grass valley
A **BELDEN** BRAND

MORPHEUS

EVENTSTREAMING

Engineering Manual Supplement

N/A

2019-05-07

FCC Compliance

In order to comply with FCC/CFR47: Part 15 regulations, it is necessary to use high-quality triple-screened Media or Monitor cable assemblies with integrated ferrite suppression at both ends.

Patent Information

This product may be protected by one or more patents.

For further information, please visit: www.grassvalley.com/patents/

Copyright and Trademark Notice

Terms and Conditions

Important Safety Information

This section provides important safety guidelines for operators and service personnel. Specific warnings and cautions appear throughout the manual where they apply. Please read and follow this important information, especially those instructions related to the risk of electric shock or injury to persons.

Symbols and Their Meanings

Indicates that dangerous high voltage is present within the equipment enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

Indicates that the user, operator or service technician should refer to the product manuals for important operating, maintenance, or service instructions.

This is a prompt to note the fuse rating when replacing fuses. The fuse referenced in the text must be replaced with one having the ratings indicated.

Identifies a protective grounding terminal which must be connected to earth ground prior to making any other equipment connections.
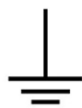
Identifies an external protective grounding terminal which may be connected to earth ground as a supplement to an internal grounding terminal.

Indicates that static sensitive components are present, which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.

Indicates that the equipment has more than one power supply cord, and that all power supply cords must be disconnected before servicing to avoid electric shock.

The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Underwriters Laboratory (UL) regulations and recommendations for USA.

The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Canadian Standard Association (CSA) regulations and recommendations for USA/Canada.

The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Underwriters Laboratory (UL) regulations and recommendations for USA/Canada.

The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Intertek Testing Services regulations and recommendations for USA/Canada.

The presence of this symbol in or on Grass Valley product means that it complies with all applicable European Union (CE) directives.

The presence of this symbol in or on Grass Valley product means that it complies with safety of laser product applicable standards.

Warnings

A warning indicates a possible hazard to personnel, which may cause injury or death. Observe the following general warnings when using or working on this equipment:

• Appropriately listed/certified mains supply power cords must be used for the connection of the equipment to the rated mains voltage.

• This product relies on the building's installation for short-circuit (over-current) protection. Ensure that a fuse or circuit breaker for the rated mains voltage is used on the phase conductors.

• Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only.

• Do not operate the equipment in wet or damp conditions.

• This equipment is grounded through the grounding conductor of the power cords. To avoid electrical shock, plug the power cords into a properly wired receptacle before connecting the equipment inputs or outputs.

• Route power cords and other cables so they are not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.

• Disconnect power before cleaning the equipment. Do not use liquid or aerosol cleaners; use only a damp cloth.

• Dangerous voltages may exist at several points in this equipment. To avoid injury, do not touch exposed connections and components while power is on.

• High leakage current may be present. Earth connection of product is essential before connecting power.

• Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.

• To avoid fire hazard, use only the fuse type and rating specified in the service instructions for this product, or on the equipment.

• To avoid explosion, do not operate this equipment in an explosive atmosphere.

• Use proper lift points. Do not use door latches to lift or move equipment.

• Avoid mechanical hazards. Allow all rotating devices to come to a stop before servicing.

• Have qualified service personnel perform safety checks after any service.

Cautions

A caution indicates a possible hazard to equipment that could result in equipment damage. Observe the following cautions when operating or working on this equipment:

• This equipment is meant to be installed in a restricted access location.

• When installing this equipment, do not attach the power cord to building surfaces.

• Products that have no on/off switch, and use an external power supply must be installed in proximity to a main power outlet that is easily accessible.

• Use the correct voltage setting. If this product lacks auto-ranging power supplies, before applying power ensure that each power supply is set to match the power source.

• Provide proper ventilation. To prevent product overheating, provide equipment ventilation in accordance with the installation instructions.

- Do not operate with suspected equipment failure. If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.
- To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.
- This unit may have more than one power supply cord. Disconnect all power supply cords before servicing to avoid electric shock.
- Follow static precautions at all times when handling this equipment. Servicing should be done in a static-free environment.
- To reduce the risk of electric shock, plug each power supply cord into separate branch circuits employing separate service grounds.

Electrostatic Discharge (ESD) Protection

Electrostatic discharge occurs when electronic components are improperly handled and can result in intermittent failure or complete damage adversely affecting an electrical circuit. When you remove and replace any card from a frame always follow ESD-prevention procedures:

- Ensure that the frame is electrically connected to earth ground through the power cord or any other means if available.
- Wear an ESD wrist strap ensuring that it makes good skin contact. Connect the grounding clip to an *unpainted surface* of the chassis frame to safely ground unwanted ESD voltages. If no wrist strap is available, ground yourself by touching the *unpainted* metal part of the chassis.
- For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms.
- When temporarily storing a card make sure it is placed in an ESD bag.
- Cards in an earth grounded metal frame or casing do not require any special ESD protection.

Battery Handling

This product may include a backup battery. There is a danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. Before disposing of your Grass Valley equipment, please review the *Disposal and Recycling Information* at:

http://www.grassvalley.com/assets/media/5692/Take-Back_Instructions.pdf

Cautions for LCD and TFT Displays

Excessive usage may harm your vision. Rest for 10 minutes for every 30 minutes of usage.

If the LCD or TFT glass is broken, handle glass fragments with care when disposing of them. If any fluid leaks out of a damaged glass cell, be careful not to get the liquid crystal fluid in your mouth or skin. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water. Never swallow the fluid. The toxicity is extremely low but caution should be exercised at all times.

Mesures de sécurité et avis importants

La présente section fournit des consignes de sécurité importantes pour les opérateurs et le personnel de service. Des avertissements ou mises en garde spécifiques figurent dans le manuel, dans les sections où ils s'appliquent. Prenez le temps de bien lire les consignes et assurez-vous de les respecter, en particulier celles qui sont destinées à prévenir les décharges électriques ou les blessures.

Signification des symboles utilisés

Signale la présence d'une tension élevée et dangereuse dans le boîtier de l'équipement ; cette tension peut être suffisante pour constituer un risque de décharge électrique.

Avertit l'utilisateur, l'opérateur ou le technicien de maintenance que des instructions importantes relatives à l'utilisation et à l'entretien se trouvent dans la documentation accompagnant l'équipement.

Invite l'utilisateur, l'opérateur ou le technicien de maintenance à prendre note du calibre du fusible lors du remplacement de ce dernier. Le fusible auquel il est fait référence dans le texte doit être remplacé par un fusible du même calibre.

Identifie une borne de mise à la terre de protection. Il faut relier cette borne à la terre avant d'effectuer toute autre connexion à l'équipement.

Identifie une borne de mise à la terre externe qui peut être connectée en tant que borne de mise à la terre supplémentaire.

Signale la présence de composants sensibles à l'électricité statique et qui sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.

Le symbole ci-contre signifie que l'appareil comporte plus d'un cordon d'alimentation et qu'il faut débrancher tous les cordons d'alimentation avant toute opération d'entretien, afin de prévenir les chocs électriques.

La marque UL certifie que l'appareil visé a été testé par Underwriters Laboratory (UL) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.

La marque C-CSA-US certifie que l'appareil visé a été testé par l'Association canadienne de normalisation (CSA) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.

La marque C-UL-US certifie que l'appareil visé a été testé par Underwriters Laboratory (UL) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.

La marque ETL Listed d'Intertek pour le marché Nord-Américain certifie que l'appareil visé a été testé par Intertek et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.

Le marquage CE indique que l'appareil visé est conforme aux exigences essentielles des directives applicables de l'Union européenne en matière de sécurité électrique, de compatibilité électromagnétique et de conformité environnementale.

Le symbole ci-contre sur un appareil Grass Valley ou à l'intérieur de l'appareil indique qu'il est conforme aux normes applicables en matière de sécurité laser.

Avertissements

Les avertissements signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire fatales. Veuillez vous familiariser avec les avertissements d'ordre général ci-dessous :

- Un cordon d'alimentation dûment homologué doit être utilisé pour connecter l'appareil à une tension de secteur de 120 V CA ou 240 V CA.

- La protection de ce produit contre les courts-circuits (surintensités) dépend de l'installation électrique du bâtiment. Assurez-vous qu'un fusible ou un disjoncteur pour 120 V CA ou 240 V CA est utilisé sur les conducteurs de phase.

- Dans le présent manuel, toutes les instructions qui nécessitent d'ouvrir le couvercle de l'équipement sont destinées exclusivement au personnel technique qualifié.

- N'utilisez pas cet appareil dans un environnement humide.

- Cet équipement est mis à la terre par le conducteur de mise à la terre des cordons d'alimentation. Pour éviter les chocs électriques, branchez les cordons d'alimentation sur une prise correctement câblée avant de brancher les entrées et sorties de l'équipement.

- Acheminez les cordons d'alimentation et autres câbles de façon à ce qu'ils ne risquent pas d'être endommagés. Supportez correctement les enroulements de câbles afin de ne pas endommager les connecteurs.

- Coupez l'alimentation avant de nettoyer l'équipement. Ne pas utiliser de nettoyants liquides ou en aérosol. Utilisez uniquement un chiffon humide.

- Des tensions dangereuses peuvent exister en plusieurs points dans cet équipement. Pour éviter toute blessure, ne touchez pas aux connexions ou aux composants exposés lorsque l'appareil est sous tension.

- Avant de procéder à toute opération d'entretien ou de dépannage, enlevez tous vos bijoux (notamment vos bagues, votre montre et autres objets métalliques).

- Pour éviter tout risque d'incendie, utilisez uniquement les fusibles du type et du calibre indiqués sur l'équipement ou dans la documentation qui l'accompagne.

- Ne pas utiliser cet appareil dans une atmosphère explosive.

- Présence possible de courants de fuite. Un raccordement à la masse est indispensable avant la mise sous tension.

- Après tout travail d'entretien ou de réparation, faites effectuer des contrôles de sécurité par le personnel technique qualifié.

Mises en garde

Les mises en garde signalent des conditions ou des pratiques susceptibles d'endommager l'équipement. Veuillez vous familiariser avec les mises en garde ci-dessous :

- L'appareil est conçu pour être installé dans un endroit à accès restreint.

- Au moment d'installer l'équipement, ne fixez pas les cordons d'alimentation aux surfaces intérieures de l'édifice.

- Les produits qui n'ont pas d'interrupteur marche-arrêt et qui disposent d'une source d'alimentation externe doivent être installés à proximité d'une prise de courant facile d'accès.
- Si l'équipement n'est pas pourvu d'un modules d'alimentation auto-adaptables, vérifiez la configuration de chacun des modules d'alimentation avant de les mettre sous tension.
- Assurez une ventilation adéquate. Pour éviter toute surchauffe du produit, assurez une ventilation de l'équipement conformément aux instructions d'installation.
- N'utilisez pas l'équipement si vous suspectez un dysfonctionnement du produit. Faites-le inspecter par un technicien qualifié.
- Pour réduire le risque de choc électrique, n'effectuez pas de réparations autres que celles qui sont décrites dans le présent manuel, sauf si vous êtes qualifié pour le faire. Confiez les réparations à un technicien qualifié. La maintenance doit se réaliser dans un milieu libre d'électricité statique.
- L'appareil peut comporter plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher tous les cordons d'alimentation avant toute opération d'entretien.
- Veillez à toujours prendre les mesures de protection antistatique appropriées quand vous manipulez l'équipement.
- Pour réduire le risque de choc électrique, branchez chaque cordon d'alimentation dans des circuits de dérivation distincts utilisant des zones de service distinctes.

Protection contre les décharges électrostatiques (DES)

Une décharge électrostatique peut se produire lorsque des composants électroniques ne sont pas manipulés de manière adéquate, ce qui peut entraîner des défaillances intermittentes ou endommager irrémédiablement un circuit électrique. Au moment de remplacer une carte dans un châssis, prenez toujours les mesures de protection antistatique appropriées :

- Assurez-vous que le châssis est relié électriquement à la terre par le cordon d'alimentation ou tout autre moyen disponible.
- Portez un bracelet antistatique et assurez-vous qu'il est bien en contact avec la peau. Connectez la pince de masse à une *surface non peinte* du châssis pour détourner à la terre toute tension électrostatique indésirable. En l'absence de bracelet antistatique, déchargez l'électricité statique de votre corps en touchant une surface métallique *non peinte* du châssis.
- Pour plus de sécurité, vérifiez périodiquement la valeur de résistance du bracelet antistatique. Elle doit se situer entre 1 et 10 mégohms.
- Si vous devez mettre une carte de côté, assurez-vous de la ranger dans un sac protecteur antistatique.
- Les cartes qui sont reliées à un châssis ou boîtier métallique mis à la terre ne nécessitent pas de protection antistatique spéciale.

Manipulation de la pile

Ce produit peut inclure une pile de sauvegarde. Il y a un risque d'explosion si la pile est remplacée de manière incorrecte. Remplacez la pile uniquement par un modèle identique ou équivalent recommandé par le fabricant. Disposez des piles usagées conformément aux instructions du fabricant. Avant de vous séparer de votre équipement Grass Valley, veuillez consulter les *informations de mise au rebut et de recyclage* à:

http://www.grassvalley.com/assets/media/5692/Take-Back_Instructions.pdf

Précautions pour les écrans LCD et TFT

Regarder l'écran pendant une trop longue période de temps peut nuire à votre vision. Prenez une pause de 10 minutes, après 30 minutes d'utilisation.

Si l'écran LCD ou TFT est brisé, manipulez les fragments de verre avec précaution au moment de vous en débarrasser. veillez à ce que le cristal liquide n'entre pas en contact avec la peau ou la bouche. En cas de contact avec la peau ou les vêtements, laver immédiatement à l'eau savonneuse. Ne jamais ingérer le liquide. La toxicité est extrêmement faible, mais la prudence demeure de mise en tout temps.

Environmental Information

European (CE) WEEE directive.

This symbol on the product(s) means that at the end of life disposal it should not be mixed with general waste.

Visit www.grassvalley.com for recycling information.

Grass Valley believes this environmental information to be correct but cannot guarantee its completeness or accuracy since it is based on data received from sources outside our company. All specifications are subject to change without notice.

If you have questions about Grass Valley environmental and social involvement (WEEE, RoHS, REACH, etc.), please contact us at environment@grassvalley.com.

Lithium Batteries

Battery Warning

<div style="background-color: yellow; border: 2px solid black; text-align: center; padding: 10px;">

<u>CAUTION</u>
This equipment contains a lithium battery.
There is a danger of explosion if this is replaced incorrectly.
Replace only with the same or equivalent type.
Dispose of used batteries according to the manufacturer's instructions.
Batteries <u>**shall only**</u> be replaced by trained service technicians.

</div>

Your Grass Valley equipment usually comes with at least one button battery located on the main printed circuit board. The batteries are used for backup and should not need to be replaced during the lifetime of the equipment.

Battery Disposal

Before disposing of your Grass Valley equipment, please remove the battery as follows:

1. Make sure the AC adapter / power Cord is unplugged from the power outlet.
2. Remove the protective cover from your equipment.
3. Gently remove the battery from its holder using a blunt instrument for leverage such as a screwdriver if necessary. In some cases the battery will need to be desoldered from the PCB.
4. Dispose of the battery and equipment according to your local environmental laws and guidelines.

> **WARNING**
> - Be careful not to short-circuit the battery by adhering to the appropriate safe handling practices.
> - Do not dispose of batteries in a fire as they may explode.
> - Batteries may explode if damaged or overheated.
> - Do not dismantle, open or shred batteries.
> - In the event of a battery leak, do not allow battery liquid to come in contact with skin or eyes.
> - Seek medical help immediately in case of ingestion, inhalation, skin or eye contact, or suspected exposure to the contents of an opened battery.

Laser Safety - Fiber Output SFP and QSFP Modules Warning

LASER SAFETY

**CLASS 1
LASER PRODUCT**

The average optical output power does not exceed 0 dBm (1mW) under normal operating conditions. Unused optical outputs should be covered to prevent direct exposure to the laser beam.

Even though the power of these lasers is low, the beam should be treated with caution and common sense because it is intense and concentrated. Laser radiation can cause irreversible and permanent damage of eyesight. Please read the following guidelines carefully:

- Make sure that a fiber is connected to the board's fiber outputs before power is applied. If a fiber cable (e.g. patchcord) is already connected to an output, make sure that the cable's other end is connected, too, before powering up the board.

- **Do not** look in the end of a fiber to see if light is coming out. The laser wavelengths being used are totally invisible to the human eye and can cause permanent damage. Always use optical instrumentation, such as an optical power meter, to verify light output.

Mains Supply Voltage

Before connecting the equipment, observe the safety warnings section and ensure that the local mains supply is within the rating stated on the rear of the equipment.

Safety and EMC Standards

This equipment complies with the following standards:

Safety Standards

$\mathsf{C}\mathsf{E}$

Information Technology Equipment - Safety Part 1

EN60950-1: 2006

Safety of Information Technology Equipment Including Electrical Business Equipment.

UL1419 (4th Edition)

Standard for Safety – Professional Video and Audio equipment (UL file number E193966)

EMC Standards

This unit conforms to the following standards:

EN55032:2015 (Class A)

Electromagnetic Compatibility of multimedia equipment - Emission requirements

EN61000-3-2:2014 (Class A)

Electromagnetic Compatibility - Limits for harmonic current emissions

EN61000-3-3:2013

Electromagnetic Compatibility - Limits of voltage changes, voltage fluctuations and flicker

EN55103-2:2009 (Environment E2)

Electromagnetic Compatibility, Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2. Immunity

> WARNING
> This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

FCC / CFR 47:Part 15 (Class A)

Federal Communications Commission Rules Part 15, Subpart B

Caution to the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

> Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
> This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
> Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

EMC Performance of Cables and Connectors

Grass Valley products are designed to meet or exceed the requirements of the appropriate European EMC standards. In order to achieve this performance in real installations it is essential to use cables and connectors with good EMC characteristics.

All signal connections (including remote control connections) shall be made with screened cables terminated in connectors having a metal shell. The cable screen shall have a large-area contact with the metal shell.

SIGNAL/DATA PORTS

For unconnected signal/data ports on the unit, fit shielding covers. For example, fit EMI blanking covers to SFP+ type ports; and fit 75 Ω RF terminators to BNC type ports

COAXIAL CABLES

Coaxial cables connections (particularly serial digital video connections) shall be made with high-quality double-screened coaxial cables such as Belden 8281 or BBC type PSF1/2M and Belden 1694A (for 3Gbps).

D-TYPE CONNECTORS

D-type connectors shall have metal shells making good RF contact with the cable screen. Connectors having "dimples" which improve the contact between the plug and socket shells, are recommended.

Table of Contents

Introduction 1

The purpose of the Engineering Manual Supplement is to describe in full the details of new product features ahead of programmed releases of the Morpheus Engineering Manual.

It ensures that technical staff remain fully up to date with ongoing software and hardware developments, understand the purpose of the technology, and are able to implement new features as soon they become available.

The contents of this document will be published in full in the next release of the Morpheus Engineering Manual.

EventStreaming

Introduction to EventStreaming

EventStreaming is the process of logging any change in the Morpheus EventStore and in the MAPP database for cataloguing as records in a separate, dedicated, EventStream Database. Its purpose is to make the data available for inspection and audit.

> Note: In the context of EventStreaming, the definition of an 'event' is any change in the EventStore or the MAPP database and should not be confused with a scheduled event in Morpheus.

The functionality is provided through the following applications (Figure 2-1):

- *Agents* record the changes to the EventStream Database

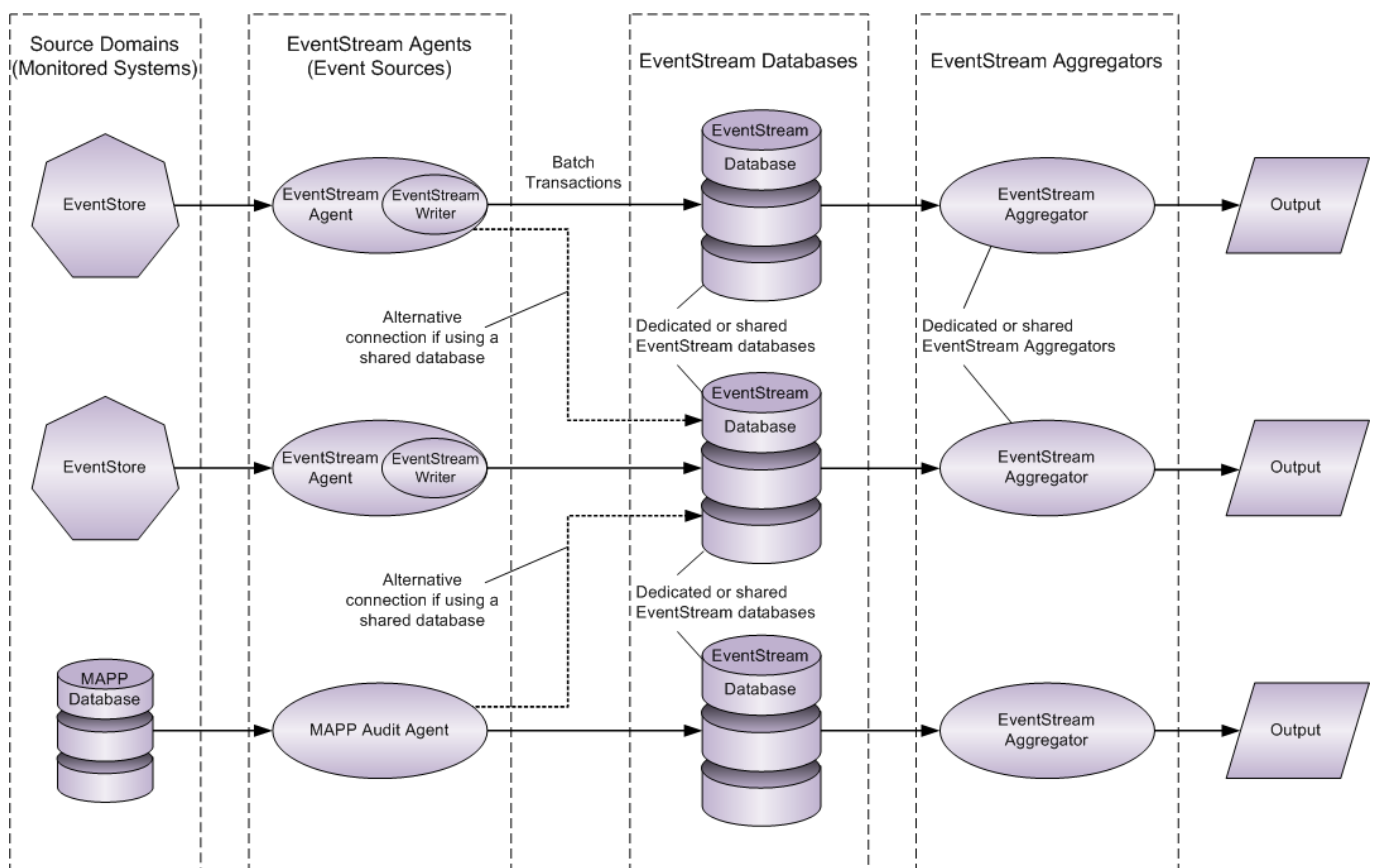- *Aggregators* output the data in a predetermined fashion for evaluation and analysis

Fig. 2-1: EventStream Logical Topology

Example Applications

Analysis of System Activities

There can be many arguments as to why the unexpected occurs, including BXF updates, operator intervention, and system or database errors. Using EventStreaming tools, it is possible to accurately identify the reasons behind any broadcast system change, legitimate or otherwise:

- The File Dumper or the EventStore Auditor will provide an unequivocal testimony of all system activities, and is therefore invaluable to support engineers for diagnostic purposes.

- The EventStore Search Aggregator provides elaborate filtering capabilities for the meticulous analysis of system logs.

Schedule Change Alerting

It can be advantageous for an operator to be informed if the schedule has been modified, regardless of the mechanism involved, prompting the need for potential investigation.

- Launched from the Morpheus Editor, the Event Modification Watcher Service provides an Operator with an interface to instantly display any changes to the live schedule.

Monitoring of Commercial Minutage

In consideration of the legislation, and the implications of exceeding the limitations imposed on the broadcast of commercial breaks, a visual indication of the accumulating minutage is invaluable in order to abide by the regulations.

The Material Type Usage Report Service supplies the necessary data to Components within Morpheus UX that clearly indicate the current state and provide the means to monitor and forecast into the future.

Terminology

-EventStream Source

Synonymous with EventStream Agent.

- EventStream Writer

A software component of the EventStream Agent that writes event records to the EventStream Database.

- Event

In the context of EventStreaming, the definition of an 'event' is any change in the EventStore or in the MAPP database and should not be confused with a scheduled event in Morpheus.

EventStream Agents

The following agents are available:

- **EventStream Agent**: responsible for recording changes in the Morpheus EventStore to an EventStream Database

    In common with other EventStore applications, an EventStream Agent receives system model updates through the Rescale mechanism.

- **MAPP Audit Agent**: responsible for recording changes in the MAPP Database to the EventStream Database

    This agent retrieves changes from the 'Change Tables' in the MAPP Database.

Although these agent types are configured independently of each other, they both contribute to the output of common Aggregators. For details on Aggregator compatibility, refer to EventStream Aggregators.

> Note: A single EventStream Agent / MAPP Audit Agent cannot enter records into more than one EventStream Database, however multiple EventStream Agents may enter records into the same database.

Batch Transactions

Changes to the EventStore and the MAPP Database are gathered as a batch rather than individually, and at a prescribed rate. Each batch has a unique ID, within which each system change (event) is identified as an Entity with an Attribute and a Value (EAV), where:

Entity: the item or object being reported on, such as a particular commercial.

Attribute: one of potentially many characteristics of the Entity, such as 'Duration'.

Value: a measure of the attribute, such as '15 seconds'.

An additional identifier is the '*Aspect*' that indicates the nature of the change, i.e. *create*, *update*, *delete*, *add*, *remove*.

An Aggregator matches attribute and value changes to the entity to which they apply, and as such creates as complete a record of a particular entity as is possible.

> Note: An EventStream Agent has no impact upon the performance of the EventStore.

EventStream Aggregators

Each Aggregator is responsible for continually outputting records from the EventStream Database, performing a filtering operation, and presenting the resultant data in a predetermined format. The output from each Aggregator is filtered according to its function The available aggregators are listed below.

File Dumper

Compatible with the EventStream Agent and the MAPP Audit Agent.

Copies all existing records from a single EventStream Database to a text file, updating it with any further changes according to a preset interval. Its purpose is to chronicle changes in order to create a historical account that can be reloaded into the EventStream Database for analysis by a different aggregator.

Event Modification Watcher Interface

Compatible with the EventStream Agent only (not compatible with the MAPP Audit Agent).

Filters and feeds records from a single EventStream Database into the 'Event Change Monitor' that is launched from the 'Windows' menu in the Morpheus Editor. The 'Event Change Monitor' provides the means of alerting an operator to automated changes in scheduled events executed by such mechanisms as BXF and the Material Decorator.

EventStore Auditor

Compatible with the EventStream Agent only (not compatible with the MAPP Audit Agent).

Filters and outputs records from a single EventStream Database into a *.audit* file. This Aggregator generates similar output to the File Dumper Aggregator, yet presented in a more appealing format. A *ReportViewer.htm* file (web page) is also generated that displays the data from the *.audit* file in a clear and concise manner (Figure 2-2).

Records are ordered per batch, each of which contains one or more events (refer to Batch Transactions).

Fig. 2-2: EventStore Auditor ReportViewer HTM

<u>Filter Buttons</u>

- Expand All / Collapse All

Expand each batch entry in order to view the events contained therein. Collapse in order to view only the batch entries.

- Channel

Turn on and off the display of the 'Channel' entity type.

- Engineering Log

Turn on and off the display of the 'Engineering' log entity type.

- Event

Turn on and off the display of the 'Event' entity type.

> Note: For information relating to 'entities', refer to Batch Transactions.

EventStore Search Aggregator

Compatible with the EventStream Agent and the MAPP Audit Agent.

Filters and outputs records from a single EventStream Database, and displays the results in an interactive window (Figure 2-3). The level of the initial output from this Aggregator is comparable to that from the File Dumper, however it can be refined further using the range of available tools
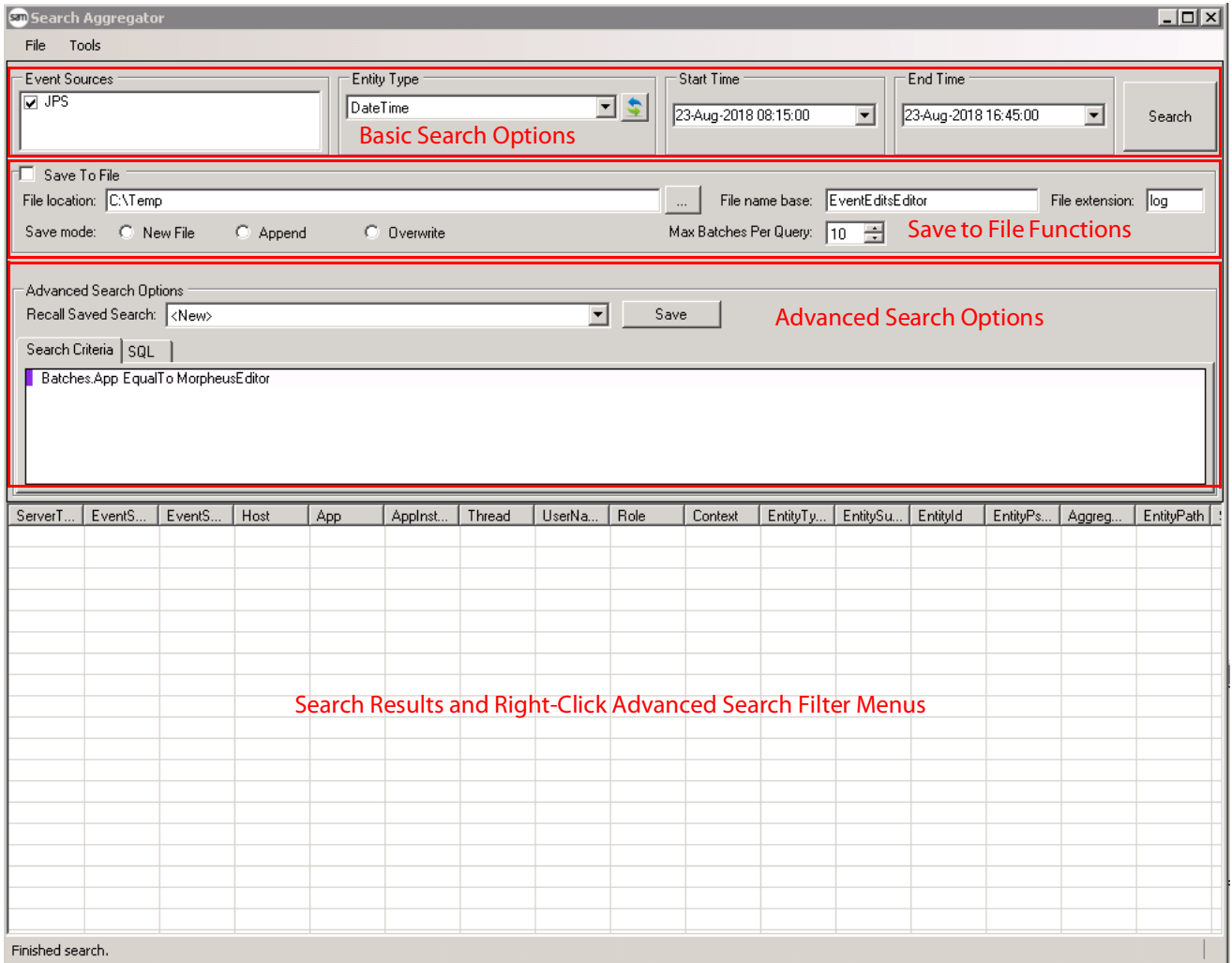
Fig. 2-3: Search Aggregator

The window consists of the following panes:

- Basic Search Options

- Save to File Functions

- Advanced Search Options

- Search Results

File Menu

- Exit

Close the application.

Tools Menu

- Configure Columns

Specify the nature of the data to be displayed in the search results pane (lower half of the 'Search Aggregator' window).

Each of the ticked column headings will display related data, should it exist (Figure 2-4).
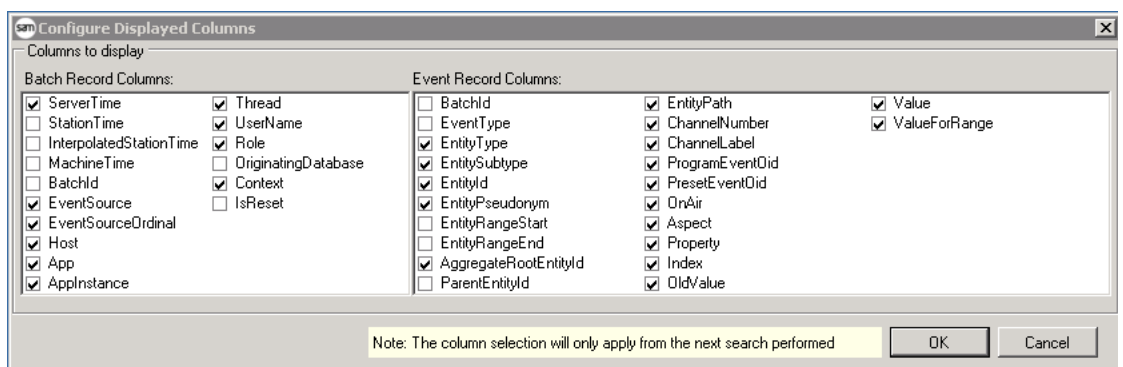
Fig. 2-4: Configure Displayed Columns

> Note: Headings are displayed in the 'Search Aggregator' window according to the order in which they are presented in the 'Columns to Display' configuration form, and cannot be reordered.

'Columns to Display' Pane

- **Batch Record Columns**

    The display of data related to batch entries.

- **Event Record Columns**

    The display of data related to events, their attributes, and their values in a batch.

> Note: For information on batches, refer to Batch Transactions.

- Manage Saved Searches

Refer to Figure 2-5.

Provides the means of deleting any searches that have been previously saved (for details on saving searches, refer to the **<New>** option for **- Recall Saved Search**).

1. Click on the saved search to delete (only one can be selected at a time).

2. Click on the **Delete Selected** button.

Note: There is no confirmation window following a **Delete Selected**!
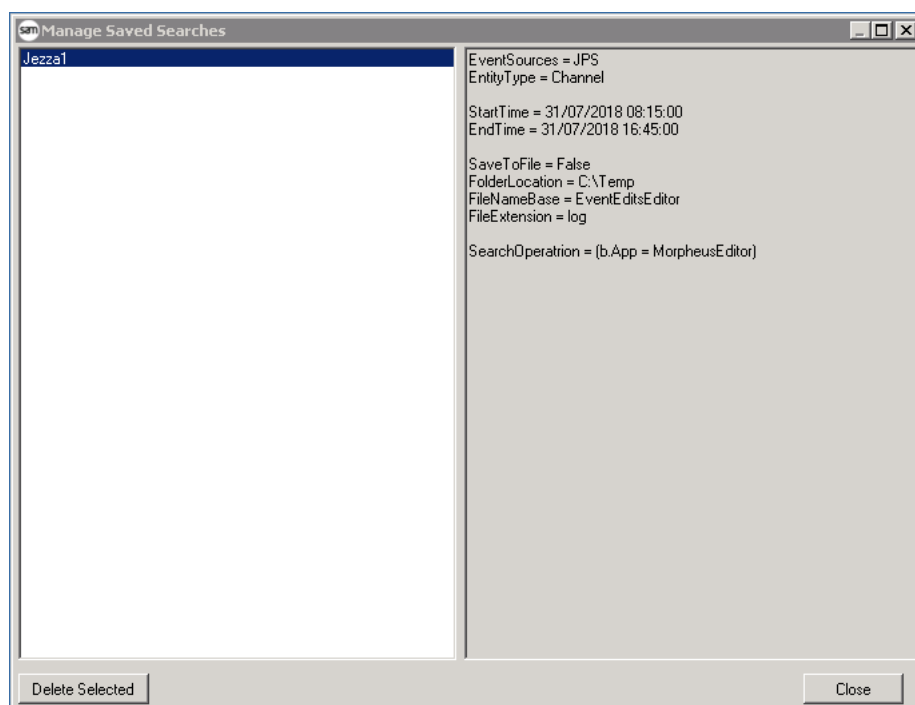
Fig. 2-5: Manage Saved Searches

Basic Search Options

> Note: The saving of search results requires that the criteria is configured prior to running the search - once displayed, the search results cannot be saved. Refer to Save to File.

- Event Sources

Select the EventStream Agents (sources) from which records in the EventStream Database are to be filtered by this Aggregator.

- Entity Type

Select an Entity Type upon which to perform filtering. Only one can be selected.

Examples

- *DateTime*

- *Channel*

- *EventType etc.*

Use the refresh button in order to scan the EventStream Database for recently discovered entity types with which to re-populate the drop-down menu.

> Note: For information relating to Entity Types, refer to Batch Transactions

- Start Time

Set the date and time from which entries in the EventStream Database will be extracted from the database by this Aggregator.

Open the drop-down menu in order to view a planner with which to set the date and time. Included is a **Today** link - click to set the current day and the time to 00:00:00.

All events that occurred before the configured date / time are excluded.

- End Time

Set the date and time up to which entries in the EventStream Database will be extracted from the database by the Aggregator.

Open the drop-down menu in order to view a planner with which to set the date and time. Included is a **Today** link - click to set the current day and the time to 00:00:00.

All events that occurred after the configured date / time are excluded.

- Search

Once all filter parameters have been configured, press the **Search** button in order to start the process. Whilst the search is in progress, the button will be labelled **Cancel** - press in order to interrupt the search process. The results are displayed in the 'Search Results' pane and the 'Search Criteria' and 'SQL' tabs are populated with the search string accordingly.

Save to File

Save the results of the latest search to a file. Applies to both basic and advanced searches.

Note: The criteria by which to save the results must be configured prior to running of the search - once displayed, the search results cannot be saved.

Tick the check box to allow configuration of this feature, then enter the additional properties below.

Default: disabled.

- File Location

Use the ellipsis button in order to select the folder within which to save any searches.

- File Name Base

Enter any choice of name for the customisable part of the filename body.

The filename will be constructed with a date stamp as follows:

```
<FileNameBase>yyyy-mm-dd.<FileExtension>
```

- File Extension

Enter any choice of file extension to be added to the 'File Name Base' above.

- Save Mode

Select the manner in which new filter results are to be saved, from the following:

- **New File**

    Create a new file.

- **Append**

    Add the results to the end of an existing file in which there may already be previously saved results.

- **Overwrite**

    Add the results to an existing file, overwriting any previously saved results.

- Max Batches per Query

Default: 10

Recommended: 10

Limit any search to a configured number of batches. The Aggregator will examine all batches that are within the preselected time frame (in between **Start Time** and **End Time**), but will only process the quantity defined by this parameter, in a single operation.

Advanced Search Options

Filters to further refine basic search results.

Once displayed, right-click on an entry in the search results pane in order to display a menu system of advanced options (example shown in Figure 2-6).

> Note: On each occasion that an advanced search option is selected it is added as a new entry at the bottom of the 'Search Criteria' tab where additional filter actions can be applied (refer to **- Search Criteria Tab**).

Fig. 2-6: Right-Click Advanced Search Options

The menu options are structured as follows:

- **Add Search Operand from Batch Record Columns**

    Select a filter to apply to the search results based upon batch records only.

    a) Select the property type on which to base the search as follows:

    - **Time Related**: select batch entries by their creation time

    - **Source Related**: select batch entries according to the EventStreaming Agent that originally generated them.

    b) From the displayed Search Option Form, select a operator and the value to which it should be applied (Figure 2-7).

    c) Click on **Ok** to continue.

- **Add Search Operand from Event Record Columns**

  Select a filter to apply to the search results based upon event records only.

  a) Select the property type on which to base the search as follows:

      - **Entity Related**: select the nature of the entity

      - **Value Related**: select the attribute on which to base the search

  b) From the displayed Search Option Form, select a operator and the entity or value to which it should be applied (Figure 2-7).
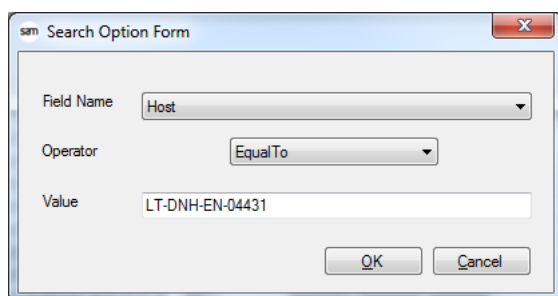
Fig. 2-7: Search Option Form

  c) Click on **Ok** to continue.

- Recall Saved Search

  Using the drop-down menu, retrieve a previously saved set of search criteria - the 'Search Criteria' and 'SQL' tabs will then display the previously saved criteria.

  The search is not run automatically - click on the **Search** button.

  > Note: Advanced search criteria are saved to the application's system folder.

  <New>: select this option from the drop-down menu in order to save the current search criteria (displayed on the 'Search Criteria' tab) to a file, then click on the **Save** button - a pop-up window is displayed requesting a filename.

  > Note: Only the search criteria is saved, not the search results.

  <SavedSearchName>: select this option from the drop-down menu in order to overwrite the selected search criteria file, then click on the **Update** button (there is no confirmation window).

  > Note: Only the search criteria is saved, not the search results.

- Search Criteria Tab

An interactive display of all of the current search criteria generated from the basic and advanced search strings

All search entries are initially grouped at the top level - they can however be divided into subgroups in order to allow for flexibility in the creation of Boolean expression structures that provide the means of creating additional, more exacting, search filters. The following defaults apply:

- All search entries in a top level group or subgroup are ANDed

- The top level group and each of the subgroup contents are ANDed

Drag & drop a search entry to move it from one subgroup to another.

Right-Click Menu Options:

- **Convert To**

  Switch between ANDing and ORing search entries within a top group / subgroup independently.

  Right-click on an AND / OR expression and select **Convert To** in order to alternate.

- **Add Subgrouping**

  Create a new subgroup.

  Right-click on any entry of a group / subgroup and select **Add Subgrouping** - the new subgroup is added immediately ahead of the current group (that in which the entry was right-clicked.

- **Delete <search entry name>**

  Right-click on an entry and select **Delete <search entry name>** in order to delete it.

- **Delete Selected Group**

  Delete the currently selected subgroup. This command is only effective if the subgroup is empty of search entries.

-SQL Tab

The SQL string, derived from the filter configurations, and used to query the EventStream Database for the required records.

Note: The SQL string is for information only and is non-editable.

Material Type Usage Report Service

Compatible with the EventStream Agent only (not compatible with the MAPP Audit Agent).

Communicating with as many EventStream Agents as required (thereby interacting with multiple Morpheus systems) this Aggregator performs duties for several applications, as listed below.

Commercial Minutage

The Material Type Usage Report Service measures the amount of on-air time of a selected Morpheus event material type over intervals of 60 minutes and creates a usage report VME Provider instance that populates the following Morpheus UX Components (Figure 2-8):

- Morpheus Material Usage Report

- Morpheus Material Usage Summary Line

Note: UX Component configuration is documented in the Morpheus UX Component Reference documentation supplied with the product.
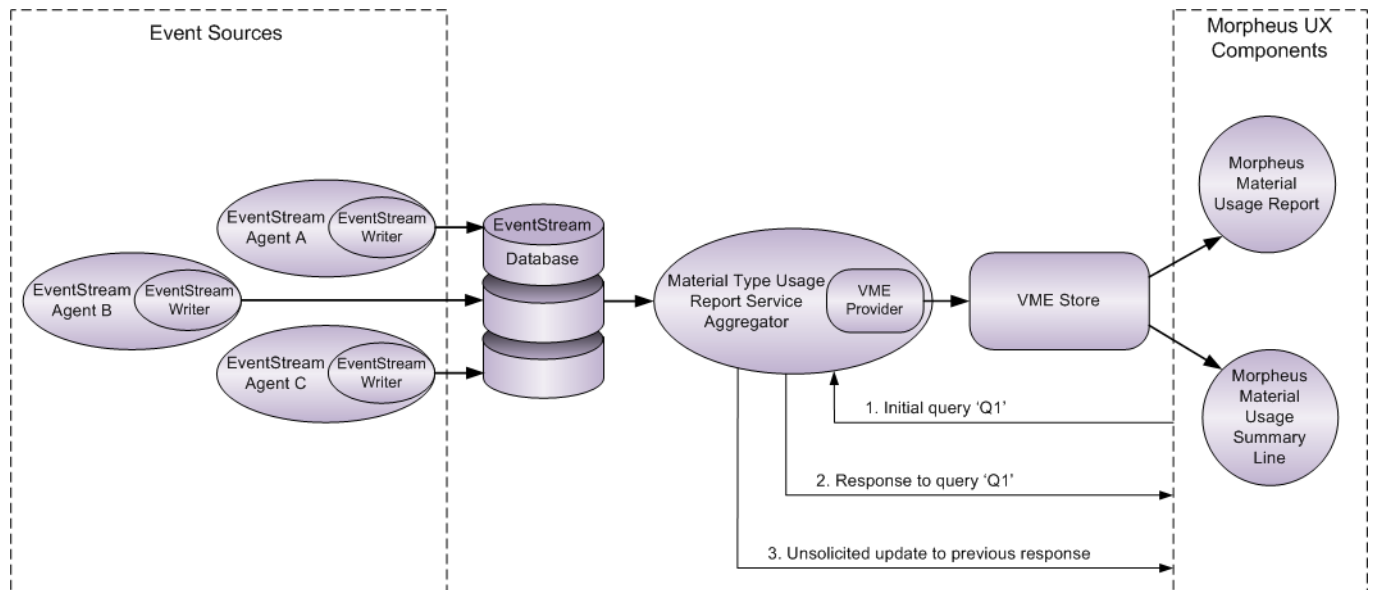

Fig. 2-8: Material Type Usage Report Service Logical Topology

One of the following Morpheus material types can be specified in the Morpheus UX configuration:

- *Junction*

- *Programme*

- *Commercial*

- *Live*

- *LiveRecord*

An example display from the Morpheus UX Material Usage Report is shown in Figure 2-9.

Offset	Hour Starting	Material Duration	Warnings
-3	03:00:00;00	00:00:00;00	✓
-2	04:00:00;00	00:00:00;00	✓
-1	05:00:00;00	00:00:00;00	✓
0	06:00:00;00	00:05:36;10	✓
+1	07:00:00;00	00:07:03;14	✓
+2	08:00:00;00	00:04:07;08	✓
+3	09:00:00;00	00:00:00;00	✓
+4	10:00:00;00	00:00:00;00	✓
+5	11:00:00;00	00:00:00;00	✓
+6	12:00:00;00	00:00:00;00	✓
+7	13:00:00;00	00:00:00;00	✓
+8	14:00:00;00	00:00:00;00	✓

Fig. 2-9: Morpheus Material Usage Report

Note: The Aggregator outputs all Material Types constantly, regardless of the selection made in Morpheus UX.

Records from different Event Sources (EventStream Agents) are aggregated according to their origin.

PlayoutInformationAPI

The function of the PlayoutInformationApi is to receive calls from an independent HTTP Client Application containing queries, and to respond with a report containing Event Type Parameters and their values from the EventStream Aggregator.

The API is described in detail in the following document:

Morpheus Playout Information REST API

EventStream Purger

Compatible with the EventStream Agent and the MAPP Audit Agent.

A housekeeping function that deletes aged records from the EventStream Database.

Configuring EventStreaming

A single Event Stream requires the following software components to be configured:

- An EventStream Database

- One or more EventStream Agents

- An EventStream Aggregator

> IMPORTANT: Regardless of the Aggregator(s) selected for a particular requirement, the following additional Aggregators must also be configured:
>
> - File Dumper (for problem analysis)
>
> - EventStream Purger (to delete aged records)

Design Principles

The schematic below (Figure 2-10) demonstrates the possible EventStream topologies, as follows:

- An EventStream Agent (ETA1) depositing records into a single EventStream Database from one Morpheus EventStore for processing by one more Aggregators.

  Note: A single EventStream Agent can only write to one EventStream database.

- Two EventStream Agents (ETA1 and ETA2) depositing records from different Morpheus EventStores into a single Event Stream Database for processing by one or more EventStream Aggregators.

- Two EventStream Agents (ETA2 and ETA3) entering records from a single Morpheus EventStore into separate EventStream Databases for processing by one or more EventStream Aggregators. In this case, the Morpheus Deploy tool would have to be run on two separate occasions in order to create the required number of EventStream Agents, and with unique names (/n <agentname>).
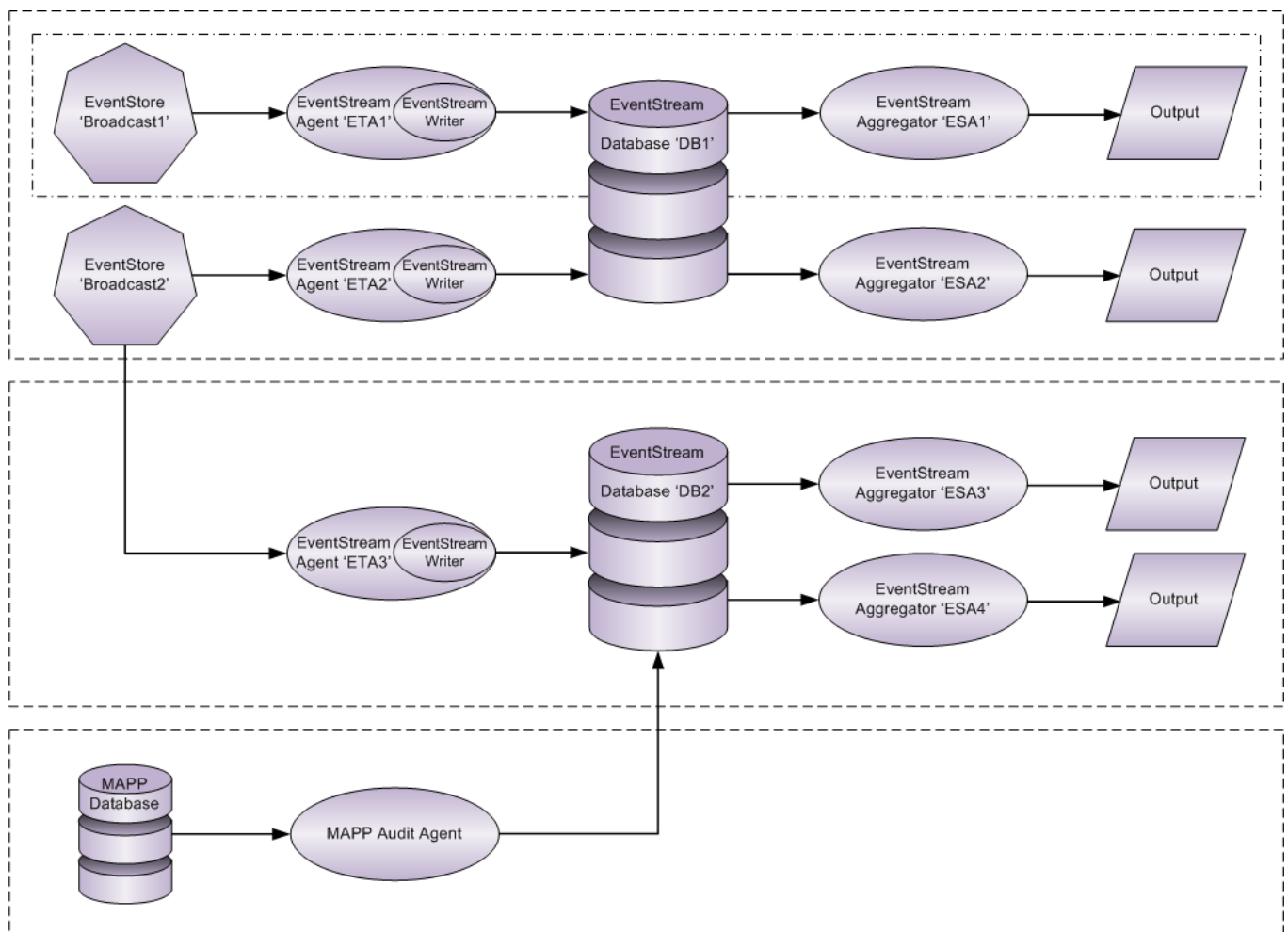

Fig. 2-10: EventStream Design Principles

- A single MAPP Audit Agent entering event records from one MAPP Database into an EventStream Database for processing by one or more EventStream Aggregators.

Installing the EventStream Applications

Installing EventStream Agents and Aggregators

1. Use the Deploy tool in the Morpheus Shortcuts folder in order to install the following applications:

    *   EventStream Agent(s)

    *   EventStream Aggregator(s)

2. Proceed to Configuring an EventStream Agent.

Installing the MAPP Audit Agent

1. Browse to the following directory on the internal network:

M:\ENG\Design\Automation\Deliverables\Software Deliverables\MORPHEUS NA-00909 MAPP Audit Agent/v1.0/NA-00909

2. Double click on **MAPP Audit Agent.msi** in order to launch the 'MAPP Audit Agent Setup Wizard' and follow the instructions noting the selected installation folder.

    > IMPORTANT: Note the selected installation folder.

3. Proceed to Configuring a MAPP Audit Agent.

    > IMPORTANT: The following file must be obtained in order to configure the MAPP database triggers:
    >
    > 'CreateAuditTriggers.sql'.
    >
    > Refer to Configure and Run the Audit Triggers.

Configuring an EventStream Database

The creation and configuration of the EventStream Database is a commissioning exercise, and is therefore beyond the scope of this document.

Configuring an Audit Table in the MAPP Database

The creation and configuration of the Audit Table in the MAPP Database is a commissioning exercise, and is therefore beyond the scope of this document.

> IMPORTANT: In order to run Audit Triggers, all users connecting to the MAPP database must be granted the '*serveradmin*' role.
> Failure to do so will result in database errors and data loss.

Configuring an EventStream Agent

In the Morpheus Shortcuts folder, click on the EventStream Agent shortcut created by the Deploy tool:

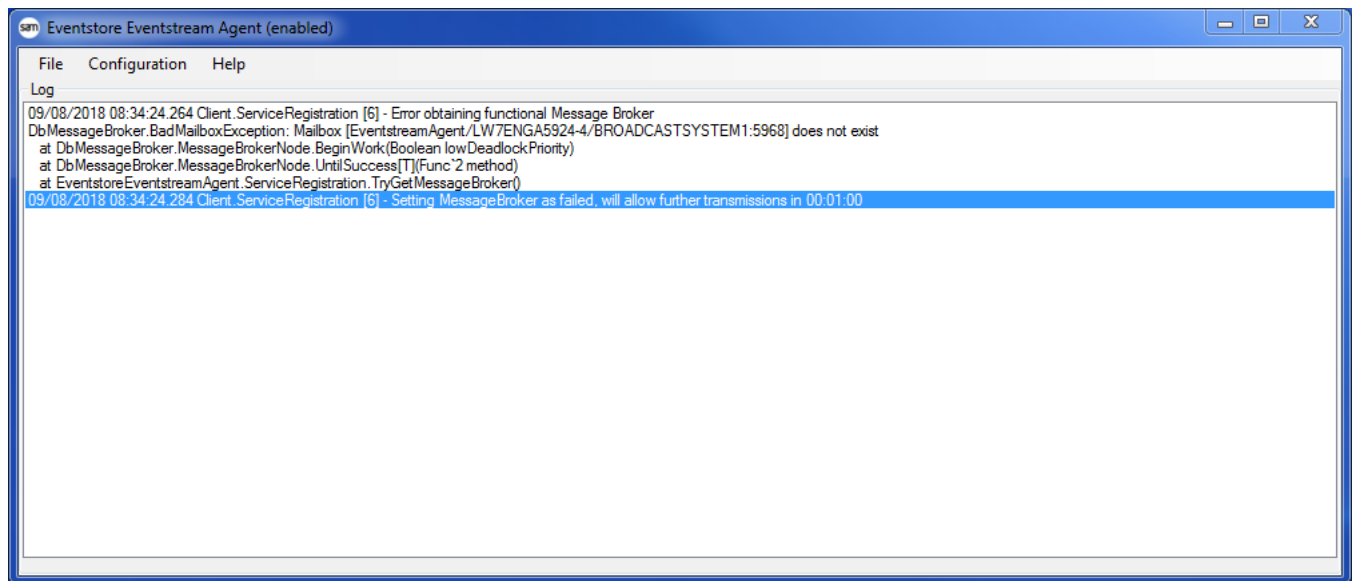The EventStream Agent window is displayed (Figure 2-11).

Fig. 2-11: EventStore EventStream Agent Main Window

A log is displayed in the main pane for engineering support purposes only, e.g. for gauging performance and latency issues.

Double click on an entry in order to display it in a separate window.

File Menu

Click to display the **Exit** menu selection in order to shut down the application.

Configuration Menu

This section covers the configuration parameters for EventStream Agents created within a common Morpheus system Rescale database.

On each occasion that an EventStream Agent is created using the Deploy tool, its shortcut is added to the 'Morpheus Shortcuts' folder. The 'Settings for this Agent' configuration screen applies to the 'EventStream Agent' opened from its shortcut - it is not possible to view the individual settings for another agent other than by accessing it through its own shortcut.

Settings for this Agent

Configuration parameters for the EventStream Agent opened using its shortcut (Figure 2-12).

Fig. 2-12: EventStore EventStream Agent - Settings for this Agent

- Enabled

Default: disabled

Set the state of the EventStream Agent, enabled (ticked) or disabled.

- EventStream Database Connection String

The connection string for the EventStream Database.

Define the connection string as SQL Server connection string value pairs separated by semicolons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwrd>;Initial Catalog=<eventstream 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.

<u>'Properties' pane.</u>

A display of read-only information as follows:

- **Name**: the configured name of the EventStreaming Agent

- **ConnectionString**: the connection string for the desired EventStream Database

- **Enabled**: the current state of the EventStream Agent (True or False)

- **Epoch**: for engineering use only

- **LastSequenceNumber**: for engineering use only

Global Settings for all Agents

Settings for all EventStream Agents that are bound to a common Morpheus system. It is not possible to view individual EventStream Agent settings from this window - they are only available from the 'Settings for this Agent' window.

Note: There is no 'save', as configuration changes are dynamic.

The 'Global Settings for all Agents' window allows for the following:

- Enable or disable one or more of the EventStream Agents that are bound to a single Morpheus system

- Update a selected EventStream Agent's database with the latest EventStream schema

Note: It is not possible to delete an EventStream Agent using the configuration windows - this action can only be performed from within the EventStream Database, which is beyond the scope of this document).

The main pane displays the names of all EventStream Writers (Agents) bound to a common Morpheus system, and the Connection String that the agent will use in order to connect to the 'EventStream Database' (Figure 2-13).

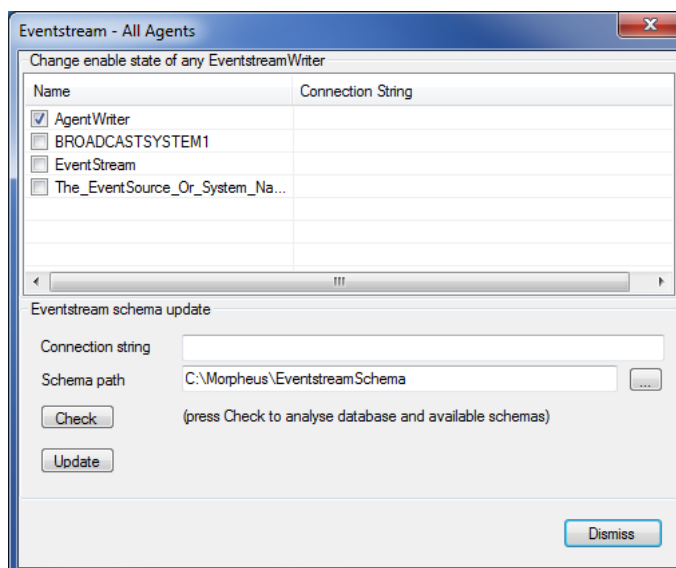Note: EventStream Agent names are configured in the Deploy tool (/n <agentname>)

Fig. 2-13: EventStore EventStream Agent - Global Settings for all Agents

- Change Enable State of any EventStream Writer

Enable or disable the EventStream Writer (EventStream Agent).

Enable: ticked

Disable: un-tick (when in a disabled state, an EventStream Agent will not report any changes on the Morpheus system to the EventStream Database).

> Note: If the Morpheus system deletes any data from the Rescale Database that has not yet been processed by an EventStream Agent, it will be identified and the Agent will transition to a disabled state and can only be re-enabled manually.

EventStream Schema Update Pane

Apply EventStream Database schema updates to the selected (enabled) EventStream Agent(s).

- Connection String

The connection string required for the agent to connect to the EventStream Database.

- Schema Path

The location of the schema file: use the ellipsis button in order to select a path.

- Check

Execute the following procedures:

- Verify that the connection string has been entered correctly

- Report the name of the current schema and any updated versions available

> Note: The error message '*Could not obtain current schema version*' indicates that either the schema has not been loaded into the EventStream Agent application; in which case click on the **Update** button.
>
> Otherwise it is likely that there is an issue arising from the installation of the EventStream database.

- Update

Load the available schemas into the EventStream Database that is specified by the **Connection String**, above.

- Dismiss

Close the window. This action will not cancel any configuration changes made (changes are dynamic).

Help > About Menu

Display the software version and support contact details.

Help > About Menu

Display the software version and support contact details.

Configuring a MAPP Audit Agent

The configuration of the MAPP Audit Agent consists of the following tasks:

- Configure the Agent

- Configure the Audit Triggers

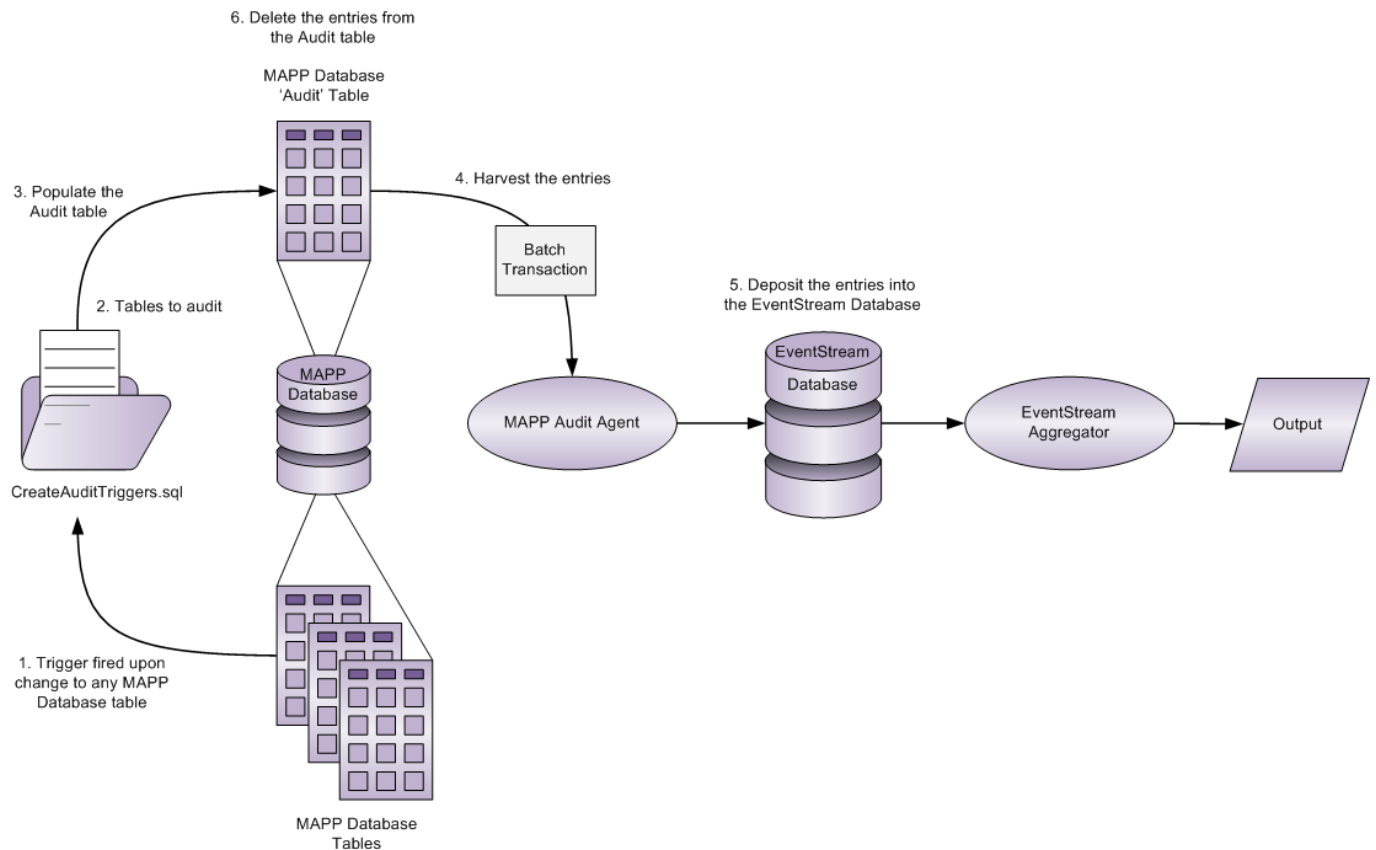The operational concepts are illustrated in Figure 2-14.

Fig. 2-14: MAPP Audit Agent Mode of Operation

1. Upon any change to a table in the MAPP Database, a trigger is activated.

2. The change is assessed against a list of tables that are audited.

3. If a change has occurred on an audited table, a record is inserted into the MAPP Database Audit Table.

4. The MAPP Audit Agent harvests the entries in the MAPP Audit Table.

5. The entries are deposited into the EventStream Database for processing by an Aggregator.

6. Once a record is harvested by the MAPP Audit Agent, its entry in the MAPP Audit Table is deleted.

MAPP Audit Agent Configuration

1. Browse to the installation directory noted in 'Installing the MAPP Audit Agent'.

2. Double-click on the 'MAPP Audit Agent.exe' file.

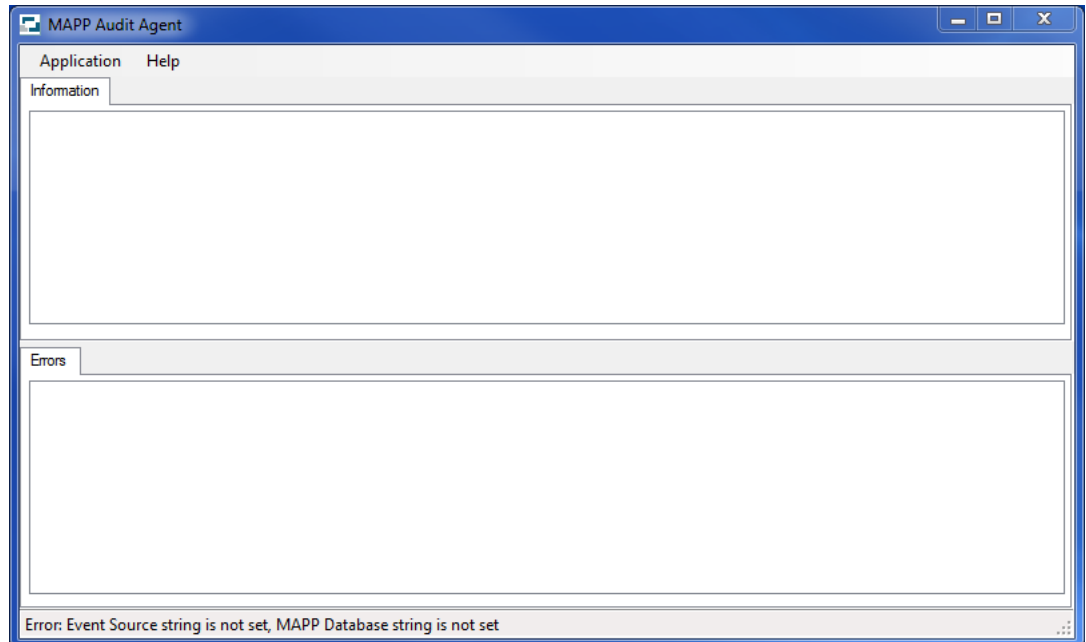   The 'MAPP Audit Agent' window is displayed (Figure 2-15).

Fig. 2-15: MAPP Audit Agent

The 'Information' pane displays the ongoing activities of the MAPP Audit Agent.

The 'Errors' pane displays unresolvable issues that the MAPP Audit Agent has encountered.

Both 'Information' and 'Error' entries are written to a log file that can be found in the MAPP Audit Agent installation directory (refer to 'Installing the MAPP Audit Agent'). The log file has the following name:

   MappAuditAgent.exe.log

> Note: To change the default filename for the log, refer to 'MAPP Audit Agent Log File'.

3. Click on **Application** from the menu bar, then click on **Settings**.

   The 'MAPP Audit Agent Settings' window is displayed.

Database Settings Tab

The configurations required in order to provide database access to the MAPP Audit Agent
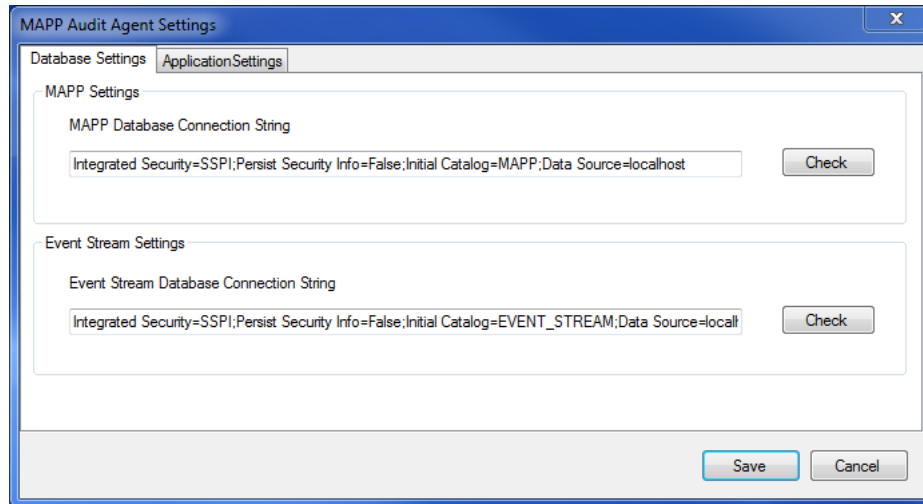(Figure 2-16).

Fig. 2-16: MAPP Audit Agent Settings Window - Database Settings Tab

- MAPP Database Connection String

The connection string for the MAPP Database.

> IMPORTANT: In order to run Audit Triggers, all users connecting to the MAPP database must use the '*serveradmin*' role.
> Failure to do so will result in database errors and data loss.

The default connection string calls for the Windows username and password. Define the connection string as SQL Server connection string value pairs separated by semicolons (;) in the following format:

Data Source=<host>;Integrated Security=SSPI;PersistSecurity Info=False;Initial Catalog=<MAPP catalogue>

Where:

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

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

Alternatively, specify the username and password as follows:

Data Source=<host>;User ID=<user id>;Password=<pwrd>;Initial Catalog=<MAPP 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.

Check button: verify the validity of the connection string configured to access the database.

- EventStream Database Connection String

The connection string for the EventStream Database.

The default connection string calls for the Windows username and password. Define the connection string as SQL Server connection string value pairs separated by semicolons (;) in the following format:

Data Source=<host>;Integrated Security=SSPI;PersistSecurity Info=False;Initial Catalog=<eventstream catalogue>

Where:

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

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

Alternatively, specify the username and password as follows:

Data Source=<host>;User ID=<user id>;Password=<pwrd>;Initial Catalog=<eventstream 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.

Check button: verify the validity of the connection string configured to access the database.

Application Settings Tab
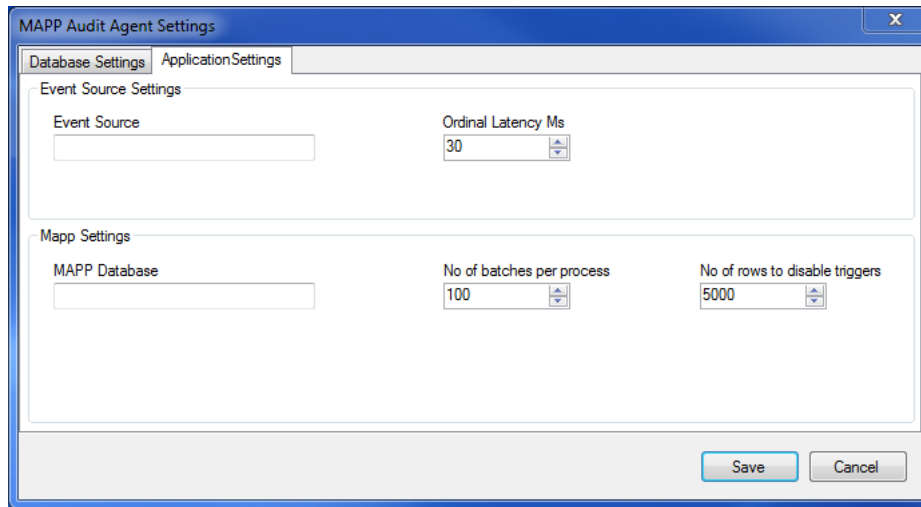
Fig. 2-17: MAPP Audit Agent Settings Window - Application Settings Tab

Event Source Settings

- Event Source

Enter any unique string. It will identify each record that is deposited into the EventStream Database by the MAPP Audit Agent, and is used as filtering criteria by an Aggregator.

- Ordinal Latency Ms

Default: 30ms

Recommended: 30000ms

The amount of time that is allocated for a single process to complete in the MAPP Database before this agent will deposit any record of it in the EventStream Database. It ensures that only records of completed transactions are published.

<u>MAPP Settings</u>

- MAPP Database

The name of the MAPP database to which Audit Triggers will apply (for information relating to Audit Triggers, refer to Configure and Run the Audit Triggers).

- No of Batches Per Process

Default: 100

Recommended: 100

The maximum number of batches that will be deposited by this Agent into the EventStream Database in a single operation. A batch contains one or more records. For further information on batches, refer to Batch Transactions.

- No of Rows to Disable Triggers

Default: 5000

Define the maximum number of rows in the Audit Table that can be populated with records before the Audit Triggers are disabled. This is implemented in order to restrict database growth for performance reasons.

> Note: If the MAPP Audit Agent is not operational, or ceases to function, then the triggers will be disabled automatically in order to prevent the Audit tables from becoming saturated. The triggers will be re-enabled once the MAPP Audit Agent starts functioning, and the harvesting of records is once again in progress.

Launching the MAPP Audit Agent

Once all configurations have been successfully completed (below), click on **Application** from the menu bar then click on **Start Processing** in order to initiate the Audit Triggers.
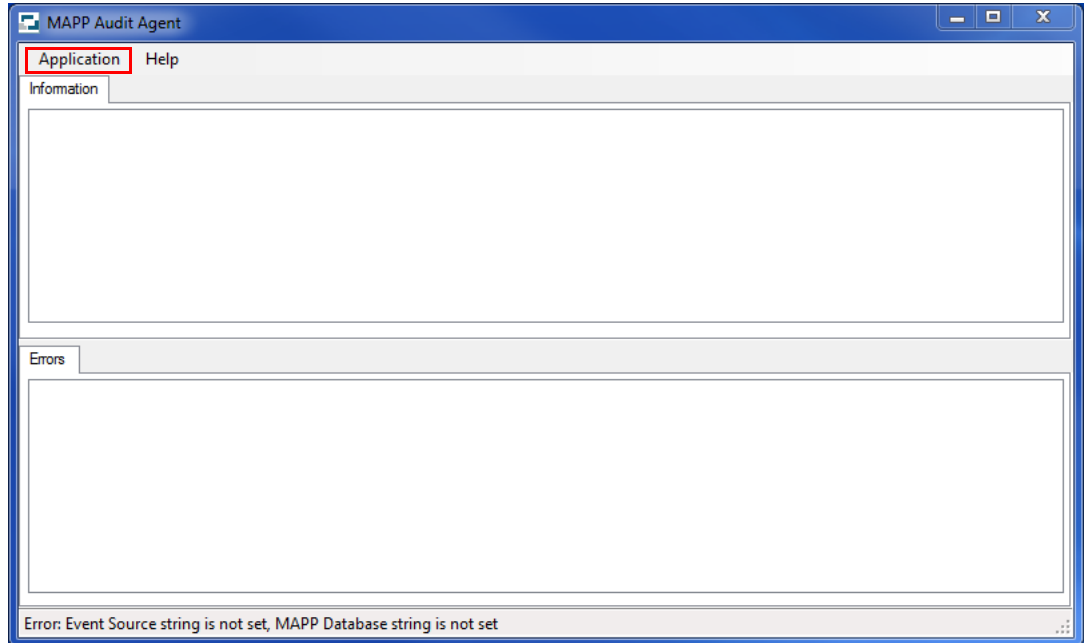

Fig. 2-18: Launching the MAPP Audit Agent

In order to manually halt the Audit Triggers, click on **Application** from the menu bar then select **Stop Processing**.

MAPP Audit Agent Log File

Entries displayed on the 'Information' and 'Errors' panes on the MAPP Audit Agent main window are also written into the following default log file: *MappAuditAgent.exe.log*

Each entry in the log file is time / date-stamped and labelled as either *INFO* or *ERROR*.

Changing the default name of the log file:

1. In the MAPP Audit Agent installation directory, use Notepad to open the following text file:

    Mapp Audit Agent.exe.config

    For details relating to the installation directory, refer to 'Installing the MAPP Audit Agent'.

2. Change the 'File Value' to that of the desired filename.

    The default is as follows:

    ```
    <File value="MappAuditAgent.exe.log"/>
    ```

3. Save and close the file.

4. If the MAPP Audit Agent is already running then it must be restarted in order to write to the renamed log file.

Configure and Run the Audit Triggers

Audit Triggers are created in the '*CreateAuditTriggers.sql*' script file that can be obtained from engineering. Once configured, run this script in SQL Server Management Studio.

An example of some common triggers are shown below, in the context of a whole script file.

```
---------------------------------------------------------------------------
-- Name    : Na-00485 Morpheus Database Schema
-- File    : CreateAuditTriggers.sql
-- Date    : 05/12/2014
-- Author  :
-- Version : 4.2
-- Notes   : This script is to be used to create Audit triggers required by
--           the MAPP Audit Agent.
--           The Syntax to create the triggers is:
--           exec [dbo].[sp_CreateChangeAuditTrigger] '<TABLE NAME>'
--           '<AUDIT TYPE>'
--           Some common examples are below
--         : This SQL is only compatible with Microsoft SQL Server 2005 and
--           2008R2 RDBMS.
---------------------------------------------------------------------------

exec [dbo].[sp_CreateChangeAuditTrigger] 'ITEM','INSERT'
exec [dbo].[sp_CreateChangeAuditTrigger] 'ITEM','UPDATE'
exec [dbo].[sp_CreateChangeAuditTrigger] 'ITEM','DELETE'

exec [dbo].[sp_CreateChangeAuditTrigger] 'INSTANCE','INSERT'
exec [dbo].[sp_CreateChangeAuditTrigger] 'INSTANCE','UPDATE'
exec [dbo].[sp_CreateChangeAuditTrigger] 'INSTANCE','DELETE'

exec [dbo].[sp_CreateChangeAuditTrigger] 'STORAGE_DEVICE','INSERT'
exec [dbo].[sp_CreateChangeAuditTrigger] 'STORAGE_DEVICE','UPDATE'
exec [dbo].[sp_CreateChangeAuditTrigger] 'STORAGE_DEVICE','DELETE'

exec [dbo].[sp_CreateChangeAuditTrigger] 'PRESENTATION','INSERT'
exec [dbo].[sp_CreateChangeAuditTrigger] 'PRESENTATION','UPDATE'
exec [dbo].[sp_CreateChangeAuditTrigger] 'PRESENTATION','DELETE'
```

In this example script file, each entry generates a trigger for the MAPP Audit Agent following an action (INSERT, UPDATE, DELETE) that has been performed on a specific MAPP database table name (ITEM, INSTANCE, STORAGE_DEVICE, PRESENTATION).

Note: The only valid actions are INSERT, UPDATE, DELETE.

Creating, Deleting, and Reloading an EventStream Aggregator

In the Morpheus Shortcuts folder, click on the EventStream Aggregator shortcut:

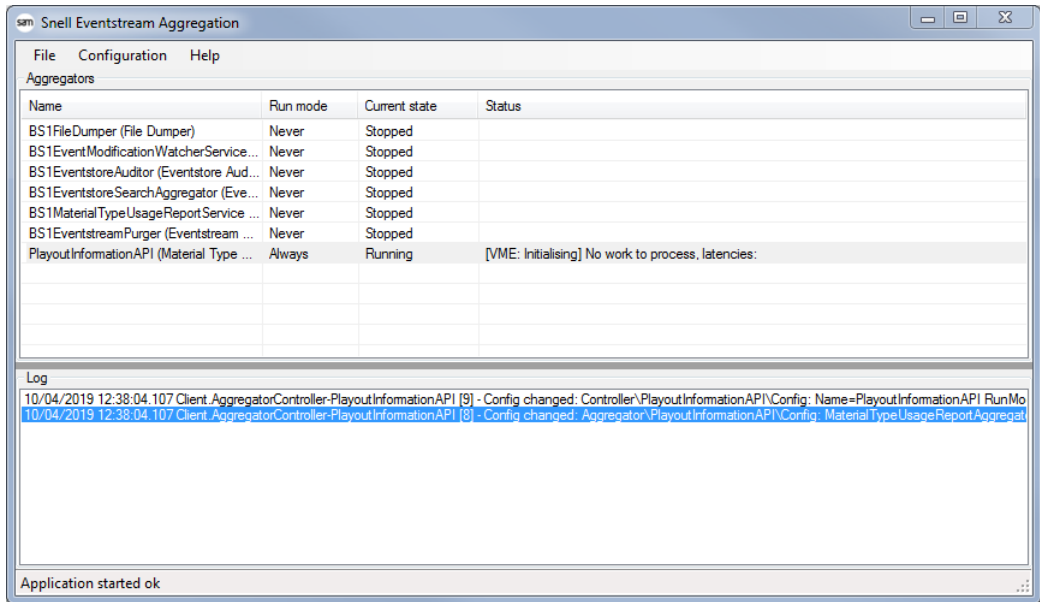The EventStream Aggregation window is displayed (Figure 2-19).

Fig. 2-19: EventStore EventStream Aggregator Main Window

Click on **Configuration** in the menu bar, and from the drop-down menu click on **Settings**. The 'EventStream Aggregator Settings' window is displayed (Figure 2-20).
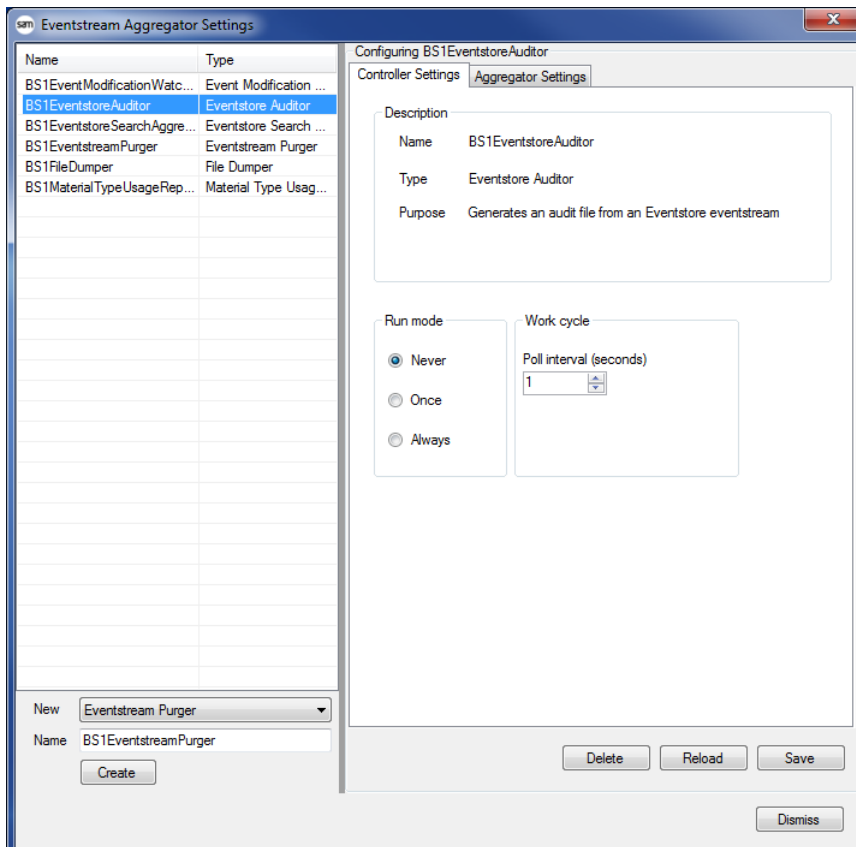

Fig. 2-20: EventStore EventStream Aggregator - EventStream Aggregator Settings

- New

Create a new Aggregator.

1. From the drop-down menu, select one of the available Aggregators:

- **File Dumper**

- **Event Modification Watcher Service**

- **EventStore Auditor**

- **EventStore Search Aggregator**

- **Material Type Usage Report Service**

- **EventStream Purger**

> IMPORTANT: Regardless of the Aggregator(s) selected for a particular requirement, the following additional Aggregators must also be configured:
>
> - File Dumper (for problem analysis)
>
> - EventStream Purger (to delete aged records)

2. In the text box, enter a unique **Name** for the Aggregator.

There are no restrictions applied to character use and spaces.

3. Click on the **Create** button.

The name and Aggregator type (as selected from the drop-down menu) are displayed in the main pane.

Select an Aggregator to Configure

From the left-hand pane, click on the Aggregator that is to be configured. The details of the selected Aggregator are displayed in the 'Description' pane on the 'Controller Settings' tab.

- Delete

Permanently delete the selected Aggregator - a confirmation window is displayed.

- Reload

Revert to the last saved Aggregator settings.

-Save

Save any changes to the selected Aggregator.

Configuring an EventStream Aggregator

In the Morpheus Shortcuts folder, click on the EventStream Aggregator shortcut:

The EventStream Aggregation window is displayed (Figure 2-21).

Fig. 2-21: EventStore EventStream Aggregator Main Window

Click on **Configuration** then on **Settings**. The 'EventStream Aggregator Settings' window is displayed (Figure 2-22).

Fig. 2-22: Existing Aggregators

From the list of Aggregators in the left-hand pane, click on the one to configure.

The configuration form for the selected Aggregator is displayed in the right-hand pane (Figure 2-23).

Fig. 2-23: Aggregator Configuration Form

Configuring a File Dumper

File Dumper Controller Settings Tab

Operational parameters that are specific to the Aggregator (Figure 2-24).

Fig. 2-24: File Dumper Controller Settings Tab

<u>Run Mode</u>

Aggregator operational modes.

- Never

The default setting. The selected EventStream Aggregator is in a disabled state. To activate, select one of the other modes below.

- Once

The selected EventStream Aggregator will remain active until one of the following applies:

- It fails

- It is manually disabled

- It is disabled by the system

In all cases, the Aggregator will return to the 'Never' run mode.

- Always

This Aggregator will restart automatically under any condition that has affected its operational state.

<u>Work Cycle</u>

- Poll Interval (Seconds)

Default: 1 second

Recommended: 1 second

The interval at which this Aggregator will poll the EventStream Database for the presence of new records.

File Dumper Aggregator Settings Tab

Collaborative and behavioural parameters that are specific to the Aggregator (Figure 2-25).

Fig. 2-25: File Dumper Aggregator Settings Tab

<u>Input Pane</u>

- Event Source Database Connection String

The connection string for the EventStream Database that is populated by the Event Source (i.e. the EventStream Agent) with which this Aggregator is to be engaged.

Define the connection string as SQL Server connection string value pairs separated by semicolons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwrd>;Initial Catalog=<eventstream 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.

Test button: verify the validity of the connection string configured to access the Database.

- Event Source

Load button: click in order for this Aggregator to query the EventStream Database specified above and populate the drop-down menu with a list of all contributing Event Sources.

> Note: Event Source is synonymous with EventStream Agent.

From the drop-down menu, select the Event Source with which this Aggregator is to be engaged.

<u>Output Pane</u>

- File Path

Using the ellipsis button, select the folder in which this Aggregator will locate any dump files. Dump files are generated each calendar day with the following default file name format:

<aggregator name>.YYYY.MM.DD.stream

Note: Dump files are for engineering support purposes only.

- Denormalise Batch Records Into Event Records

Default: disabled (un-ticked)

Change the manner in which records are displayed in the dump files:

- **Normalised**

    Default.

    Events are individually listed below a single entry that identifies the batch to which they belong

    Example

    Batch ID 123
    Event#1
    Event#2
    Event#3...
    Batch ID 124
    Event#1
    Event#2
    Event#3...

- **Denormalise**

    Each line in the dump file identifies the event and the batch to which it belongs.

    Example

    Batch ID 123, Event#1
    Batch ID 123, Event#2
    Batch ID 123, Event#3...
    Batch ID 124, Event#1
    Batch ID 124, Event#2
    Batch ID 124, Event#3...

<u>Processing Pane</u>

- Max Batches Per Query

Default: 10

Recommended: 10

The maximum number of batches that will be retrieved from the EventStream Database by this Aggregator in a single poll.

Configuring an Event Modification Watcher Service

Event Modification Watcher Service Controller Settings Tab

Operational parameters that are specific to the Aggregator (Figure 2-26).

Fig. 2-26: Event Modification Watcher Service Controller Settings Tab

Run Mode

Aggregator operational modes.

- Never

The default.

This EventStream Aggregator is in a disabled state. To activate, select one of the other modes below.

- Once

This EventStream Aggregator will remain active until one of the following conditions apply:

- It fails

- It is manually disabled

- It is disabled by the system

In all cases, the Aggregator will return to the 'Never' run mode.

- Always

This Aggregator will restart automatically under any condition that has affected its operational state.

Work Cycle

- Poll Interval (Seconds)

Default: 1 second

Recommended: 1 second

The interval at which this Aggregator will poll the EventStream Database for the presence of new records.

Event Modification Watcher Service Aggregator Settings Tab

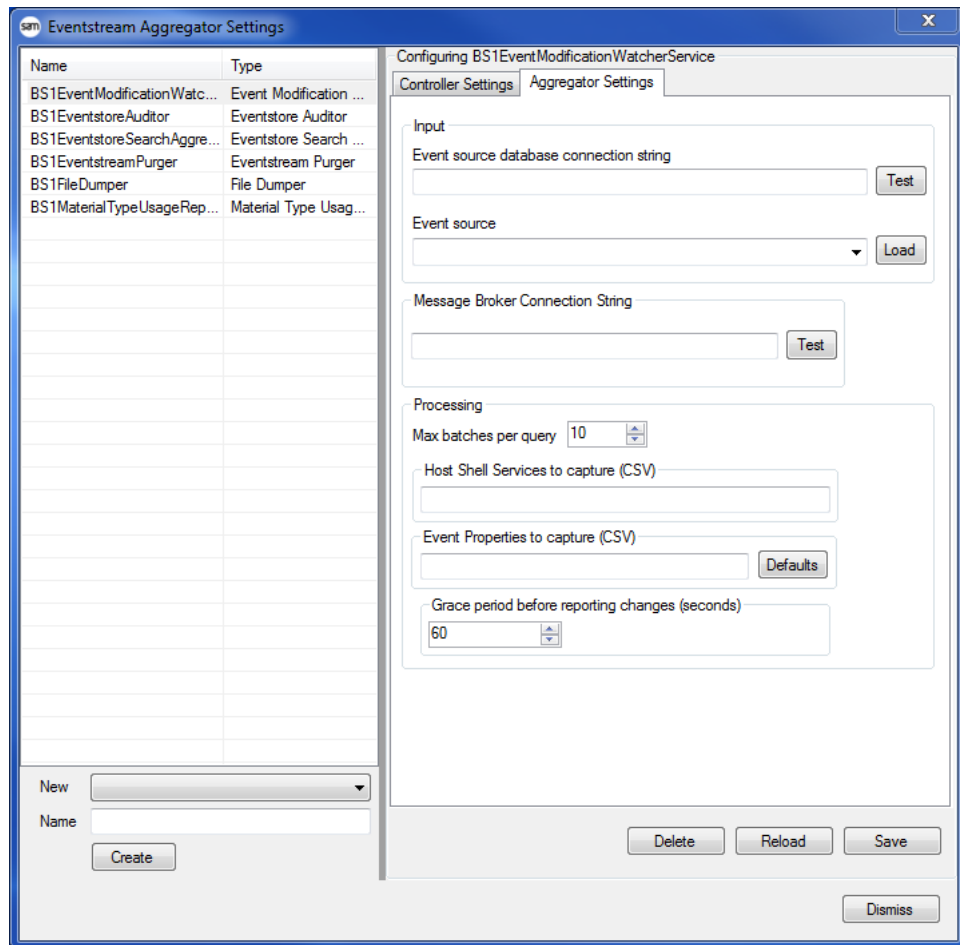Collaborative and behavioural parameters that are specific to the Aggregator (Figure 2-27).

Fig. 2-27: Event Modification Watcher Service Aggregator Settings Tab

<u>Input Pane</u>

- Event Source Database Connection String

The connection string for the EventStream Database that is populated by the Event Source (i.e. the EventStream Agent) with which this Aggregator is to be engaged.

Define the connection string as SQL Server connection string value pairs separated by semicolons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwrd>;Initial Catalog=<eventstream 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.

Test button: verify the validity of the connection string configured to access the Database.

- Event Source

Load button: click in order for this Aggregator to query the EventStream Database specified above and populate the drop-down menu with a list of all contributing Event Sources.

Note: Event Source is synonymous with EventStream Agent.

From the drop-down menu, select the Event Source with which this Aggregator is to be engaged.

<u>Message Broker Connection String Pane</u>

- Message Broker Connection String

The service supplied by this EventStream Agent relies on the Morpheus Message Broker to relay queries from the Workstation (Editor).

Enter the connection string for the Message Broker Database.

Define the connection string as SQL Server connection string value pairs separated by semicolons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwrd>;Initial Catalog=<message broker 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.

Test button: verify the validity of the connection string configured to access the Database.

<u>Processing Pane</u>

- Max Batches Per Query

Default: 10

Recommended: 10

The maximum number of batches that will be retrieved from the EventStream Database by this Aggregator in a single poll.

- Host Shell Services to Capture (CSV)

A filtering mechanism. Enter the names of those Host Shell Services from which this EventStream Agent should capture events. Separate the name of each service with a comma (Comma Separated Values).

Example

<Material Decorator Service name>,<BXF Schedule Service name>

> Note: No Host Shell service events are captured if the field is blank.

- Event Properties to Capture (CSV)

A filtering mechanism. Separate each entered event property that is to be captured with a comma (Comma Separated Values).

> Note: The precise names of event properties can most easily be identified from entries logged in the 'Property' column of the ReportViewer (refer to the EventStore Auditor Aggregator)

Click on the **Default** button in order to automatically populate the field with the following event properties / attributes:

- Duration

- DatabaseDuration

- Event.Duration.Value

- EventMaterialType

- EventName

- Event.EventName.Value

- Event.Notes.Value.

- Event.StorageDevice.Value

- Event.Inpoint.Value

- Event.Inpoint.Other

- Event.MaterialID.Value

Add further entries as required.

> Note: If left blank then no Event Properties are captured.

- Grace Period Before Reporting Changes (seconds)

Default: 60

Recommended: 60

No changes are reported for an event until the specified grace period has expired following its appearance in the schedule. It allows for a period of time during which many expected initial changes are made to events that need not be reported.

> Note: Increase the grace period if it is considered that too many changes are being reported during the early stages of an event appearing in the schedule.

Configuring an EventStore Auditor

EventStore Auditor Controller Settings Tab

Operational parameters that are specific to the Aggregator (Figure 2-28).

Fig. 2-28: EventStore Auditor Controller Settings Tab

Run Mode

Aggregator operational modes.

- Never

The default.

This EventStream Aggregator is in a disabled state. To activate, select one of the other modes below.

- Once

This EventStream Aggregator will remain active until one of the following conditions apply:

- It fails

- It is manually disabled

- It is disabled by the system

In all cases, the Aggregator will return to the 'Never' run mode.

- Always

This Aggregator will restart automatically under any condition that has affected its operational state.

Work Cycle

- Poll Interval (Seconds)

Default: 1 second

Recommended: 1 second

The interval at which this Aggregator will poll the EventStream Database for the presence of new records.

EventStore Auditor Aggregator Settings Tab

Collaborative and behavioural parameters that are specific to the Aggregator (Figure 2-29).
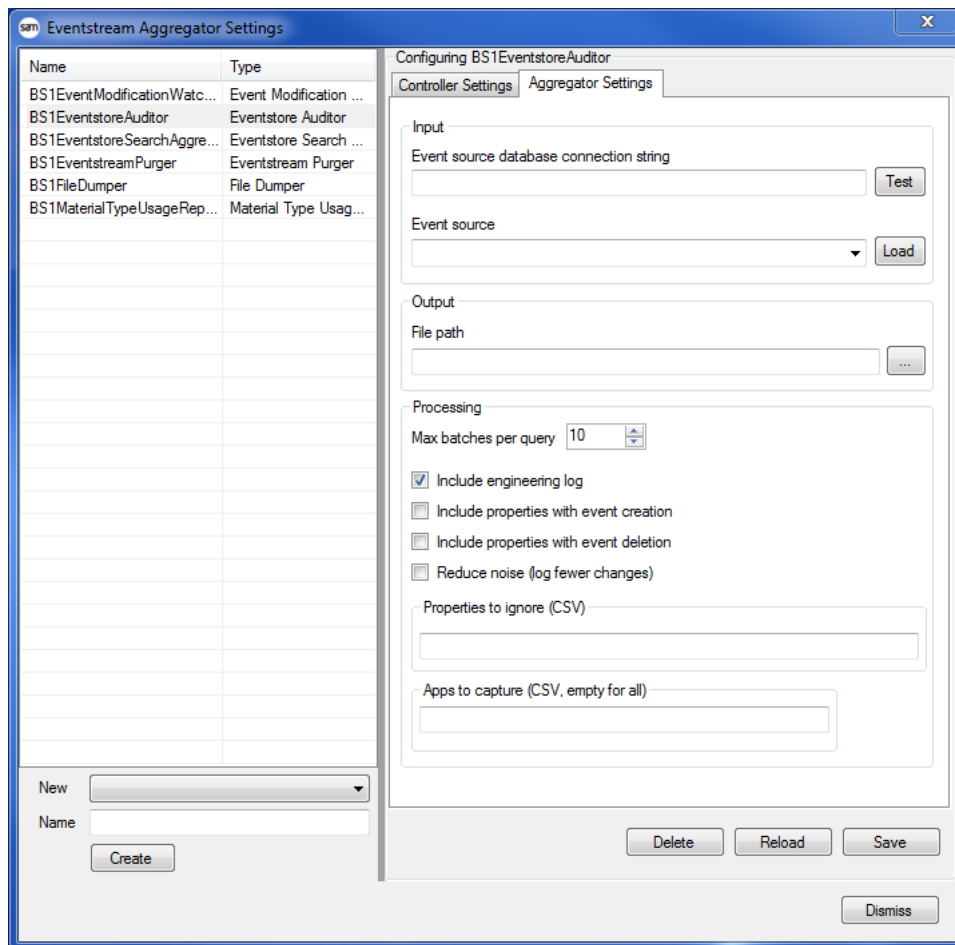

Fig. 2-29: EventStore Auditor Aggregator Settings Tab

<u>Input Pane</u>

- Event Source Database Connection String

The connection string for the EventStream Database that is populated by the Event Source (i.e. the EventStream Agent) with which this Aggregator is to be engaged.

Define the connection string as SQL Server connection string value pairs separated by semicolons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwrd>;Initial Catalog=<eventstream 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.

Test button: verify the validity of the connection string configured to access the Database.

- Event Source

Load button: click in order for this Aggregator to query the EventStream Database specified above and populate the drop-down menu with a list of all contributing Event Sources.

> Note: Event Source is synonymous with EventStream Agent.

From the drop-down menu, select the Event Source with which this Aggregator is to be engaged.

<u>Output Pane</u>

- File Path

Using the ellipsis button, select the folder in which this Aggregator will locate any audit files.

An audit files is generated once, each calendar day, with the following default file name format:

- *<aggregatorname.YYYY-MM-DD>.audit*

> Note: ReportViewer.htm can be used to view the log file (refer to the EventStore Auditor Aggregator).

<u>Processing Pane</u>

Functions to tailor the output for the .audit and ReportViewer.htm files.

- Max Batches Per Query

Default: 10

Recommended: 10

The maximum number of batches that will be retrieved from the EventStream Database by this Aggregator in a single poll.

- Include Engineering Log

Default: enabled

Include, in the selected report type, those entries that are generated by the 'AsRun Publisher' and normally only recorded in the default engineering log.

The entries can be filtered within the 'ReportViewer.htm' file by using the **EngineeringLog** button (refer to EventStore Auditor in the section 'Introduction to EventStreaming').

- Include Properties With Event Creation

Default: disabled

In the disabled state, a single entry is generated for the creation of a Morpheus event, with no further detail.

In an enabled state, entries are generated for the creation of a Morpheus event and for all other properties related to that event.

- Include Properties With Event Deletion

Default: disabled

In the disabled state, a single entry is generated for the deletion of a Morpheus event, with no further detail.

In an enabled state, entries are generated for the deletion of a Morpheus event and for all other properties related to that event.

- Reduce Noise (Log Fewer Changes)

Default: disabled

When enabled, the output is restricted to a hard-coded set of default entries that reflect Operator activities in the Workstation (Editor).

Note: When enabled, this filter overrides the settings of any other filters in the 'Processing Pane' of this Aggregator.

- Properties to Ignore (CSV)

Enter the names of any event properties, or sub-properties, that have been captured by this Aggregator but are not to be output. Separate the name of each property with a comma (Comma Separated Values).

- Apps to Capture (CSV, empty for all)

Filter the output based upon application.

Enter those applications for which events must be output, such as Morpheus Editor, Morpheus Host Shell, PBAK Bridge, etc.

Separate the name of each service with a comma (Comma Separated Values).

Note: If this filter is empty then all application events will be output.

For a list of application names, refer to the 'App' column of the batch entries in the output log.

Configuring an EventStore Search Aggregator

EventStore Search Aggregator Controller Settings Tab

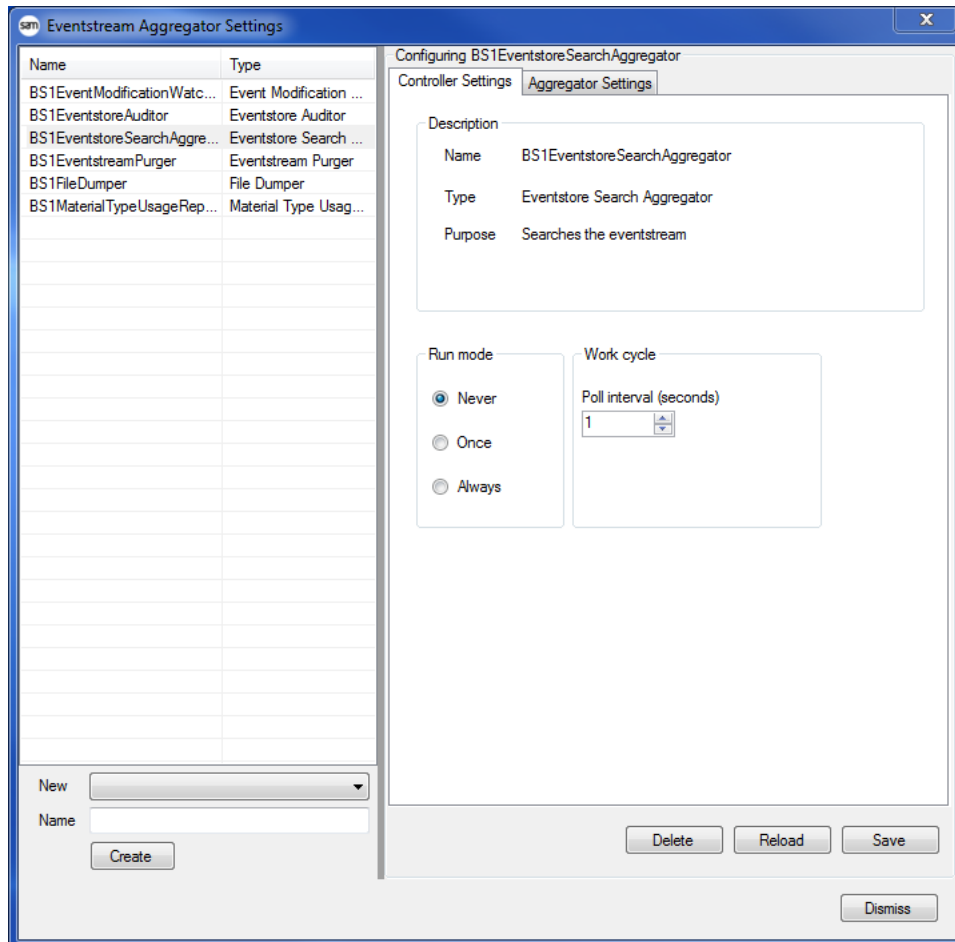Operational parameters that are specific to the Aggregator (Figure 2-30).

Fig. 2-30: EventStore Search Aggregator Controller Settings Tab

Run Mode

Aggregator operational modes.

- Never

The default.

This EventStream Aggregator is in a disabled state. To activate, select one of the other modes below.

- Once

This EventStream Aggregator will remain active until one of the following conditions apply:

- It fails

- It is manually disabled

- It is disabled by the system

In all cases, the Aggregator will return to the 'Never' run mode.

- Always

This Aggregator will restart automatically under any condition that has affected its operational state.

Work Cycle

- Poll Interval (Seconds)

Default: 1 second

Recommended: 1 second

The interval at which this Aggregator will poll the EventStream Database for the presence of new records.

EventStore Search Aggregator - Aggregator Settings Tab

Collaborative and behavioural parameters that are specific to the Aggregator (Figure 2-31).

Fig. 2-31: EventStore Search Aggregator - Aggregator Settings Tab

<u>Input Pane</u>

- Event Source Database Connection String

The connection string for the EventStream Database that is populated by the Event Source (i.e. the EventStream Agent) with which this Aggregator is to be engaged.

Define the connection string as SQL Server connection string value pairs separated by semicolons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwrd>;Initial Catalog=<eventstream 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.

Test button: verify the validity of the connection string configured to access the Database.

Configuring a Material Type Usage Report Service

Material Type Usage Report Service Controller Settings Tab

Operational parameters that are specific to the Aggregator (Figure 2-32).
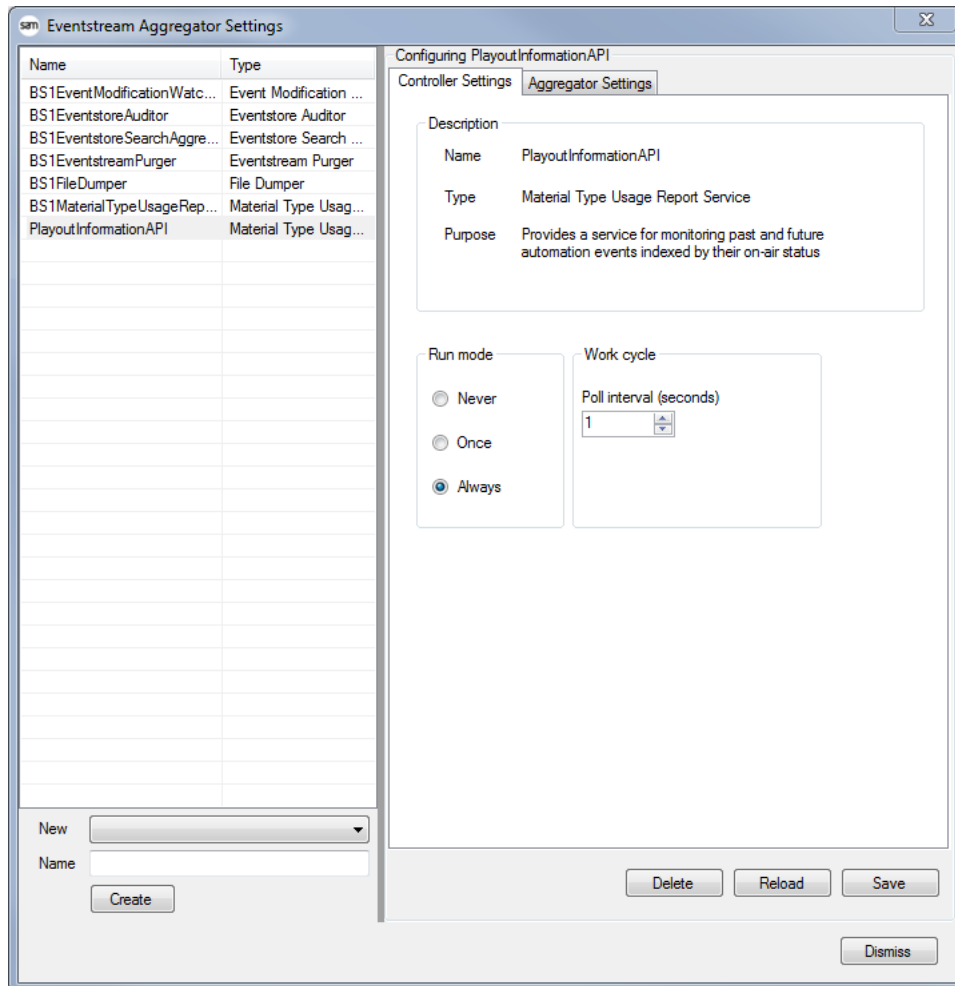

Fig. 2-32: Material Type Usage Report Service Controller Settings Tab

<u>Run Mode</u>

Aggregator operational modes.

- Never

The default.

This EventStream Aggregator is in a disabled state. To activate, select one of the other modes below.

- Once

This EventStream Aggregator will remain active until one of the following conditions apply:

- It fails

- It is manually disabled

- It is disabled by the system

In all cases, the Aggregator will return to the 'Never' run mode.

- Always

This Aggregator will restart automatically under any condition that has affected its operational state.

<u>Work Cycle</u>

- Poll Interval (Seconds)

Default: 1 second

Recommended: 1 second

The interval at which this Aggregator will poll the EventStream Database for the presence of new records.

Material Type Usage Report Service Aggregator Settings Tab

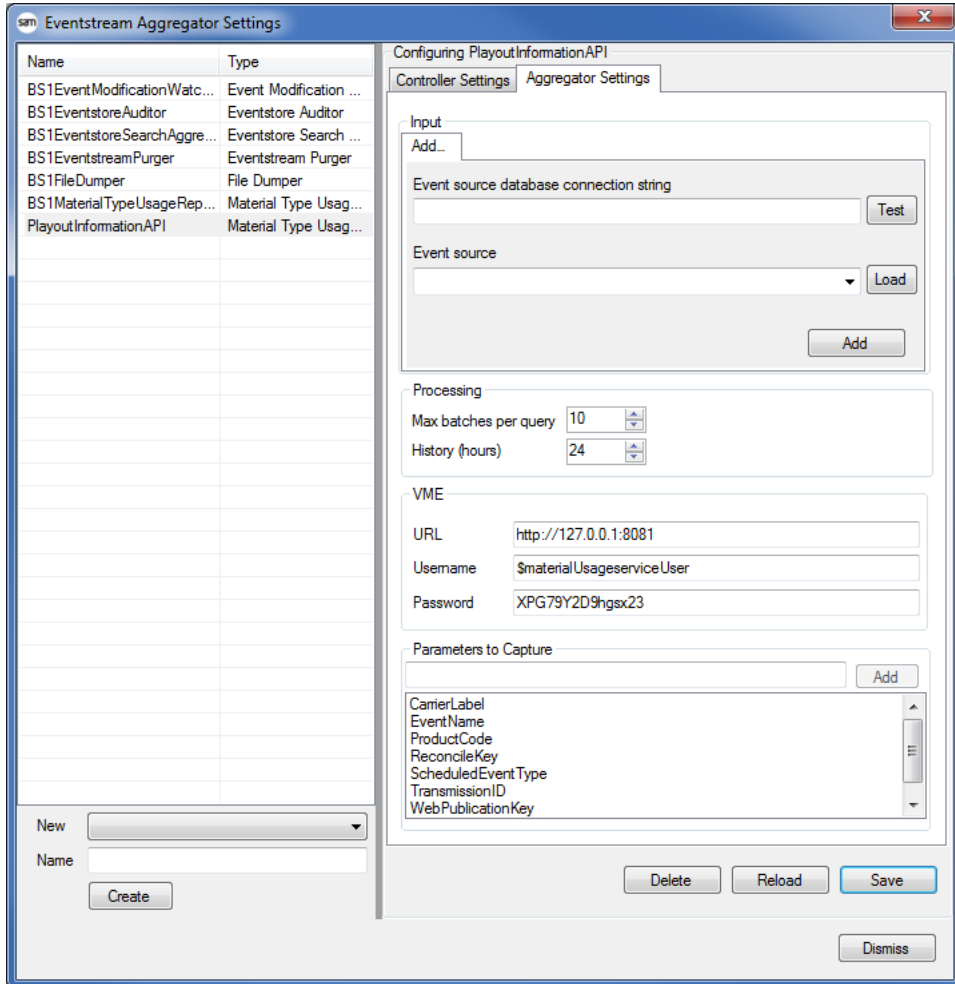Collaborative and behavioural parameters that are specific to the Aggregator (Figure 2-33).

Fig. 2-33: Material Type Usage Report Service Aggregator Settings Tab

Input Pane

- Event Source Database Connection String

The connection string for the EventStream Database that is populated by the Event Source (i.e. the EventStream Agent) with which this Aggregator is to be engaged.

Define the connection string as SQL Server connection string value pairs separated by semicolons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwrd>;Initial Catalog=<eventstream 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.

Test button: verify the validity of the connection string configured to access the Database.

- Event Source

Load button: click in order for this Aggregator to query the EventStream Database specified above and populate the drop-down menu with a list of all contributing Event Sources.

Note: Event Source is synonymous with EventStream Agent.

From the drop-down menu, select the Event Source with which this Aggregator is to be engaged.

<u>Processing Pane</u>

- Max Batches Per Query

Default: 10

Recommended: 10

The maximum number of batches that will be retrieved from the EventStream Database by this Aggregator in a single poll.

- History (Hours)

Default: 24

Required: the value of this property should exceed that of the 'Morpheus Material Usage Report' *historicalHours* property, relative to the current time.

The amount of time after which events will no longer be available to the Material Type Usage Report Service Aggregator, and as such cannot be displayed by the following Morpheus UX Components:

- Morpheus Material Usage Report

- Morpheus Material Usage Summary Line

<u>VME Pane</u>

The credentials that are required in order for this Aggregator to connect with the VME Store, all of which will have been determined during the deployment stage - refer to the implementing engineer.

- URL

- Username

- Password

Parameters to Capture Pane

This feature has been designed for the PlayoutInformationAPI, although its use is not reserved exclusively for it.

Specify those Morpheus Event Type parameters that are to be captured from the EventStream Database by this Aggregator in order to be reported on if requested in an API call.

IMPORTANT: Do not enter the names of the following intrinsic parameters, as they can be reported on by default:

- StartTime

- EndTime

- Duration

- EventIdentifier

- Add

Type the name of an Event Type Parameter and click on the **Add** button, then click on **Save**.

- Delete

Click on an existing parameter and click on the **Delete** button, then click on **Save**.

Configuring an EventStream Purger

EventStream Purger Controller Settings Tab

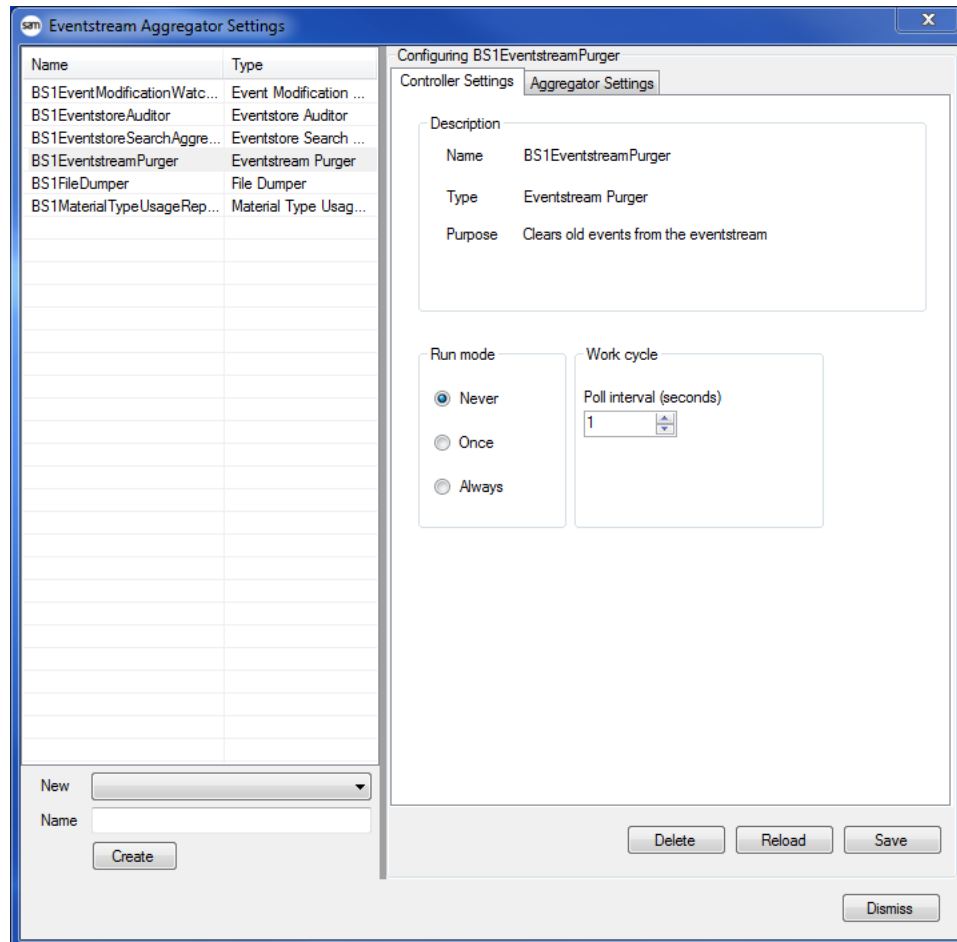Operational parameters that are specific to the Aggregator (Figure 2-34).

Fig. 2-34: EventStream Purger Controller Settings Tab

Run Mode

Aggregator operational modes.

- Never

The default.

This EventStream Aggregator is in a disabled state. To activate, select one of the other modes below.

- Once

This EventStream Aggregator will remain active until one of the following conditions apply:

- It fails

- It is manually disabled

- It is disabled by the system

In all cases, the Aggregator will return to the 'Never' run mode.

- Always

This Aggregator will restart automatically under any condition that has affected its operational state.

Work Cycle

- Poll Interval (Seconds)

Default: 1 second

Recommended: 60 seconds

The frequency at which this Aggregator will delete records from the EventStream Database.

Records are only deleted once they fall outside of the timeframe defined by the following parameter:

- Delete Events After (Days.HH.MM.SS).

EventStream Purger Aggregator Settings Tab

Collaborative and behavioural parameters that are specific to the Aggregator (Figure 2-35).
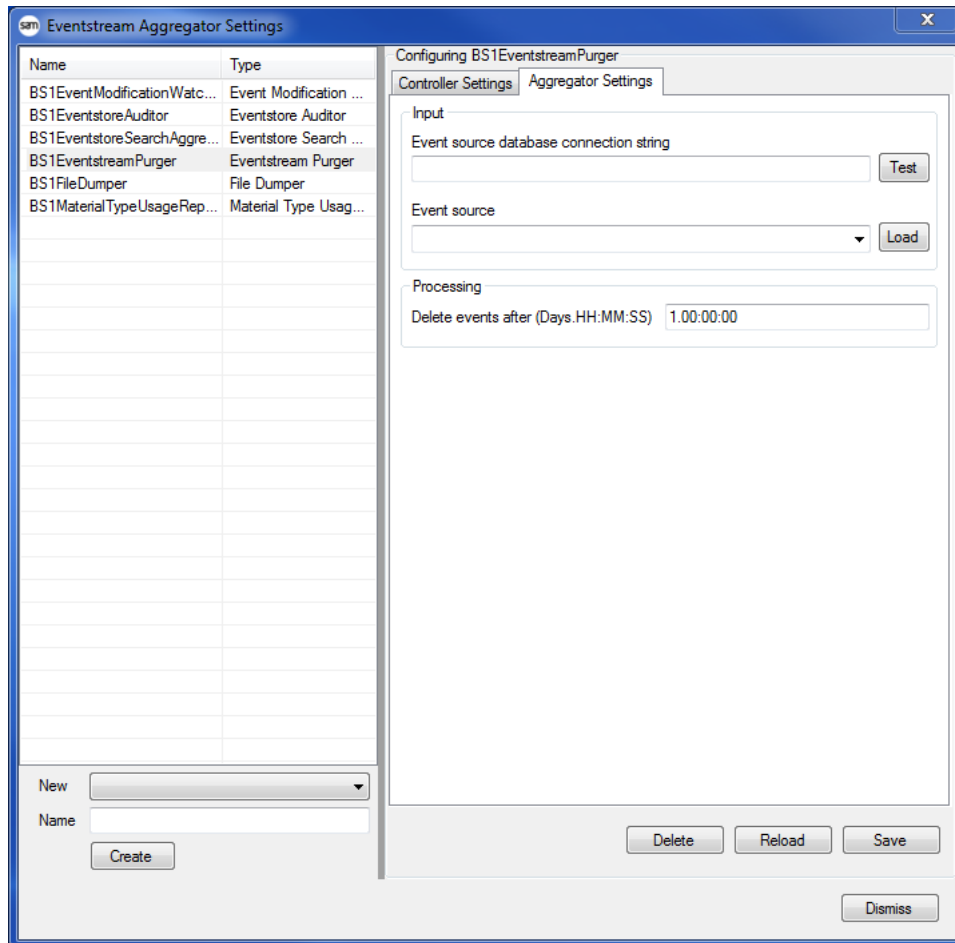

Fig. 2-35: EventStream Purger Aggregator Settings Tab

<u>Input Pane</u>

- Event Source Database Connection String

The connection string for the EventStream Database that is populated by the Event Source (i.e. the EventStream Agent) with which this Aggregator is to be engaged.

Define the connection string as SQL Server connection string value pairs separated by semicolons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwrd>;Initial Catalog=<eventstream 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.

Test button: verify the validity of the connection string configured to access the Database.

- Event Source

Load button: click in order for this Aggregator to query the EventStream Database specified above and populate the drop-down menu with a list of all contributing Event Sources.

Note: Event Source is synonymous with EventStream Agent.

From the drop-down menu, select the Event Source with which this Aggregator is to be engaged.

<u>Processing Pane</u>

- Delete Events After (Days.HH.MM.SS)

Default: 1 day.

Recommended: 7 days (to retain sufficient events for engineering support purposes)

The amount of time before a single event, deposited into the EventStream Database by the selected EventStream Agent (from the 'Event Source' drop-down menu, above), is deleted.

Administration of Existing EventStream Aggregators

In the Morpheus Shortcuts folder, click on the EventStream Aggregator shortcut:

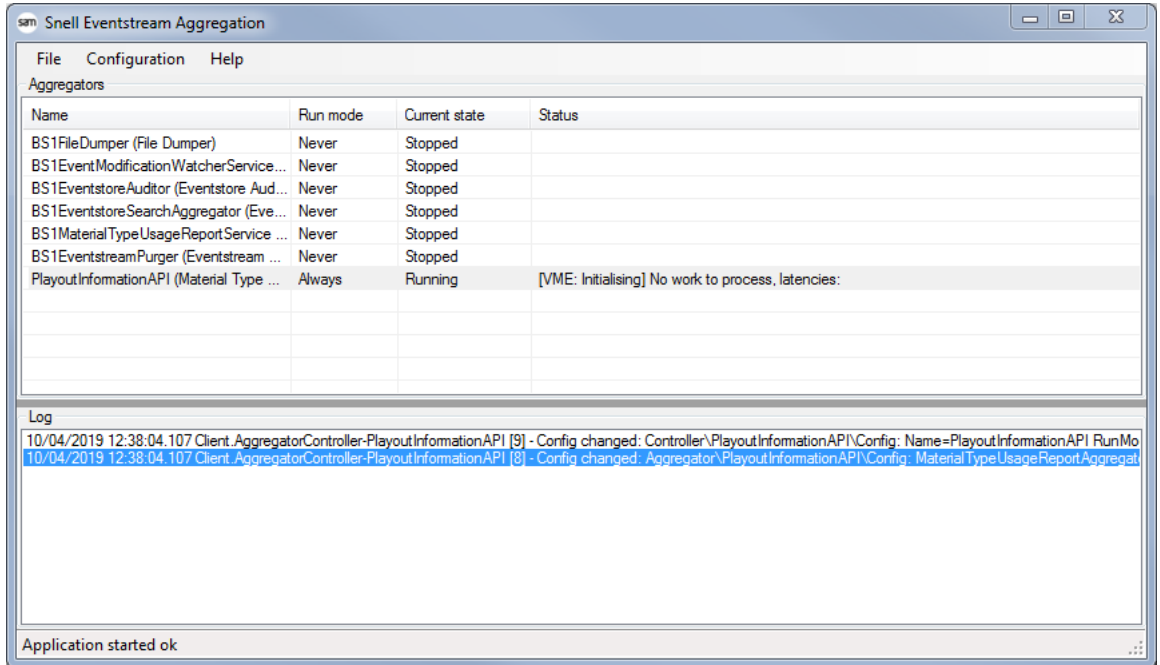The EventStream Aggregation window is displayed (Figure 2-36).

Fig. 2-36: EventStore EventStream Aggregator Main Window

<u>Aggregators Pane</u>

The following information is displayed for each of the configured Aggregators:

- **Name**

  The name configured for an Aggregator and its type (in brackets).

- **Run Mode**

  Never.
  This EventStream Aggregator is in a disabled state. To activate, select one of the other modes below.

  Once.
  This EventStream Aggregator will remain active until one of the following conditions apply: it fails, it is manually disabled, it is disabled by the system.
  In all cases, the Aggregator will return to the 'Never' run mode.

  Always.
  This Aggregator will restart automatically under any condition that has affected its operational state.

- **Current State**

  An Aggregator will be in one of the following states:

  - Running

  - Shutting Down

    An EventStream Aggregator will remain active until one of the following conditions apply: it fails, it is manually disabled, it is disabled by the system. In all cases, the Aggregator will return to the 'Never' run mode.

    Refer to **Run Mode**, above

  - Stopped

- **Status**

  Aggregator specific status messages relating to event processing, EventStream latency, etc.

<u>Log Pane</u>

Displays a snapshot of the messages that are recorded in the engineering log file.

<u>Information Banner</u>

Along the bottom of the window, informative messages are displayed in order to describe the overall state of the EventStream Aggregation application (they do not report on the state of individual Aggregators).

File Menu

Perform one of the following actions:

- Import a dump file - refer to 'Import EventStream Dump File'

- **Exit** in order to shut down the application.

Import EventStream Dump File

> Note: For engineering purposes only.

Import a dump file into a test database for the purpose of diagnosing Morpheus and MAPP system issues (Figure 2-37). This feature cannot be used for the purpose of diagnosing Aggregator conditions.
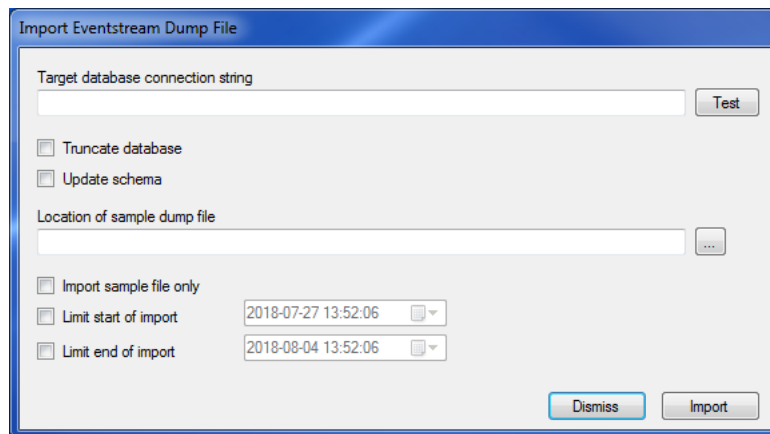

Fig. 2-37: EventStore EventStream Aggregator - Import Dump File Into Database

- Target Database Connection String

The connection string for access to the test database. Define the connection string as SQL Server connection string value pairs separated by semicolons (;) in the following format:

Data Source=<host>;User ID=<user id>;Password=<pwrd>;Initial Catalog=<test database 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]>*;

Database 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.

Test button: verify the validity of the connection string configured to access the Database.

- Truncate Database

Default: disabled.

Flush the selected test database of all existing records before loading the new dump file(s).

- Update Schema

Default: disabled.

Loads the latest available EventStream schema into the test database.

- Location of Sample Dump File

Use the ellipsis button to locate the required *.stream* dump file. The path and the filename must be specified.

> Note: Despite the requirement to define a single filename, any *.stream* file that is discovered in the specified folder will be loaded into the database unless **- Import Sample File Only** is enabled.

- Import Sample File Only

Default: disabled.

Import only the .stream dump file uniquely specified in **- Location of Sample Dump File**, and within the confines of **Limit Start of Import** and **Limit End of Import**, below.

> Note: If disabled, any *.stream* file that is discovered in the specified folder will be loaded into the database.

- Limit Start of Import

Performs the following actions:

- Only those *.stream* files that are the same as or later than the specified date / time are loaded into the database.

- Only those records, contained within the *.stream* files, that are the same as or later than the specified date / time range are loaded into the database.

Use one of the following two methods to set the date / time:

- Type a date and time directly over the current settings

- Click on the **Planner** icon in order to display a calendar from which to select the day, then type in a time directly over the current setting.

- Limit End of Import

Performs the following actions:

- Only those *.stream* files that are the same as, or earlier than, the specified date / time are loaded into the database.

- Only those records, contained within the *.stream* files, that are the same as or earlier than, the specified date / time range are loaded into the database.

Use one of the following two methods to set the date / time:

- Type a date and time directly over the current settings

- Click on the **Planner** icon in order to display a calendar from which to select the day, then type in a time directly over the current setting.

- Limit End of Import

Grass Valley Technical Support

For details of our Regional Customer Support Offices please visit the Grass Valley website and navigate to Support> Contact Support.

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.

Customers with an existing support contract should call their personalised number, which can be found in the contract, and be ready to provide the contract number and details.