Type', and 'MatchedEventField', along with a 'Get times' button. The 'Host name or IP Address' field is empty, and the 'Port number' is set to 12000. 'Cancel' and 'Begin' buttons are located at the bottom right.

Figure 410 Automation Database Reporter - Manual Publication Window

- Time Range

The default time range can be customised using the **From** and **To** fields:

- **From**
Enter the time and date from which entries should be published.
- **To**
Enter the time and date up to which entries should be published.

- Also Publish to TCP/IP Socket

The socket is the combination of an IP address and a port number.

- **Host Name or IP Address**

The host name or IP address of the device to which to publish

- **Port Number**

The TCP / UDP port number on the device identified above, to which to publish.

- LiveRecord Details

Note: For publications of type Live Record only.

- **Start Event Type**

Enter the wildcard and name, e.g. %LiveRecord Start

- **Stop Event Type**

Enter the wildcard and name, e.g. %LiveRecord Stop.

- **MatchedEventField**

Shared Parameter

20.5 As Run Merging

The Automation Database Reporter provides as run merging functionality. It can automatically publish events from any publisher once the event has been aired. The as run log files can also be sent to a remote network location.

To enable As Run merging:

1. Click on **Tools -> Configure** on the main Automation Database Reporter window.
2. Click on the **Global** tab.
3. On one Panoplay system only, in the As Run Merging section at the end of the tab, select the option as shown below:

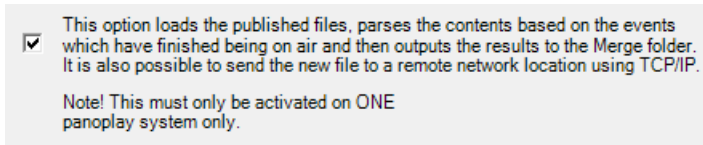


Figure 411 As Run Merging Option

4. Click on the **Settings** button. The following window is displayed:

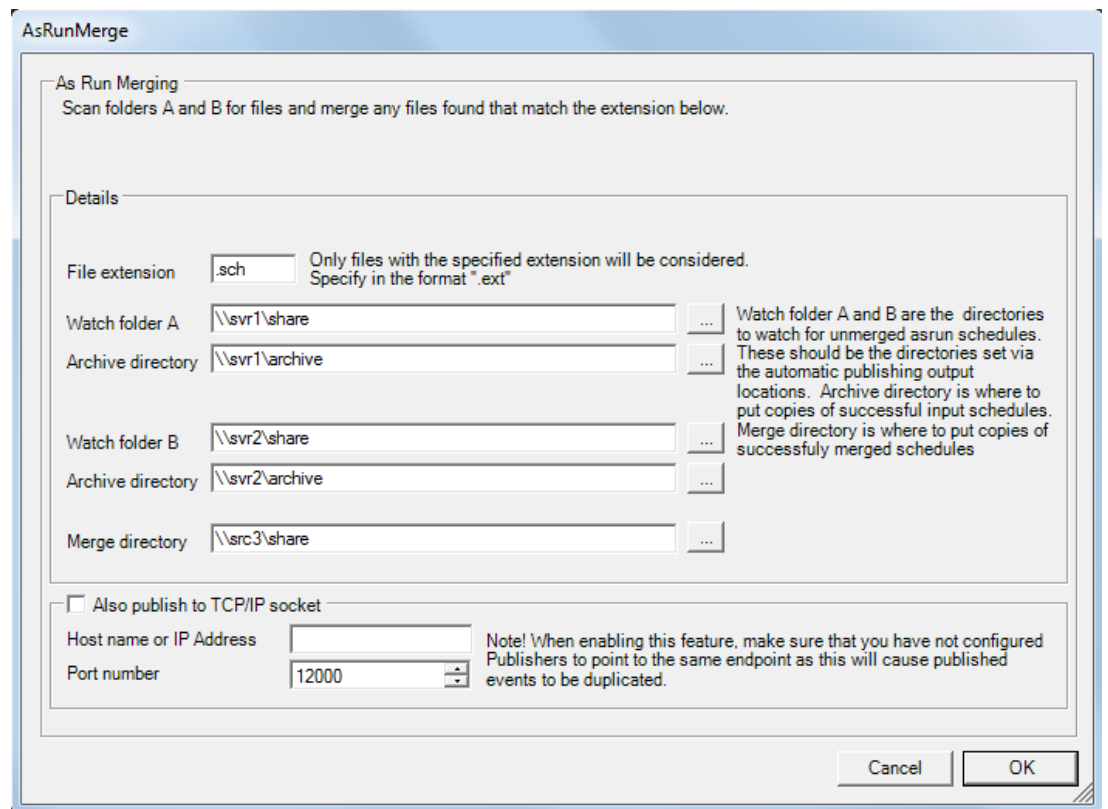


Figure 412 Configuring as Run Merging

5. Set the type of file to merge in the 'File extension to match' option. This is usually a .sch file.
6. Configure the two directories that contain the unmerged As Run schedules. These schedules exist due to the Morpheus 'publisher' running on the Panoplay system.
7. Configure the archive directories that will contain copies of the merged input schedules.

8. Configure the merge directory that contains copies of the successful merged schedules.
9. Set the number of archived files to keep in the 'archive' and 'merged' directories. This is the number of files that can exist at any time. The files are removed in reverse time order (oldest first).
10. If the asrun schedule needs to be published onto another machine, enter the TCP/IP host name and port number.
11. Click on **OK** to save the changes.

21. Morpheus Media Management Database

The Morpheus media management database is a complete, up to date list of every recording on every device in the system (for example, playout, backup, near-line, archive and ingest, refer to page 631).

The media management system (refer to page 615) updates the Morpheus media management database whenever the following occurs:

- A media asset file is moved, copied or deleted.
- Database entries are added or modified, for example, when new 'soft segments' are created (refer to page 591), new presentation data is added, or inpoints (refer to page 645) and outpoints (refer to page 645) are changed.

21.1 Metadata

For each recording, the database contains metadata (data about data), such as the title, date, owner, inpoint, aspect ratio, duration and material type of a piece of material.

If no metadata exists in the Morpheus media management database for a material file, it can be added manually using File Import (refer to page 626). This application also has the capability of extracting metadata from a file header.

The Gateway application monitors a folder for the arrival of an xml file that contains the metadata for a specified material file (refer to page 626).

The Administration application can be used to manually enter metadata relating to material (refer to page 623).

21.2 Further Information

21.2.1 Instance

'Instance' is a term used to describe a recording of a media file.

The instance table lists metadata for each instance (refer to page 597).

It is possible for multiple instances of a media file to exist on different devices, such as on servers and on tape, in which case each instance has a different instance label (see below) but the same material ID (refer to page 614).

21.2.1.1 Instance Label

An 'instance label' is a unique identifier for a recording in the Morpheus media management database.

In a system using short file IDs, an instance label is also the physical filename for a server recording. If long file IDs are in use (refer to page 600), the instance label is a unique index for the instance table.

21.2.1.2 Instanceless Item

An 'instanceless item' is an entry in the item table (refer to page 593) which does not have a corresponding entry in the instance table. This is not to be confused with an 'orphan' item. For further information, refer to page 589.

21.2.1.3 Deviceless Instance

A 'deviceless instance' is a recording with a blank or non-existent device name, for example, a recording which is not on any media.

A deviceless instance breaks the rules of the database and should never occur unless the database has been edited directly. No Morpheus application permits such an entry to be created.

21.2.1.4 Instanceless Device

An 'instanceless device' is a device with no instances of recorded material associated with it, for example, a blank tape.

An instanceless device appears in the storage device table (refer to page 601) as a device name that is never referenced in the instance table (refer to page 597).

21.2.2 Orphans

An orphan is either:

1. A media file that exists on a video server (or other device) but does not appear in the Morpheus media management database. This is known as a 'server orphan'. Server orphans can occur after deleting a server file or tape recording manually.
2. An entry in the Morpheus media management database for which no corresponding media file exists. This is known as a 'database orphan'. Database orphans can occur after deleting a media file from a device manually.

It is possible to have tape, video server and archive orphans.

Orphan recordings can arise when FTP (refer to page 644) is used to transfer video files onto a video server. Initially the database has no record of such files, and the metadata either has to be:

- Extracted from the file header, using File Import (refer to page 626).
- Entered manually, using File Import.
- Taken from a separate XML file using Gateway (refer to page 626), which links a filename with a material ID and all the associated metadata (refer to page 588).
-

21.2.2.1 Deleting Orphans

Any type of orphan can be identified and deleted using the Reconcile function in the Request Controller (refer to page 627).

21.2.3 Parameter Linking

'Parameter linking' is a way of extracting a field from the EventStore or Morpheus media management database and using it as a parameter to be sent to a controlled device.

Parameter linking from the database requires the Morpheus DB Decorator service (refer to page 247) to be running in Host Shell Services (refer to page 197). Link parameters as follows:

1. Activate a Morpheus DB Decorator service and provide it with a unique and useful name. Configure it to read the relevant fields from the Morpheus media management database.
2. In the Configurator (refer to page 50), modify the relevant parameter of the Event Type to have the correct 'parameter script method', which would be 'decorator' in this case.
3. Set the script arguments in the Event Type to be `MORPHEUS::<tablename>::<columnname>`.
 - For a secondary event (refer to page 648) to take a parameter (such as its title) from its immediate parent, set the parameter script method to 'Get parameter from owner'. 'Get parameter from ultimate' forces the secondary event to take the parameter from the ultimate parent, that is, the top level event in the case of nested secondary events. There are also options to take parameters from a MediaBall header (refer to page 53) or main (mixer) event.

This process is described in detail in the 'Morpheus DB Decorator' topic on page 247.

21.2.4 Segmenting

'Segmenting' is the process of splitting an item. It is normally used to 'cut' a long form piece of material into smaller parts and is generally used for films and shows.

There are three ways to segment an item:

- Using ingest (refer to page 631)
- Soft segmenting
- Segmenting using material IDs

Each method is described below.

21.2.4.1 Using Ingest to Segment an Item

Ingest material one segment at a time, each segment being one file and having its own material ID (refer to page 614), instance label (refer to page 588) and long file ID (refer to page 600) - this can be referred to as 'hard segmenting'.

Segmenting material in this way is operationally inflexible, for the following reasons:

- If different channels require different segments of the same material.
- If the same programme will be re-broadcast with different segments.

In such cases, the only option is to re-ingest with different inpoints (refer to page 645) and outpoints (refer to page 645).

21.2.4.2 Soft Segmenting

When not using long file IDs (refer to page 600), create segments by playing out the item multiple times using different inpoints and outpoints. This is known as 'soft segmenting'.

This is done during schedule creation and needs the Morpheus DB Decorator (refer to page 247) to be disabled to allow overwriting inpoints.

21.2.4.3 Segmenting Using Material IDs

If long file IDs are in use, multiple entries in the instance table (refer to page 597) can refer to the same physical file on the video. This is because the long file ID does not have to be unique.

Material IDs (refer to page 614) can be suffixed -1, -2, -3 and so on, each entry in the instance table (refer to page 597) referring to each successive segment by means of the inpoint (refer to page 645) and outpoint (refer to page 645). This provides full operational flexibility.

Material is normally segmented at the acquisition (refer to page 621) or review stage.

To segment a programme when it has been added to the schedule, copy it as many times as necessary for the number of segments. The material ID for each segment can be edited in the Property Inspector (refer to page 5) by adding a suffix, -1, -2, -3, and so on.

Edit the inpoint and outpoint of each segment as required and place commercial breaks between the segments. The Morpheus DB Decorator, refer to page 247, will no longer overwrite the inpoint and outpoint as the material ID has been modified.

The Editor **Main** column show a database error but this can be ignored as the file ID is sufficient to establish which clip is to be played out.

When the file ID has been obtained from the original material ID (when the event has come within the event look-ahead, refer to page 243, and been passed to the kernel, refer to page 169) it will stay in place even if a suffix is added to the material ID.

Note:

To segment a live event 'on the fly' and preserve the total duration, use 'multipart programme IDs' (refer to page 139).

21.3 Core Database Tables

The Morpheus media management database uses Microsoft’s SQL Server and is a relational database. It consists of a number of tables which are linked by common columns.

The ‘item’, ‘instance’ and ‘storage device’ tables are known as core tables because every recording must use all three.

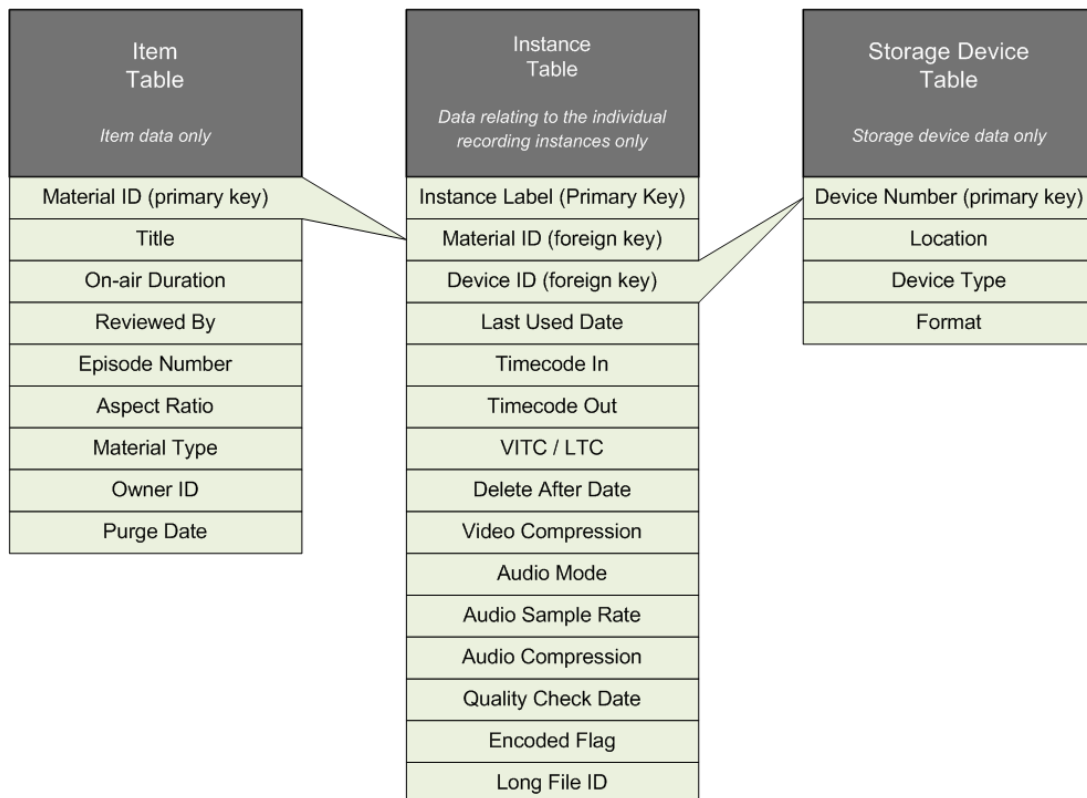


Figure 413 Relationships Between the Core Database Tables

The recording information is held in the instance table. This must contain a unique material ID, which exists in the item table, and a device name, which exists in the storage device table.

The core tables minimize repetition of data, save space and maximize access speed. For example, if there are multiple recordings of an item, it would be wasteful to repeat the content information for each recording. For this reason, data is kept in the item table where it only needs to be stored once.

To determine the content of a recording, SQL Server obtains the material ID specified in the instance record and then looks it up in the item table.

Similarly, to find the storage device information for a recording, SQL Server finds the device name specified in the instance record, and then looks up the device name in the storage device table.

The use of a separate storage device table allows device information to be recorded once, thus saving space if there are many recordings on one device. This is always the case for a video server and, very often, for a tape.

Each device has a unique name and, in the storage device table, metadata about each device is held against each device name. In this context a video server is a device and a tape (not a VTR) is a device.

A material ID can exist in the item table without any recordings of that content appearing in the instance table. This condition is known as 'item only'. Search for these records from the Palette (refer to page 5) using an 'item-only search'.

A device name can exist in the storage device table without being referred to in the instance table. This corresponds to an empty device, for example, a blank tape or a new video server which has no recordings yet.

All material specified in schedules is checked immediately using the Morpheus media management database to ensure that an instance of the material ID exists on the specified playout device. The result of this check is indicated in the Editor using status 'barrels' (refer to page 236).

Note: An instance record cannot be entered until the item and storage device records exist.

Each of the core database tables is described below.

21.3.1 Item Table

The item table lists the parameters relating to the content of each video instance (refer to page 588). Its columns are described below.

Note: The following are required fields:

MATERIAL_ID

TITLE

ON-AIR DURATION

MATERIAL_TYPE

- **MATERIAL_ID (Primary Key)**

A unique identifier for a piece of material. It can contain data up to 128 characters, including uppercase letters, numbers and some symbols. For further information on the material ID, refer to page 614.

- **TITLE**

The material's title. This field can contain text up to 128 characters.

- **ON-AIR DURATION**

The duration of the material. Its format is **hh:mm:ss:ff**.

- **RUN-ON-DURATION**

The duration of material that follows the stated duration. Its format is **hh:mm:ss:ff**. This is entered prior to acquisition (refer to page 621). This entry takes priority over the same data stored in the instance table.

- **SUBTITLE_REF**

The file ID used for subtitle equipment. It can contain text up to 30 characters.

- **REVIEWED_BY**

This is used to confirm that the file has been reviewed and provide the initials of the person who checked the item for content. This is normally entered during acquisition (refer to page 621). It can be displayed in the **QC** column on the Editor schedule as a blue tick. It can contain text up to 20 characters.

- **NOTES**

A free text field, useful for entering information or reminders. Can contain text up to 254 characters.

Note:

The Morpheus DB Decorator must be running and configured to query the Notes column (refer to page 247).

- **FILED_DATE**

The filed date of the database record. Its format is **dd:mm:yy hh:mm:ss**. This is inserted automatically and is read-only.

- **STATUS**

The status of the item. This can contain text up to 10 characters.

- **EPISODE_NUMBER**

The episode number in a series. This is an integer field, allowing up to a maximum of 999999999 numbers.

- **NUMBER_OF_TAPES**

This is used to specify the number of tapes required, in case the material is spread across multiple tapes. It is a text field, allowing up to two characters.

- **ASPECT_RATIO**

This can be 4:3, 16:9, 16:9PV or 20:9. It is a text field, allowing up to four characters. This also includes AFD (refer to 'AFD (Active Format Descriptor)' on page 596).

- **MATERIAL_TYPE**

The type of material, for example, programme or commercial. This is a text field, allowing up to 10 characters. One material type must be allocated to the recording. For further information on material types, refer to page 596.

- **OWNER_ID**

This is used to generate different views of the item table for different owners. This is an integer field, allowing up to a maximum of 999999999 characters. This column has to be implemented when the database is initially set up.

- **PURGE_DATE**

The date after which the material can be purged. Its format is date and time.

- **SCAVENGE**

A flag which triggers automatic central archiving.

- **ARCHIVE**

A flag which triggers automatic local archiving.

- **CATEGORY_ID**

This column is used for customizing programme types. It is an integer field, allowing up to 999999999 numbers.

21.3.1.1 Material Type

The 'Material Type' is a parameter held for every material ID in the item table. There are five possible material types in Morpheus. Each is described in Table 36 below.

Material Type	Description
Programme	A main programme item, generally advertised in the listings magazines or on the EPG (refer to page 21)
Commercial	A revenue generating advertisement
Junction	A channel ident, promo, bumper or other interstitial
Live	An item from a live studio or outside source
Live record	An event which was recorded from a live source using Live Record (refer to page 621). This Event Type may contain black, unwanted, inappropriate or unexpected content

Table 36 Material Types

It is good practice to classify material properly as this can activate or permit certain functions.

The material type can be edited in the Property Inspector (refer to page 5) if the Event Type configuration allows this. It may, however, be overwritten by the Material Decorator (refer to page 236) if the channel configuration specifies it.

Morpheus Administration (refer to page 623) allows an additional material type known as 'still'. If such material is scheduled in Morpheus it appears as JUNCTION in the Editor schedule.

User-defined material types are not available.

21.3.1.2 AFD (Active Format Descriptor)

A code sent on line 21 of a TV signal to indicate which format the picture should be viewed in. This is different from the aspect ratio itself.

The receiving equipment reads this data and switches the display to the correct aspect ratio. It takes into account the physical aspect ratio of the screen and the viewer's preferences (for example, letterbox or zoom for 16:9 pictures on a 4:3 screen).

The code consists of an integer from 0 to 7. The addition of the code can be automated by Morpheus, for example, using a GPI event (refer to page 636).

21.3.2 Instance Table

A list of instances of recorded material (refer to page 588).

Note: The following are required fields:

INSTANCE_LABEL

MAT_ID

DEVICE_ID

VITC

LTC

RECORDED_DATE

LONG_FILE_ID

- **INSTANCE_LABEL (Primary Key)**

A unique identifier for an instance. It can contain text up to 8 characters and is always numeric. If long file IDs (refer to page 600) are not in use, the instance label is the same as the filename on the server. If long file IDs are in use, the instance label becomes the unique index for the table, used by the database and not by Morpheus.

- **MAT_ID (Foreign Key)**

This identifies the content of the recording. It can contain text up to 128 characters. This cross references the item table (refer to page 593). For further information, refer to 'Material ID' on page 614.

- **DEVICE_ID (Foreign Key)**

This identifies the device that the recording is on. It is a text field allowing up to 20 characters. This cross references the device table. For further information, refer to 'Device ID' on page 614.

- **SOURCE_DEVICE_ID**

The ID of the source. This is a text field, allowing up to 20 characters. It can only contain uppercase letters.

- **LAST_AIRED_DATE**

The date the material was last played out. Its format is date and time. It is inserted automatically.

- **LAST_USED_DATE**

The date the material was last put into a schedule (whether played out or not). Its format is date and time. This is written to by the 'Lock Decorator service' (refer to page 235).

- **USAGE_COUNT**

The number of times the material has been used. This is an integer field, allowing up to 999999999 integers. It is incremented automatically.

- **TIMECODE_IN**

The timecode at SoM (start of material). Its format is **hh:mm:ss:ff**. Server instances default to **00:00:00:00** and tape instances to **10:00:00:00**. Tape SoM is set by the operator when using the various Morpheus ingest applications.

- **TIMECODE_OUT**

The timecode at EoM (end of material). Its format is **hh:mm:ss:ff**.

- **VITC**

A **Yes/No** field to indicate whether or not VITC is present. For information relating to the Vertical Interval TimeCode (VITC) refer to page 634 .

- **LTC**

A **Yes/No** field to indicates whether or not LTC is present. For information relating to the Longitudinal TimeCode, refer to page 634.

- **DELETE_AFTER**

Expressed as a date and a timecode. Allows auto deletion from a video server in order to save space (refer to 'Background Deletion' on page 620).

- **TECHNICAL_COMMENT**

A free information text field, allowing up to 254 characters.

- **VIDEO_COMPRESSION**

Inserted automatically as an 8-bit floating point.

- **AUDIO_MODE**

Text field, allowing up to eight characters. Possible values are A to both, B to both, mono mix, stereo or ph rev B (phase reversal of the B audio signal).

- **AUDIO_SAMPLE_RATE**

The format of this column is 8-bit floating point. This should be 48KHz for embedded SDI.

- **AUDIO_COMPRESSION**

The format of this column is 8-bit floating point.

- **QUALITY_CHECK**

This contains a time and date stamp to indicate when a file's technical quality has been checked. The Morpheus DB Decorator must be running and configured to query this column (refer to page 247).

- **AUTO_QC**

This field contains a time and date stamp to indicate that a material item's technical quality has been checked by the Morpheus Quality Manager application and declared to be valid. The Morpheus DB Decorator must be running and configured to query this column (refer to page 247).

- **RUN_ON**

The duration of the material after the 'end' of the item. Its format is **hh:mm:ss:ff**. This is normally set in the Acquisition application (refer to page 621) at the time of ingest. This could be relevant in the case of a crossfade or wipe into the next item.

- **RECORDED_DATE**

The date on which the material was recorded. This is a date and timecode field. It is inserted automatically.

- **ENCODED**

This indicates that a clip has been fully transferred with no errors. For further information, refer to 'Encoded Flag' on page 600.

- **CLIP_REF**

This column is not used.

- **AUDIO_SHUFFLING_ID**

Used in multi level audio systems, this is an integer field.

- **LONG_FILE_ID**

If long file IDs are in use (refer to page 600), this is the filename on the server. It is a text field, allowing up to 128 characters. Beware of characters prohibited by third party equipment (due to operating system and reserved characters).

Long file IDs are not the primary key of the table, so there can be multiple entries referring to the same long file ID, permitting multiple entries in the item table.

- **INSTANCE_STATUS**

This field is for future use.

21.3.2.1 Encoded Flag

The 'Encoded' flag indicates that a file has been encoded completely (transferred or ingested) and that a valid file exists.

Note:

Encoding is the process of getting video from the incoming stream or via a file transfer, which is probably SDI, into a file of whatever format is used on the server (for example, MPEG, mov).

The Encoded flag is visible in the Palette (refer to page 5) for all server recordings.

The term is used because servers store material in encoded form, with encoders on the inputs and decoders on the outputs.

21.3.2.2 Unencoded Instance

An 'unencoded instance' is a server recording for which the Encoded flag is not set. This indicates that the recording or file transfer is still in progress, has been aborted or failed before it was completed.

The Reconcile function (refer to page 629) in the Request Controller media management application allows users to search the database for unencoded instances and delete them.

The Reconcile operation has to be run again afterwards in order to remove any invalid files from the server.

21.3.2.3 Long File IDs

'Long File ID' is an additional column in the instance table. It allows the physical filename of a server recording to be different from the instance label. This means that:

- The physical filename can appear any number of times because it is not the unique index of the table.
- Each occurrence may have a different material ID, that could specify different inpoints (refer to page 645) and outpoints (refer to page 645) for one filename - this will allow soft segmenting.
- Use the presentation table (refer to page 602) to specify different audio gain settings for the same filename, enabling quick and easy selection of language tracks in the same file.

The option to use long file IDs can be set in the Application Server (refer to page 165). From here, select **Configuration** from the **Tools** menu and, on the Settings tab, select **Use long file names**. This option can also be set in Acquisition (refer to page 621).

Some users find it convenient to have the file ID and the material ID the same to simplify identification of material in a list.

If long file IDs are in use, items with short file IDs are still visible to the Palette (refer to page 5) and can still be played out. If long file IDs are not in use, only short file ID items are displayed.

21.3.3 Storage Device Table

The storage device table stores parameters of tapes, video servers and archives. Its columns are described below.

Note: The following are required fields:

DEVICE_NO

LOCATION

TYPE

Note: An entry must exist in the storage device table before a corresponding entry can be made in the instance table (refer to page 597). This is because an instance record cannot refer to a non-existent device.

- **DEVICE_NO (Primary Key)**

A unique identifier for one storage medium such as a tape or server. It is the same as DEVICE_ID (refer to page 614). This is a text field, allowing up to 20 characters. It cannot be edited. It is generally either a tape number or server name.

- **LOCATION**

The location of the storage device, for example, Library or room. This is a text field, allowing up to 20 characters. This can be edited from Acquisition (refer to page 621) or Administration (refer to page 623).

- **TYPE**

The type of storage device, for example, tape, video server or archive. This is a text field, allowing up to 20 characters (chosen from a fixed list).

- **FORMAT**

The format of the storage device, for example, tape format. This is a text field, allowing up to 20 characters. This can be edited from Acquisition or Administration.

- **NAME**

This column is not used.

- **NDF**

Non Drop Frame. This is a flag that can be edited from Acquisition or Administration.

21.4 Other Database Tables

As well as the core database tables, there are many other tables in the Morpheus media management database. The total number is 75. Some of these are described below.

21.4.1 Presentation Table

The presentation table lists transmission mixer settings associated with a Material ID (refer to page 614). These include information on PDC, subtitles, keyers, GPI flags (refer to page 636) and audio-over parameters, such as channel gain, stereo routing and phase reverses.

If long file IDs are in use (refer to page 600), multiple entries in the instance table (refer to page 597) can all refer to the same video file, but have different material IDs.

This allows different material IDs to refer to the same material but with different audio tracks faded up.

This means that when the material ID is scheduled, regardless of what device plays it out on, the presentation table settings can be applied to the mixer automatically.

21.4.1.1 GPI Flags

The presentation table contains 32 flags known as ‘GPIs’. These do not relate to physical GPIs (refer to page 636). They are flags that can trigger MediaBalls (refer to ‘Parameter Linking’ on page 590).

The GPI flags can be accessed from Morpheus Acquisition (refer to page 621) or Morpheus Administration (refer to page 623) by clicking the presentation table button:



To display the flags, click on the GPI tab.

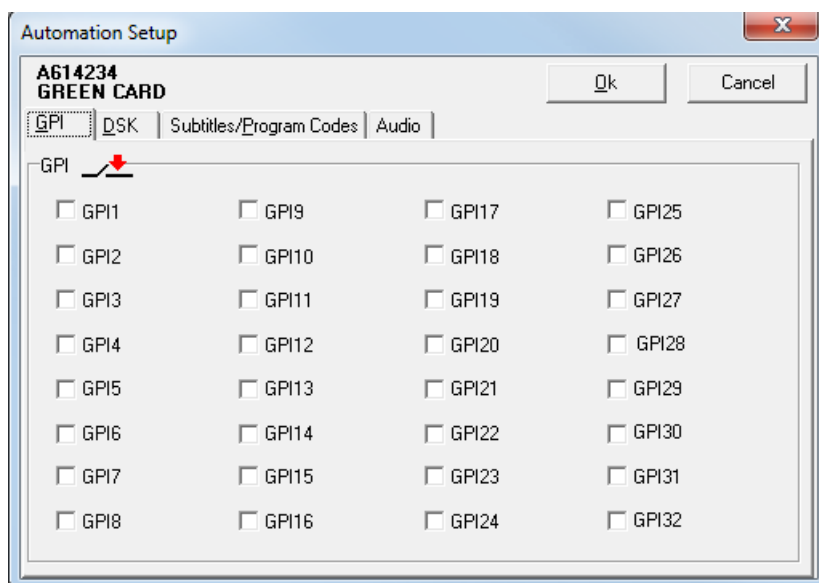


Figure 414 GPI Flags

21.4.2 Transfer Request Table

The transfer request table keeps a record of all requests for material to be transferred. Its columns are described below.

Note:

The following are required fields:

ID

PROCESS_ID

TIME_REQUIRED

TIME_REQUESTED are required fields.

- **ID (Primary Key)**

This is an index, not the material ID. It is an integer column, allowing up to 999999999 numbers.

- **SOURCE_MAT_ID**

The ID of the material being transferred. This is a text field allowing up to 128 characters.

- **SOURCE_DEVICE_ID**

The device ID of the source instance. This is a text field, allowing up to 20 characters.

- **SOURCE_INSTANCE**

The instance label of the source instance. This is a text field, allowing up to 20 characters.

- **TARGET_DEVICE**

The device ID of the target file. This is a text field, allowing up to 20 characters.

- **TARGET_INSTANCE**

The instance label of the target file. This is a text field, allowing up to 20 characters.

- **PERCENTAGE**

This field contains the current status of the material being transferred in the form of a percentage. The Editor uses this information to display a progress bar behind the material barrel. This is an integer field, allowing up to 999999999 numbers.

- **PROCESS_ID**

Identifies a transfer agent (refer to page 618). This is an integer field, allowing up to 999999999 numbers. For further information, refer to 'Process ID' on page 618.

- **PROGRESS**

This field contains the current status of the material being transferred. The Editor uses this information to display a progress bar behind the material barrel. This is a text field, allowing up to 20 characters.
- **TIME_REQUIRED**

The date and time the material is required.
- **TIME_REQUESTED**

The date and time the material was requested.
- **REQUEST_TYPE**

The type of transfer request. This can be copy, move or delete. This is an integer field, allowing up to 999999999 numbers.
- **PARAMETER**

This is a text field, allowing up to 16 characters.
- **STATUS**

The status of the transfer request. This is an integer field, allowing up to 999999999 numbers.

21.4.3 Cache Request Table

The cache request table lists all pending cache requests. It exists for legacy reasons and all current media management applications use the transfer request table.

The cache request table is automatically synchronized with the transfer request table, apart from delete requests which only appear in the transfer request table.

21.4.4 Cache Error Table

The cache error table lists all failed cache requests. It exists for legacy reasons, and is automatically synchronized with the transfer error table which is the one used by current media management applications.

21.4.5 Transfer Error Table

The transfer error table lists failed transfer requests (refer to 'Transfer Errors' on page 617) i.e. transfers that the media management system (refer to page 615) has been unable to complete.

The list is visible in the Request Controller media management application (refer to page 627) and in the Editor Missing Material report (refer to page 631).

The transfer error table is similar to the transfer request table (refer to page 603) but it contains additional information that relates to the error.

The information the Transfer Error Table is detailed below:

Note: The following are required fields:

ID, PROCESS_ID,
TIME_REQUIRED
TIME_REQUESTED

- **ID (Primary Key)**

This is an index, not the material ID. It is an integer column, allowing up to 999999999 numbers.

- **SOURCE_MAT_ID**

The ID of the material being transferred. This is a text field allowing up to 128 characters.

- **SOURCE_DEVICE_ID**

The device ID of the source instance. This is a text field, allowing up to 20 characters.

- **SOURCE_INSTANCE**

The instance label of the source instance. This is a text field, allowing up to 20 characters.

- **TARGET_DEVICE**

The device ID of the target file. This is a text field, allowing up to 20 characters.

- **TARGET_INSTANCE**

The instance label of the target file. This is a text field, allowing up to 20 characters.

- **PROCESS_ID**
Identifies a transfer agent (refer to page 618). It is an integer field, allowing up to 999999999 numbers. For further information, refer to 'Process ID' on page 618.

- **TIME_REQUIRED**
The date and time that the material is required.

- **TIME_REQUESTED**
The date and time that the material was requested.

- **REQUEST_TYPE**
The type of transfer request. This can be copy, move or delete. This is an integer field, allowing up to 999999999 numbers.

- **PARAMETER**
This is a text field, allowing up to 16 characters.

- **STATUS**
The transfer status. This is an integer field, allowing up to 999999999 numbers.

- **FAILURE_CODE**
The code assigned to the failed transfer request (refer to Table 37). This is an integer field, allowing up to 999999999 numbers.

- **FAILURE_TIME**
The time and date of the failed transfer.

- **FAILURE_DETAILS**
A text field describing the error - 254 characters maximum (refer to Table 37).

The table below lists the possible transfer errors.

Error Message	Error Code	Description
TE_NONE	0	No error
TE_UNKNOWN	100	An unknown error has occurred
TE_OUT_OF_TIME	101	No time to transfer
TE_NO_VALID_INSTANCE	102	No valid source instance
TE_LEGACY_ERROR	103	A legacy agent has produced an error
TE_UNENCODED_INSTANCE_EXISTS	104	Another agent is transferring the instance
TE_INVALID_NEXT_PROCESS_ID	105	Agent is misconfigured. Repost not possible
TE_CANNOT_REACH_TARGET_SERVER	106	Cannot create target instance
TE_INVALID_REQUEST	107	Inconsistent or incorrect parameters to request
TE_CACHE_REQUEST_FAILED	108	Error processing cache request
TE_NO_STREAM_AVAIL	109	There was no stream available to process the request
TE_END_OF_CHAIN	110	Request reached end of chain
TE_ALREADY_IN_ARCHIVE	111	Already in archive
TE_REPOST_NOT_ALLOWED_AVM_FAILED	112	A request requiring an FC move failed because the source clip did not pass automatic QC
TE_CANCELLED_BY_OPERATOR	113	The request has been cancelled by a user
TE_INVALID_TARGET_SERVER	201	Invalid target server
TE_INVALID_MATERIAL_ID	202	Invalid material ID
TE_ITEM_DATA_MISMATCH	203	Item data mismatch between originating database and implementing database
TE_INVALID_SRC_SERVER	204	Invalid source server
TE_SRC_INST_NOT_EXIST	205	Src instance does not exist in database (where a src instance is given)
TE_SRC_SERVER_IS_OFFLINE	206	Src server is offline
TE_TARGET_INST_NOT_EXIST	207	Target instance does not exist in database (where a target instance is given)
TE_TARGET_SERVER_IS_OFFLINE	208	Target server is offline
TE_APPLICATION_EXCEPTION	209	An application exception has occurred
TE_SERVER_IS_NOT_LOCAL	210	The server is not local to the database, it is a REMOTE type

Table 37 Transfer Errors

Error Message	Error Code	Description
TE_DEVICE_IS_NOT_VIDEO_SERVER	211	The specified device is not a video server
TE_INSTANCE_ALREADY_ENCODED	212	The specified instance label has already been used and is encoded
TE_ARCHIVE_ERROR	213	The command to the archive had an error
TE_SRC_FILE_DOES_NOT_EXIST	214	The source file to transfer does not exist on the source server
TE_TRANSFER_CANCELLED	215	The transfer has been cancelled by a user
TE_TARGET_FILE_ALREADY_EXISTS	216	The source file to transfer does not exist on the source server
TE_INVALID_ARCHIVE_GROUP	217	The target archive group is invalid
TE_ARCHIVE_SERVER_DISCONNECTED	218	The target archive server has been disconnected
TE_MATERIAL_IS_LOCKED	219	The material is locked in the 'locks table' in the database (refer to page 608).
TE_INVALID_SERVER	220	Invalid server name
TE_INVALID_PROCESS_ID	221	Process ID has not been assigned to an agent or is otherwise invalid
TE_AGENT_CANNOT_HANDLE_REQUEST_TYPE	222	Invalid request type for agent, for example, sending a Delete request to a legacy agent (only copy or move accepted)
TE_INVALID_PARAMETER_FIELD	223	Agent cannot interpret the data in the PARAMETER field
TE_FILENAME_IS_BLANK	224	No filename is specified

Table 37 Transfer Errors

21.4.6 Locks Table

The locks table is maintained by the Lock Decorator service (refer to page 235) in the Host Shell application (refer to page 197). It lists instances (refer to page 588) that are scheduled for playout and cannot be deleted, for example by Video Network Manager's background deletion process (refer to page 620).

Information in the Locks table is detailed below.

Note:

The following are required fields:

MATERIAL_ID

DEVICE_ID

PLAYLIST_NAME.

- **MATERIAL_ID**

A unique identifier for a piece of material - text field allowing 128 characters (refer to 'Material ID' on page 614).

- **DEVICE_ID**

The device on which the recording is stored - text field allowing up to 20 characters (refer to 'Device ID' on page 614).

- **PLAYLIST_NAME**

The name of the channel locking the material - text field allowing up to 20 characters.

- **EVENT_ID**

Not used.

21.4.7 Clip Replication Table

The contents of this table govern 'clip replication'. Clip replication is a process in the media management system (page 615) which ensures that any file arriving on one device is copied automatically to another device. This makes the contents of the two device the same.

Each entry represents one clip replication process, of which there may be several. The information in the Clip Replication table are described below.

Note:

The following are required fields:

SOURCE_DEVICE_ID

TARGET_DEVICE_ID

TARGET_PROCESS_ID

MATERIAL_TYPE

- **SOURCE_DEVICE_ID**

The ID of the storage device containing the contents to be copied to another storage device. The name must exactly match the device ID in the storage device table (refer to page 601).

- **TARGET_DEVICE_ID**

The ID of the storage device to which media files will be copied. The name must exactly match the device ID in the storage device table.

- **TARGET_PROCESS_ID**

The process ID (PID, refer to page 618) of the transfer agent (refer to page 618) that will perform the clip replication. This is usually the Video Network Manager (refer to page 619).

- **MATERIAL_TYPE**

The material types to be replicated (for example programme, commercial, junction or live record). Leaving this field blank prevents any replication from taking place. To replicate all types, enter 'ALL'.

- **TIME_OFFSET**

How far in the future the replication is to be carried out, starting from the time the source clip is marked as being encoded.

- **CONDITION**

This allows an SQL condition to be entered, for example WHERE QUALITY_CHECK IS NOT NULL, which prevents non QC'd material from being replicated.

21.4.8 Server Type Table

This table lists parameters relating to server types. It is only accessible to system administrators using Request Controller (refer to page 627).

Information in the Server Type table is detailed below.

Note: The following are required fields:

DEVICE_NO

MANUFACTURER

- **DEVICE_NO**

This is the same as the Device ID in the device table. It is a text field, allowing up to 20 characters.

- **MANUFACTURER**

The make of a video server. This is a text field, allowing up to 20 characters.

- **DOMAIN_NO**

This is used when a server is to be allocated to different local groups. It is an integer field, allowing up to 999999999 numbers.

- **USER_NAME**

This holds the FTP user name for servers that use FTP servers (refer to page 644). This is a text field, allowing up to 20 characters.

- **PASSWORD**

This holds the FTP password for servers that use FTP servers. This is a text field, allowing up to 20 characters.

- **ARCHIVE_ID**

The archive ID. This is a text field, allowing up to 20 characters.

- **VIDEO_BIT_RATE**

The video bit rate. This has 8-bit floating point format.

- **SERVER_SUBTYPE**

Server sub-types allow for advanced material 'workflows'. They are:

- T01_ON_AIR_SERVER
- T02_ARCHIVE_SERVER
- T03_DUB_SERVER
- T04_REMOTE_SERVER

This is a text field, allowing up to 20 characters.

- **SERVER_STATUS**

This can be set to ONLINE or OFFLINE. Servers can be taken offline for maintenance purposes.

- **RECONCILE**

This shows whether the server is in the process of being reconciled (refer to page 629). This is **YES/NO** field. If this field is set to **YES**, the server cannot be used for anything else.

- **LOW_MARK**

The minimum space in MB allowed on a video server before 'background deletion' (refer to page 620) is activated in Video Network Manager (refer to page 619). Also known as a 'low watermark'. This is an integer field, allowing up to 999999999 numbers. If this is set to zero, background deletion is disabled.

- **HIGH_MARK**

The space in MB above which no further background deletion takes place. Also known as 'a high watermark'. This is an integer field, allowing up to 999999999 numbers. If this is set to zero, background deletion is disabled.

- **DEL_AFTER_PERIOD**

This is an integer field, allowing up to 999999999 characters. It applies to archive servers only.

- **REMOVABLE**

This specifies whether the server is a remote device in another system. This is required if Asset Mail is in use (refer to page 619). It is an integer field, allowing up to 999999999 numbers.

- **STORAGE LOCATION**

This is used to hold the FTP 'home' directory for servers that use FTP servers (refer to page 644). This is a text field, allowing up to 40 characters.

- **CAPACITY**

This is the capacity of a server in MBytes. This is a text field, allowing up to 40 characters.

21.5 Key Identifiers

21.5.1 Material ID

- A unique identifier for the content of a recording
- Unique index for the item table (refer to page 593)
- Associated to metadata relating to content (refer to page 588)
- An alphanumeric string of up to 128 characters
- If an asset file is copied, all files will have the same material ID
- A material ID must appear in every instance record in the instance table (refer to page 597)

In a system that uses long file names , the material ID can be used as the file name on the video server (refer to page 600).

The material ID is also used as the unique index in the presentation table (refer to page 602). This allows audio channel gain settings, audio routing and keyer settings to be stored with any material ID, and these can then be automatically recalled by the TX mixer whenever that content is broadcast.

The material ID must exist before an instance record can be entered into the Morpheus media management database. It is possible for a material ID to exist in the database without a record of it existing in the instance table.

The material ID is abbreviated to MAT_ID in the instance table - this is due to earlier versions of Morpheus using a Centura media database, in which linked columns in different tables could not have the same heading name.

21.5.2 Device ID

The Device ID is a unique identifier for a storage medium, commonly a tape (not on a VTR), a video server or archive. Examples are Profile1, Gandalf, Bulgaria (server names) and ABC123 (tape barcode).

Device ID is not to be confused with 'Device Type ID'.

In the instance table (refer to page 597), the field name is DEVICE_ID. In the storage device table (refer to page 601) the field name is DEVICE_NO. The two parameters identical, and they link the two tables (this ensures compatibility with Centura databases in which link columns in two different tables are required to have different names).

22. Media Management

The Media Management System consists of a suite of applications that run alongside the automation system. They perform the following duties:

- Automatically move or copy media that is listed in a schedule to ensure that it is available on the playout device in time to be broadcast.
- Manage the background processes of archive and restore
- Maintain space on video servers by deleting files that are no longer needed

Applications that control the movement of media are known as Transfer Agents (refer to page 618).

Note:

When media files are moved, the Morpheus media management database (refer to page 588) must be updated - this requires that all media management applications must be networked to the database in order for the location and availability of media to be always up to date.

22.1 The Media Management Process

The media management process is triggered on the following occasions:

- When a scheduled event contains a material ID (refer to page 614) for material that is to be played out from a device.
- The device does not have a copy of the material.

The media management process is as follows:

1. The Material Decorator (refer to page 236) verifies event data against the Morpheus media management database (refer to page 588). If a recording for the required material ID does not exist on the specified device, then the material status is updated and a red barrel is displayed in the **Main** column on the Editor schedule.



2. The Transfer Decorator (refer to page 266) detects the red barrel status and sends a transfer request to the Media Management Application Server (refer to page 626).
3. The Media Management Application Server posts the request into the transfer request table (refer to page 603) and sends a transfer message to the appropriate transfer agent (refer to page 618). The red barrel is replaced with a yellow barrel.



4. If it is possible to perform the transfer, once the transfer agent has started the status is updated to 'transfer in progress', as indicated by a green/yellow barrel on the schedule.



6. Once the transfer is complete, the encoded flag (refer to page 600) for the new instance (refer to page 588) is set to 'yes' and the status is updated to 'on device'. A green barrel is displayed on the schedule.



22.1.1 Transfer Errors

If the transfer agent cannot perform the transfer, it will execute one of the following actions:

- Changes the process ID (refer to 'Process ID' on page 618) to that of the next transfer agent, as set in its own configuration
- Places an error status entry into the transfer error table (refer to page 605).

A transfer would fail if either the material did not exist, or the Time Required setting for the transfer is greater than the amount of time left to perform the action.

When a transfer error occurs, the following barrel is displayed in the **Main** column on the Editor schedule.



The transfer error table is visible from the Request Controller (refer to page 627). The **Repost** button will restart the process.

Transfers can be initiated manually from the Request Controller or from the Missing Material Report (refer to page 631) window.

22.2 Transfer Agents

In Morpheus media management, 'transfer' is defined as the movement of media files between devices on a media network - for example, moving a file onto a playout server or to an archive. Transfer Agents are the applications that perform the transfer.

There are four transfer agents (listed below), each having an individual process ID (refer to 'Process ID' below).

- Archive Controller (refer to page 618)
- Asset Mail (refer to page 619)
- Multi-stream Cache Engine (refer to page 619)
- Video Network Manager (refer to page 619)

22.2.1 Process ID

A unique Process ID (PID) is allocated to each of the Morpheus transfer agents.

Commonly, Video Network Manager (refer to page 619) has a process ID of 1, Cache Engine (refer to page 619) has a process ID of 2, and so on.

When a transfer request is generated, one of its parameters is the process ID. The request is passed to that agent first. If the transfer agent cannot satisfy the request, the PID is incremented to the next configured PID. The process continues until either the material is found and transferred, or the process fails. The last agent in the 'chain' is configured to modify the PID to the error PID.

22.2.2 Archive Controller

Archive Controller manages the archive and restore of material into various third party archive systems: Front Porch DIVArchive, MassTech MassStore, SLG Flashnet, EMC/Avalon iADM and IBM Tivoli.

22.2.3 Asset Mail

Asset Mail handles the transfer of material between video servers on separate Morpheus systems with their own Morpheus media management databases (refer to page 588). It does not carry out the transfer itself, instead it creates a request for another agent, such as Video Network Manager (refer to page 619) to do it.

The request is received from the media management Application Server (refer to page 626) and is known as a 'requesting request'. Asset Mail will then post an 'implementing request' to the transfer request table (refer to page 603).

It is Asset Mail, rather than the implementing agent, that updates the Morpheus media management database.

A video server in the remote system must be in the local Video Network Manager's configuration so that Video Network Manager (refer to page 619) can transfer material from a local server. The local server must be set as 'remotable' in the Server Type table (refer to page 611) set so that it can accept transfers from a remote server.

This action cannot be performed from any Morpheus media management application, only directly in the Morpheus media management database. The 'remote' server must be specified in the Server Type table of the local database as being of server subtype T04_REMOTE_SERVER.

22.2.4 Multistream Cache Engine

Multistream Cache Engine optimizes the transfer of material from up to two VTRs in a Flexicart or LMS to up to two video servers. It allows the unattended ingest (refer to page 631) of tape based material.

22.2.5 Video Network Manager (VNM)

Video Network Manager deals with the transfer of material assets between servers on a high speed network. It also carries out transfers of material between systems where Asset Mail (refer to page 619) is in operation.

Video Network Manager implements manual transfer requests from Request Controller (refer to page 627) and the two applications are generally deployed together.

22.2.5.1 Background Deletion

Also known as 'auto deletion', background deletion is one of Video Network Manager's services.

Background deletion is a housekeeping function that maintains space on a video server - it is achieved by querying the server periodically to establish the amount of free space remaining using low and high 'water marks' (see below).

- **Low Water Mark** - A parameter (set in Request Controller, refer to page 627) that specifies the minimum available space to be maintained on a video server. If the available space is less than this figure, the background deletion process deletes server recordings until the high water mark is reached.
- **High Water Mark** - A parameter that specifies how much free space a video server should have before the background deletion process stops deleting unwanted instances (refer to page 588).

Background Deletion queries the Morpheus media management Database (refer to page 588) for material that satisfies the following criteria:

- No entry in the locks table (refer to page 608) and does therefore not exist in a schedule.
- An expired or null 'delete after' date.

Results are displayed in order of their 'last used date'.

Video Network Manager then determines how many of these instances should be deleted in order to create space on the server at least equal to the high water mark setting. Deletion begins with the oldest 'last used date'.

If the server is off line, no deletions are performed.

If the watermarks are both disabled Video Network Manager clears enough space to allow the next requested transfer. Watermarks can be disabled by setting the LOW_MARK and HIGH_MARK fields in the Server Type Table (refer to page 611) to zero.

22.3 Media Management Applications

22.3.1 Acquisition

Acquisition is used for ingesting material (refer to page 631), usually from a tape on a stand-alone VTR to a video server.

The application is self-contained other than its connection to the Morpheus media management database (refer to page 588). It can also communicate with a device controller card (refer to page 12) to use a VTR already connected to the automation system.

Acquisition allows reviewing whilst recording is still in progress, 'scrubbing' through the material for the following:

- To discover and mark inpoints (refer to page 645) and outpoints (refer to page 645)
- To add and edit soft segments (refer to page 591)
- To view the contents of a tape or server
- To delete video files on a server.

Automated acquisition, using a robotic VTR device such as a Flexicart®, is also possible with the Multistream Cache Engine (refer to page 619).

Acquisition can be run in Live Record mode and Server Review mode (refer to below).

22.3.1.1 Live Record

Adding the switch `/lr` to the command line in the Acquisition shortcut runs Acquisition in Live Record mode, allowing ingest (refer to page 631) to a server directly from a live source. Material acquired in this way is automatically labelled as a 'live record' material type (refer to page 596).

Live Record allows a live source to be crash recorded onto a server. In Morpheus Acquisition, material cannot be ingested without first making an entry in the Morpheus media management database (refer to page 588). There is no way of making a recording and supplying the information later. However, Live Record permits this by creating a 'dummy' entry in the Morpheus media management database which can then be updated.

Live Record, in effect, creates crash recordings whose inpoint (refer to page 645) and outpoint (refer to page 645) are held in the Morpheus media management database.

Some servers also the use of the **New Copy** function to create a new file from the material between the inpoint and outpoint. **New Copy** allows a live recording to be topped and tailed within the server, thereby simplifying future payout and saving server hard disk space. Not all servers support this and the icon may be greyed out.

22.3.1.2 Server Review

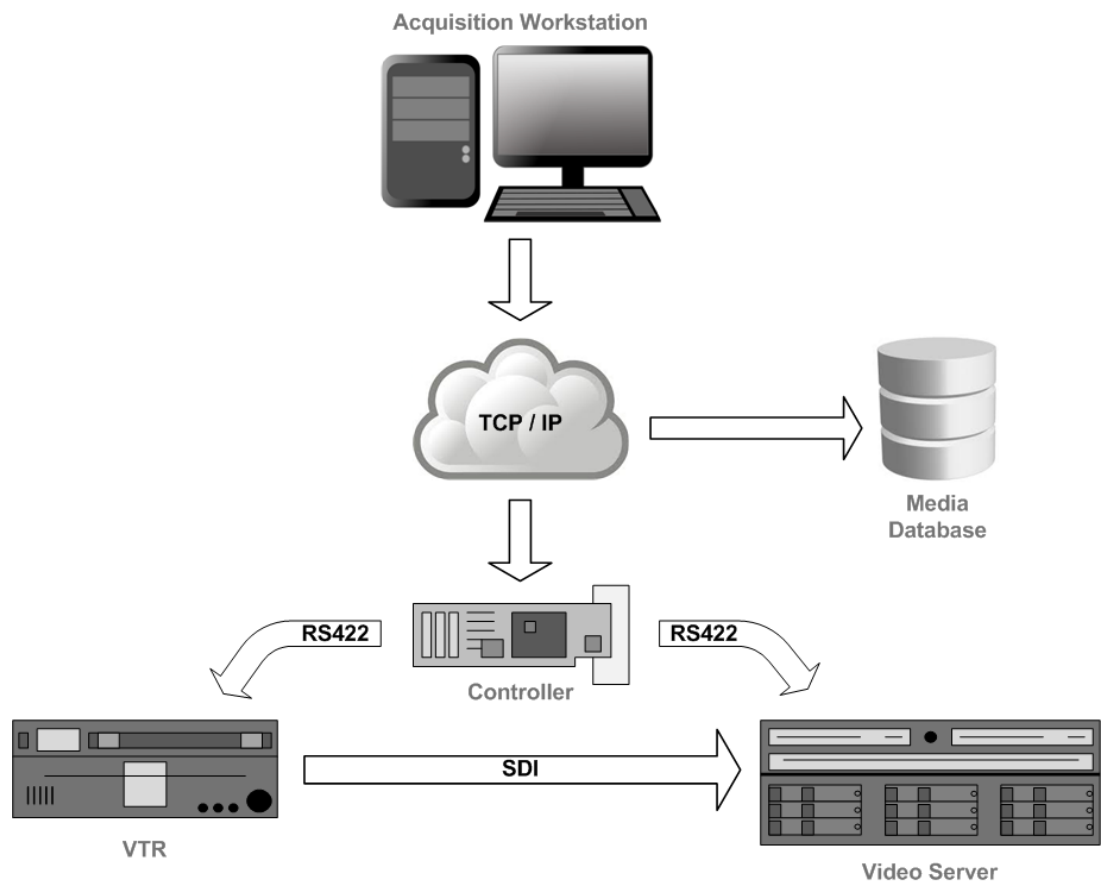
Adding the switch `/r` to the command line in the Acquisition shortcut runs Acquisition in Server Review mode, allowing an operator at a workstation to play back clips and review them for content and technical quality. The review of a clip can be started before ingest has finished, if the server supports it.

22.3.1.3 Run On (Morpheus Acquisition)

The length of time which a recording is set to continue after its nominal outpoint (refer to page 645).

22.3.1.4 Controller Implementation

Figure 415 shows the implementation of Acquisition.



22.3.2 Administration

A software tool for managing the Morpheus media management database (refer to page 615), allowing users to search and edit any data in the item (refer to page 593), instance (refer to page 597) or device tables (refer to page 601).

The Administration tool can run on any PC on the Morpheus network.

The presentation table (refer to page 602) entry for a chosen material ID can be viewed and edited by clicking the **Automation** button on the Material Manager tab.

**Note:**

Multi-Administration is an application that is similar to Administration except that it can connect to multiple databases.

22.3.2.1 The Morpheus Administration Window

The Morpheus Administration window varies depending on whether a user logs on with or without admin rights. If a user logs on using an SQL login with admin rights on the Morpheus media management database, the following window is displayed:

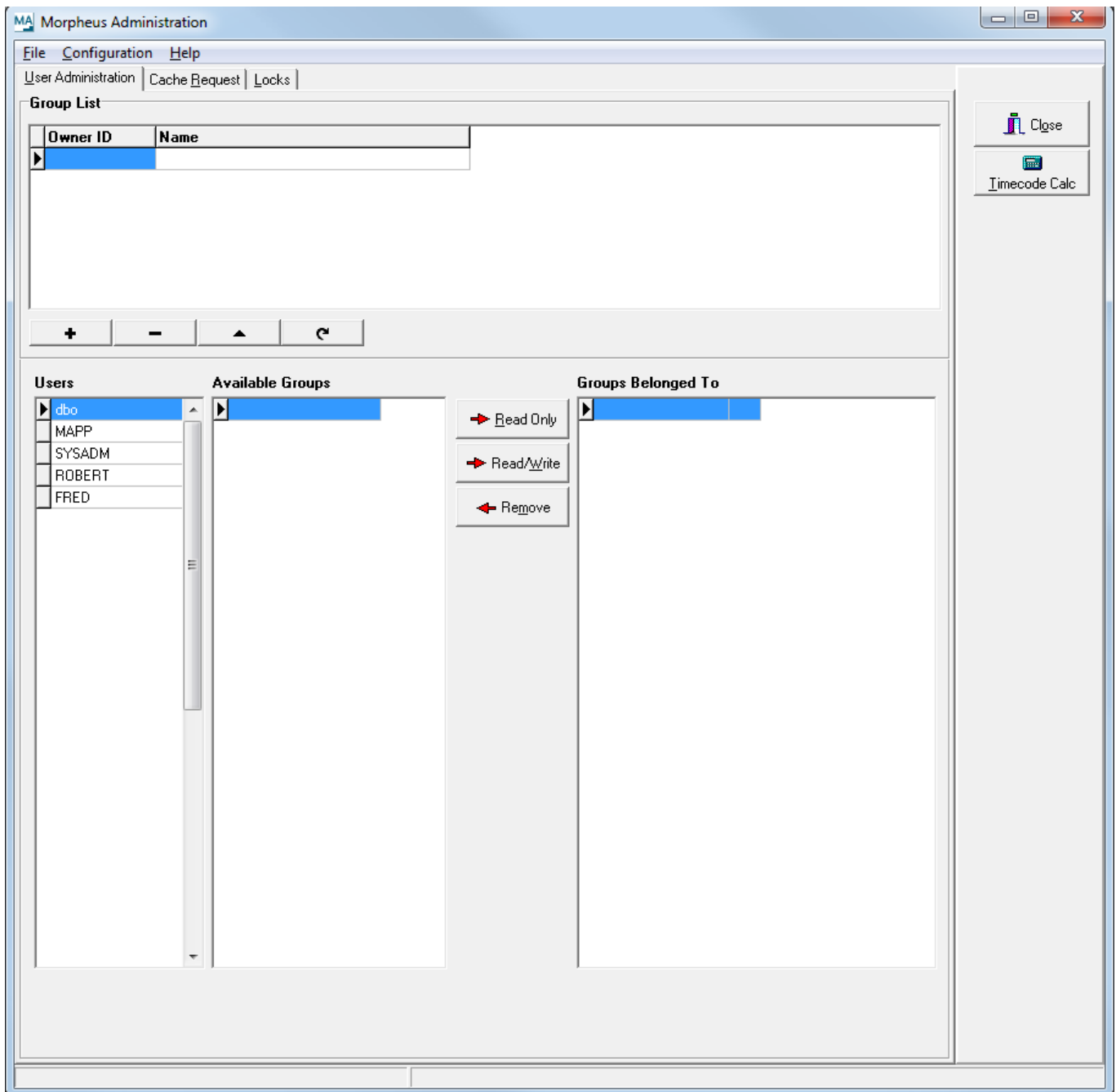
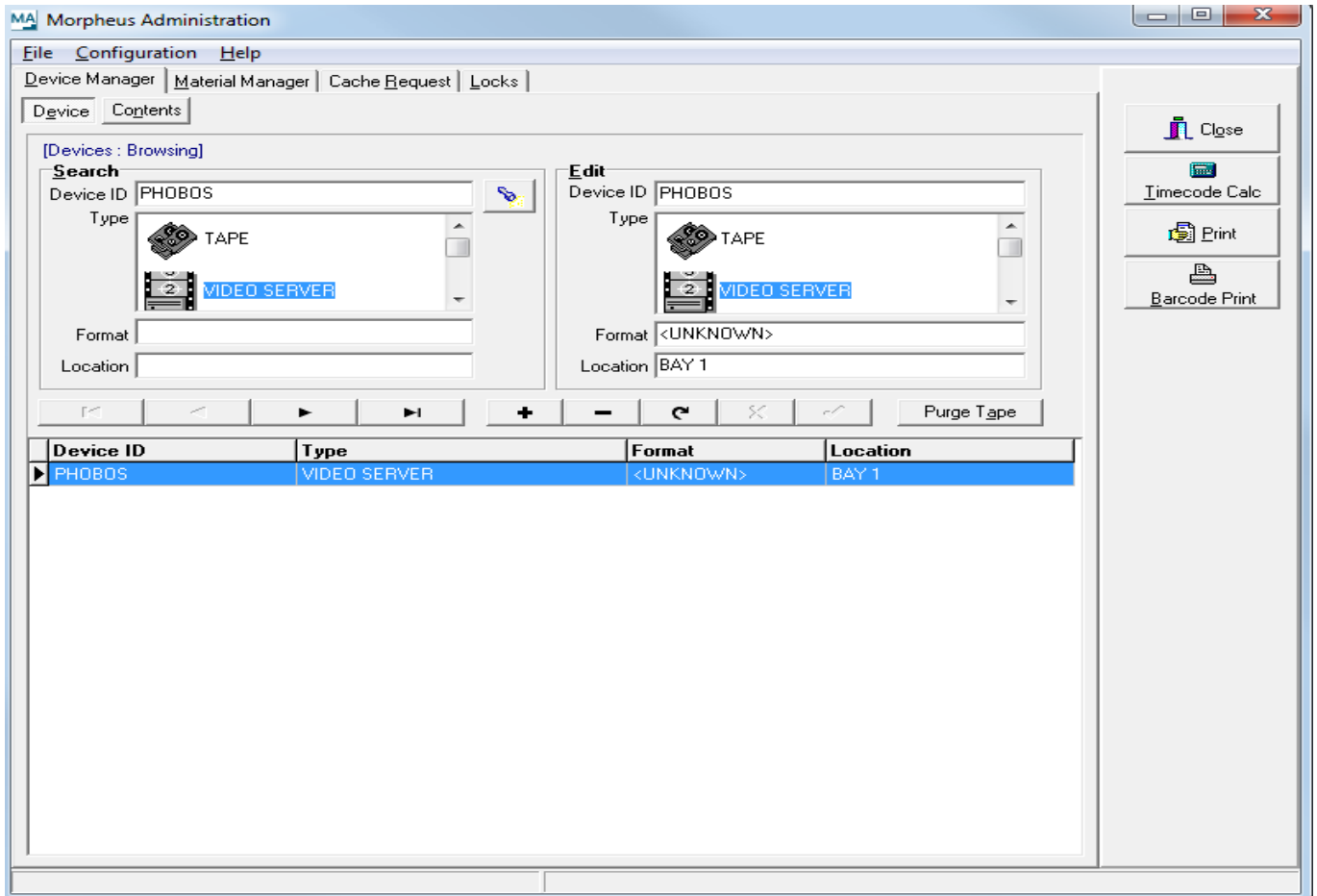


Figure 416 Morpheus Administration with Administrator Login

A User Administration tab allows administrators to add users and assign them to groups.

Depending on the user's access rights, the following window may appear.



The Device Manager and Material Manager tabs replace the User Administration tab.

Both tabs have Cache Request and Locks tabs, allowing users to make manual additions to the Cache Request table (refer to page 604) and Locks table (refer to page 608).

The Device Manager and Material Manager tabs are described below.

22.3.2.2 Device Manager Tab

Search fields to allow users to search for a storage device by type - the results of the search are displayed at the bottom of the window.

To display all devices of the chosen type, enter % into the **Device ID** field and click on the search button to the right of the field.

To view and edit the contents of a device, highlight it on the list and click on the **Contents** button at the top of the tab.

22.3.2.3 Material Manager Tab

Allows users to search for database records by material ID (refer to page 614).

22.3.3 File Import

File Import allows the entry of metadata (refer to page 588) into the Morpheus media management database (refer to page 588) for server files which have been FTP'd onto a server (refer to page 644).

Initially the Morpheus media management database has no knowledge of these files, and they are orphans (refer to page 589).

The application creates a list of the orphans by interrogating the server and comparing its list of files with the Morpheus media management database.

Metadata for a selected orphan in the list is either entered manually (if the information has been given to the user on a printed sheet or similar method) or extracted from the file header (if the file is **.mov**, **.MXF** or other format).

22.3.4 Gateway

Gateway is an application that parses XML delivered by a third party system after successful delivery of material. This is subsequently used to create the ITEM and INSTANCE records so that material can be further processed and moved to where it needs to be.

Files are placed in a monitored watch folder and then converted automatically.

Metadata is preserved and transferred into the Morpheus media management database (refer to page 588). If for example, the archive server came from one manufacturer and the playout server from another, Gateway would initiate the required file conversion.

Gateway can also monitor a watch folder for new metadata in the form of an XML file containing a filename, material ID and other metadata (refer to page 588).

22.3.5 Media Management Application Server

The media management Application Server differs from the Morpheus Application Server (refer to page 165).

In an automation only system, only the Morpheus Application Server is in use but if media management applications are present, the media management Application Server is also used.

This application handles all communication with the Morpheus media management system. It is used by the following applications:

- Transfer Decorator (refer to page 266) - passes transfer requests to the Media Management Application Server.
- Acquisition (refer to page 621) - an interface to the database.
- Request Controller (refer to page 627) - passes transfer requests to the media management system.
- Video Network Manager (refer to page 619) - receives transfer requests from the media management system
- Archive Controller (refer to page 618) - receives transfer requests from the media management system.
- Multistream Cache Engine (refer to page 619) - receives transfer requests from the MM system.

- Application Server (refer to page 165) - transactions for the Morpheus Application Server are passed through the media management Application Server.
- Gateway - receives transfer requests from the media management system.

The media management Application Server is the central component of the media management system. It continually monitors the transfer request table (refer to page 603) and issues tasks to the various transfer agents (refer to page 618). It monitors the progress of the transfer agents and updates the Morpheus media management database (refer to page 588) as required.

Requests for the Media Management Application Server are passed transparently through the Morpheus Application Server.

To run the Media Management Application Server, select the **Log on to legacy Application Server** configuration check box (refer to page 168) in the Morpheus Application Server.

22.3.6 Missing Material Agent

Generates a list of missing material for tape devices and video server devices.

22.3.7 SAM Gateway

This application has similar functionality to the Gateway application (refer to page 626) but is designed specifically to interface with a SAM server.

A SAM server has a proprietary storage system which does not use files in the same way as other video servers, therefore the server contents can only be viewed using SAM's own internal database

SAM Gateway looks for and imports metadata (refer to page 588) from the SAM server's internal database which has been flagged to indicate that it is to be published to Morpheus.

22.3.8 Request Controller

An application, supplied with Video Network Manager (refer to page 619), that monitors the transfer request table (refer to page 603) and the transfer error table (refer to page 605). It also provides users with access to the two tables to allow manually generated media transfers. Its main functions are as follows:

- To view, modify, create and delete requests.
- To view and delete failed requests.
- To reconcile (synchronize) database and server contents.
- To mirror server contents.
- To purge and delete material from servers. Refer to 'Purge' below.

It communicates with the media management Application Server (refer to page 626) by means of DCOM (refer to page 631).

22.3.8.1 Purge

Purge is a function that allows the manual deletion of video server recordings.

Deletion can be performed by searching a server device or by searching for the material.

Request Controller indicates whether material is locked. Locks may be overridden if the application is configured to allow it. Unencoded instances (refer to page 600) are indicated, as are instances on a server that is being reconciled (refer to 'Reconcile' on the following page).

22.3.8.2 Kill

An option that deletes all instances of a material ID (refer to page 614) from the instance table (refer to page 597), and the material ID itself from the item table (refer to page 593) of the Morpheus media management database (refer to page 588). This is performed using the Purge function (Section 22.3.8.1 Purge).

22.3.8.3 Reconcile

Reconcile is a utility that checks and corrects any mismatch between the contents of video servers and the Morpheus media management database (refer to page 588). It removes orphans (refer to page 589).

The database can be forced to match the server contents by deleting entries, or the server contents can be forced to match the database by deleting media files. The operation of this function is shown in Figure 417.

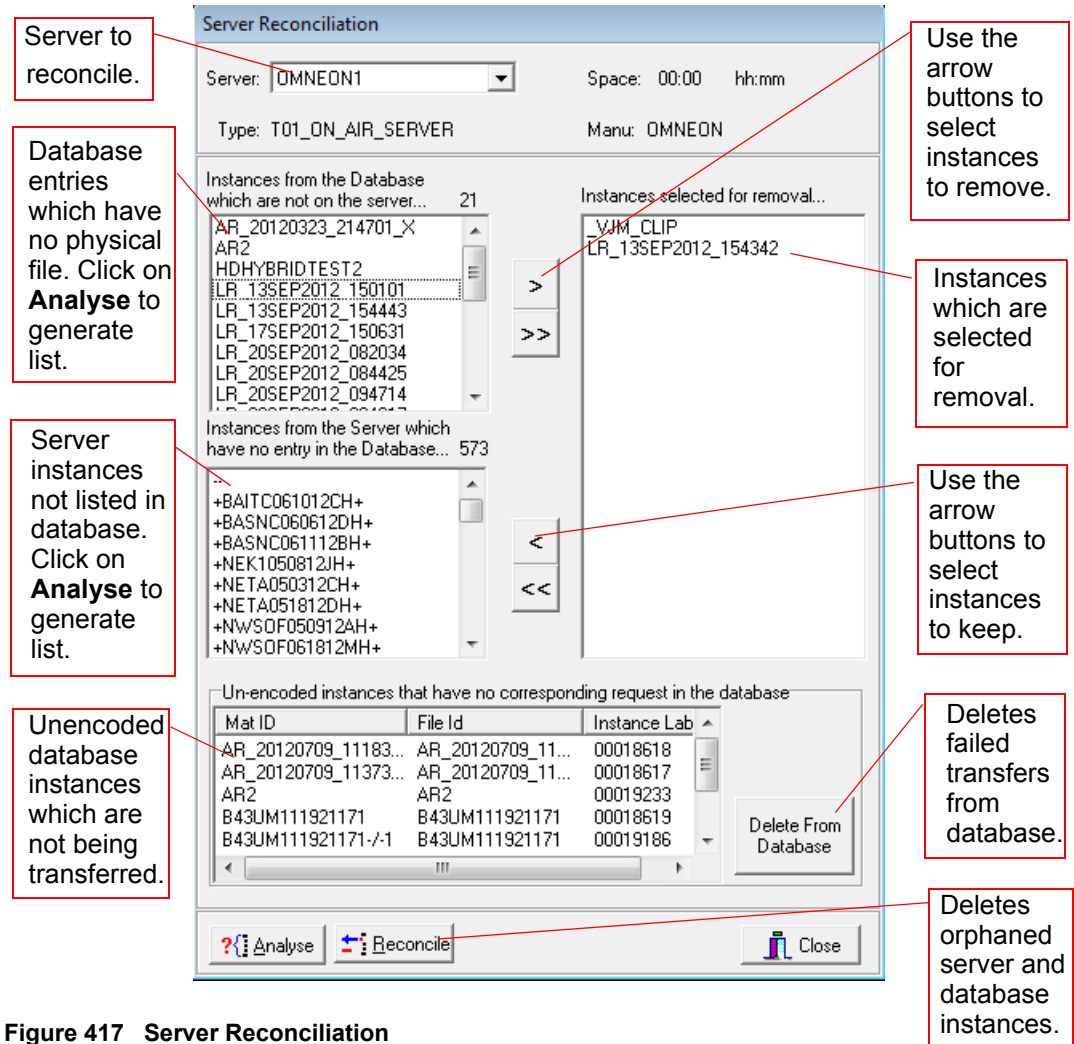


Figure 417 Server Reconciliation

The bottom window shows instances (refer to page 588) for which the encoded flag (refer to page 600) is not set and there is no entry in the transfer request table (refer to page 603) to indicate that a transfer is still in progress. Such entries can be deleted from the database by clicking the **Delete From Database** button, but this could leave possibly invalid orphan files on the server (refer to page 589). Therefore, the Reconcile process must be carried out afterwards to delete the files from the server.

22.3.9 Tape Preparation

Tape Preparation allows the manual addition of a new tape and its contents to the Morpheus media management database (refer to page 588).

Often abbreviated to 'Tape Prep', the term is used by some broadcasters to mean the addition of a blank tape to the database by means of its barcoded device ID.

22.3.10 X Cache

X Cache allows third party agents to trigger transfer requests by 'publishing' an XML file to a watch folder. It acknowledges requests and issues progress reports to named folders, also in XML form.

The available request types are move, copy, archive, restore and hidden restore. In the case of hidden restore, the instance metadata (refer to page 588) is deleted when the restore has been made, effectively creating a server orphan (refer to page 589).

Files created specifically for third party systems may contain additional tags to those shown above.

22.4 Further Information

22.4.1 DCOM

DCOM (**D**istributed **C**omponent **O**bject **M**odel) is an older Microsoft proprietary technology. It allows software components on different machines to communicate with each other across a network.

DCOM is used in Morpheus to allow the Request Controller (refer to page 627), Video Network Manager (refer to page 619) and Morpheus Application Server (refer to page 165) to communicate with the Media Management Application Server (refer to page 626).

22.4.2 Ingest

Ingest is the process of transferring material to a video server system, usually from tape or another legacy playout method. Some systems have ingest servers which are dedicated to this function.

The ingest process relates to the transferring of files from a single stand-alone VTR. Media management uses Acquisition for this (refer to page 621).

22.4.3 Missing Material Report

The missing material report checks for and lists:

- Missing material
- Material on other devices
- Material requiring ingest
- Events with titles that do not match the titles in the Morpheus media management database (refer to page 588)
- Events with durations that do not match the durations in the database

The report is taken from the transfer error table (refer to page 605) and often equates to a list of tape recordings yet to be ingested.

The missing material report is available from the Editor (refer to page 3) by choosing **Missing Material Report** from the **Tools** menu. The report is described in detail in the Morpheus Operators manual. For information on how to configure the report, refer to page 360.

22.4.4 ODBC

Open Database Connectivity (ODBC) is a communication layer for database access on a Windows platform used by media management applications.

22.4.5 Replication

Replication is a process within media management that handles the mirroring of files between two servers.

23. Timecode

Timecode identifies every frame of a video recording by specifying elapsed time in hours, minutes, seconds and frames. It originated in the VTR domain to enable accurate editing.

Timecode is distributed to all device controller cards (refer to page 12) in a system. The Bridge (refer to page 242) uses the earliest timecode packet to arrive.

If the card providing timecode is removed for replacement, the Bridge processes timecode packets from whichever card's timecode packets reach it first.

23.1 Timecode Calculator

The Timecode Calculator is a utility for adding and subtracting timecodes. It is available from Administration (refer to page 623) and Acquisition (refer to page 621). It takes full account of drop-frame timecode (see below).

23.2 Drop Frame Timecode

Drop frame timecode is a format used in NTSC systems with a video frame rate of 29.97 frames per second. As the frame rate is inaccurate with regards to time, compensation is required in order to achieve precise scheduling.

For every frame of video, the timecode counter is incremented by one frame at a rate of 30 frames per second - due to the frame rate in NTSC systems, for each elapsed second the counter will be increasingly out of sync with real time, resulting in a discrepancy between the duration of the video as scheduled and the timecode.

The use of Drop Frame Timecode provides an adjustment to the counter by dropping frames in order to match the 29.97 frames per second NTSC rate (no actual video frames are dropped, only timecode frames i.e. time references). The adjustment mechanism operates according to the following rule:

Drop the first and second frame of every minute, apart from every tenth minute.

The principle is illustrated below.

A drop frame timecode generator has the following sequence at the 10-minute point:

00:09:59;58
00:09:59;59
00:10:00;00
00:10:00;01

At the 11-minute point the sequence changes as follows:

00:10:59;58
00:10:59;59
00:11:00;02
00:11:00;03

The principle also applies to event durations. For example, an event cannot have a duration of **00:15:00;00**, therefore it must be rounded up to **00:15:00;02**.

A semicolon before the frames indicates drop-frame timecode. For example:

10:13:30:00 (non drop-frame)
02:24:25;15 (drop-frame)

Drop-frame timecode can be set in the Deploy application (refer to page 24). If drop-frame timecode is in use, click on the NTSC check box and then click on **Commit**.

23.3 Timecode types

There are three types of timecode in use with Morpheus systems:

- LTC (Longitudinal TimeCode)
- VITC (Vertical Interval TimeCode)
- UTC (Coordinated Universal Time)

LTC and VITC complement each other and ensure that timecode can be read at any tape speed and direction.

In the Morpheus media management database (refer to page 588), the type of timecode associated with a recording is stored in the instance table (refer to page 597).

Each type of timecode is described below.

23.3.1 LTC

LTC is a bi-phase mark signal recorded on its own track on a tape and read by a stationary head. LTC can be made visible on a monitor by a timecode reader either in the VTR itself or external to it.

The signal is self-clocking and can therefore be read at any tape speed, forward or backward, but not the slowest speed or still frame.

23.3.2 VITC

Utilizes an unused part of the video signal so that it can be read in still frame (not whilst spooling). It does not need its own storage and signal path.

23.3.3 UTC

A world standard timecode which is defined by the ITU-R TF.460-6 standard.

The BXF protocol supports the use of UTC.

23.4 Time of Day Timecode (TOD)

The Time of day timecode is a signal from a timecode generator, routed over all broadcast facilities. It is vital as a timing reference for any automation system, and in Morpheus it is connected to the device controller card (refer to page 12) that distributes it to other Morpheus components.

23.5 Daylight Saving Time

When station timecode is put forward one hour, an event timed to start during the one hour 'jump' is placed in the past and never plays out.

When station timecode is put back one hour, times during the 'jump' repeat.

Before a clock change, it is necessary to close down the Bridge in order to isolate the device controller card (refer to page 12), allowing the kernel (refer to page 169) to run the channel for a time up to the maximum set by the event look-ahead. The Bridge will also be resynchronized with (new) incoming timecode.

Events following the 'jump' MUST be retimed from the Editor - this can be achieved by adjusting the timing of a chosen fixed event (refer to page 644) by one hour (subsequent events then retime automatically) then saving and reloading the schedule.

Note:

Some stations do not perform clock changes, preferring to leave timecode undisturbed and apply a UTC offset to each channel. This is safer and applicable when a central system creates and distributes channels for different time zones.
For details on the UTC offset, Chapter 7.4.6.1 Channel Properties Tab

24. GPI (General Purpose Interface)

General Purpose Interface (GPI) is a facility that allows equipment to be controlled by an external switch. In Morpheus, the control card is the switch and a cable connects this to the equipment. The operation of the switch is a timed event in the Morpheus schedule.

Usually the function needs the GPI to stay active for as long as that function is required. Some equipment has an 'on' GPI and an 'off' GPI.

24.1 GPI Inputs and Outputs

When used as an output, a GPI provides simple on/off control of a device. When used as an input it receives status back from it.

A GPI output can take one of the following forms:

- Open-collector driver with contacts brought out to a connector.
- Relay closure with contacts brought out to a connector (has the advantage of being non-polarized).

GPI inputs are commonly connected directly to the LED side of an opto-isolator.

24.2 GPI Requirements

Different broadcast devices have individual GPI requirements:

- A GPI may be required to stay active for as long as the device function is active.
- A GPI may be in the form of a pulse that prompts the device to switch on, and remain on until another pulse is received on either the same contacts (acting as a toggle) or on alternative contacts.

24.3 GPIs in Morpheus

Within Morpheus, GPIs are used in two different ways:

- On-off control connections from the device controller card (refer to page 12) - these can be activated by secondary events (refer to page 648) in a schedule.
- GPI flags in the presentation table of the Morpheus media management database that are used to trigger MediaBalls (refer to page 602).

16 GPIs exist on a device controller card - they can be configured on an individual basis as either an input or an output. Physical connectivity is presented as a 25-way D-type fixed plug on the rear panel.

If used as outputs, the GPIs are NPN open collector from a Darlington driver IC.

If used as inputs they are opto-isolated through a 680R resistor to the nominal supply voltage (+5V). In order to go active, an input GPI needs to be pulled to 0V. Both +V and 0V rails are provided on the connector.

Note: Grass Valley also uses the term 'GPIO' (general purpose input / output) for GPIs in order to emphasize their dual functionality.

GPI Alarms can be configured using the Alarm GPI Host Shell service (refer to page 200).

24.3.1 Creating a GPI Event in the Schedule

A GPI event can be created in the Editor schedule using the **System Default GPI Event** Type. Examples of GPI events are s follows:

- Activation of an ARC (Aspect Ratio Converter) if a specific programme needs it.
- Activation of a logo inserter.
- Insertion of cue tones.

GPI events can be added to the schedule by dragging them from the Palette, as described in the Morpheus Operators manual.

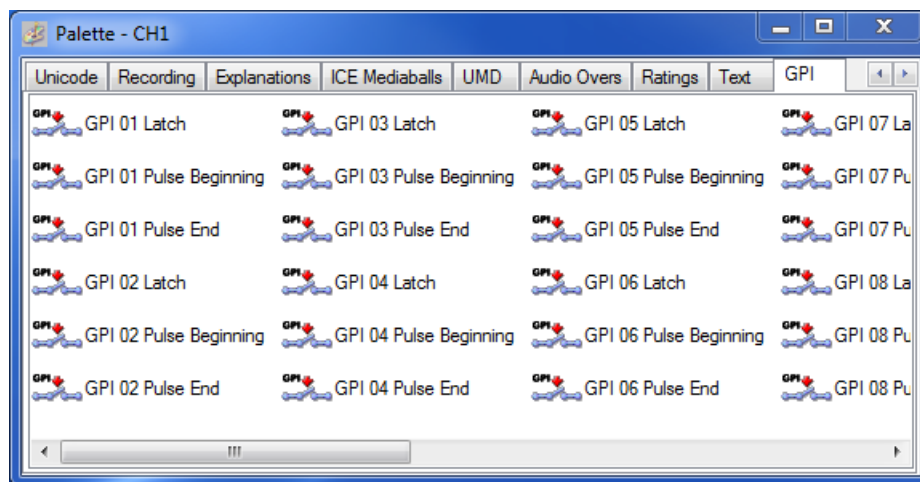


Figure 418 GPI Connections for an External MIP

The device selected for the event determines the connector pins that the contact closure appears on.

If a device requires an 'on' pulse on one pin and an 'off' pulse on another, then two separate GPI events will be required.

24.3.2 GPI Settings

A GPI Event Type (refer to page 52) has three modes for a flexible configuration of pulses:

- 0 (off when active)
- 1 (on when active)
- 2 (toggle).

Pulse duration is equal to the event duration, as specified in the event settings.

24.3.3 Hardware Manual Intervention Panel and GPIs

A hardware panel may also be used in addition to the software Manual Intervention Panel in the Morpheus Editor (refer to page 5). The hardware panel uses GPI inputs for the button connections and GPI outputs for the lamp tallies.

Connections are made automatically when the supplied cable is fitted between the transmission panel and the device controller card. To create a hardware MIP from any other button panel, the button and lamp functions must be matched with the connections shown in Figure 419.

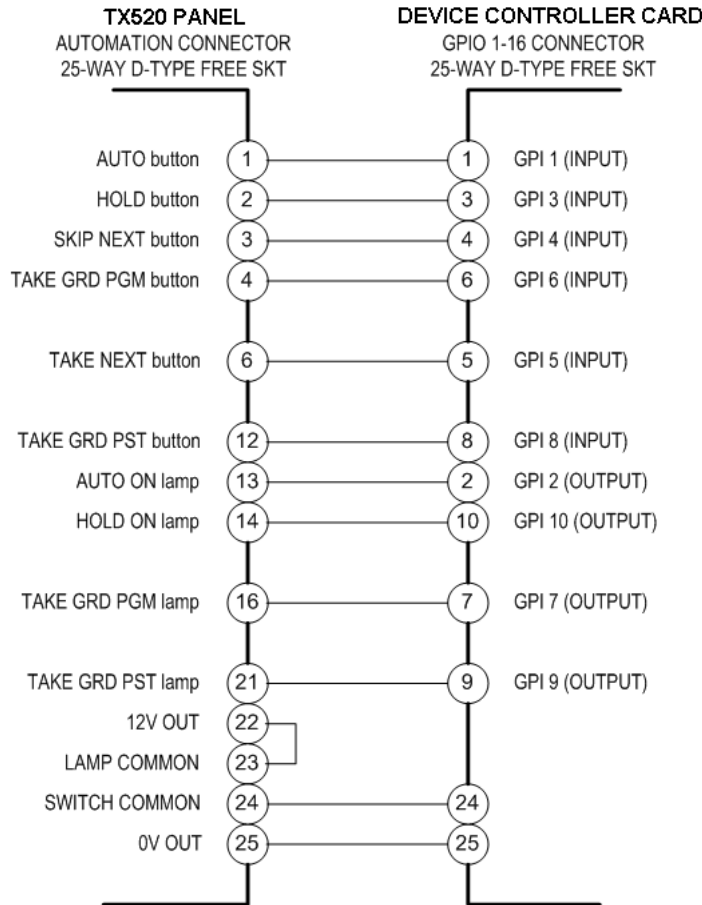


Figure 419 GPI Connections for an External MIP

Corresponding changes must be made to the Pbak Configuration - refer to Section 24.3.3.1 Adding an External MIP to the PBAK Configuration.

24.3.3.1 Adding an External MIP to the PBak Configuration

1. Start the Pbak Utility application (refer to page 177).
2. Select the required device controller card (refer to 'Entering the Device Controller Card's IP Address' on page 178).
3. From the Pbak Test Utility window, click on **Connect** to connect to the card.
4. Click on the Registry tab.
5. Click on **Config** to load the registry.
6. In the tree view, click on **DEVICES** so that it is highlighted.

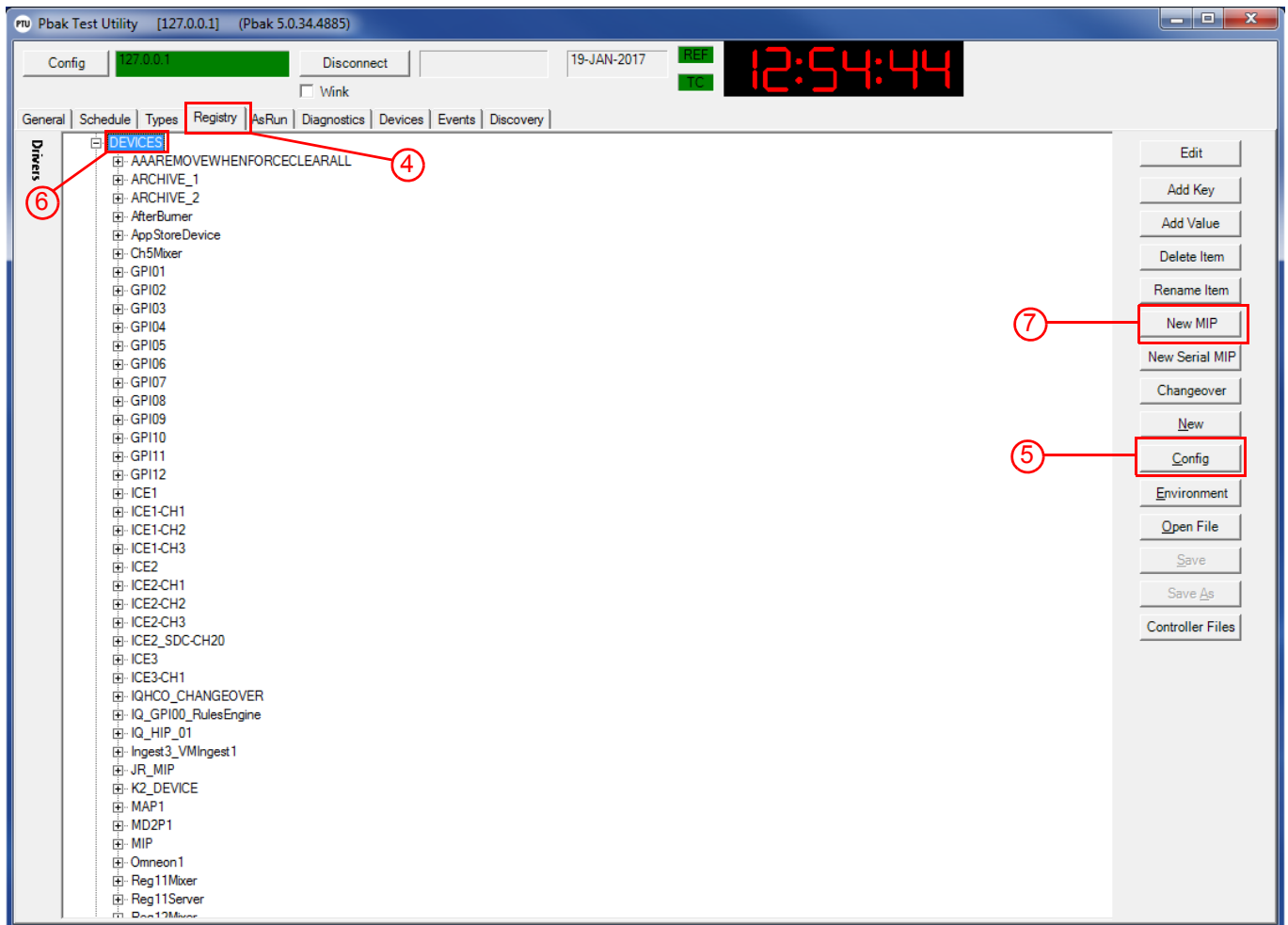


Figure 420 Pbak Registry Devices

7. Click on **New MIP**.

The New Mip Form window is displayed.
By default Hold, Auto, PgmTake and PSTTakeGuard are selected.

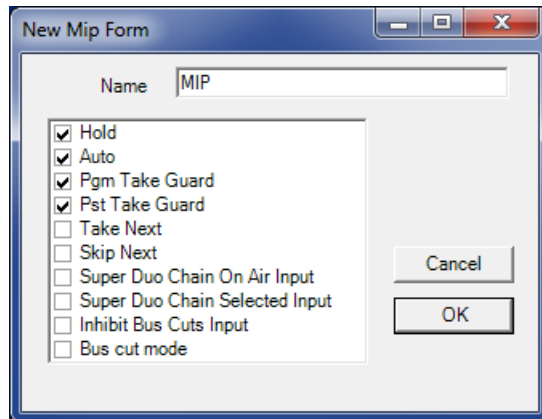


Figure 421 New MIP Form

8. If required, edit the name in the **Name** field.
9. Select the check boxes for any other options to add and click on **OK**.

The new **MIP** item appears at the bottom of the tree.

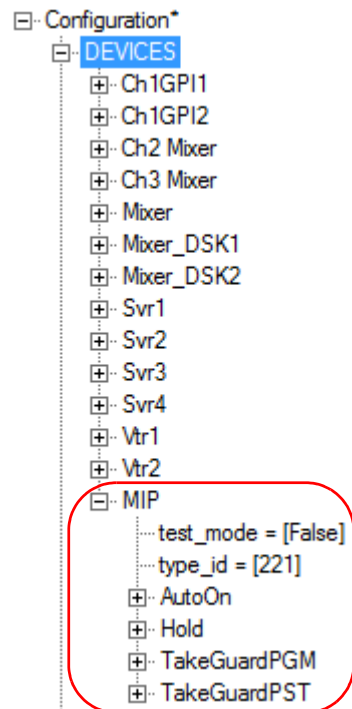


Figure 422 MIP Configuration

24.3.3.2 Adding the TakeNext and SkipNext Options to the Pbak Configuration

If required, the **TakeNext** and **SkipNext** functions can be added to the configuration by adding new keys and values as follows:

1. Select **MIP** on the tree and click on **Add Key**.
The Add key window is displayed.
2. Type **TakeNext** and click on **OK**.
The TakeNext item is added to the bottom of the MIP branch of the tree.
3. Select **TakeNext** and click on **Add Value**.
The NewParameterValueDlg window is displayed.
4. Click on the String tab and in the **Item name** field, type **input**.
5. In the value field, type **05** and click on **OK**.

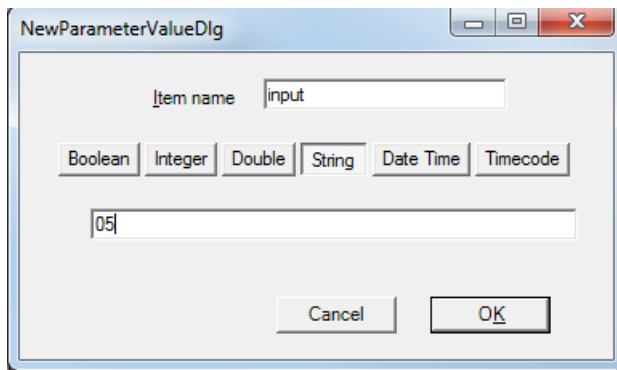
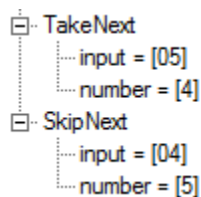


Figure 423 GPI Connections for an External MIP

6. With the **TakeNext** item selected on the tree, click on **Add Value**.
7. In the NewParameterValueDlg window, click on the String tab.
8. In the Item name field, type **number**.
9. In the value field, type 4 and click on **OK**.
10. Select the **MIP** item and click on **Add Key**.
11. In the Add key window, type **SkipNext** and click on **OK**.
12. Select **SkipNext** and click on **Add Value**.
13. On the String tab, type **input** as the item name and enter a value of **04**. Click on **OK**.
14. With **SkipNext** selected, click on **Add Value**.
15. On the String tab, type **number** as the item name and enter a value of **5**. Click on **OK**.



24.3.3.3 Input, Output and Number Values

Each parent key has input and output keys. These specify GPI devices that are visible in Morpheus. The number key specifies what the function is. The numbers for each function are as follows:

- Auto On - 1
- Hold - 0
- TakeGuardPGM - 2
- TakeGuardPST - 3
- TakeNext - 4
- SkipNext 5

24.3.3.4 Entering the MIP Name in the Bridge Configuration

The MIP name in the Bridge must match the name in the registry.

1. Start the Bridge application (refer to page 242).
2. From the **System** menu, select **Configuration**.
3. Under the required **Channels** item, enter the name of the MIP in the **MIPDevice** field and click on **Apply**.

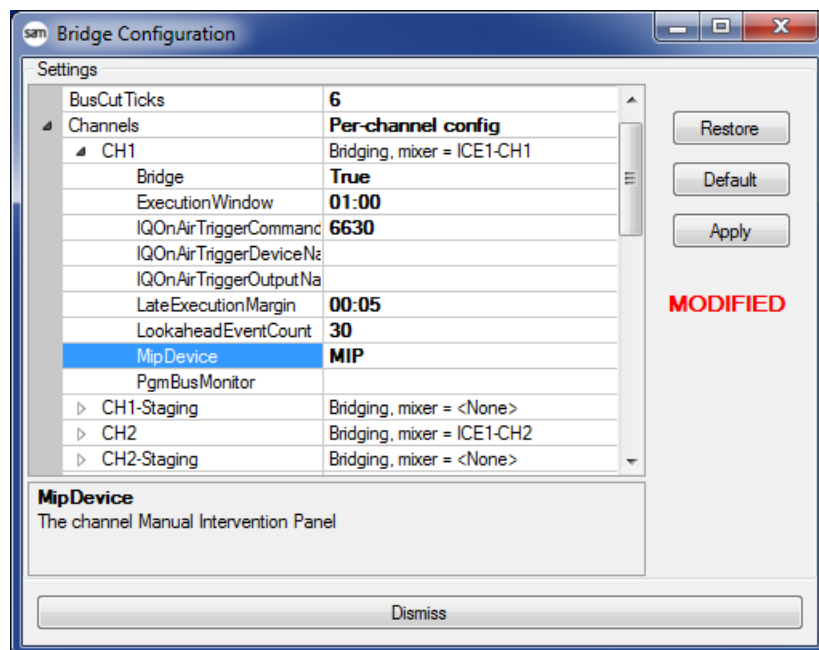


Figure 424 Entering the MIP Name on the Bridge

25. Appendix - Morpheus Glossary and Reference

Channel

In Morpheus, a channel corresponds to a schedule. The maximum capacity in one system is 256 channels. Icons representing each channel appear in the channel bar on the Editor window.

Device

A piece of equipment that is controlled by Morpheus, for example, a server port, VTR, Flexicart, router, mixer or graphics box.

In Morpheus, most devices are controlled from the device controller cards (refer to page 12), regardless of whether they use a serial connection, a GPI connection (refer to page 636) or a network connection.

EPG (Electronic Programme Guide)

The on-screen timeline of programmes available in digital broadcast systems which allows consumers to plan viewing or recordings. Morpheus can export events to a third party EPG generator application by means of its MOS Interface.

Fixed Event

A fixed event is an event with a specific start time - the time remains fixed even if the timing of a previous event is changed.

Fixed events are described in detail in the Morpheus Operators manual.

Follow-on Event

A follow-on event starts as soon as the previous event has finished (the default).

If an earlier event is deleted or inserted, the start time of the follow-on event adjusts accordingly.

If a schedule has a long sequence of follow-on events, and an earlier event is deleted or inserted, the start times of the follow-on events are adjusted.

Follow-on events are described in detail in the Morpheus Operators manual.

FTP

FTP (File Transfer Protocol) is a TCP/IP protocol for transferring data. Files transferred over FTP to a server in a Morpheus system are initially set to orphan status (refer to page 589).

Metadata (refer to page 588) is added in one of the following manners:

- Manually, or extracted from a file header using File Import (refer to page 626)
- Imported from a separate XML file using Gateway (refer to page 626).

Guard Source

A guard source is an alternative playout device that can be selected if there is a fault with the main source. It provides resilience and minimizes any disturbance to the channel output.

A guard source is associated with a device, not an event. It plays out the material at the same time as the main source. It remains activated for every event that uses that device, until it is deactivated.

ICE

ICE is a Grass Valley product that integrates specialized hardware and software within a single physical unit for channel playout. Refer to the ICE Technical User Manual.

Icon

Grass Valley's proprietary frame and card system. An Icon card is any card that fits into an Icon frame. The Morpheus device controller card (refer to page 12) is a 3U Icon card and has to be mounted in a 3U Icon frame.

Icons

In Morpheus, system icons are held in `\\Morpheus\Icons`. Users can create their own icons, if required, and save them to this folder. These are then available for MediaBalls and channels. The icon format is 32x32 .BMP

Inpoint

An event's inpoint determines at which point, in the tape item or server file, the device cues up and plays.

A server event is commonly cued to **00:00:00:00** (hours, minutes, seconds, frames), and to **10:00:00:00** for a tape event.

Instance

One of a number of identical 'copies' of a piece of software that are running, for example, one 'instance' of a Host Shell service or of the Editor.

Offset

The time difference between the start of a secondary event (refer to page 648) and the start/end of the primary event above it (refer to page 646).

Outpoint

An event's outpoint determines the point, in the tape item or server file, at which the device stops playing. This is usually **00:00:00:00** (hours, minutes, seconds, frames) for a server event or **10:00:00:00** for a tape event.

PGM/PST Bus

The transmission mixer has two buses arranged as two rows of buttons. It shows which source is selected.

The red row is the PGM (programme) bus. The source that is airing is on the PGM bus.

The yellow row is the PST (preset) bus. The source that will air next is on the preset bus.

Preroll

A video server is sent a 'play' command in advance of an event's start time to allow for latency. This is known as the pre-roll time.

A VTR is not capable of instantaneous stable playout and typically requires a few seconds' preroll to guarantee a stable output at the desired inpoint (see above).

Primary Events

A 'primary event' (also known as a 'main' or 'parent' event) is a top level event. It may have secondary events beneath it or may be a single event on the schedule.

Rubber Banding (Australian Multichannel)

In a multi-channel and multi-time-zone environment, it can be necessary to air the same material segments at a later time on other channels. 'Rubber banding' provides a method of linking programme segments between two channels.

If the material is live, then the equivalent segments in the channels with later time-zones need to have their events updated with matching durations and optionally matching in-points (assuming that there is either a delay server or an ongoing recording) according to the following rules:

- If the master segment is a live event, then a Time Of Day in-point is set corresponding to the time when the 'master' segment aired, allowing for playback from a delay server or recording (using time of day timecodes).
- If the master segment is a non-live event (a pre-recorded clip), then the master segments in-point is applied to the slave segments (the same clip is played back).

Rubber banding allows operators to extend or reduce the commercial breaks between the programme segments without affecting the links.

Enabling Rubber Banding

1. In the Configurator application (refer to page 50) click on the **System Configuration** toolbar button (refer to page 50).



3. Click on the Multipart Programme tab and select the **Australian Multichannel** check box.

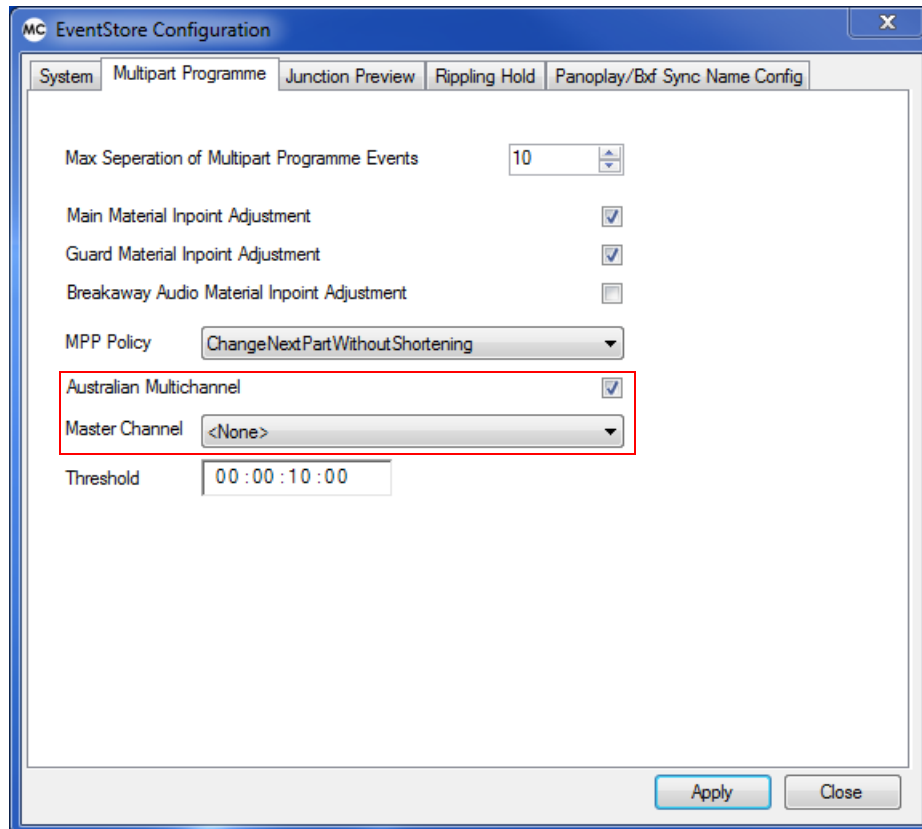


Figure 425 EventStore Configuration - Multipart Programme Tab

4. Select the required **Master Channel**.

Note:

The Multipart Programme ID field must be visible on the Property Inspector for the Event Type.

Linking Segments Across Channels

Segments of a programme on the same channel can be linked together using a 'Multipart Programme ID'. For example, a live event might be split by commercial breaks or a film by a news item. The **Multipart Programme Id** field appears on the Property Inspector (refer to page 5). The same Multipart Programme ID needs to be applied to each segment of the programme.

Where there is no single master channel, it is possible to identify Master and Slave Multipart Programme IDs using the following prefixes:

- **M:<Multipart Programme ID>** - denotes a master channel, for example, M:ABC1234

- **S:<Multipart Programme ID>** - denotes a slave channel, for example, S:ABC1234

Segments of a programme can be linked across channels using a suffix of :N after the multipart programme ID. N is the segment number as follows:

- **<Multipart Programme ID>:N** - denotes a numbered segment, for example, ABC1234:1
- **M:<Multipart Programme ID>:N** - denotes a numbered segment on the master channel, for example, M:ABC1234:1

Using Multipart Programme IDs

1. For the relevant event on the master channel, enter a Multipart Programme ID on the Property Inspector.

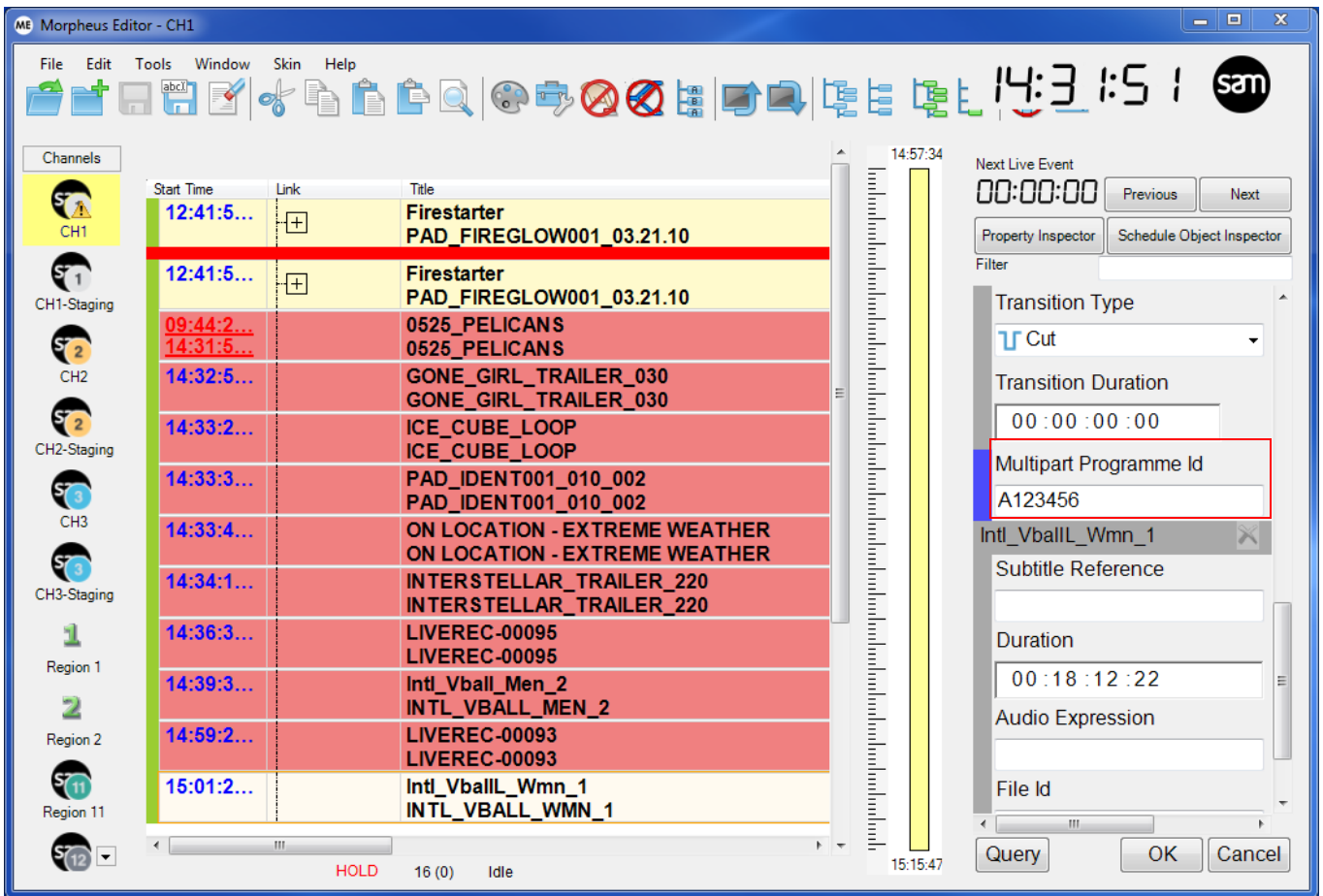


Figure 426 Morpheus Editor Property Inspector - Multipart Programme ID

2. On the region channel, apply the same Multipart Programme ID.
3. Schedule the commercial breaks in the region channel as required.

Secondary (Sub) Events

A 'secondary event' (also known as a 'child' or 'sub' event) is associated with a primary event (refer to page 646). One or more of its parameters are dependent on those of the primary event. It may be a Subevent of a primary event or a Subevent of another secondary event.

Secondary events are described in detail in the Morpheus Operators manual.

Source

A button, on a mixer, that selects a device. The term is also used to mean an input to a router.

Status Barrels

For each event on the Editor schedule, two status barrels are displayed for the main source and two for the guard (if configured, refer to page 645). They appear in the **Main** and **Grd** columns respectively in order to indicate the material status and the device status.

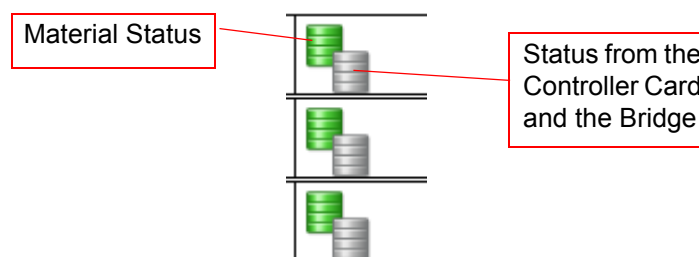


Figure 427 Status Barrels on the Schedule

The material status, shown as the barrel on the left, is displayed by the Material Decorator (refer to page 236) following verification of the existence of the required material ID (refer to page 614) on the specified device, according to the Morpheus media management database (refer to page 588).

The device status, shown as the barrel on the right, is signalled from the device via the controller card (refer to page 12) and the Bridge (refer to page 242). It indicates whether the server has a copy of the specified material ID (refer to page 614) or, in the case of a VTR, that the machine has a tape loaded and is in remote.

Device status barrels are coloured grey until the event to which it relates has fallen within the event look-ahead (refer to page 243), and has been loaded into the kernel (refer to page 169). A grey barrel indicates a lack of response from the device.

In the absence of a Material Decorator, clips can be dragged from the Palette (refer to page 5) and the material status will be determined by the Editor - this applies to both the Online and Offline editors.

If both barrels are the same color, then they are replaced with a single large barrel.

TCP/IP

Transmission Control Protocol / Internet Protocol is a suite of protocols originally designed to facilitate communication over the Internet, and now universally adopted for wired and wireless data exchange. It is commonly abbreviated to 'IP'.

26. Appendix - Morpheus Driver for sQ Servers

The Morpheus driver for sQ servers, 'sQ Driver' (formerly 'Quantel Driver'), is a component of the Morpheus system designed to provide a high performance, fully featured and dependable interface between Morpheus and the sQ system.

Most Morpheus drivers are loaded by the Device Controller card, which is connected to the automation system by the Pbak protocol over TCP/IP. The sQ Driver is unique among Morpheus drivers in that it is loaded directly by the Pbak Bridge, and communication between the bridge and the sQ system uses the native Grass Valley CORBA API - Quentin.

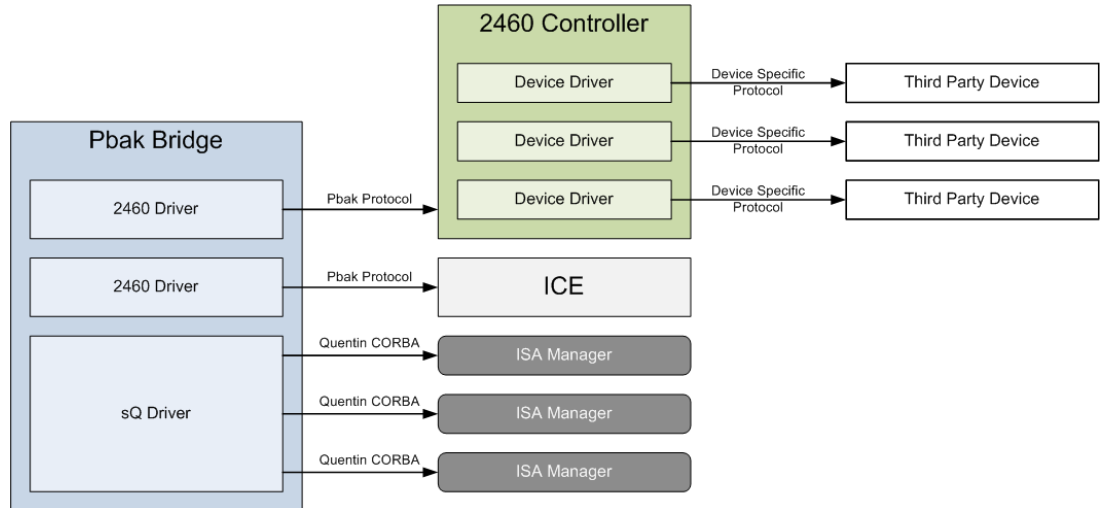


Figure 428 Morpheus Driver for sQ Servers - Communication System

This design minimizes the number of playout critical components in the system. One of the fundamental design objectives of Morpheus is that the playout devices should continue to run to schedule should the automation system be disconnected from those devices for any reason. This objective can be met for the sQ system by downloading in advance a section of schedule that continues to play autonomously and frame-accurately without any connection to the automation system.

26.1 Native Driver vs VDCP Control

A VDCP to Quentin adapter is available in order to allow an sQ server to be controlled by a VDCP driver hosted on a Device Controller card. Such a configuration introduces two additional playout critical components - the Device Controller card and the VDCP adapter. Support for the VDCP adapter is limited, and in all cases the native sQ Driver should be favoured over a solution involving the VDCP adapter.

26.2 Media Management

Clips on the sQ system are referenced within the Morpheus environment using a field in the clips table of the Quentin database. This field is configurable but is usually the VDCP field. Given this configuration, the FileId used to identify the clip in the automation schedule must be stored in the VDCPID field of the required clip so that the driver can locate the clip for playout.

Most Morpheus systems are used in alongside a Grass Valley Morpheus Media Management (MAPP) database. Grass Valley can provide media management tools that support the integration of a sQ system into a larger MAPP system. These include:

- Mapp Acquisition for sQ
- sQ Gateway
- Video Network Manager

Consult Grass Valley pre-sales or support departments for further information on setting up and using Media management tools that support sQ specific functionality.

26.3 Deploying the sQ Driver

The sQ Driver must be deployed onto the server that is running the Bridge.

- a) Double click on the **Deploy** shortcut in the Shortcuts folder in order to open the Rescale Deployment Tool.
- b) Click on **Fetch Assemblies Required For Setup**, and then **Launch Configurator** - the Morpheus Deployment Tool is displayed.

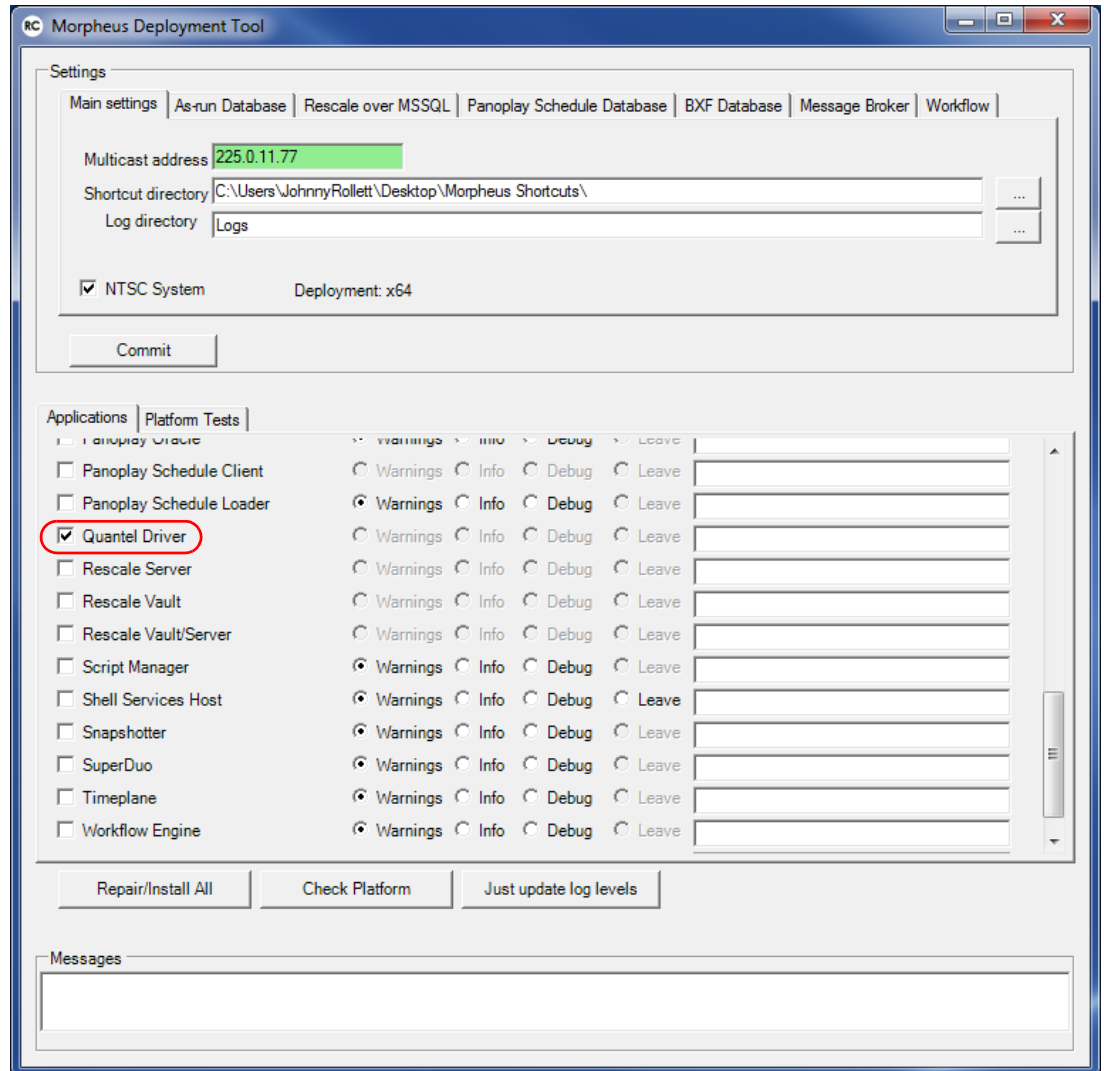


Figure 429 Using the Morpheus Deployment Tool in Order to Load the sQ Driver

- c) Tick the checkbox against 'sQ Driver' and 'Bridge' (all other checkboxes should be un-ticked), then click on **Repair / Install All**. The 'sQ Driver' and 'Bridge' rows will be highlighted in green if successful (the Messages pane at the bottom of the window will also display the lines 'Repair/install procedure completed' and 'No errors') - if unsuccessful the rows will be highlighted in red.

26.4 Bridge Configuration - Adding a New Controller

In order to connect to the ISA Manager, a new controller must be created on the Bridge.

- a) In the Bridge application, select System > Configuration.
- b) The Bridge Configuration window opens (Figure 430).
- c) Click on Controllers and then on the ellipsis button [...] that appears alongside it.

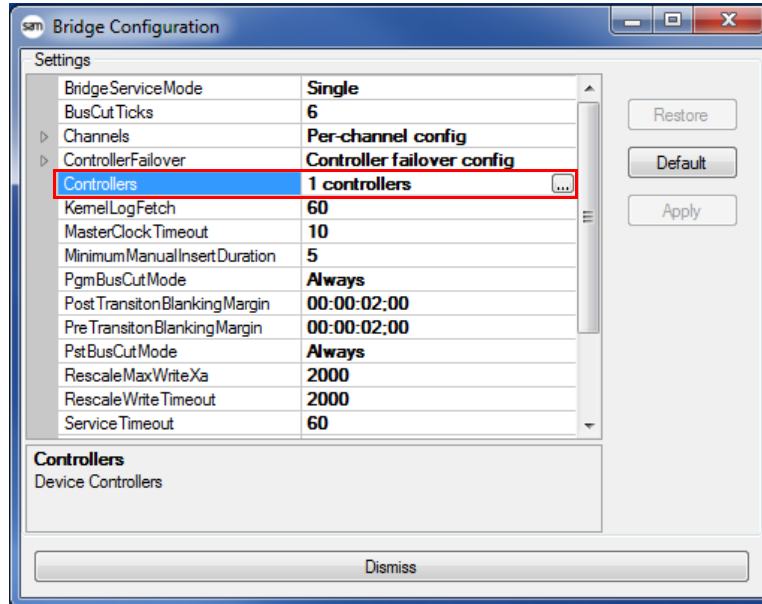


Figure 430 Bridge Configuration

The ControllerConfig Collection Editor window is displayed (Figure 431).

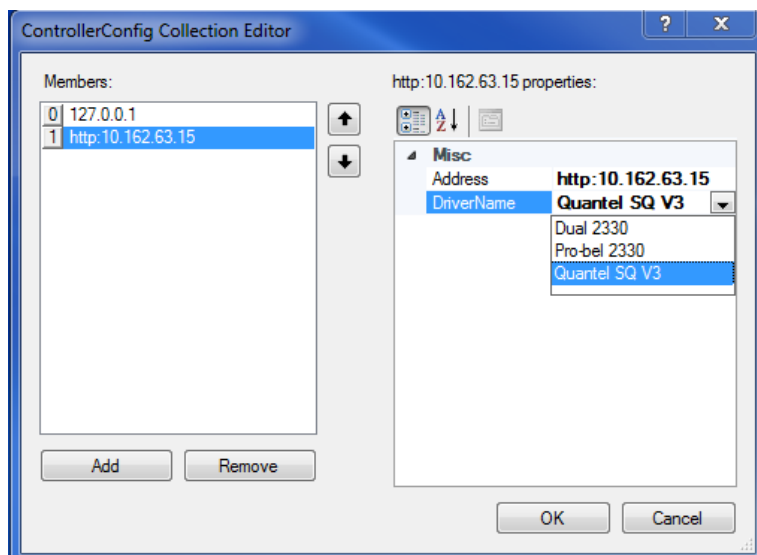


Figure 431 ControllerConfig Collection Editor

Click on **Add** in order to create a new controller - it will be given the default name of 'ControllerConfig'.

- a) With the new controller name highlighted, click on **DriverName** in the ControllerConfig Properties pane, then click on the arrow to reveal the list of drivers.
- Select 'Quantel SQ v3'
- b) Click on the Address field, also in the ControllerConfig Properties pane, and enter the IP address of the network adapter on the PC that is running the ISA Manager - refer to the address formats below for details on adding single ISA Managers and Master / Backup pairs.
- The default name of the controller will be automatically changed to that of its IP address, once added.

Note:

The address is also known as the Interoperable Object Reference (IOR) for the ISA Manager, which is commonly the IP address of the ISA Manager that has been configured to deliver its IOR over HTTP - it may however be the path to an IOR file, although it is recommended to always use an HTTP method.

The following address formats are acceptable:

- HTTP address formats (where the IOR is to be retrieved from the ISA Manager using an HTTP request):

`http:10.162.63.15`

or

`http://10.162.63.15`

Specifying a port number (the default port is 2096):

`http:10.162.63.15:2095`

Specifying a redundant pair of ISA Managers:

`http:10.162.63.15|http:10.162.63.16`

or

`http:10.162.63.15|16`

Where only the last octet of the IP addresses differ.

or

`http:10.162.63.15:2095|16`

Where the last octet differs and a port number is specified for both addresses.

or

`http:10.162.63.15:2096|16:2094`

Where the last octet and the port numbers differ.

- To reference an IOR file directly, the full path name must be used, prefixed with the word 'file:'

`file:\\servername\share\ZoneManager.ior`

or

`file:\\pri\shr\ZoneManager.ior|file:\\sec\shr\ZoneManager.ior`

Where a redundant pair of ISA Managers is referenced.

- c) Add additional controllers as required.

Note:**Connecting to Multiple ISA Managers that are not all Master / Slave Pairs**

The Bridge can be configured to load more than one instance of the sQ Driver in order to connect to multiple ISA Managers or ISA Manager Redundant pairs, provided that the sQ Servers, across all of the ISA Managers, have unique names. The devices controlled by the system can therefore be distributed across a number of controller cards. Equally, servers controlled by the sQ Driver may be attached to a number of ISA Managers, provided that all of the server names are unique.

Multiple instances of the sQ Driver share the global configurations in the sQDriver.ini file.

The procedure requires the creation of another controller to which the IP address of the additional ISA Manager will be added by repeating the configuration steps detailed in this section (Section 26.4 Bridge Configuration - Adding a New Controller).



A single instance of Momentum Ingest does not currently support more than one ISA Manager.

26.5 Driver Configuration - sQDriver.ini

The configuration for the sQ Driver is detailed in the sQDriver.ini file - it can be modified using a standard text editor such as Notepad.

The default path for the file is: C:\Morpheus\Drivers\sQDriver.ini

26.5.1 Retrieving sQ Server Names

The sQ server names should be noted, as they are required to be entered into the sQDriver.ini file.

Note: Different versions of the ISA Manager have similar, but not identical, menu systems. The instructions given below may not therefore directly relate to the deployed system.

Browse to the IP address of the ISA Manager (configured in section 26.4) - the default credentials are:

Username: *quantel*

Password: *quantel*

Navigate to Status > Summary and retrieve the Server Name(s) of the sQ devices that are required to be controlled by the driver - they are listed in the 'Servers Summary' pane (Figure 432).

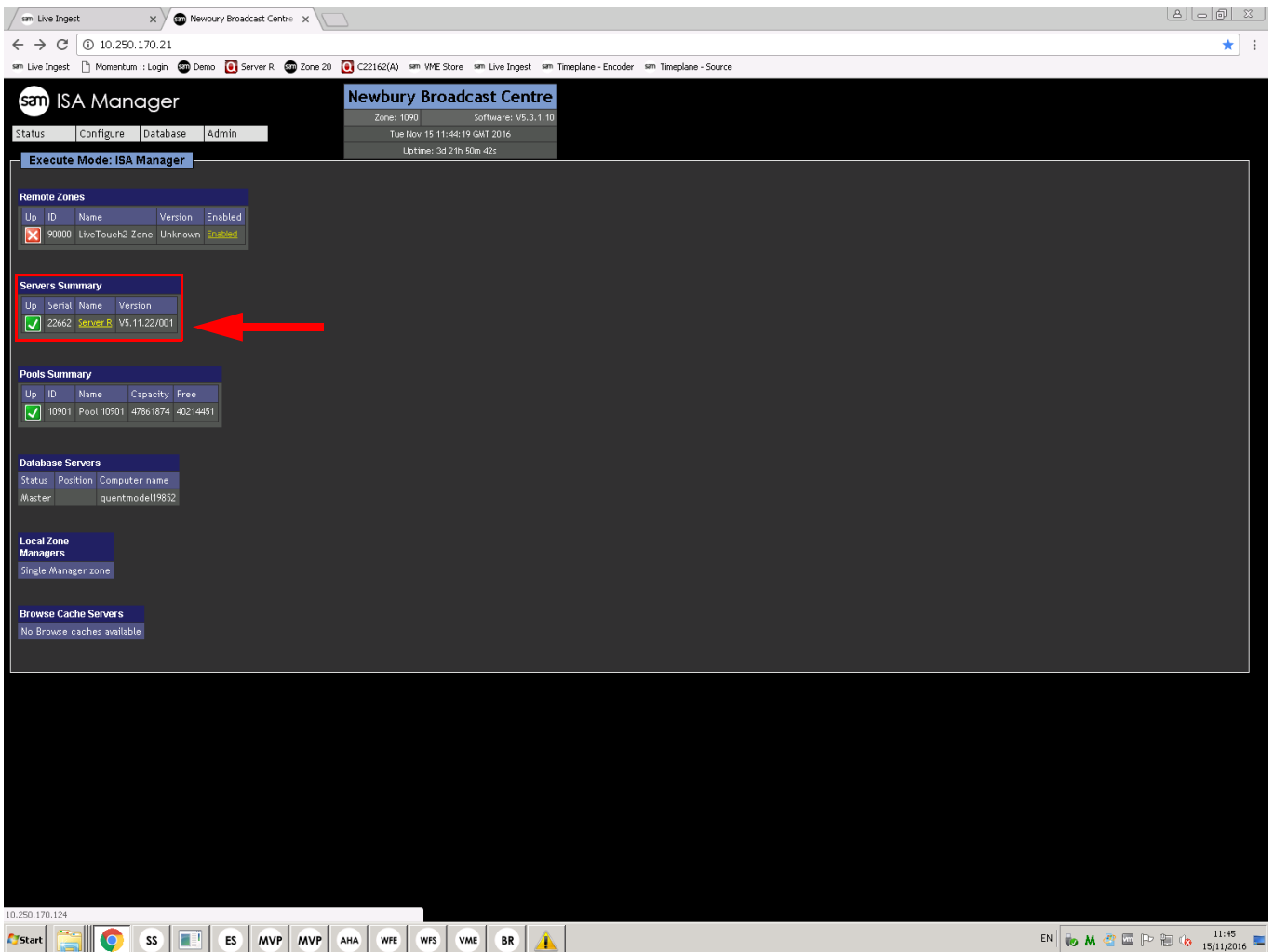


Figure 432 sQ Servers on the ISA Manager

Note: The names are underlined, and any underscores will not be visible - click on a server name to open its dedicated page, where the name can be viewed clearly (Fig. 433).

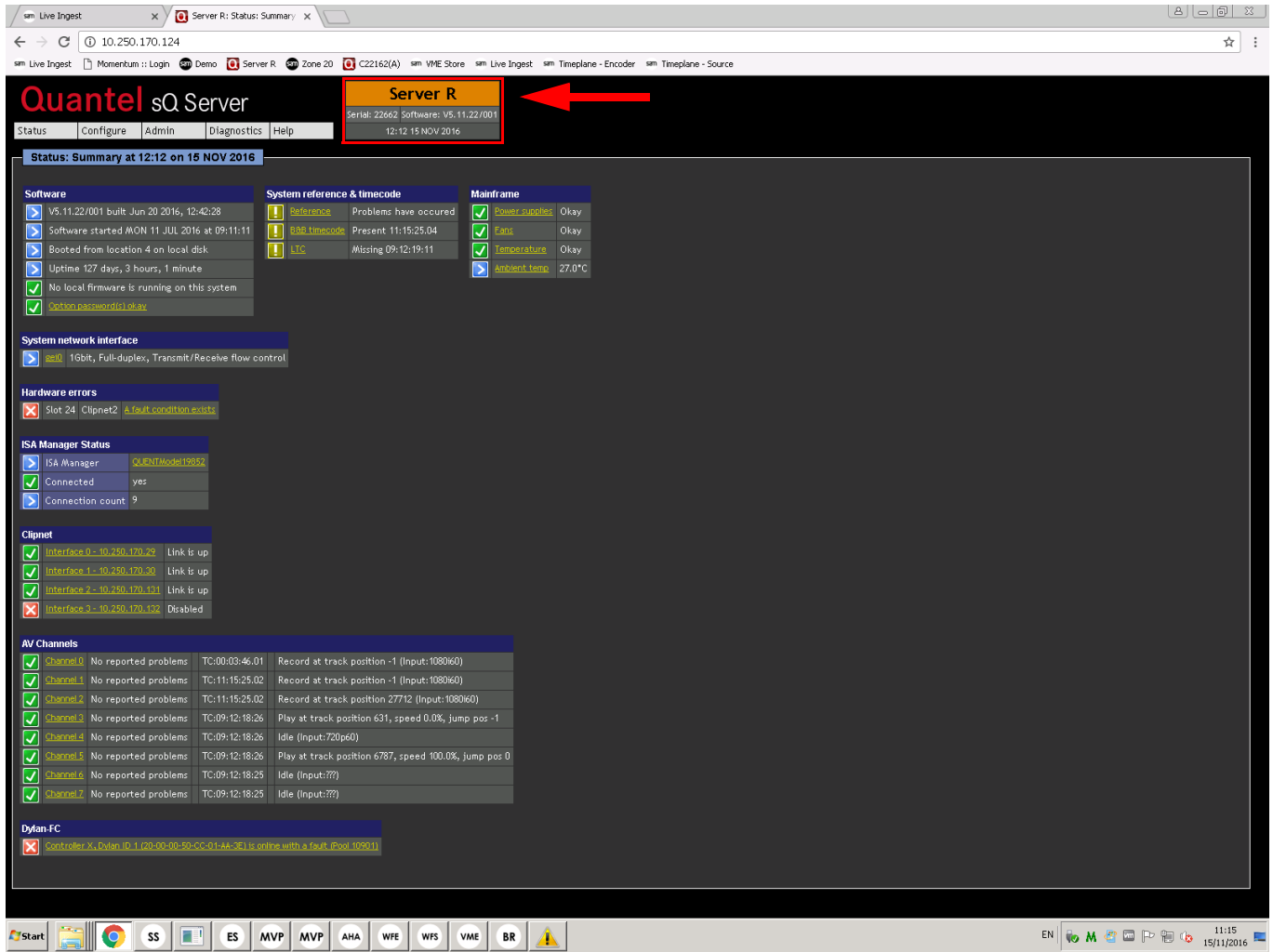


Figure 433 Individual sQ Server Page on ISA Manager

26.5.2 Configuring the Driver

Open the sQDriver.ini file, and complete all of the configurations detailed in the headings below, as required

The sQDriver.ini file consists of sections with headings in square brackets, each listing a number of configurable parameters.

Note: Where it is necessary to edit a heading, the square brackets must remain.

26.5.2.1 [Channel] Section

This section contains the parameters necessary to set up the communications channel between the bridge and the ISA manager.

MachineName

Required for play and record.

Add the network adapter IP address of the server on which the Bridge is installed - it is required in order to successfully set up callbacks from the ISA Manager and sQ server. Use the following syntax:

```
MachineName=<IP_address>
```

26.5.2.2 [Timing] Section

Configuring timing requirements and managing timing differences between the Bridge and the sQ server.

RecordOffset

Record only.

If there is a time difference between the Bridge and the reference time on the sQ system, then enter it as either a positive or negative timecode (dependant upon whether the Bridge is ahead or behind the sQ time). Use the following syntax:

```
RecordOffset=00:00:30;00
```

The positive value shown would be configured if the sQ system was 30 seconds ahead of the Bridge - the driver will adjust the recording to start at the correct time.

```
RecordOffset=-00:00:30;00
```

The negative value shown would be configured if the sQ system was 30 seconds behind the Bridge.

AutoRecordOffset

Record only.

Use this parameter to automatically take account of a time difference between the Bridge and the reference time on the sQ system - if there is a time difference between the two, it ensures that a record request is actioned by the sQ server at the time on the Bridge, and not according to the reference time on the sQ server. The value can be set to either True or False (the default value is False). If True, then the RecordOffset is calculated at the point at which the driver connects to the sQ port. Use the following syntax:

```
AutoRecordOffset=<True> or <False>
```

If this parameter is set to false, then the value of the RecordOffset parameter will be used (if set).

Note: If the reference time on the sQ server changes during an active connection, then it will be necessary to disconnect and then reconnect to the ISA Manager in order for the new RecordOffset to be calculated.

OutputDelay

Play only.

The driver can be configured to run clips ahead or behind their scheduled times. The units of output delay is frames. A positive value causes the server to run late. For example, if OutputDelay is set to 5 frames, then clips play to air 5 frames after their nominal start time. If OutputDelay is a negative number, then clips play earlier than their scheduled start time.

The value of OutputDelay specified in the Timing section is a default value and can be overridden for specific servers by setting OutputDelay in the [ServerName] section of the configuration file.

PipelineSize

Play only.

Grass Valley sQ servers have an output pipeline, which holds a number of uncompressed frames that have been prepared for output. In order for the driver to operate frame accurately, it is necessary to configure this value. For most sQ systems, the correct value for Pipeline Size is 10 frames. The value of PipelineSize in the [Timing] section is a default and can be overridden for specific servers by setting PipelineSize in the [ServerName] section of the configuration file. In most cases this is not necessary.

The units of PipelineSize is frames. The default is 10 frames.

Example

```
PipelineSize=10
```

PreviewMargin

Play only.

When using the Preview function in the Morpheus Editor, it is important that the port being used for preview is not required on air. The PreviewMargin is the margin that must exist between the time at which port is being used for preview and the time the port is required for air. Preview margin is specified in Timecode Format. The default is 00:05:00:00 (five minutes).

Example

```
PreviewMargin=00:07:00:00
```

26.5.2.3 [Control] Section

This section contains the parameters necessary to control the sQ servers.

FileIdField

Play and record.

Specify the sQ server database field under which the file id (media identifier), that is used by Morpheus, will appear - it should normally be the 'VDCIP' field, however any field of type 'string' can be specified, unless it has already been used in the [RecordProperties] section. Use the following syntax:

FileIdField=<field>

Note: An sQ server database field MUST be specified for this configuration parameter.

Example

FileIdField=VDCPID

GapMode

Play only.

While a schedule is running, the server is not necessarily playing content to air. When the system has another source on air, nothing is playing on the sQ server. Although the server is not on air, it can still be important to control what the server is showing during these gaps in its playout schedule. The sQ Driver offers three options:

- NextFrame

In NextFrame mode, the server displays the first frame of the clip that is coming up next in the schedule.

- LastFrame

In LastFrame mode, the server displays the last frame that was most recently played out by the port.

- Black

In Black mode, the server plays black during the gap.

Examples

GapMode=NextFrame

GapMode=LastFrame

GapMode=Black

GapOffset

Play only.

When the server is configured to show the NextFrame or Black during a gap in the schedule, it is not usual to want this implemented directly after the previous clip stops playing. This is because there might be a slightly mis-timed transition to another source, and a switch to Black or the NextFrame in the schedule too early might cause a flash frame on air.

To avoid this, it is possible to configure a Gap Offset. This is the amount of time the last frame of the clip is held before Black or the NextFrame is shown.

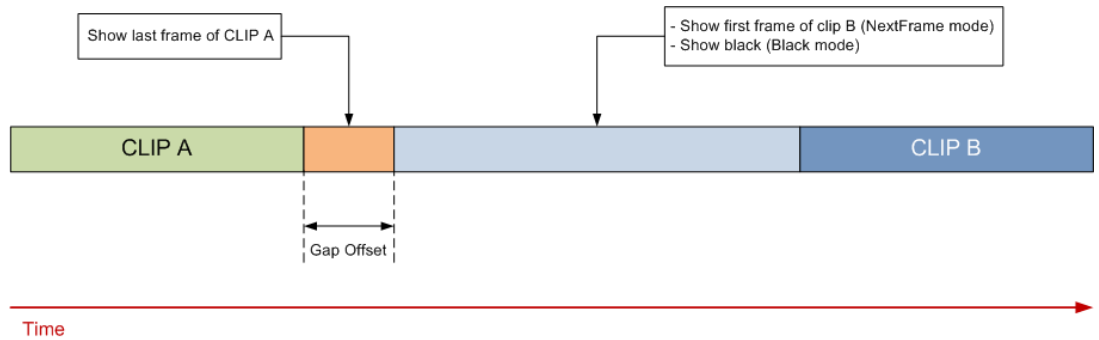


Figure 434 sQDriver GapOffset

If a gap is less than $\text{GapOffset} * 2$ frames long, then the driver does not attempt to insert black or the first frame of the next clip as it is not useful to show black or the next frame for such a short time.

GapOffset is specified in frames. The default value is 5.

Example

GapOffset=30

Preroll

Play only.

Morpheus provides a highly dynamic control environment in which changes may be made to the playlist at any time. Implementing these changes on devices, however, always takes a finite amount of time. In the case of the sQ Driver, it is necessary to allow a margin from the current time to the point on the server timeline at which changes are permitted; this is the Server Preroll. To ensure clean transitions, this should be set to as large a value as possible, but it must not be set to greater than the Device preroll as specified in Morpheus.

The Morpheus device preroll is the amount of time that Morpheus allows for devices to implement changes to the schedule. Some of this time is consumed by Morpheus itself, propagating the change through the system to the Bridge and onto devices.

In the case of the sQ Driver, the preroll should be greater than the pipeline size + 5 frames, and less than the Morpheus device preroll - 20 frames.

$(\text{Morpheus Device Preroll} - 20) > \text{sQ Driver Preroll} > (\text{Server Pipeline Size} + 5)$;

In most cases $\text{Preroll} > 20$ frames should be adequate.

Example

If Morpheus Device Preroll is 2 seconds (60 frames) and sQ Pipeline Size is 10 frames. According to the guidance above, the Driver preroll should be less than $(60 - 20) = 40$ frames and greater than $(10 + 5) = 15$ frames. Thus a value of 30 frames (the default) is acceptable.

Preroll=30

26.5.2.4 [Media] Section

The media section contains parameters that control clip cues and media loading.

TimecodeMode

Play only.

When a clip is cued for playout, the media is not necessarily played from the beginning of the clip. The scheduled inpoint can be specified relative to the start of the media or relative to a timecode track in the clip. Grass Valley clips have two timecode tracks - port timecode, which is the timecode present in the incoming signal when the clip was recorded, or reference timecode which is the real time when the clip was recorded.

To display the common configuration settings, select **Common** from the left hand pane of the **ConfigForm** window.

Each of the settings is described below:

Setting	Description
Zero (default)	Scheduled inpoint is relative to the start of the clip
Port	Scheduled inpoint is relative to port timecode track
Ref	Scheduled inpoint is relative to reference timecode track

Table 38 Grass Valley TimecodeMode

The default value for this setting is Zero.

FailurePrefix

Play only.

This setting is used by the Generic Validation Service. The Grass Valley media management system adds an error message to the Title field if it detects an error during file transfer. This message can be configured on the ISA Manager web page, by changing the configuration property Failure Prefix. This setting needs to match that value.

If the Generic Validation Service detects a clip that has a title containing this string then the service returns an Error with the message:

Media title <clip_title> contains failure message

The default value for FailurePrefix is [FAIL]

WarningPrefix

Play only.

This setting is used by the Generic Validation Service. The Grass Valley media management system adds a warning message to the Title field if it detects an potential problem during file transfer. This message can be configured on the ISA Manager web page, by changing the configuration property Warning Prefix. This setting needs to match that value.

If the Generic Validation Service detects a clip that has a title containing this string then the service returns a Warning with the message:

Media title <clip_title> contains warning message

The default value for WarningPrefix is [WARNING]

ShortClipWarningMargin

Play only.

The Generic Validation Service checks each scheduled event that there is sufficient material to fill the duration of the event. If the scheduled event duration the combined media time then a warning is generated. If the shortfall is only a few frames, then this warning is not justified. The value of ShortClipWarningMargin is the number of frames shortfall that is considered acceptable and does not generate a warning. Units are frames, and the default is 0, meaning that any shortfall generates a warning.

Example

```
ShortClipWarningMessage=30
```

ExtraRecordingMinutes

Record only.

Specify the number of minutes of additional time that will be added to each recording event automatically, thereby allowing a recording to be extended whilst in progress.

Use the following syntax:

```
ExtraRecordingMinutes=<value>
```

Note: The duration of a recording can be changed at any time BEFORE it is due to start.

Example:

If a recording has a scheduled duration of 2 hours, and ExtraRecordingMinutes has a value of 60, then the record clip is created with a duration of 3 hours. Where a recording finishes ahead of the total specified duration, unused space does not form part of the final clip.

MaxRecordingLengthMinutes

Record only.

Specify the number of minutes that can be recorded using stop / start events in Morpheus. Use the following syntax:

```
MaxRecordingLengthMinutes=<value>
```

The value is used in situations in which the duration of a record event is not specified: a Start record event triggers the recording, and a Stop event terminates it.

If the Stop event is next in the schedule for the record port, then the duration of the recording will be known.

If the Stop event is further down the schedule, or perhaps not yet specified, then the value attributed to MaxRecordingLengthMinutes is used in order to reserve space for the recording. Once the duration of the recording is known, then it will override the value of MaxRecordingLengthMinutes.

Important:

Unless a fresh installation has taken place using the configuration files detailed in Chapter 28.2 New System Deployment, and / or any configurations detailed in this section have been manually changed, both the Bridge and the Morpheus Edit Workstation must be restarted in order for the modifications to take effect.

26.5.2.5 [ServerName] Section

Create a [ServerName] section in the sQDriver.ini file for each of the sQ Servers.

Where [ServerName] must be replaced with the name of the server.

E.g. [INGSERV15]

Each [ServerName] section will contain the parameters that are unique to each server.

Example:

```
[INGSERV15]
RecordPortList=1,2,3
DeviceNameAlias=SqSvr15
```

```
[INGSERV16]
RecordPortList=3,4
DeviceNameAlias=SqSvr16
```

The parameters unique to each server are explained below.

PortList

Play only.

A comma separated list of the channels on the server that the driver is required to control. The channel numbers are 0-based (i.e. start at 0, then 1, 2, 3 etc).

Example

```
[SVR_A]
```

```
PortList=0,1
```

Control channels 0 and 1. The driver creates two Morpheus Devices, SVR_A\0 and SVR_A\1.

RecordPortList

Record only.

Add the server port numbers that will be dedicated to recording, using the CSV syntax shown in the following example:

```
RecordPortList=1,4,5
```

Note:

Port numbers are unique to a list - a port in the RecordPortList cannot also be specified in any of the other lists in sQDriver.ini file (i.e. Ports, PortList, PlayPortList), and vice-versa.

Once defined in the configuration, the sQ ports are reserved by Momentum Ingest for recording only.

DeviceNameAlias

Play and Record.

An optional parameter that may be used to specify the Morpheus Device Names of each of the server ports in a [ServerName] section. Use the following syntax:

```
DeviceNameAlias=<name>
```

If configured, then the Morpheus Device Names are derived as follows:

```
DeviceNameAlias\n
```

Where \n is a port number from the PortList or the RecordPortList.

Example:

With a DeviceNameAlias of `SqSvr`, and a RecordPortList of 1, 4, 5 the following Morpheus Device Names would be derived:

```
SqSvr\1
```

```
SqSvr\4
```

```
SqSvr\5
```

If NOT specified, the Morpheus Device Names are derived from the [ServerName] as follows:

```
[ServerName]\n
```

Where `\n` is a port number from the RecordPortList.

Example:

With a DeviceNameAlias of `[INGSERV15]`, and a RecordPortList of 1, 4, 5 the following Morpheus Device Names would be derived:

```
INGSERV15\1
```

```
INGSERV15\4
```

```
INGSERV15\5
```

Ports

Play only.

This is a legacy parameter that is present in some files. It should not be used in new applications.

UtcOffset

Play only.

If the timecode that is feeding the server is offset from the time signal to which the automation system is synchronised, the offset can be specified with this parameter. Format is HH:MM.

Example

```
UtcOffset=4:00
```

OutputDelay

Play only.

For a specific server, this parameter can be used to override the default value of OutputDelay specified in the Timing section. Refer to Section 26.5.2.2 [Timing] Section for additional information relating to this parameter.

PipelineSize

Play only.

For a specific server, this parameter can be used to override the default value of PipelineSize specified in the Timing section. Refer to Section 26.5.2.2 [Timing] Section for additional information relating to this parameter.

26.5.2.6 [RecordProperties]

Record only.

As well as the default parameters (Inpoint, Fileid, and Deviceid), additional kernel parameters can be created for assignment to clips recorded on sQ Servers exclusively. Supported additional parameters are limited to those in Table 39 - they can also be seen on the ISA Manager as shown in Fig. 435 (not all visible).

Category	Description	Destination	Expiry
Inpoint	JobID	Outpoint	Owner
PublishedBy	Register	Tape	Template
Title	MosActive	Division	VDCPID

Table 39 Additional Parameter Name and Type Associations

The list includes the standard parameters only - an end user has the facility to create custom fields. Any kernel parameters entered in the [RecordProperties] must be syntactically identical to those that exist in the sQ server clips table.

Category	ClipID	Cloneid	Clonezone	Completed	Created	Description	Destination	Expiry	Frames	HasEditData	Inpoint	JobID	Modified	NumAudTracks	Number	NumVidTracks
	1979077	1979077	56	2016-11-30 10:35:47.0	2016-11-30 10:35:47.0			Invalid	108000	0			Invalid	4		1
	1979076	1979076	56	2016-11-30 10:35:27.0	2016-11-30 10:35:27.0			Invalid	108000	0			Invalid	4		1
	1979075	1979075	56	2016-11-30 10:29:04.0	2016-11-30 10:29:04.0			Invalid	300	0			Invalid	4		1
	1979074	1979074	56	2016-11-30 10:23:57.0	2016-11-30 10:23:57.0			Invalid	500	0			Invalid	1		1
	1979073	1979073	56	2016-11-30 10:16:03.0	2016-11-30 10:16:03.0			Invalid	50	0			Invalid	1		1
	1979072	1979072	56	2016-11-30 09:52:04.0	2016-11-30 09:52:04.0			Invalid	50	0			Invalid	1		1
	1979062	1979062	56	2016-11-30 09:49:03.0	2016-11-30 09:49:02.0		1073741824	Invalid	11	1			2016-11-30 09:49:03.0	1	369	1
	1979056	1979056	56	2016-11-29 16:43:56.0	2016-11-29 16:43:49.0		1073741824	Invalid	100	1			2016-11-29 16:43:56.0	1	368	1
	1979044	1979044	56	2016-11-29 11:27:48.0	2016-11-29 11:27:48.0			Invalid	500	0			Invalid	4		1
Test clip from Morpheus	1979043	1979043	56	2016-11-29 10:36:25.0	2016-11-29 10:36:25.0			2016-08-19 23:59:59.0	1500	0			Invalid	1		1

Figure 435 sQ Clips Table

Note:

It is essential that the configurations to the sQDriver.ini file, the Momentum Ingest Template, and to the Event Store, are consistent with each other in order to avoid operational issues - refer to Fig. 565 in Chapter 28.3.1 Selection of an Ingest Mechanism for guidance.

Enter all of the selected EventStore kernel parameters into the [RecordProperties] in the sQDriver.ini file in order to make an association between them and the name in the sQ clips table. The number given to the parameter in the Bridge is associated with the name in the sQ clips table - for this reason, a name used in Momentum Ingest, the EventStore and the Bridge (all of which are identical) does not have to be the same as the name in the sQ clips table. Use the syntax shown (the default parameters Inpoint, FileId, and DeviceId do not need to be specified as they are already written into the driver code).

Example

```
1=Category
2=Owner
3=Title
4=Expiry
5=PublishedBy
```

Where the number is that of the sQ specific parameter in the Bridge, and the parameter name is that used in the sQ clips table.

The associations listed are shown as an example only.

Refer to Fig. 565 in Chapter 28.3.1 Selection of an Ingest Mechanism, for an illustration of the process.

Note:

These properties are exclusive to recording events with an sQ server.

26.5.2.7 Example configuration

The following is a sample file. A detailed description of each section is provided above.

```
[Channel]
MachineName=10.162.64.24

[Timing]
OutputDelay=0
PipelineSize=10
StartupTimeout=4500
PreviewMargin=00:05:00:00

[Server1]
UtcOffset=0
PortList=0,1
DeviceNameAlias=SQ01

[Control]
FileIdField=VDCPID
Preroll=30
GapMode=NextFrame
GapOffset=25

[Media]
TimecodeMode=zero
ShortClipWarningMargin=4
FailurePrefix=[BAD CLIP]
WarningPrefix=[WARN]
```

26.6 Morpheus Generic Validation Service

The Morpheus Driver for Grass Valley sQ can be loaded by the Morpheus Generic Validation Service, in order to provide validation information for scheduled media. This functionality is provided by the Pbak Event Validation service type.

Refer to Section 13.14 Generic Validation Service for further information on configuring the Generic Validation Service.

The Morpheus Driver for sQ returns the following error messages:

FileId of " or 00000000

Returns vsError with message Invalid file id. The value 00000000 cannot be used as a media ID.

ClipId not found from FileId

Returns vsError with message *File id <fileid> not found on pool <pool_no>*. This works in InstanceLabel or LFID modes.

QuentinAPI error obtaining clip metadata (title, duration & media_inpoint)

Returns vsError with message *Could not obtain clip metadata*.

ScheduledInpoint not found in media

Returns vsError with message *Specified inpoint <ScheduledInpoint> outside bounds of media (<media_inpoint> to <media_output>)*. This respects driver timecode configuration of Port|Ref|Zero for media timecodes.

Title contains ErrorPrefix

This returns vsError with message *Media title <title> contains error message*.

Insufficient content for scheduled duration

Returns vsWarning with message *Content available from inpoint of <scheduled_inpoint> is <duration_of_clip_from_inpoint_to_end> which is insufficient for scheduled duration of <scheduled_duration>*. It is possible to configure a ShortClipWarningMargin so that if the clip is only a few frames short this does not generate a warning. Refer to the ShortClipWarningMargin parameter in Section 26.5.2.4 [Media] Section for further information.

Title contains WarningPrefix

Returns vsWarning with message *Media title <title> contains warning message*.

27. Appendix - Installing a Morpheus RTB

This section contains information on installing a Morpheus (PBAK) OnTime application RTB onto a controller card.

27.1 Pre-requisites

The following pre-requisites are required:

- A USB Pen drive (minimum size 512MB)
- A controller card with a FAT32 formatted hard disk, with the boot flag set on the drives primary DOS partition.
- The ControllerLoader.rtb file
- Actions.txt
- The Pbak Deploy tool
- The correct RTB file to deploy
- A Windows 7 or Vista machine - required to create a USB Boot Disk from scratch (or a Windows XP (or better) machine for using an existing USB Boot Disk only).

The files are available from Grass Valley on request.

27.2 Creating a USB Boot Disk

1. Ensure that any data already on the USB drive is backed up as this process removes any existing data.
2. Plug the USB drive into the PC.
3. Open a command prompt (start->run cmd).
4. Enter the command diskpart (this command requires Administrator rights).
5. At the DISKPART> prompt, enter 'list disk' and make a note of the disk number that matches the USB drive.



Ensure that the disk number is correct or formatting of the C: drive may occur!

6. At the DISKPART> prompt, enter 'select disk <n>' (where **n** is the number of the USB drive).
7. At the DISKPART> prompt, enter 'clean'.
8. At the DISKPART> prompt, enter 'create partition primary'.
9. At the DISKPART> prompt, enter 'active'. This sets the flag that makes the USB drive bootable.
10. At the DISKPART> prompt, enter 'format fs=FAT32 quick'.
11. At the DISKPART> prompt, enter 'assign'.
12. At the DISKPART> prompt, enter 'exit' to leave the diskpart tool.

The USB drive is now bootable and ready to accept the ControllerLoader application.

Note:

This process does not apply to Windows XP, as its version of DISKPART cannot detect USB / removable drives.

27.3 Loading the USB drive

1. Plug the USB drive into the PC.
2. Using Pbak deploy, deploy the ControllerLoader.rtb to the USB drive as follows:
 - a) Run Pbak Deploy.
 - b) Click on **File** and select the target drive of the USB drive.
 - c) Click on **Change Dir**, and navigate to the directory containing the RTB.
 - d) Click on the ControllerLoader.rtb in the main listing area.
 - e) Click on **Write to CF** in order to programme the USB stick and wait for the process to complete.
3. On the USB drive, create an actions file named Actions.txt (or copy the example file from the install directory).

The USB drive now contains the following additional files:

Filename	Description
boot.ini BOOTSECT.RTT ControllerLoader.RTA	These files are automatically placed on the pen drive by Pbak deploy and must not be altered by the user.
RunNo.dat	This file may appear after the first usage. This file keeps track of the Run Number which starts at one and increments each time the application is run. If this file doesn't exist, it is created by the application when it starts up.
RunLog.txt	This file may appear after the first usage. This is the output from the application. Each entry of the log is prefixed with an ISO timestamp and the current Run Number. If this file doesn't exist, it is created by the application when it starts up.

Table 40 USB files

27.4 Configuring the ControllerLoader RTB

The ControllerLoader RTB parses the actions.txt file and use the information to complete the required actions. Actions have parameters and the last parameter always declares whether or not the action is fatal. The ControllerLoader ignores any lines that start with a # character, so that the file can contain comments.

The following example Actions.txt file updates the RTB from the USB drive to the boot drive on the controller and also copies across the Pbak.dat configuration file:

```
DEPLOY-RTB D:\RTB\2460Controller.RTB  
COPY-FILE D:\Release\Pbak.dat C:\Release\Pbak.dat
```

Once the application is loaded, the LEDs on the card turn blue in order to show that it is running. **At this stage, do not reset the Controller or remove the USB drive.**

Red flashing LEDs indicate that an action has been marked as fatal, it has failed to complete and the rest of the actions in the file were not processed.

Orange flashing LEDs indicate that a minor failure has occurred, or an action that was marked as non fatal failed to complete.

In both instances, the Log file RunLog.txt will indicate the nature of the failure.

Green flashing LEDs indicate that all actions have been processed successfully.

If the LEDs are flashing any color it is safe to reset the controller and/or remove the USB drive.

The table below contains a subset of the available actions and their parameters (others are only relevant to router deployment).

Action	Description	Parameters	Example
DELETE-FILE	This action deletes a file from the hard disk and is referenced by the purge functions above.	C:\some\file.dat – the full file path of the file to delete from the hard disk. NON-FATAL – do not treat a failure in this step as a reason to stop processing the other actions in the actions file. Must be the last parameter.	DELETE-FILE C:\some\file\somewhere.dat
COPY-FILE	This action copies a file from the USB stick onto the hard disk of the controller. The first parameter is the source file and the second is the destination on the disk. There is an optional third parameter which can be TRUE or FALSE to dictate if it should overwrite an existing file. If the user specifies a destination in a directory that doesn't yet exist on the hard disk, the action attempt to create the directories.	D:\path\to\source\file.ext – The absolute path to the file to copy (must include the drive letter and quotation marks if the file path has spaces in it) C:\path\to\copy\file\to.ext – The absolute path of the new location of the source file. It must also include the drive letter and must have quotation marks if the file path has spaces in it. TRUE / FALSE – either true or false to dictate if it should overwrite an existing destination file. This is optional and defaults to TRUE. NON-FATAL – do not treat a failure in this step as a reason to stop processing the other actions in the actions file. Must be the last parameter.	COPY-FILE D:\myfile.txt C:\myfile.txt FALSE

Table 41 RTB actions

Action	Description	Parameters	Example
COPY-DIR	This action copies a whole directory (and child directories) to the destination directory, creating one if it doesn't exist.	This action has the same parameters as the COPY-FILE action, except that instead of files, the user provides directory names. As with the COPY-FILE action, directory names with spaces in the path must be enclosed in quotation marks.	COPY-DIR D:\WebContent\S80 0 C:\WebContent
DEPLOY-RTB	This is the primary action. With no parameters, it searches the root of the USB pen drive for a file with the .rtb extension and then deploy the first file it finds to the hard disk on the controller. Note: the controller must have a PBAK RTB at version 4.2 in order to work correctly.	D:\somefile.rtb Optional. The user can explicitly specify the name and location of the rtb file to deploy. The drive letter must be included at the beginning. If the file path has any spaces in it, then it must be enclosed in quotation marks. NON-FATAL – do not treat a failure in this step as a reason to stop processing the other actions in the actions file. Must be the last parameter.	DEPLOY-RTB D:\my new software.rtb
PULL-LOGS	Moves (the logs are no longer left on the controller) all the *.log files from C:\logs\ into the user supplied directory.	The destination directory for the logs Optional, does not default to D:\logs\ if not specified here.	PULL-LOGS D:\logs_from_controller\
HW-TEST	This option activates the hardware test menu. This allows a series of hardware tests to be performed. The output is displayed on the HDMI / SDI video output and the input is taken from a USB keyboard.	N/A	HW-TEST

Table 41 RTB actions

28. Appendix - Panoplay Example XML Configuration File

This appendix contains an example of the PanoplayConfig.xml file, for reference only.

```
<?xml version="1.0" encoding="utf-8" ?>
<Configuration>
  <Channels>
    <Item Name='MST SD1'>
      <SynchronisationSetName>MST SD1</SynchronisationSetName>
    </Item>
    <Item Name='AMC SD1'>
      <SynchronisationSetName>AMC SD1</SynchronisationSetName>
    </Item>
    <Item Name='Ingest1'>
      <SynchronisationSetName>Ingest1</SynchronisationSetName>
    </Item>
    <Item Name='Ingest2'>
      <SynchronisationSetName>Ingest2</SynchronisationSetName>
    </Item>
  </Channels>
```

```
<Agents>
  <Item Name='SysA - MST SD1'>
    <Application>SysA App</Application>
    <SynchronisationSet>MST SD1</SynchronisationSet>
  </Item>
  <Item Name='SysA - AMC SD1'>
    <Application>SysA App</Application>
    <SynchronisationSet>AMC SD1</SynchronisationSet>
  </Item>
  <Item Name='SysA - Ingest1'>
    <Application>SysA App</Application>
    <SynchronisationSet>Ingest1</SynchronisationSet>
  </Item>
  <Item Name='SysA - Ingest2'>
    <Application>SysA App</Application>
    <SynchronisationSet>Ingest2</SynchronisationSet>
  </Item>
  <Item Name='SysB - MST SD1'>
    <Application>SysB App</Application>
    <SynchronisationSet>MST SD1</SynchronisationSet>
  </Item>
  <Item Name='SysB - AMC SD1'>
    <Application>SysB App</Application>
    <SynchronisationSet>AMC SD1</SynchronisationSet>
  </Item>
  <Item Name='SysB - Ingest1'>
    <Application>SysB App</Application>
    <SynchronisationSet>Ingest1</SynchronisationSet>
  </Item>
  <Item Name='SysB - Ingest2'>
    <Application>SysB App</Application>
    <SynchronisationSet>Ingest2</SynchronisationSet>
  </Item>
</Agents>
```

```
<SynchronisationSets>
  <Item Name='MST SD1'>
    <PrimaryAgent>SysA - MST SD1</PrimaryAgent>
    <SecondaryAgent>SysB - MST SD1</SecondaryAgent>
    <PriorityWindowRootEventCount>4</PriorityWindowRootEventCount>
    <SlidingWindowRootEventCount>4</SlidingWindowRootEventCount>
  </Item>
  <Item Name='AMC SD1'>
    <PrimaryAgent>SysA - AMC SD1</PrimaryAgent>
    <SecondaryAgent>SysB - AMC SD1</SecondaryAgent>
    <PriorityWindowRootEventCount>4</PriorityWindowRootEventCount>
    <SlidingWindowRootEventCount>4</SlidingWindowRootEventCount>
  </Item>
  <Item Name='Ingest1'>
    <PrimaryAgent>SysA - Ingest1</PrimaryAgent>
    <SecondaryAgent>SysB - Ingest1</SecondaryAgent>
    <PriorityWindowRootEventCount>4</PriorityWindowRootEventCount>
    <SlidingWindowRootEventCount>4</SlidingWindowRootEventCount>
  </Item>
  <Item Name='Ingest2'>
    <PrimaryAgent>SysA - Ingest2</PrimaryAgent>
    <SecondaryAgent>SysB - Ingest2</SecondaryAgent>
    <PriorityWindowRootEventCount>4</PriorityWindowRootEventCount>
    <SlidingWindowRootEventCount>4</SlidingWindowRootEventCount>
  </Item>
</SynchronisationSets>
```

```
<Applications>
  <Item Name='SysA App'>
    <TcpPort>34001</TcpPort>
    <HostName>LT-NEW-EN-04637</HostName>
    <MulticastAddress>225.0.11.4</MulticastAddress>
  </Item>
  <Item Name='SysB App'>
    <TcpPort>34002</TcpPort>
    <HostName>LT-NEW-EN-04637</HostName>
    <MulticastAddress>225.0.11.164</MulticastAddress>
  </Item>
</Applications>

<OracleHost>LT-NEW-EN-04637</OracleHost>
<KernelControlMethod>AutoOn</KernelControlMethod>
<TakeNextSafetyMargin>3000</TakeNextSafetyMargin>
<TakeNextWindowSize>60000</TakeNextWindowSize>
<DoNotSync></DoNotSync>
<GoUnsynchronisedWhenSlaveOnAir>>false</GoUnsynchronisedWhenSlaveOnAir>
</Configuration>
```

29. New Features in this Release

29.1 BXF Services

Chapter 15. BXF Service Configuration

29.2 MOR-2410, Visibility of the System Health Monitor Right-Click Menu System

Chapter 19.2.1 Enable / Disable the System Health Monitor Right-Click Menu

29.3 MOR-3281, Next Transition for Bridge

Chapter 8.1 Next Transition for Bridge

29.4 MOR-4428, Generic Validation Service, Type 'Mixer Validation Service' Tight Margins

Chapter 14.12.1.3 The Type Tab - Mixer Event Validation

29.5 MOR-4611, Multi-Event Type Display Order Changes

Chapter 7.2.3.2 Modifying Multiple Event Type Parameter Definitions Simultaneously

29.6 MOR-5207, Commercial Hotlist Configurable Font Size

Chapter 13.17.2.3 Display Settings Tab

29.7 MOR-5290, Panoplay Take Next Delay

Chapter 7.4.6.2 More Properties Tab

29.8 MOR-5339, JIP and Advanced Search and Replace Added to Editor 'Lock Channel' Feature

Chapter 13.13.1 System > General Tab

29.9 MOR-5449, Panoplay Follower Mode Banner

Chapter 13.1 Common Configuration Settings (Panoplay Slave Banner Visible)

29.10 MOR-5527, Commercial Hotlist Timeplane Commercial Highlight

Chapter 13.17.2.3 Display Settings Tab

29.11 MOR-5618, Back-to-Back Transitions on the Same Source

Chapter 7.4.6.4 Transition Types List Tab

29.12 MOR-5705, Prevent Panoplay from Unsynchronising When the Follower is On-Air

Chapter 16.7.1.2 Configuration Guide to the PanoplayConfig.xml File

Chapter 28. Appendix - Panoplay Example XML Configuration File

29.13 MOR-5752, sQ Server Record Driver using Corba

Chapter 26. Appendix - Morpheus Driver for sQ Servers

29.14 MOR-5799, Dummy Source

Chapter 7.4.6.3 Sources Tab

Chapter 14.21 Missing Material Recovery Service

29.15 MOR-5818, Generic Validation Service Issues with 60fps Omneon Clips

Chapter 14.12.1.4 The Type Tab - Omneon Event Validation

29.16 MOR-6047, 'Slave' Removed from Panoplay Terminology

Chapter 7.7.5 Other Tab

29.17 MOR-6050, Explode / Contract All Breaks

Chapter 13.12.3.3 'Other' Parameter Pane

29.18 MOR-6097, Include System XML File in 'Gather Everything' System Health Monitor Option

Chapter 19.2.4 Export System Configuration .(xml)

Chapter 19.2.7 Gather Everything

29.19 MOR-6144, Show / Hide Second Line Detail

Chapter 13.12.3 Display Options Tab

29.20 MOR-6390, sQ Record Driver - Allow Extra Metadata to be Added to a Recorded Clip

Chapter 26. Appendix - Morpheus Driver for sQ Servers

Chapter 28. Appendix: Record System Configuration for Momentum Ingest with sQ Servers

29.21 MOR-6470, Commercial Hotlist Allow Live Source Selection

Chapter 13.17.2.3 Display Settings Tab

29.22 MOR-6525, Create New 104 and 917 Events Dedicated to sQ

Chapter 26. Appendix - Morpheus Driver for sQ Servers

Chapter 28. Appendix: Record System Configuration for Momentum Ingest with sQ Servers

29.23 MOR-6547, Enable UTCOffset for sQRecord Corba Driver

Chapter 26. Appendix - Morpheus Driver for sQ Servers

Chapter 28. Appendix: Record System Configuration for Momentum Ingest with sQ Servers

29.24 MOR-6566, Enable AutoAdjustment Offset for sQ Record Corba Driver

Chapter 26. Appendix - Morpheus Driver for sQ Servers

Chapter 28. Appendix: Record System Configuration for Momentum Ingest with sQ Servers

29.25 MOR-6627, Momentum Thumbnail Refresh

Chapter 13.3.2 Momentum Parameters

29.26 MOR-6675, Commercial Hotlist: Timeplane Channel Name

Chapter 13.17.2.3 Display Settings Tab



Grass Valley Technical Support

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<https://www.grassvalley.com/support>

UK Office

The department is staffed from 9.00am to 5:30pm Monday to Friday (excluding UK public holidays).

Outside these times, calls will be delivered to voicemail for follow up on the next working day.

Additional support is available outside these hours by purchasing a support contract, details of which are available from the Grass Valley website and through the account manager.

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