

GV STRATUS System Overview



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GV STRATUS — Overview

GV STRATUS from Grass Valley, a Belden Brand, is a full set of production tools in one application. These tools are designed for simplicity, efficiency and speed because exceptional, highly creative content starts with an efficient, flexible workflow. GV STRATUS lets you better manage entertainment, on-air operations and news production media workflows to stay competitive. The task-driven tools in GV STRATUS operate in a variety of environments, and these can be specifically tailored for each user's job function. With GV STRATUS, you'll increase efficiency and enable more effective collaboration throughout the entire production lifecycle.

One of its primary use cases is to provide a comprehensive application layer for production professionals in order to efficiently manage productions in news and live production environments. A key advantage of the solution is the ability to support growing file workflows throughout the solution from ingest to playout (and output).

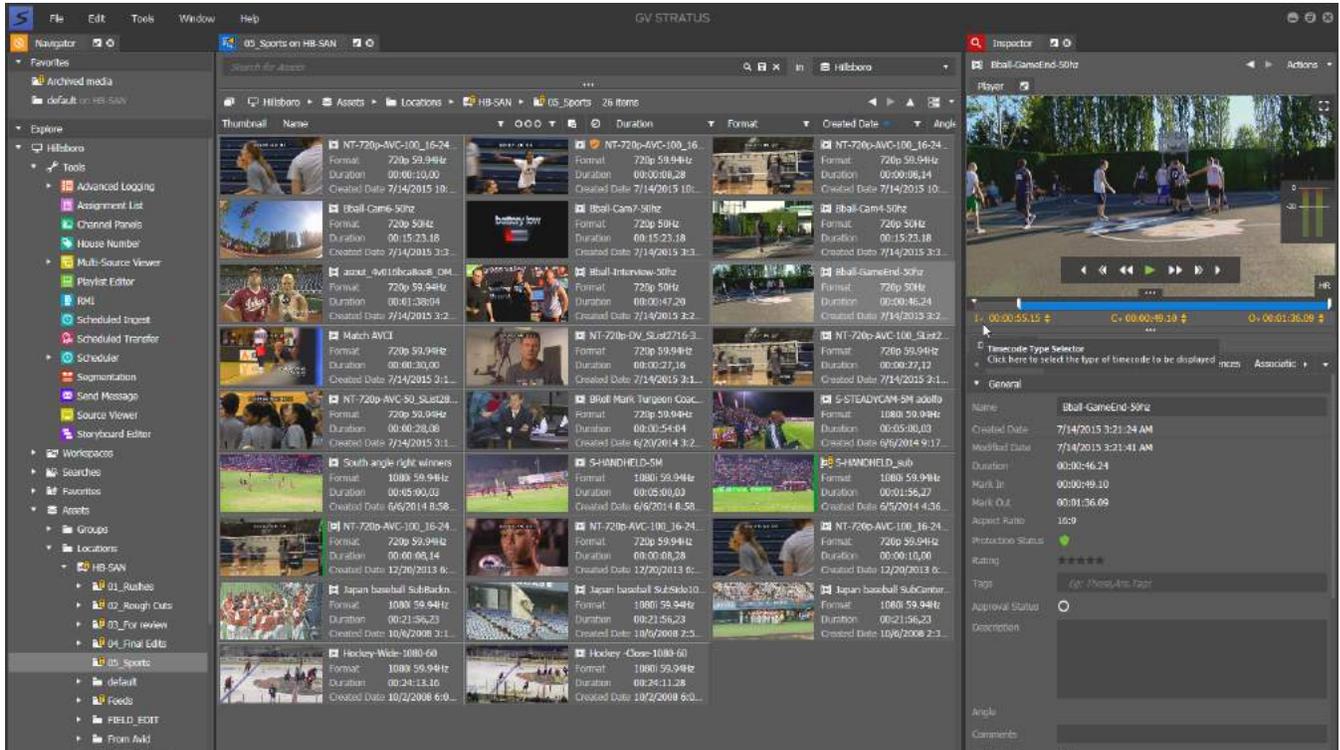


Figure 1. GV STRATUS user interface.

System Benefits

There are many added benefits of using GV STRATUS for news and live production environments.

Speed

The newsroom is a place of constant activity and the pressure always builds up as the bulletin approaches. Feeds may come in at all times of the day, but the lead stories will typically be processed as close as possible to the time of output in order to give the viewer a sense that what they are watching is truly up-to-the-minute. Thus material must be turned around as quickly as possible. One of the key features of GV STRATUS is that a producer can view material, add notes, prepare shot lists and even edit the story while it is still being ingested. One aspect of modern news workflow is the Citizen Journalist — someone who sends in material from a mobile phone. This material is likely to be of a non-broadcast format and has to be transcoded before it can be sent to air or uploaded to the internet. Using the XRE Transcoder, even material that is currently being transcoded can be worked on and sent to air while the file is growing. The simplicity of the system coupled with a high degree of automation leaves the user free to work on producing quality content in the shortest time possible. GV STRATUS is a true end-to-end solution that covers the entire process from when the story is first conceived through its arrival on the system to the time at which it is played out or sent to the web. And because it is just one system, no time is wasted going to other applications to get the job done.

Value

A key requirement for any GV STRATUS system is to deliver value to the user. Value can be measured in a variety of ways. Typically, the most obvious is cost. A GV STRATUS system is intended to keep the cost of entry low to be applicable to all size facilities. GV STRATUS is designed to keep the amount of hardware and software components needed to perform production tasks to a minimum. The entire GV STRATUS framework is executed in a way to keep the total cost of ownership for users economic at every stage.

Usability

Besides the cost of the system, another benefit of GV STRATUS is the fact that system operators can easily and efficiently perform everyday production tasks. Because of the shared services in GV STRATUS, many components not only look the same from tool to tool, but in fact, they are the same. A panel to inspect and enter metadata works the same way no matter what task is being performed. When a user needs to navigate through the devices connected on the network, the layout is always the same. To view media, the player operates the same way despite what task is being completed. The same continuous look and feel across tools and task enables users to multitask and truly do more with less.

To optimize the user experience further, all of the GV STRATUS tools can be assigned to users based on their individual production roles. Furthermore, tool layouts can be created to directly correspond to the tasks at hand for each user.

The GV STRATUS user interface is highly customizable, and it can be displayed in a variety of international languages.

All these framework enhancements make GV STRATUS not only easy to use, but also easy to learn. Fast learning times mean short training cycles, thereby delivering yet another benefit of the system.

Scalability

As the production needs grow, so can the system. GV STRATUS comes in different configurations depending on the number of users required. A basic system will allow up to 20 users but this can be expanded to enable over 100 users to log on at the same time. For even larger operations, different systems can be networked together in what is known as a multi-site configuration so that material from, say, London can be viewed in low resolution on a system in New York and uploaded in high resolution if needed. While the cost to get started is attractive, the cost to scale the system over time is also kept economical.

GV STRATUS offers a single extensible framework tightly coupled with the proven media infrastructure of Grass Valley K2 media servers for ingest, storage, and payout. GV STRATUS integrates the latest in software technologies. This includes K2 SAN, K2 Summit, K2 Solo and K2 Central TX.

Equally, GV STRATUS can manage assets stored on specifically qualified third-party storage system, such as Isilon S and X nodes. For details on supported configurations, please contact your Grass Valley representative.

Virtualization

GV STRATUS can be virtualized on customer-provided host infrastructure and storage, using the vmware ESXi hypervisor. The virtualization extends into the K2 media storage layer where a customer decides to use GV STRATUS with qualified third-party storage. For details on supported configurations, please contact your Grass Valley representative.

Permissions

All GV STRATUS clients have the capability of using its full toolset and functions (Ingest, Proxy Viewer, RMI, Assignment List, Channel Panel, etc.). However, the tools a user can deploy are based upon the individual or group's user rights, which can be easily defined by the system administrator within a user friendly Control Panel application.

GV STRATUS also supports Active Directory integration with corporate systems. Permissions can be applied to user accounts and groups to provide powerful control over who has access to media and metadata in the system, right down to an individual asset and metadata field level.

GV STRATUS Tools

Ingest

Ingest is achieved in a variety of ways, whether traditional baseband capture of incoming feeds, ingesting of files from camera compact flash cards or transfer from other locations. Additionally material can be ingested from tape or from an archive.

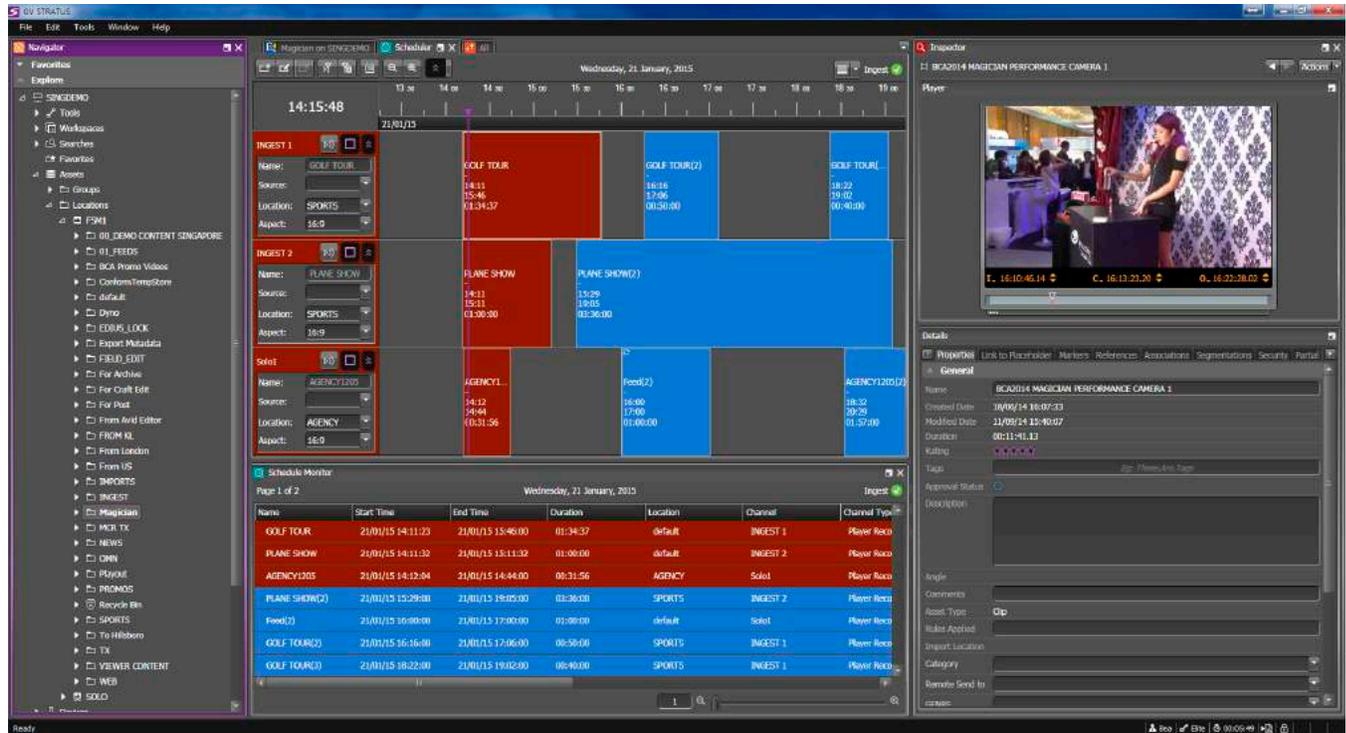


Figure 2. The Scheduler Tool.

Scheduler

Using the Scheduler, feeds can be directed to channels in the K2 server while selected events can be scheduled to be recorded for later use. The GV STRATUS scheduler appears as a tool panel and features such components as: Clock, Timeline, Available Channels, Current Time Indicator, Scheduled Events, Router Source Selection, and Status Indicator.

With the panel, an operator can schedule events to record in advance by specifying the date, time, and duration of the recording. They can also choose whether to schedule a single event, main and backup events, recurring events, open ended events, or crash record an event.

Events can be previewed using the Scheduler tool, and read-only views of the schedule grid can be given to certain users. Event templates can be created to save time by storing information that can be used for future use.

Ingest ports can be distributed across a number of ingest clients, and shared across operators and workstations, or reserved for certain positions and users. Equally, when not in recording mode, ingest ports can be used to play out clips.

Ingest ports can be used to record live feeds, satellite feeds, router sources, VTR sources and any other SDI or HD-SDI sources. The exact distribution and configuration of these ports is entirely up to the end user and can be discussed in detail as the system design is fine-tuned according to the users' needs.

Customers who wish to segregate their ingest channels between teams can create "Scheduler Groups" containing specific ports/channels.

All SDI ingests are simultaneously captured in the chosen SD or HD resolution and proxy resolution. The media is available to all proxy and high-resolution stations within a few seconds (approximately 5 seconds) for viewing and editing. GV STRATUS fully supports editing of growing files, that is, whilst they are being ingested. The file will grow "live" as more material becomes available on the server without the need for continues updates. Users will be able to add metadata, create edits and even send to playback with the media that has been ingested so far, either in low or high resolution.

Removable Media Interface

Files can be ingested from multiple removable media devices by using a GV STRATUS high-resolution (for increased performance) or low-resolution client with a network connection. In GV STRATUS, the Removable Media Interface (RMI) appears as a tool in the Navigator panel. With the RMI panel, files can be populated from the Panasonic P2, Sony XDCAM, Sony XDCAM EX, Sony XDCAM MXF, XAVC and JVC removable media devices.

The tool can set a base clip name, overwrite default clip name, and change the default import location. The asset list supports filter list, sort list, and customization of the view mode. Clips can be dragged and dropped within the list to change the order of the clip list.

Clip previewing makes it easy to select, deselect, and decide what to import from the RMI tool. Clips can also be dragged from the RMI list and dropped into the viewer to preview them.

Clips can be trimmed prior to import. Multiple clips can also be added to “merge: groups” prior to importing. This allows operators to create groups of clips, name them, and then import them without having to

repeat multiple imports separately. Once imported, a single clip resides in the K2/GV STRATUS system, and metadata pointers allow users to access the individual components that made up the concatenated file.

Imported media is available to GV STRATUS operators as the file is importing (growing), so there is no need to wait until the entire import is complete.

For all RMI (or FTP) imported files, the GV STRATUS Proxy Scavenge servers will create proxy-resolution media of the high-resolution material being imported. This happens immediately after the high-resolution import has begun and proxy media can be available within seconds from the start of the import and scavenge process (whilst the media is still being imported). This “scavenged” proxy can be created in low- (1 Mb/s), medium- (3 Mb/s), high-resolution (5 Mb/s) or using a custom resolution. For custom-resolution proxies please speak to your Grass Valley representative to ensure the system design is scoped accordingly.

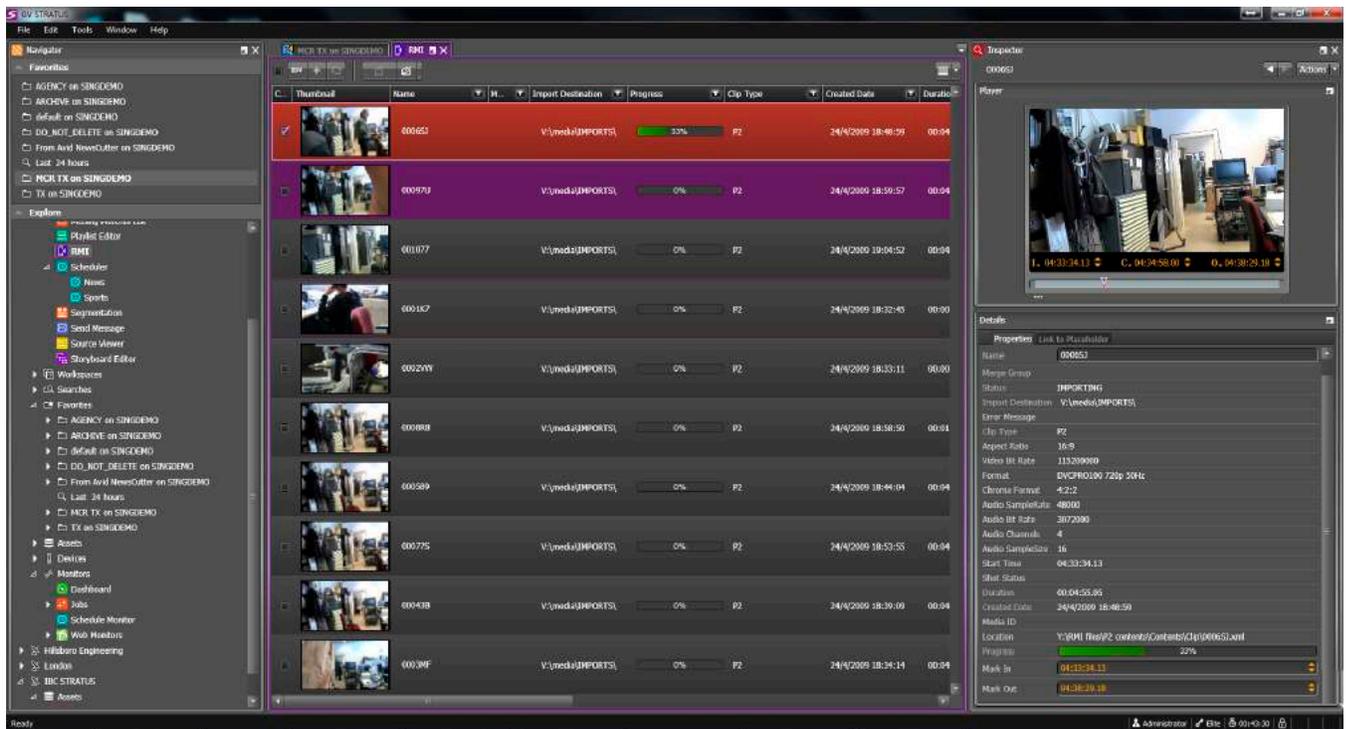


Figure 3. The RMI Tool.

VTR Ingest

GV STRATUS VTR Ingest allows you to record footage from VTRs or feeds from a router directly to a media server in your newsroom. With GV STRATUS VTR Ingest, you can select clips from multiple VTR tapes, create a batch (also known as a segment) list, and record it to the server. You can also export the segment list as an EDL and import it into an editing application.

With GV STRATUS integration, you can add and edit the description of a tape or clips in a batch list. The description that had been keyed in will be searchable within the GV STRATUS application. If GV STRATUS security is enforced, your credentials must give you adequate permissions. If permission is restricted, buttons, list items, and other controls can be disabled or hidden. Bins and assets that do not allow read permissions are not visible.

File Ingest

These days much of the material used in the news room is file based. GV STRATUS allows many options for dealing with file-based material.

File Import via Rules

Files can be imported using GV STRATUS rules, which allow for files to be processed according to the name associated with the file. The GV STRATUS Rules Engine can watch a source location that is external to the GV STRATUS system and when files arrive, import the files that match your criteria to a location that is in the GV STRATUS system. An import rule can transcode, as well as import metadata, as part of the import. The imported asset has a metadata field that specifies the source location from which it was imported.

Any CIFS location can be used for importing media. If you want to use FTP, the same location must be exposed using the CIFS protocol. For example, you can install an FTP server pointing to the location which is already accessible via CIFS.

After the import operation, the Rules Engine changes the name of the original source file, adding a suffix that indicates success or failure. The Rules Engine periodically deletes files more than seven days old, as a housekeeping operation.

For more information on rules see the Rules Engine section on page 10.

Using XRE to Transcode

The XRE transcoding service allows files to be imported and transcoded at the same time. Like any other ingest, files can be viewed, edited and sent to playout while the file is still being transcoded as a growing file. Importing files is a simple matter of placing them in a drop-box. The transcoding service will start automatically and the files (along with their low-resolution counterpart) will be available on the K2 server within a few seconds.

Field Editing

With an EDIUS Workgroup workstation in the field, you can integrate with the GV STRATUS system at your central site to combine both field and home assets on the same timeline. A common workflow is for the producer/editor (or "preditor") to edit in the field with a laptop which can ingest the camera footage via the SSD card.

A field editor can log on to the GV STRATUS system at base and browse the database for low-resolution material. Any edit created on-site can be uploaded to the central server and sent to playout.

Field editing integration with GV STRATUS provides the following:

- Add assets you have procured in the field to the timeline. These are high-resolutions assets stored on the local EDIUS Workgroup workstation
- Access assets from the home GV STRATUS system as proxy media
- Mix the home site proxy assets and the local high-resolution assets on the same project/timeline
- Send the completed project/sequence to the home GV STRATUS system. The project/sequence is rendered and becomes a GV STRATUS asset

Content Management

Using GV STRATUS, devices such as K2 SAN, K2 Central TX, K2 Solo, K2 Summit Production and Transmission systems can be browsed, with easy access to bins and sub-bins. Users can create and save favourite location shortcuts simply by dragging and dropping a bin, tool, volume, or search. Systems using supported third-party storage are browsable in GV STRATUS via the “K2 Gateway.”

Multiple levels of user permissions, such as creating bins, renaming, read-only, read and write, and deletion rights can be allocated to a user or a group of users, so that media management can be controlled according to agreed media protection and deletion rules.

Asset List

The display and arrangement of asset list items can be customized to match user preferences. Items in a list can be sorted and filtered to help define what content is to be viewed or searched on. Relationships to individual assets can also be viewed in lists. The user can also create a user-defined thumbnail for each asset. (The tenth frame is used by default.) If necessary, an external image file can also be uploaded into the GV STRATUS system as the thumbnail.

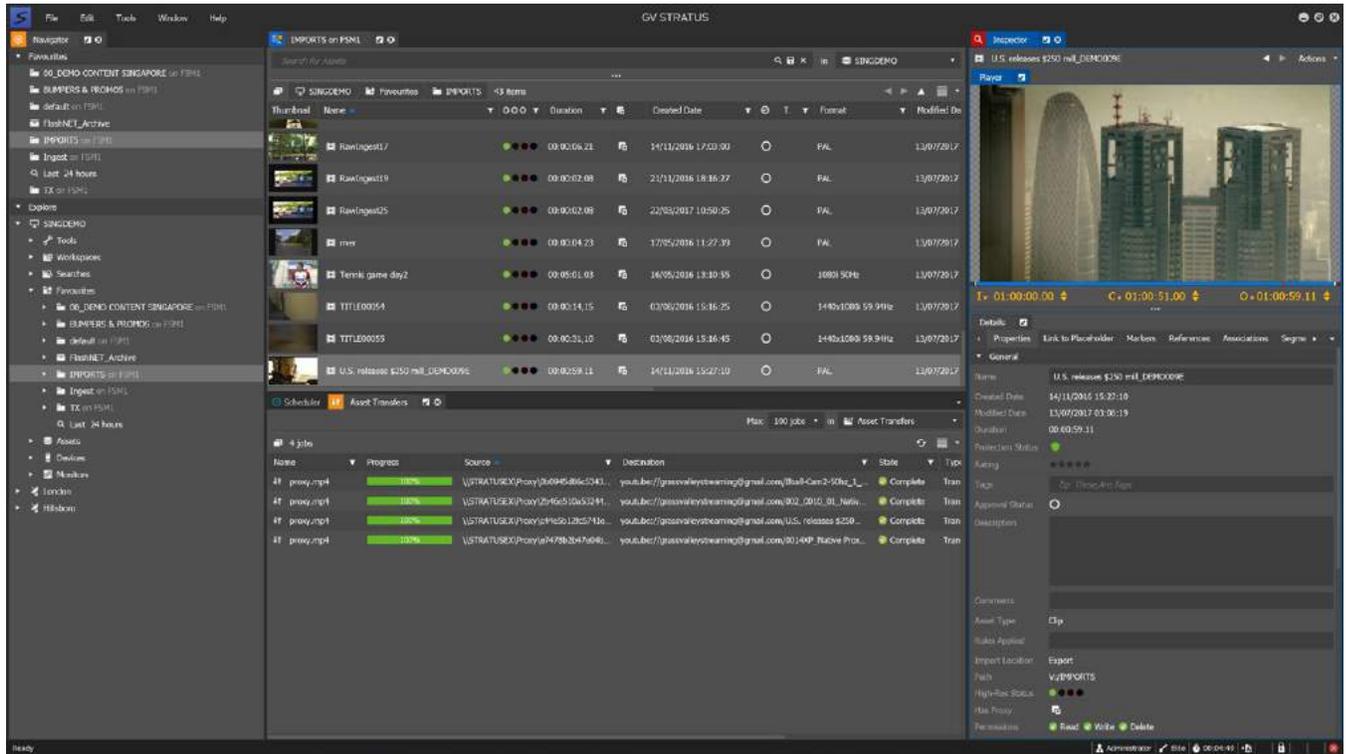


Figure 4. Asset lists in GV STRATUS (showing Asset Transfers below center).

The Inspector

For more detailed information of the selected clip and its associated metadata, the inspector window provides information in a window that can be configured to suit the user.

There are various tabs in the Inspector that allow the user to view, add or change information about the clip and also to provide ratings and tags should the clip be archived.

A user can also add markers to highlight specific frames, or keywords to highlight sections of the clip. This is detailed below.

The clip can be linked to a place holder (this will be discussed in a later section) and the viewer can also see if the clip is referenced by another sequence.

There is also a security tab to allow administrators to give or deny access to different users and also define who can delete, add, update or delete markers etc.

Searching Assets

The GV STRATUS database enables the searching, organizing, and tagging of content. Assets can be searched by using the Search tool. A simple search checks the name field of the assets. The entire name or a fragment of a name can be entered. The fragment can be from the beginning, middle, or end of the name. Both “OR” and “AND” search operators can be used.

Searches can be saved, and saved searches can be re-run and modified to view updated results. When a search is selected, updated search results are displayed.

Advanced search capabilities allow searching for assets using various criteria. The user can select values for specified criteria. If a search is made with multiple criteria, the application looks for all the specified aspects of the search request.

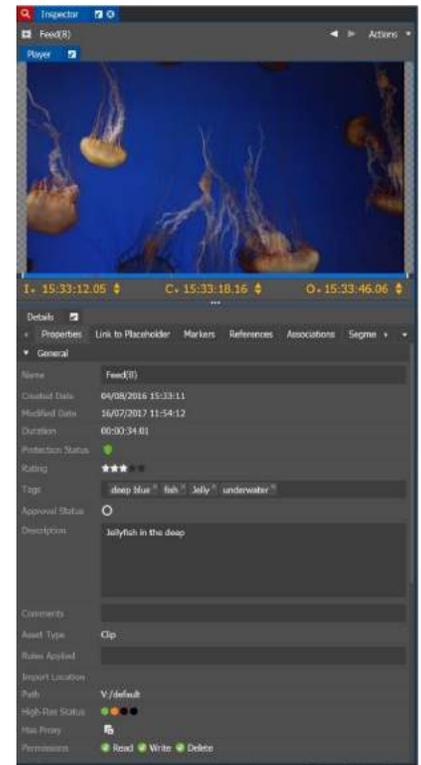


Figure 5. The GV STRATUS Inspector.

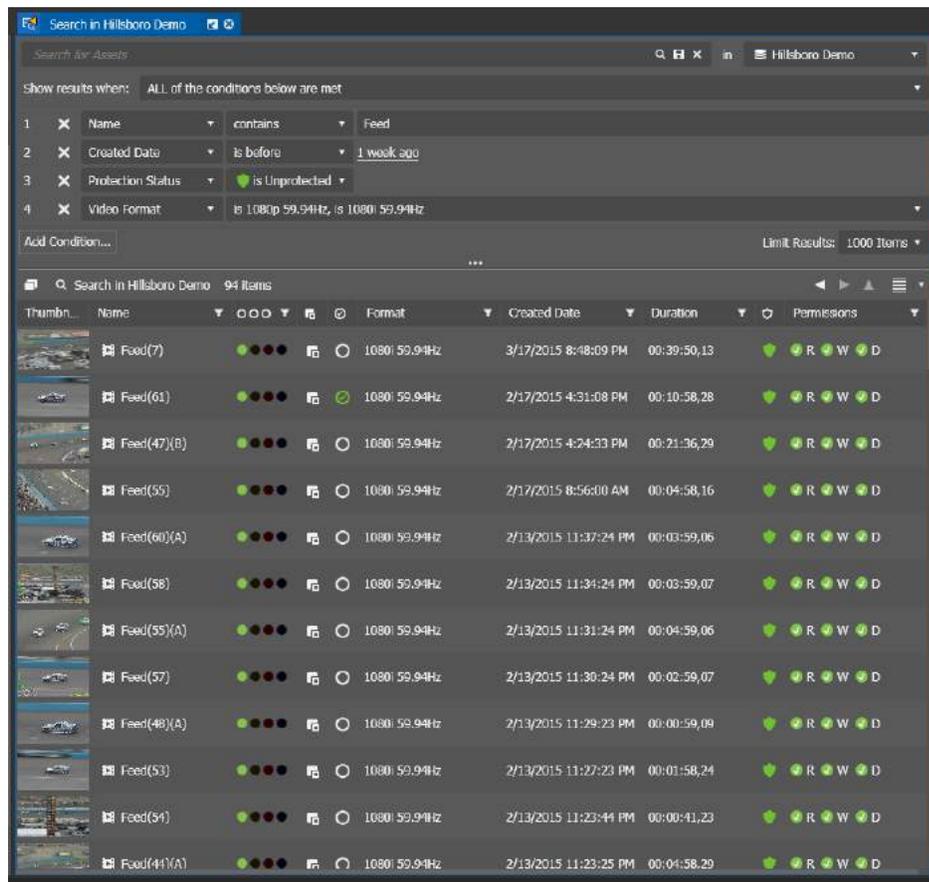


Figure 6. Searching for assets in GV STRATUS.

Logging

Metadata such as keywords, tags and ratings can be entered, added or modified. The operator may log a marker for a single moment in time, or add mark-in and mark-out points in order to place helpful boundaries around a preferred area within a clip.

The Advanced Logging Tool permits users to create and share panels with user customizable layouts, backgrounds and buttons associated with specific metadata and engage them to log events using a mouse or a touchscreen.

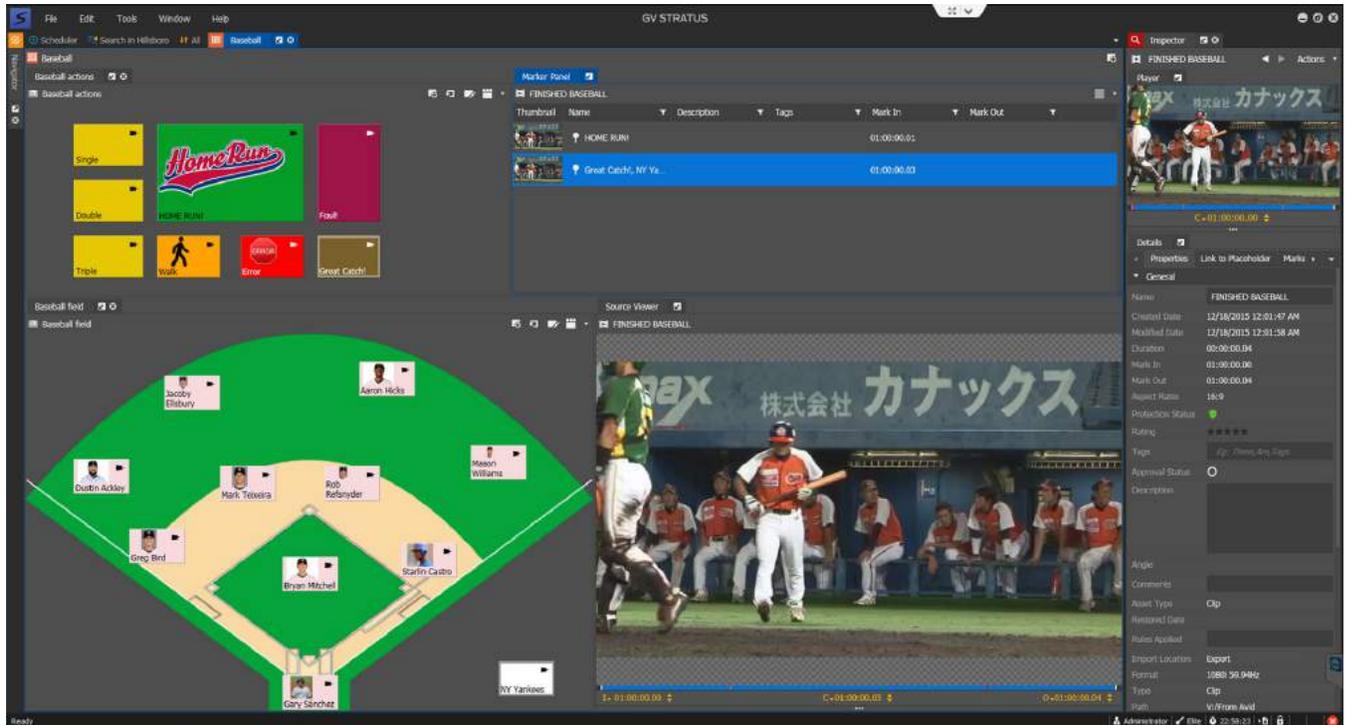


Figure 7. The Advanced Logging Tool.

Rules Engine

Within GV STRATUS there is the ability to set up a number of rules for automated asset management, such as copying and moving files between folders, according to metadata, folder location, name, etc. The export of K2 assets as QT, MXF or GXF high-resolution files, as well as exporting the native GV STRATUS proxy media to a network repository is also available as an automated workflow. Automatic archive and restore, delete and import rules are also supported. Import rules are typically used to bring in content into the system from external file transfers, USB or cloud storage. Transcoding upon import and export of content is also possible via the workflow rules.

It is also possible to set up deletion rules according to metadata fields, such as creation date, so that media is automatically purged in a given period of time. Rules are configured in the GV STRATUS Control panel. Below is a brief description of some of the rules available in GV STRATUS:

Deletion Rules

The GV STRATUS Rules Engine can watch a location and delete assets that match the given criteria. This could be based on a time (for example, every day) or a user defined condition such as a tick box or a word in a custom column.

Export Rules

The GV STRATUS Rules Engine can watch a source location in the GV STRATUS system and export assets that match your criteria to a location that is external to the GV STRATUS system. An export rule can export clips, subclips, and playlists. For playlists, a conform job is automatically triggered to render the complex asset as a simple clip. The

Rules Engine exports the assets to the destination that you configure. For an export rule, only K2 storage locations are available as the source scope. Other locations, such as FTP, are not available.

Import Rules

The GV STRATUS Rules Engine can watch a source location that is external to the GV STRATUS system and when files arrive, import the files that match your criteria to a location that is in the GV STRATUS system. This was covered earlier on page 7.

Archive Rules

The GV STRATUS Rules Engine can watch a location that is in the GV STRATUS system and transfer assets that match your criteria to an archive location. An archive rule can export clips, subclips, and playlists. For playlists, a conform job is automatically triggered to render the complex asset as a simple clip. The Rules Engine transfers the assets to the destination that you configure.

Restore Rules

The GV STRATUS Rules Engine can watch a location that is in an archive system and transfer assets that match your criteria to a location that is in the GV STRATUS system. The Rules Engine transfers the assets to the destination that you configure.

Transfer to Avid Rules

The GV STRATUS Rules Engine can watch a source location that is in the GV STRATUS system and transfer assets that match your criteria to a preconfigured destination location in the Avid system. For playlists, a conform job is automatically triggered to render the complex asset as a simple clip at the destination.

Transcoding Rules

As part of GV STRATUS's integrated workflow engine, users can automatically transcode media to other formats as needed for multiplatform re-purposing requirements. By creating customized rules to follow a number of criteria, the rules engine will automate the transcoding of content via the Harmonics WFS (and legacy Carbon coder), Telestream Vantage or Elemental Server.

It is possible to transcode to any format for which a transcode profile exists. Based upon rules, GV STRATUS will push media over to the third-party transcode engine for transcoding to the chosen format

(e.g. wm9, QuickTime, etc.) and then export it to it to any shared drive/folder within the network (for example, the Web Content Management System for web publishing). An XML file containing all of the file's metadata can also be exported, or a customer can define their own XML export using an XSLT translation.

When an asset matches the transcode rule (e.g., via a tick box, or drag/drop to a specific auto-transcode folder), the rule will activate and the transcode will take place.

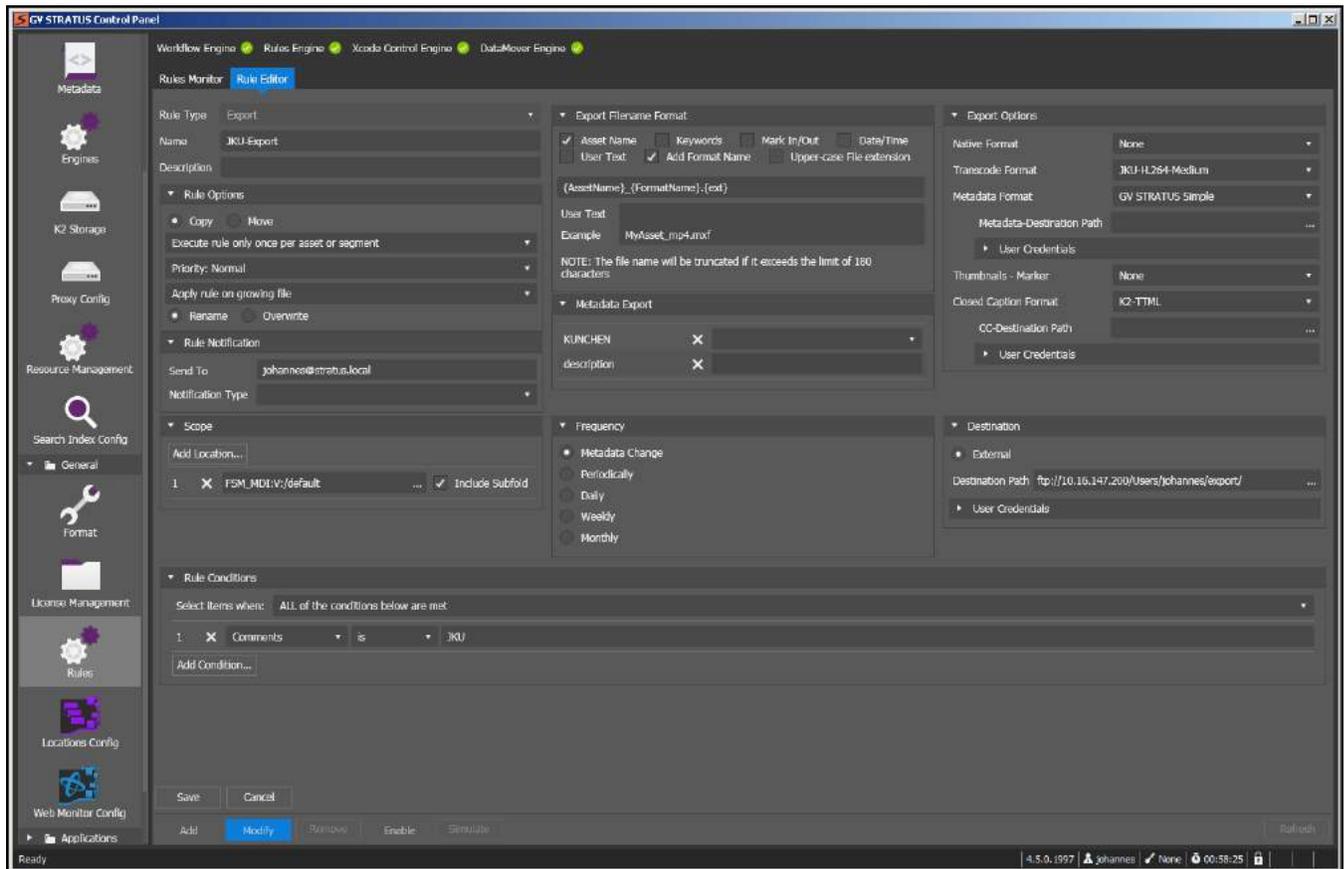


Figure 8. Using the Rules Engine Editor to set up an Import Rule.

Importing Metadata to Create or Update Assets

The metadata features of GV STRATUS import rules can be used to exchange assets with external systems. You can import metadata for an asset that already exists in the GV STRATUS system. This updates the asset's metadata without changing the media essence. Both the asset's metadata and media essence can be updated if desired.

Conversely, metadata can be imported for an asset that does not yet exist in the GV STRATUS system. This creates a metadata-only GV STRATUS asset, ready for future updates with media essence.

A typical workflow for an existing GV STRATUS asset is as follows:

- Export a GV STRATUS asset's closed caption metadata as an XML file to a translation vendor
- The translation vendor adds translated versions to the closed caption metadata
- Import the closed caption metadata XML file into the GV STRATUS system
- The GV STRATUS asset now includes the translated closed caption metadata

A typical workflow for creating a new GV STRATUS asset is as follows:

- Provide a copy of a clip to a translation vendor
- The translation vendor creates closed caption information in an XML file that complies with GV STRATUS metadata
- Import the closed caption metadata XML file into the GV STRATUS system, using GV STRATUS Rule Import Options
- The media essence becomes a part of the GV STRATUS asset

Monitoring the Progress of Rules

The user can monitor the progress of all of the transcode and transfer rules on the GV STRATUS Monitor tool.

Name	Source	Destination	State	Progress	Type
ClifEnviro12-720P.MXF	\\10.1.4.200\nas\Impo...	\\10.1.4.180\TempStorag...	Complete	100%	Transfer Job
ClifEnviro12-720P.MXF	\\10.1.4.200\nas\Impo...	\\10.1.4.180\TempStorag...	Complete	100%	Transfer Job
Aquarium	UnmanagedFTP:V:/01_...	HB-SAN:V:/From Singapo...	Complete	100%	Transfer Job
000TEST1_DEMO002Y	HB-SAN:V:/To Archive/...	FTP-Archive:Archive/New...	Complete	100%	Transfer Job
000TEST1_DEMO002Y	HB-SAN:V:/To Singapo...	HB-SAN:V:/To Archive/00...	Complete	100%	Transfer Job

Figure 9. Viewing the Asset Transfers.

Transcoding with XRE

In addition to using third-party transcoding systems, GV STRATUS also includes its own transcoding service, the XRE, which offers some extra advantages, particularly concerning the ability to transcode a file and use it while it is still being processed. This unique feature allows a much faster turnaround time for material that is not broadcast standard format.

The current workflow for the XRE transcoder is to set up watch folders into which assets are dropped. These are then processed by one or more XRE engines and placed in the K2 SAN. Each XRE engine can process two jobs at a time and multiple engines can be used for large amounts of processing.

Future releases of GV STRATUS will incorporate the XRE into the rules engine so jobs can be initiated based on metadata fields. Additionally Grass Valley is considering allowing the XRE to add logos or “bugs” to material for watermarking or branding.

Importing, Exporting and Transferring

Files or assets can be moved to or from GV STRATUS systems or between devices in a GV STRATUS system.

Importing and exporting media, such as .mov, .mxf, .gxf and mpg (the latter is only supported for imports) is supported through simple drag-and-drop functionality or standard Windows-based browsing. Transfers of clips and playlists between K2 systems can also be via drag-and-drop or through pre-configured send locations. Imports, exports, and transfers can then be monitored within the GV STRATUS user interface. Even transfers that are currently in progress or have failed can be displayed, sorted, and filtered. If appropriate, the job can be re-initiated.

Send Message Tool

With this tool, messages can be sent and received with attachments. When logged on to a GV STRATUS application, messages can be sent to another person that is currently logged on as well. As such it behaves more like an instant messaging service than an email service. However the system can be configured to support email drag and drop of GV STRATUS files between users on the system.

The following items can be attached:

- Clips
- Playlists
- Saved searches
- Workspaces
- Bins
- Advanced Logging button panels
- Tools
- Channel Panels
- Drives

Alternatively, GV STRATUS can also be configured to allow users to drag and drop assets and GV STRATUS Objects from the client into emails or external storage. The system will create a “STROB” (STRatus OBject) which is portable between users and computers, providing it is used within the same system which created it. This allows many of the GV STRATUS assets and objects to be emailed between users if this is required.

Web Monitor Plug-in

To extend GV STRATUS functionality, selected web pages can be set up to appear as tools in user interfaces. In this way, control pages for cameras, routers, and switchers can be incorporated into the GV STRATUS framework. Third-party web page controls are also accessible. The desired web pages are set up by the system administrator.

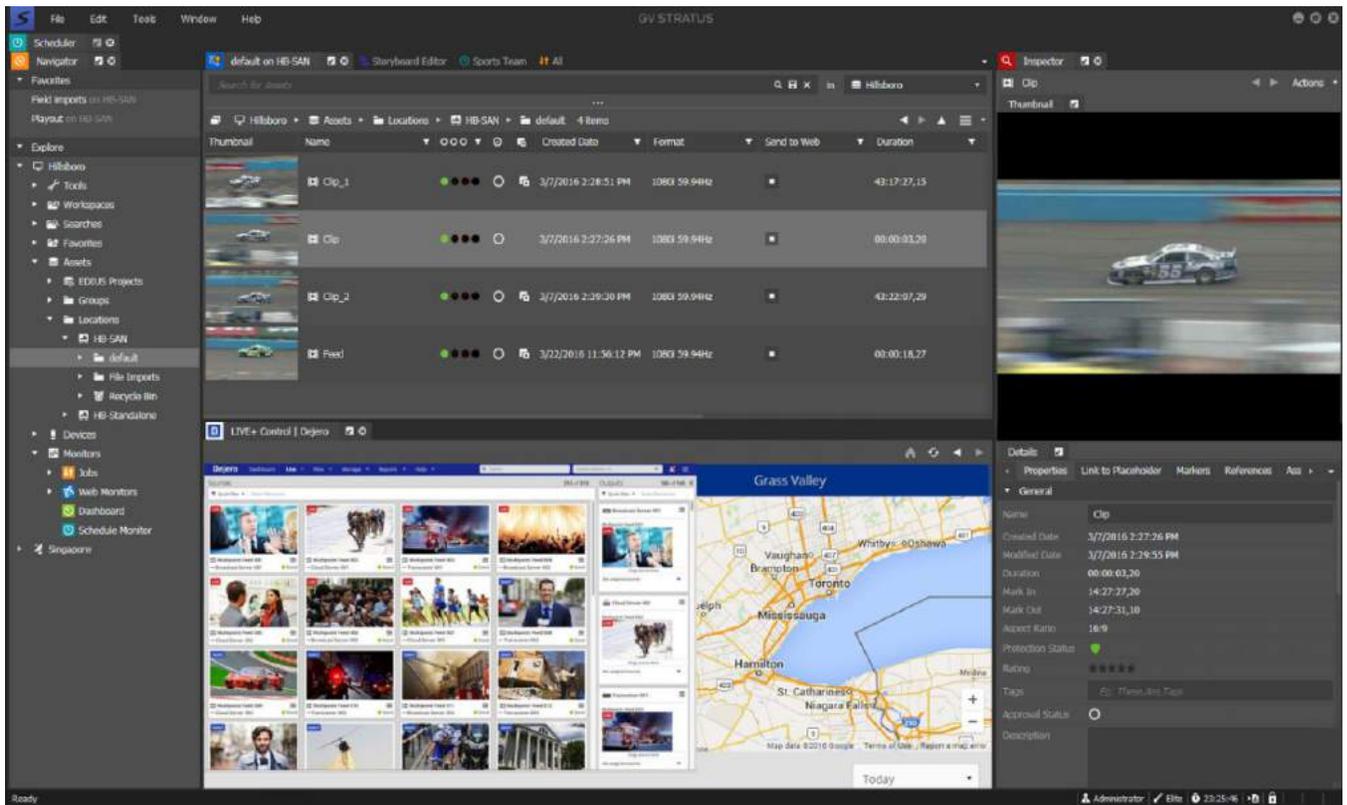


Figure 10. The Web Monitor Plug-in.

Editing

The GV STRATUS News solution provides different levels of editing, depending on the user requirements.

Low-resolution proxy editing is available either using the GV STRATUS Storyboard editor, or EDIUS XS, Grass Valley's feature-rich NLE for low-resolution editing at the newsroom desktop. The low-resolution proxy viewing and storyboard tools can be deployed inside the iNews NRCS system, using the GV STRATUS NRCS plug-in.

High-resolution craft editing can be performed on Grass Valley's EDIUS Workgroup nonlinear editors, a fully-featured craft editing and post-production tool, ideal for news environments due to its turnaround speed capabilities and ease of use. Alternatively other third-party editing systems are fully supported.

Storyboard Editor

This tool is used to assemble and edit a basic sequence. Assets can be dragged into the panel to create or add to a sequence.

GV STRATUS provides multiple ways to preview both currently recording assets and media that has been fully captured. The Source Viewer is a tool to preview assets that can be added to a sequence.

Transport controls, audio meters, time code dialogs and marker buttons are available to the operator. In addition, an optional Shuttle Pro device can be used to control playback and jogging of the media assets. Keywords, markers, or mark-in and mark-out points can be added to the asset. These are preserved when the asset is then added to the sequence.

Once an event is added, it can be split or trimmed. To re-order a sequence, a selected event is moved by dragging it to a new location. As well as cut edits, basic dissolve transitions can be added.

Once an entire sequence is assembled, it can be previewed in the Sequence Viewer, which provides transport controls that are used to navigate through the sequence. Again the system supports use of the Shuttle Pro transport control device if required.

When using the Storyboard Editor, users are offline, which means K2 system channels are not being used. Once saved, the playlist can be immediately played out on a K2 system channel, or transferred to another K2 system. Storyboard editing can include K2 Summit transitions.

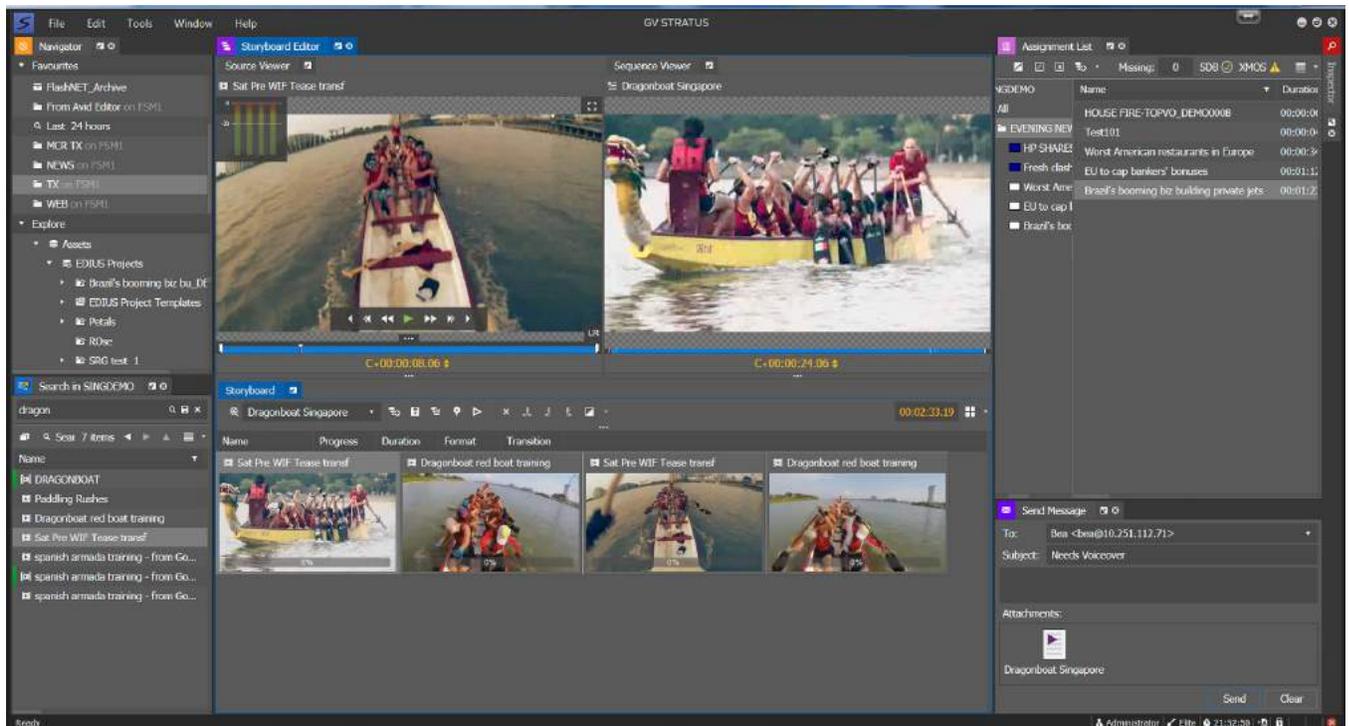


Figure 11. The Storyboard Editor.

Editing With EDIUS

For a more complex edit, sequences can be opened within the Grass Valley EDIUS multifunction nonlinear editing system to create more sophisticated edited content, either in low-resolution with EDIUS XS or the high-resolution craft editing EDIUS Workgroup NLE, both of which are tightly integrated with GV STRATUS. EDIUS is a sophisticated editing system that allows creation of multiple audio tracks, built-in effects and titling and motion tracking for adding blurring or mosaic in the case where identities are to be kept from the viewer.

The user can either access EDIUS from a GV STRATUS client (and work in low-res) or conversely, GV STRATUS can be accessed from an EDIUS Workgroup craft editor system.

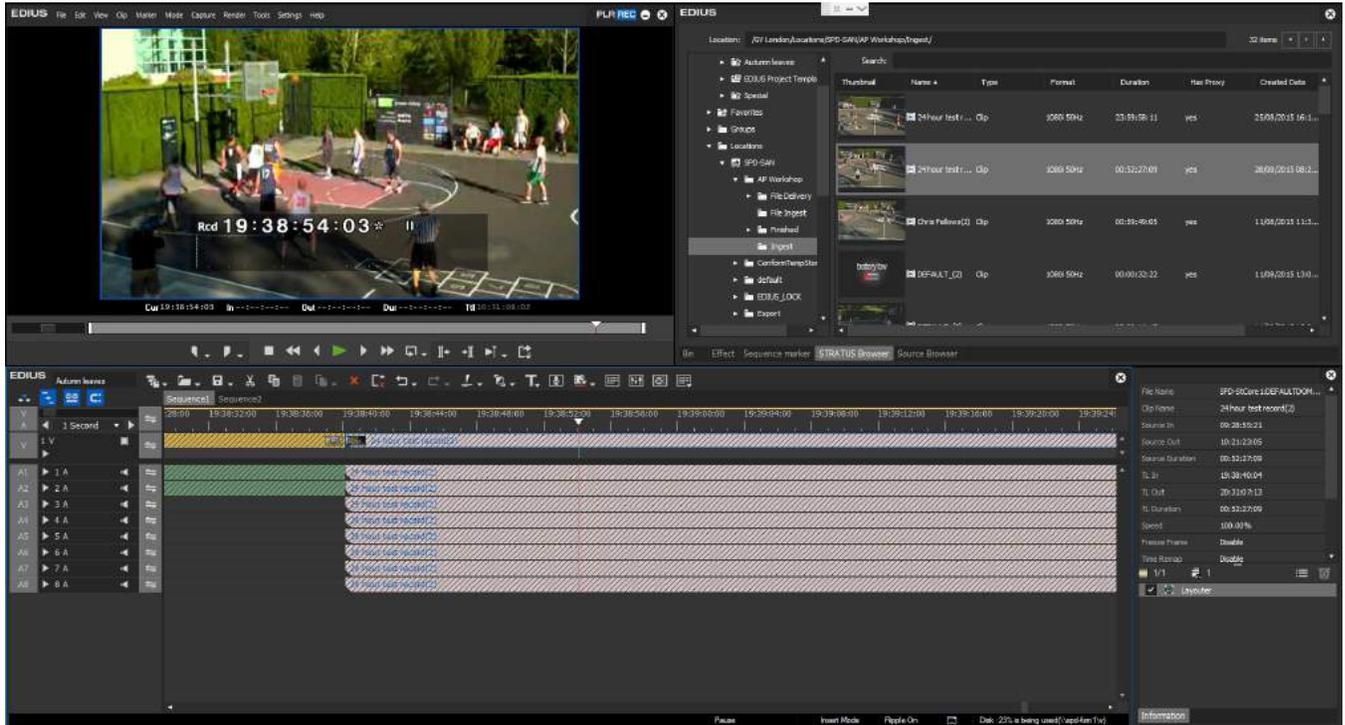


Figure 12. The EDIUS interface.

Third-party Editing Systems

K2 SAN storage provides the ability to mount Final Cut Pro, Avid Media Composer and Adobe Premiere Pro CC editors directly off the shared content, including GV plug-ins which allow users to search and select files from the SAN, edit, and send the final edit to K2 ready for playback.

Adobe Premiere Pro CC integration

Part of Grass Valley's openness is the integration with Adobe Premiere. With GV STRATUS and K2 SAN, we provide the ability for Premiere to connect to K2 storage (SAN only supported) and edit-in-place, including growing files in high resolution.

The GV STRATUS plugin allows users to:

- Navigate to or search for GV STRATUS assets (clips, subclips, sequences)
- View and modify asset metadata
- Register assets into Premiere Project
- Send rendered sequences to K2 using Adobe Exporter
- Associate completed sequences to NRCS stories via access to MOS Placeholders and Rundowns



Figure 13. Working with Adobe Premiere.

Avid NLE Support

GV STRATUS also integrates with Avid Media Composer and Avid Interplay using the Marquis Broadcast MEWS (Medway Engine Web Service) as a gateway service.

Furthermore, GV STRATUS provides transferring capabilities from K2 to the Avid editing environment (either standalone editor, or ISIS storage with Interplay management) and back to GV STRATUS/K2 storage. All GV STRATUS metadata is sent with the asset's video essence.

With the MEWS system installed, the GV STRATUS control panel is used to configure a send destination for each Media Composer workstation. Additionally an import rule is configured so that material can be imported to STRATUS. Once configured, the user can select a clip in the Stratus client (which runs on the Media Composer workstation) and Send to Avid. This presents a choice of sending to the Avid ISIS or Nexis storage, the Media Composer or the Avid Interplay database.

If the configuration includes Avid Interplay, the user will navigate to the relevant folder in Interplay and open the asset in the usual way with

the Interplay window. If there is no Interplay, the user will be presented with a Drag Me icon that is used to drag the files into the Media Composer bin.

Another option is to use the AMA plug-in. With this, it is possible to link to content from the K2 storage and edit-in-place, including growing files (edit-while-recording).

Sending a finished sequence to GV STRATUS is done from the Avid bin and the resulting files are transcoded automatically and placed in the GV STRATUS system.

GV STRATUS supports operation with multiple MEWS engines running on separate servers. Each MEWS engine supports up to three concurrent transcode jobs at a time.

K2 Storage supports Avid DNxHD codecs natively, such as DNxHD 115, 121, 145, 175, 184, 220 Mb for recording, play back, transfer, and edit-in-place with the latest Avid systems.



Figure 14. Working with Avid Media Composer.

Final Cut Pro 7

Final Cut Pro (up to version 7 only) is well integrated into the GV STRATUS system. Users can:

- Connect directly to the K2 SAN or K2 Summit and edit-in-place
- Edit growing files (files being recorded)
- Transfer selected files into FCP storage for editing
- Open sequences from the GV STRATUS storyboard editor
- Send finished pieces to K2 for playback

Using the FCP Connect software option, from Tools in the menu bar, the Final Cut Pro editor selects GV Connect. This is the import/export window for FCP with the K2 system.

For import, the editor navigates to a folder on the K2, selects a file, and previews the video in the K2 Connect window. Then they select either “edit-in-place” or “transfer local.” With edit-in-place, no media is copied, transferred, or moved — the clip is instantly registered into the FCP bin, including any markers.

On export, the sequence is published as a QuickTime movie to the designated K2 folder where it is registered into the K2 database after the transfer is complete. It is then ready for play to air. As a clip, it can be used as an event in the GV STRATUS Playlist Editor. An exported sequence can be linked from the plug-in to a newsroom computer, or by using FCP Connect.



Figure 15. Editing with FCP.

Playout

Material can be output from GV STRATUS in many ways. Direct SDI output can be achieved from the K2 servers using the Channel Panel to control the different K2 channels. In a News Room, stories can be linked to the News Room Computer System (NRCS) using the Assignment List, which creates place holders for clips or sequences. Playout can then be achieved with the GV STRATUS Rundown, which controls the K2 servers for live playout.

Controlling K2 with the Channel Panel

The user can control K2 channels from within the GV STRATUS application, which allow either recording or playback of material.

The Channel Panel is a critical tool for using GV STRATUS within a news environment. With this tool, multiple K2 record and/or play channels from multiple K2 devices can be controlled and managed. By putting a single, unified interface in front of an operator, they can access and control as many channels as are available using a graphical representation that is comfortable and efficient. Channels are given individual identities, and synchronized groups of channels can be quickly created by simply dragging and dropping channel objects together. Multiple Channel Panels can be opened and used simultaneously to suit different workflow needs.

The Channel Panel tool offers a range of capabilities. There are transport controls for an individual channel or a channel group. When ganged, the transport controls will affect the operations of all the channels in a group simultaneously. Individual channels in a group also have overlay transport controls that can control the channel independently of the group. There is a tally indicator function to indicate current operational status by color. When an asset is loaded in a channel, there is an indicator for the type of asset being used. A scrub bar slider helps to find scenes quickly within a clip or playlist. There is live video monitoring of multiple inputs and outputs directly in Channel Panel.

A recording can be started as a simple crash record without specifying a clip name and GV STRATUS gives the clip a default name based on a user's preference settings. A user can also create and name a clip before recording starts.

When using a K2 system configured for ChannelFlex Multicam, two record inputs will be available for the channel.

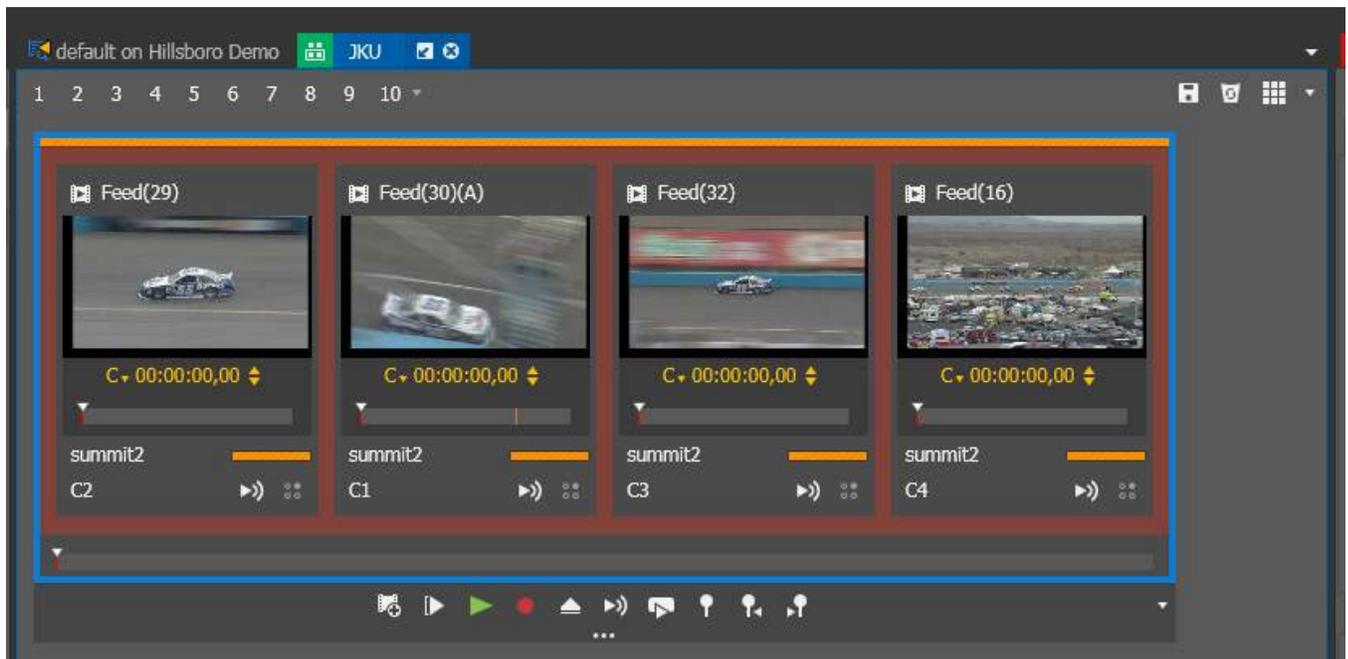


Figure 16. The Channel Panel.

Basic Play

GV STRATUS includes tools for simple playout when a more automated workflow is not required. Play a clip once and stop at the end of the clip. This can be done on a single channel, on all the channels in a group (gang), or on an individual channel in a group. Play a clip in a continuous loop until the playout is manually stopped.

Salvos

A salvo is saved as a part of the Channel Panel configuration. A salvo is a pre-defined set of clips to load into play channels. A salvo can be used when the same channels are set up to play the same clips repeatedly as part of a show. One Channel Panel configuration can have 10 saved salvos. This can be very useful to play background material on plasma screens, or video loops for live programs or interviews.

Playlist

In the absence of an NRCS system the user can also create a playlist. The Playlist is type of asset consisting of a series of events that can be played out from the K2. This is covered in more detail in the Automated Playout section on page 21.

Assignment List

This tool is used to connect to newsroom computer systems and display the list of stories to the user as placeholders. It can also be used to create placeholders for clips, assign those placeholders to newsroom editors, add new sequences and link the resulting clips to rundown stories on a NRCS. The Assignment List uses GV STRATUS Rundown components for operation.

The GV STRATUS plug-in, which offers the full range of GV STRATUS tools (as configured per user rights) can be used with a number of NRCS systems, including ENPS, Octopus, Annova Open Media, Ross Inception and Avid iNews.

Newsroom producers and journalists will be able to create stories on the rundown, assign unique video IDs (or placeholders for video), search for and preview video material (low-resolution proxy on the desktop) and use the storyboard editor to create simple sequences on the NRCS desktop.

A review and approval workflow can also be created so that reporters place their stories and video cuts on a folder for producers or approvers to review, before sending to the playout servers.

Specific folders can be created so that they are used for the final edits ready for transmission.

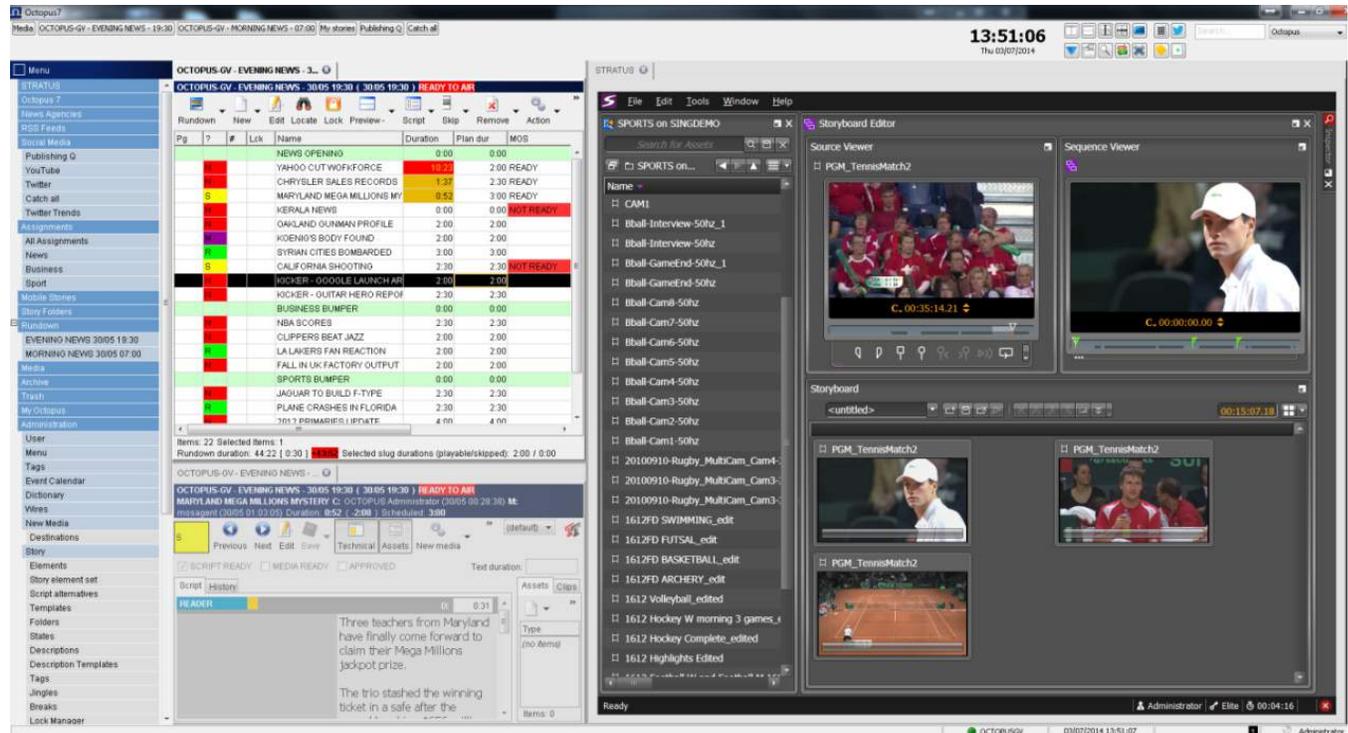


Figure 17. The Storyboard editor inside a window in the NRCS (in this case, Octopus).

The Assignment List features:

- **Missing clip indicator** — Displays the number of missing clips that helps determine the number of incomplete assignments
- **Incomplete placeholder indicator** — Displays blank thumbnails for incomplete placeholders. Completed placeholders are identified by the thumbnail display and READY status in the Status column
- **Placeholder list** — Displays incomplete and completed placeholders. When a rundown is selected, all placeholders in that rundown appear in the placeholder list. When a story is selected in the rundown, only placeholders in that story appear in the placeholder list in the same sequence as in the story
- **Rundown view** — Displays rundowns and stories for each rundown. Rundowns display alphabetically in the panel, while stories appear in sequence as assigned in the NRCS
- The ability to housekeep old Placeholders and their media within the system, providing the user has the relevant permissions in the system

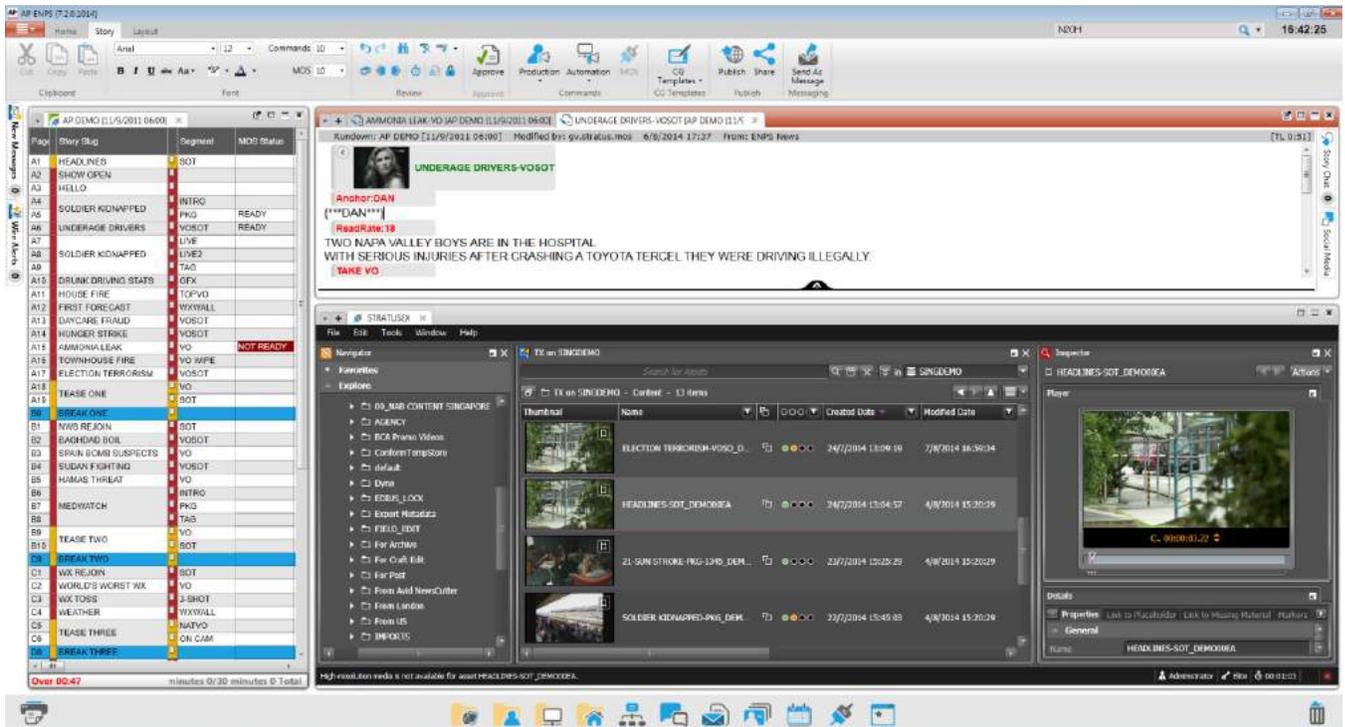


Figure 18. The GV STRATUS window inside the NRCS (in this case, ENPS).

Automated Playback

For automated playback of news programs, the GV STRATUS Rundown is used. This is a playback control system that controls K2 servers for live playback. It includes tools to integrate the program production workflow between K2 Summit/Solo media servers, GV STRATUS, and, optionally, a MOS-based NRCS.

The GV STRATUS Active X plug-in for Playout features automatic placeholder creation and drag and drop from the GV STRATUS plug-in directly to out-of-rotation channels.

To use GV STRATUS Rundown, a GV STRATUS Elite client license is required. By using GV STRATUS Rundown with a K2 media server for playout in live programs, multiple tape machines can effectively be replaced. GV STRATUS Rundown displays each channel simultaneously and playout can be controlled with a keyboard and mouse, X Keys interface or with GPI buttons. The exact configuration of the playout port can be decided by the client, either by distributing them across control rooms, or mirroring server ports for redundancy.

Once edited packages are completed and approved, a producer or editor can send them to the transmission servers from EDIUS or GV STRATUS user interface. It only takes a few seconds (up to 7) to make the material available on the playout servers, and playout can begin whilst transfer is still in progress.

Alternatively, for last-minute edits, it is possible to control any of the SAN-mounted K2 Summit servers. It is extremely fast and simple to use GV STRATUS Channel Panel to take control of a spare SAN-mounted server port and play clips or sequences directly from the SAN, without having to transfer to the playout server.

It is equally easy and fast to load a clip that is currently being ingested live, onto a SAN-mounted port for playout. This means that, within 2-3 seconds of live footage being ingested, it is possible to play it out of the SAN storage. This gives extreme flexibility and speed for breaking news.

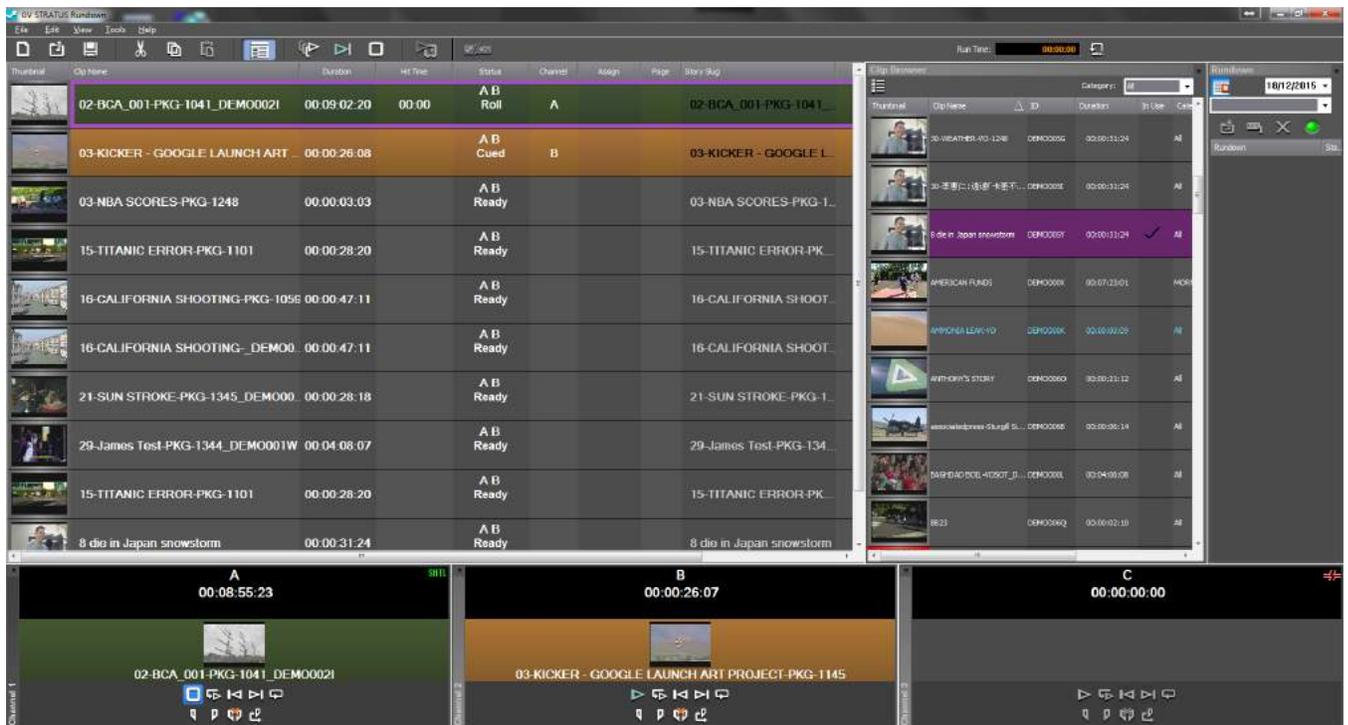


Figure 19. GV STRATUS Rundown.

Playlist Editor

In the absence of an NRCS system the user can create a playlist. The playlist is type of asset consisting of a series of events. A playlist contains only events, transitions, and other features supported on the K2 system channel. Assets can be dragged into the Playlist Editor to create or add to a playlist. Assets in a playlist are called events. An asset or multiple assets can be selected to add to a playlist in the order selected. To change the order of a playlist, move a selected event by dragging the event to a new location. The user can select which K2 system and which channel is used to create the playlist. There is live video monitoring of multiple inputs and outputs directly in Channel Panel.

The Playlist Editor creates and modifies playlists. When using the Playlist Editor, users are online, which means a K2 system channel is being used for the playlist. A playlist is always an asset in K2 storage and is saved automatically as it is being modified. Playlist editing can include K2 Summit transitions.

Playlists can be opened within EDIUS to create more sophisticated edited content.

Multiplatform Delivery

GV STRATUS provides an easy-to-use and configure toolset to facilitate publishing to multiple platforms, such as video-on-demand portals, external customers, or social media such as YouTube and, in an upcoming release, Facebook, Twitter and Snapchat. Via the workflow rules engine, users have the ability to make a simple drop-down menu selection via the GV STRATUS user interface, which will then trigger the necessary tasks — in the background — to distribute content to selected platforms, simultaneously.

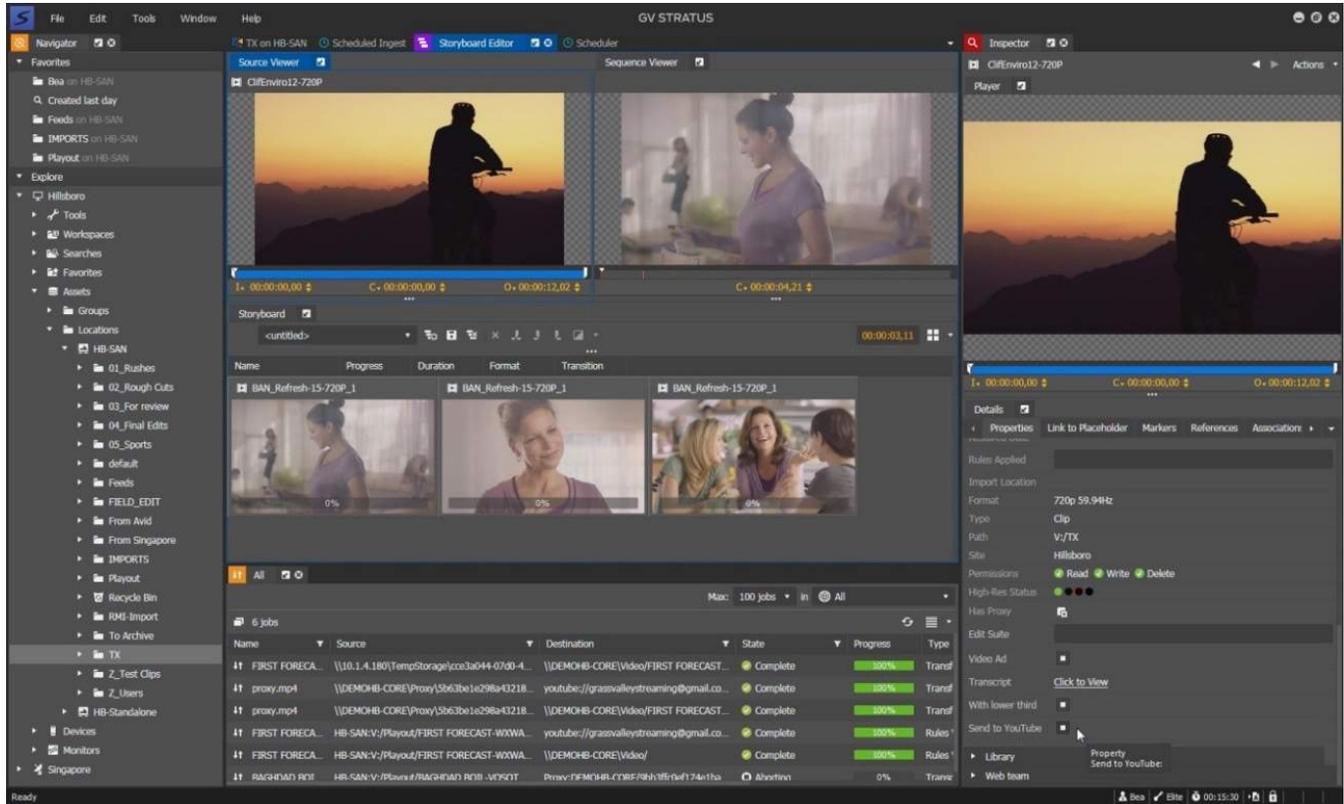


Figure 20. Sending assets to YouTube.

Here is a summary of this process:

- In the GV STRATUS Control Panel, your System Administrator creates a workflow rule that specifies where the assets will come from (for example, from the “Final Edits” bin on the K2 storage) and where they will go to — whether that is your website Content Management System, a YouTube channel, or a video-on-demand portal.
- The workflow rule also allows you to specify the target format and resolution for the video essence, either in its native resolution or transcoded. If it’s the latter, GV STRATUS will interface with one of our third-party transcoding partners, such as Harmonic WFS, Teletstream Vantage or Elemental Server. In this way the same video essence can be exported in various formats and resolutions to fit to meet the requirements of different mobile devices, such as tablets and smartphones. Depending on the transcode options available, it is possible to automatically add an opener and closer, a logo or a lower third graphic to the video essence during the export process.
- When exporting the video essence, GV STRATUS can also be configured to export a whole set of metadata (specific fields can be preset) as an xml or mrss file. Thumbnails, as selected by the user, can also be part of the export request, as well as closed captioning data. The metadata file can also contain information that triggers specific actions on the Content/Web Management System, such as regional ad insertion.
- GV STRATUS provides the ability to directly export native proxy to a YouTube account simply pushing a button or via automatic workflow rules. The next release of GV STRATUS scheduled for Q4 2017 will also allow export to Facebook, Twitter and SnapChat and will also allow dynamic linking to YouTube so that the user can gather statistics about viewer count and the number of “likes” etc.

Grass Valley For News — Unique Strengths

Ingest

- The low-resolution proxy video is created by the K2 Summit/Solo ingest servers, during the recording, simultaneously as the high resolution recording takes place. There are no delays or post-proxy creation needed for any recordings made via the K2 Summit/Solo servers. Both the low and high resolution media is available to all GV STRATUS and EDIUS users around 3-5 seconds after the recording has begun.
- Play-while-ingest and edit-while ingest are available, whether the media is ingested via baseband record or RMI import.
- The GV STRATUS Scheduler Ingest tool allows the user to check the low resolution video of every recording within the resizable GV STRATUS source viewer, even check the E-to-E feed into each server port, without the need for a dedicated SDI monitor for pre-view or confidence check.
- GV STRATUS's ingest tools do not have limitations with regards to what channels can be controlled by which user workstations. This is fully configurable, any number of ingest channels can be distributed across any workstations, and allocated to different users, if needed, or all controlled from the same user interface.
- K2 Summit in/out ports are bidirectional, and do not need to be reconfigured or rebooted to change this function. If any recording ports are not in use on the K2 Summit SAN-mounted clients, they can be easily controlled and used for layout.
- If multi-camera studio recordings are needed, the ChannelFlex option allows recording multiple cameras per each single channel of K2 Summit.

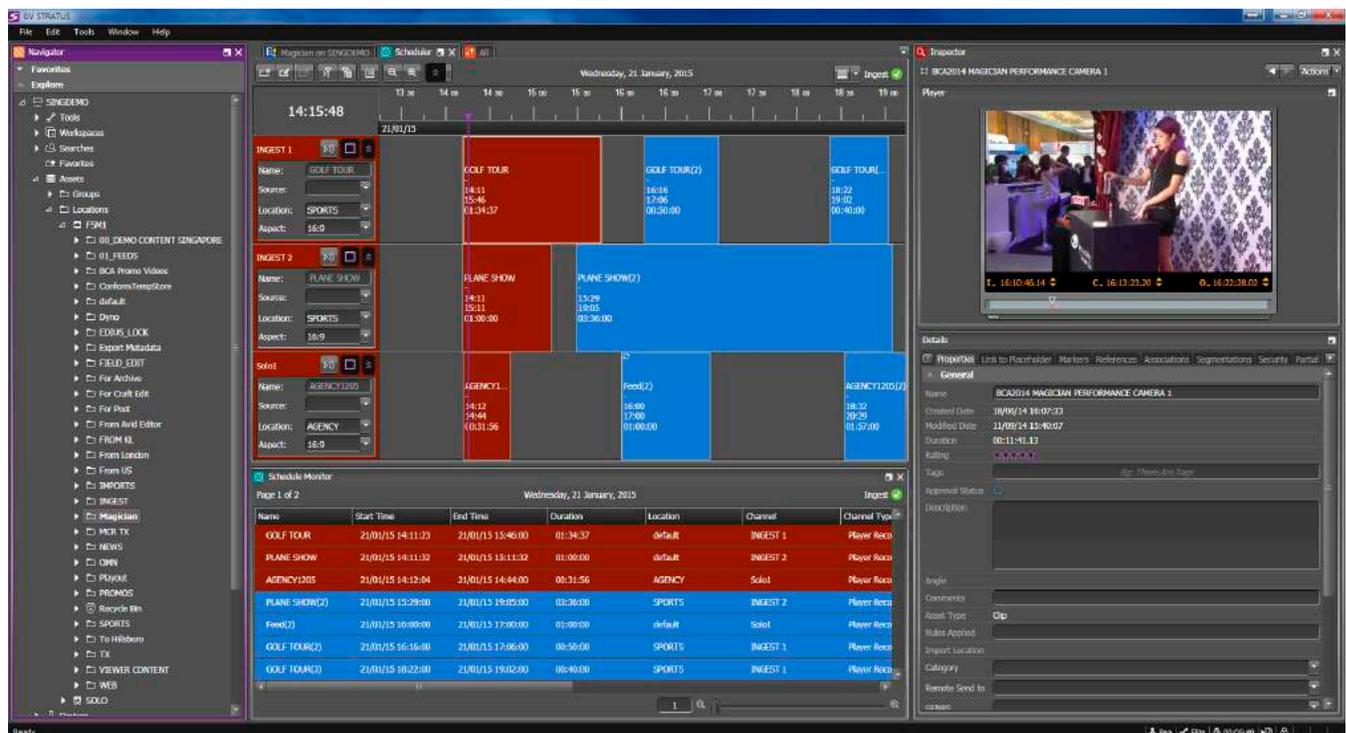


Figure 21. GV STRATUS Scheduler.

Newsroom System (NRCS) Integration

- The GV STRATUS system provides a fully-fledged plug-in for any MOS-compliant newsroom system, including Octopus, ENPS, Ross Inception, Annova Open Media and Avid iNews (and a wide range of other solutions, some applicable in specific regions of the world). Integrated within the NRCS user interface, the user can search the whole media database, preview video, perform rough cut edits, preview a finished edit and send to playback. All of it without leaving the iNews interface. The layout below is an example and all windows can be repositioned and resized.
- GV STRATUS offers a low-resolution viewer inside the NRCS, so when a user double-clicks on the MOS object inside the NRCS story script, this will launch the GV STRATUS source viewer, so that the finished edit can be reviewed on the desktop. This is extremely useful for supervisors before approving stories, producers to check status of an edit, and even in the playout control room before playing a story to air for a final review.
- GV STRATUS offers a simple (and free!) Newsroom user license, for users who only need to link assets in GV STRATUS to placeholders; however this does not include video preview/browse.

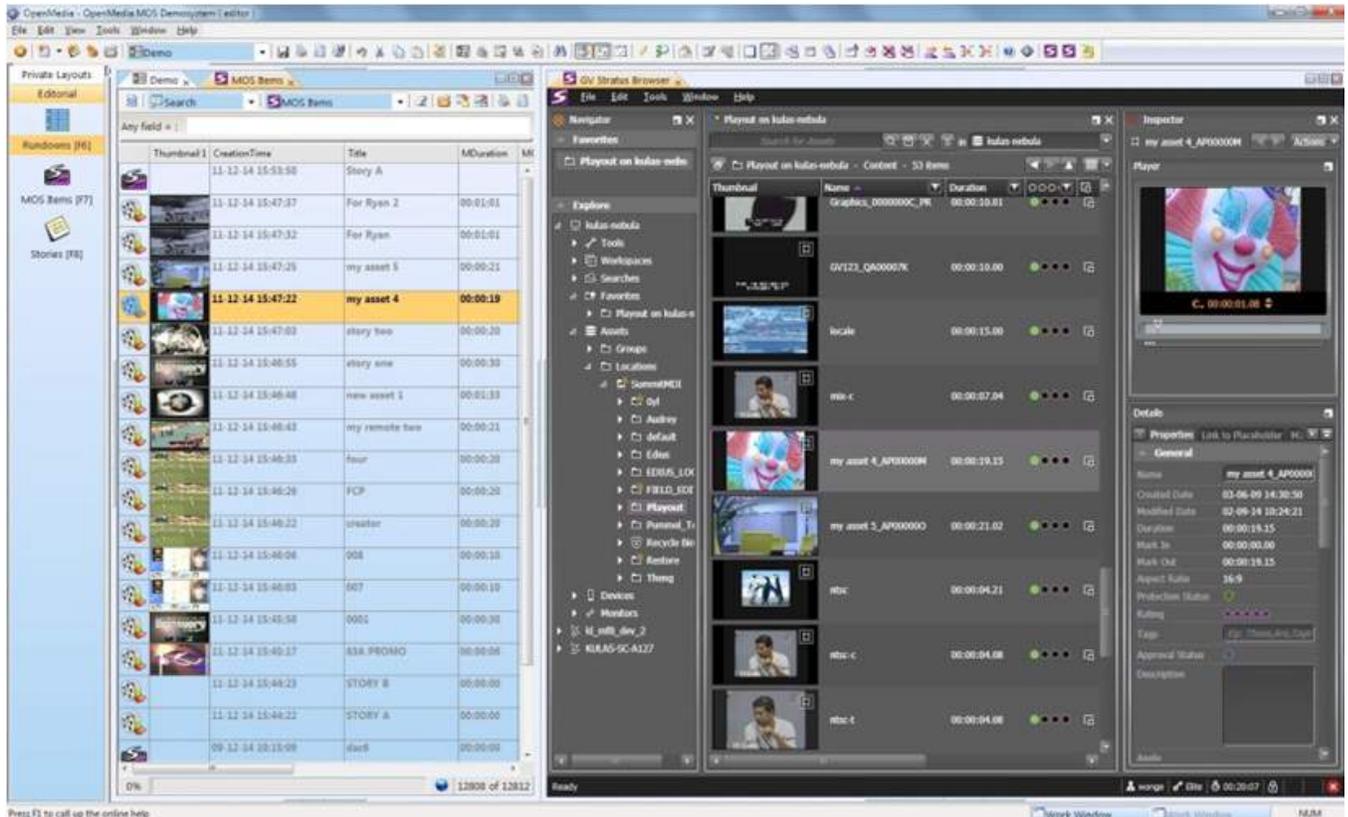


Figure 22. GV STRATUS Browser inside NRCS (Open Media).

Playout

- The GV STRATUS Rundown tool (for news studio playout) allows the preview of low-resolution video of each edited story (or any clip in the system) before playing to air, from within the user interface. This does NOT require an SDI playout port, so it can be done whilst playing media on air on the K2 Summit. It also allows the user to trim a clip before playing out, if needed.
- K2 Summit can play SD and HD, and automatically apply Aspect Ratio Conversion based on AFD information. It can also natively a range of codecs, without the need to transcode or rewrap, mix and match within the same asset.

Media/System Management

- It is possible to create media management/deletion rules so that material can be automatically deleted according to certain criteria or metadata (e.g., all files with certain metadata field or condition, or even an empty field, will be moved to a folder, or deleted, etc.). For

manual deletion, it is possible to create and save complex searches to find material easily for deletion.

- The GV STRATUS asset database is based on Microsoft SQL, hence IT-standard. This means it's easy to maintain and back up. It can also be easily queried from external SQL queries, to either extract or add metadata or create rules (e.g., to move, copy, delete...). This asset database is lean typically small in size, because we do not build complex asset/metadata relationships between assets.
- If GV STRATUS security is enforced, the user credentials can be used to restrict permissions. The credentials must also give access to all K2 systems. All assets and metadata can be protected based on a user's Windows login. Thus a user can be given permission to read only, write (metadata) or delete. This can include the ability to create, update or delete markers. If permissions are restricted, buttons, list items, and other controls can be disabled or hidden. In a future release, permissions will also be extended to other resources — channels for example.

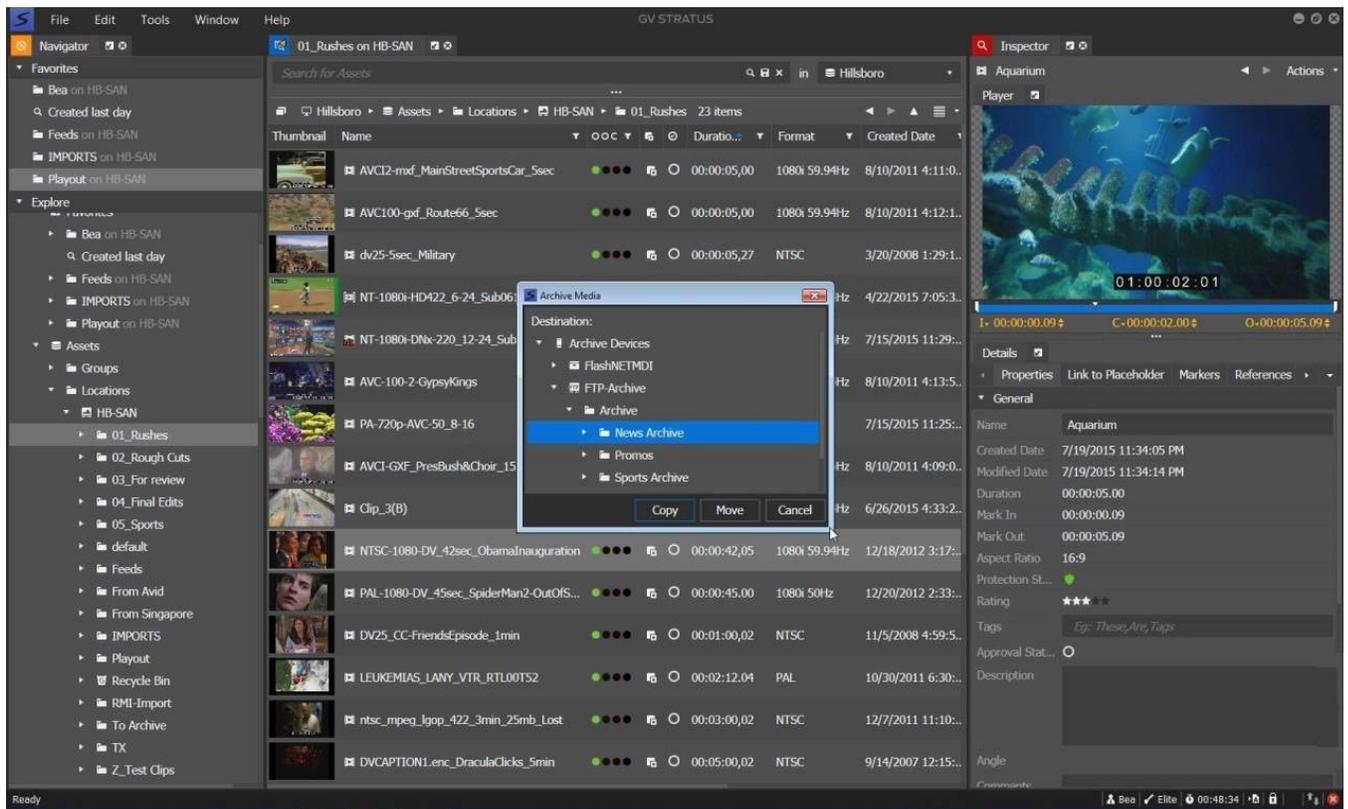


Figure 23. GV STRATUS Archive.

Archive

- For a newsroom's archive needs, GV STRATUS can integrate to existing digital archives via the Generic FTP Archive solution. GV STRATUS can send to the archive and restore from the user interface and the user can also restore from the Archive in the EDIUS editing application. But equally, GV STRATUS can keep a low-resolution copy of the video on the SAN, with the full metadata. This means it can be searched by all newsroom users. They can view the low-resolution material, start editing in low resolution and request a restore (from the librarians, if required), of the high-resolution media which is stored on the digital archive.
- GV STRATUS has an even tighter integration with Oracle Diva, SGL FlashNet and MassTech MassStore archive management systems including the preservation of full metadata and support for Partial File Restore (where licensed in the archive system).
- Furthermore, the GV STRATUS RESTful archive API allows any third-party archive system to be integrated with STRATUS providing full and partial archive and restore processes.

RESTful API

- GV STRATUS provides a full RESTful API, which can be made available to third parties and system integrators for new tool/application development. This has allowed many of our existing customers to add custom functionality and facilitate their users' workflows even further. Please contact your Grass Valley representative for more information.

Job Monitor

The GV STRATUS Job Monitor lets the user monitor the progress of transfers, conforms, transcodes and rules workflows. As well as a progress bar the transfer speed is displayed and the user can retry failed jobs if necessary. Any job performed as a rules workflow can be viewed in detail for troubleshooting.

The Job Monitor allows a user to filter and sort the results within each metadata “column” of the Job Monitor, and multiple Job Monitors can be opened simultaneously, each selected to a different job type or aspect of the workflow. This provides quick and easy access to the status of key tasks within the system.

Name	State	Progress	Transf...	Type	Tran...
dubai_race_DVCPROHD	In Progress	6%	255.10 Mbit...	Transfer Job	
C&C_TestClip_6_30sec	Complete	100%	0	Transfer Job	
C&C_TestClip_5_30sec	Complete	100%	0	Transfer Job	
Bikinis_DVCPROHD	In Progress	24%	174.74 Mbit...	Transfer Job	

Figure 24. The GV STRATUS Job Monitor.

GV STRATUS Web Client

GV STRATUS 5.7 introduces Phase One of the GV STRATUS Web Client, which allows users to browse the GV STRATUS system from any web-based interface such as Google Chrome or Apple Safari. This will also work on tablets, smartphones and other handheld devices. The GV STRATUS Web Client consists of the Navigator, Asset List, and Inspector panels. You can search for assets, navigate to assets, view assets in the MP4 video player, modify asset properties, insert markers/keywords into assets, and regenerate proxies for assets. With this workflow, a user can easily view high-resolution media, insert markers or keywords, and regenerate proxy in just one workspace.

The GV STRATUS Web Client can be opened in a supported web browser, such as Chrome, Firefox, Safari and Edge, using a web address template provided.

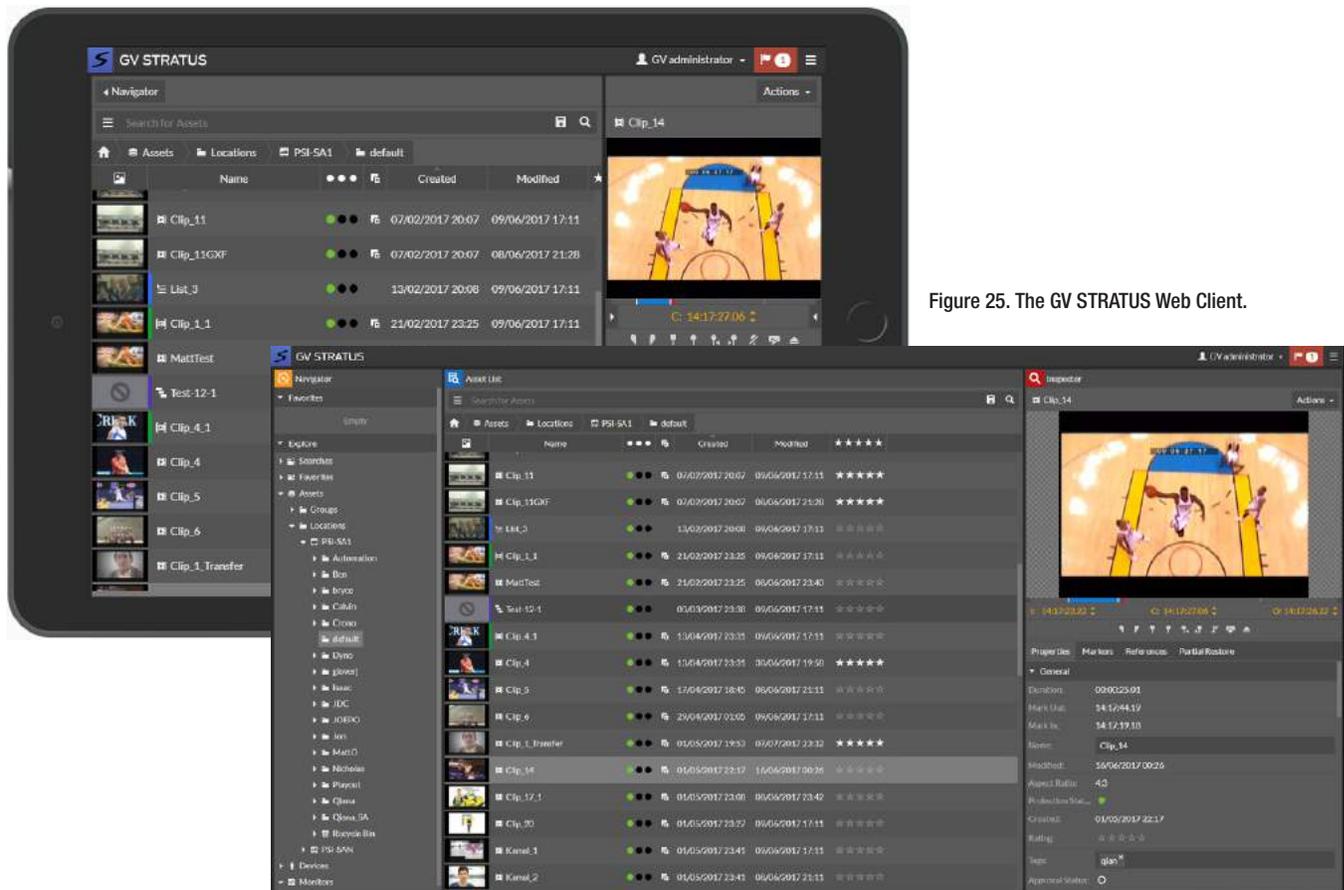


Figure 25. The GV STRATUS Web Client.

Summary of GV STRATUS Licenses and Tools

Features	NRCS	Express	Flex	Pro	Elite
Active X Plug-in	✓	✓	✓	✓	✓
Assignment List	✓	✓	✓	✓	✓
Messenger		✓	✓	✓	✓
Web Monitors		✓	✓	✓	✓
Core UI Features		✓	✓	✓	✓
Scheduler Read-only Views		✓	✓	✓	✓
Storyboard Editing		✓	✓	✓	✓
EDIUS XS			✓	✓	✓
Online Playlist Editor				✓	✓
Channel Panel				✓	✓
Removable Media Ingest				✓	✓
Advanced Logger				✓	✓
Scheduler					✓
GV STRATUS Playout					✓
Transfer Scheduler					✓