ETERE:

A Digital Media Workflow and Asset Management Solution for Post-Production Houses

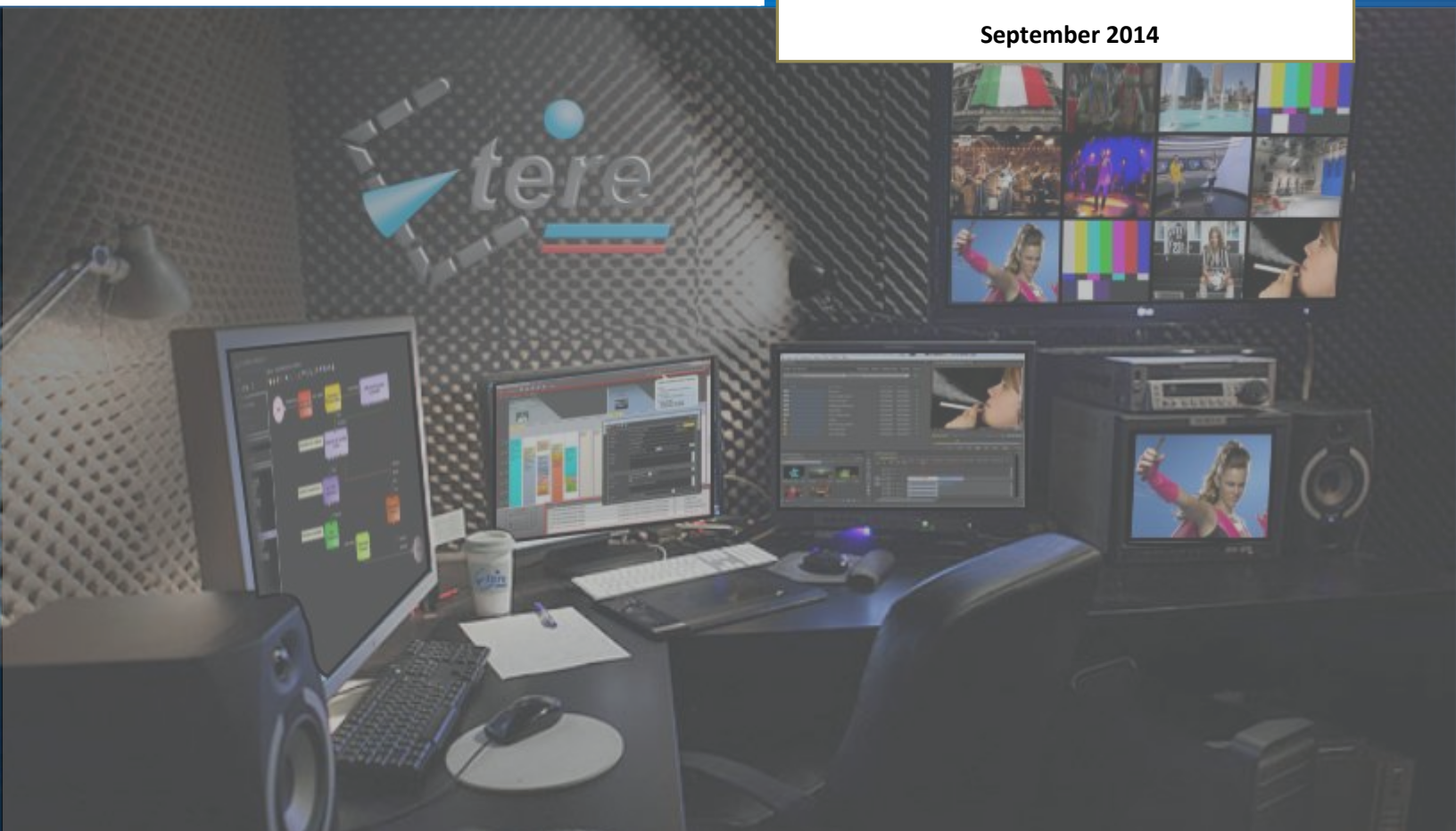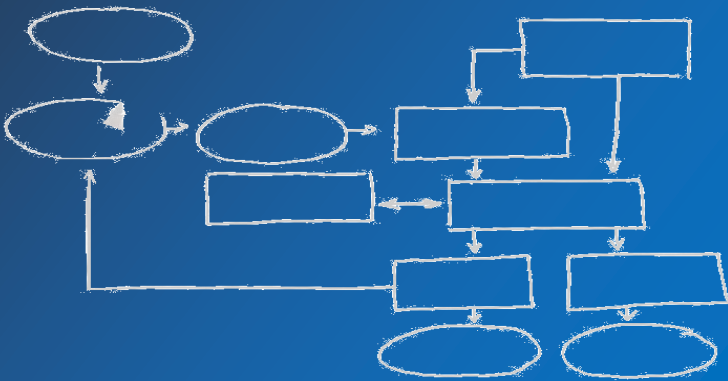## Table of Contents

▼ 1.　　CHALLENGE

In the rapidly changing media industry, post-production houses are facing the need to improve their competitiveness by reducing content acquisition and distribution costs, improving asset management and automating the delivery of content across multiple targets.

Post-production houses need a flexible infrastructure able to rapidly accommodate to changes derived from increasingly complex video editing workflows. In this scenario, sharing information between systems and handling projects with several files are crucial challenges.

In this scenario, a **digital media workflow and asset management** solution is critically required to integrate multiple asset management tools, repositories and workflows into a single streamlined and automated file-based system able to significantly reduce costs and complexity while extending content acquisition and distribution across multiple environments.

EXPECTED BENEFITS

✓ **Flexibility**, to meet all requirements and handle all metadata and equipment managed internally and externally (customers and providers)

✓ **Scalability**, to increase complexity without altering the workflow, minimizing operational overheads and overall costs

✓ **Efficiency**, to reduce repetitive manual operations, allowing to define operations in advance within streamlined workflows

✓ **Reliability**, to use automatic workflows provided with detailed logs for tracking the overall and individual functioning of the system

✓ **Accuracy**, to reduce the risk of mistakes when archiving projects related to several files and introduce automatic and manual quality checks

✓ **Integration**, to bring straight access to the archive through a secure web interface available on non-linear editing systems

✓ **Security**, to grant operations based on specific user permissions depending on the structure of the an Active Directory domain

✓ **Usability**, to guarantee a smooth use and intuitive management of media content through a sophisticated graphical user interface

▼ 2.   SOLUTION

ETERE provides a workflow-based framework for all typical activities of **Production Asset Management** including scheduling and usage of mediums, assignment of physical production assets (editorial suites, storage media, drives or transports), extended management of elements for content assembly (original raw assets, proxies, versioning, protection, backup, and release masters).

ETERE MERP is the revolutionary approach that unifies the entire spectrum of media asset management to store, manage and access digital files while ensuring the scalability, cost-effectiveness and reliability of the global system. **ETERE MERP** is the cutting-edge framework to manages all production projects from their start to their finish, including promo creation, tape copying, media editing, subtitles generation, audio dubbing, and more.
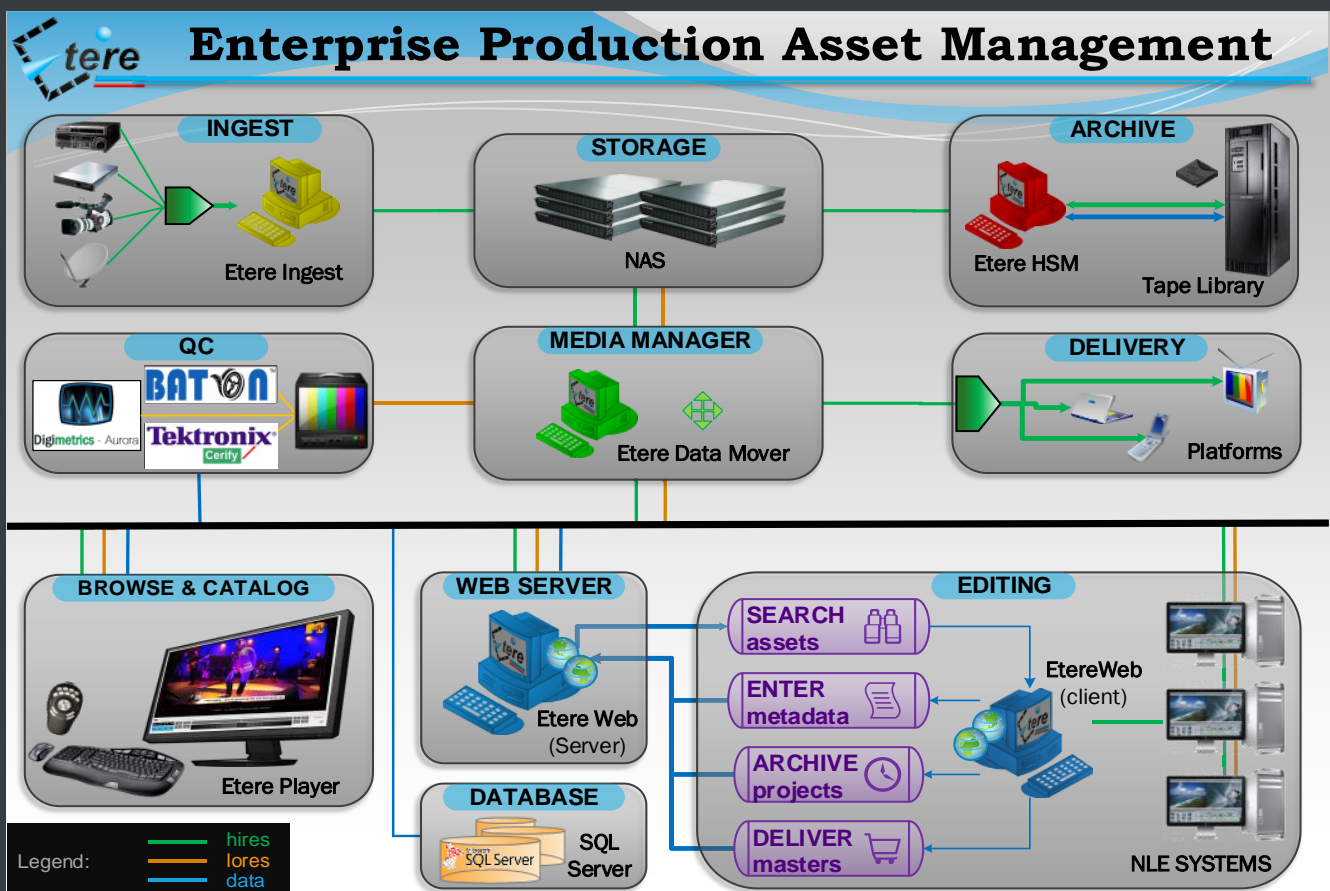
▼ 3.   FEATURES

The Etere-based system will comprise media ingest, archive, management and distribution solution combining powerful modules with an easy to use interfaces. Etere's solution consists of a media archive system with acquisition, management and delivery capabilities of multipurpose media, it lies on a **workflow-based framework** able to cover the end-to-end archive management including ingest, storage, metadata, search, production and delivery.

CHARACTERISTICS

- **Distributed** architecture managed via **workflow** to avoid any single point of failure
- Enterprise management of digital content under a **file-based** environment
- Seamless **integration** with existing and co-existing systems
- Fast, safe and fully-tracked **local/remote access** to the content archive
- Enterprise management and **transport** of media between storage devices
- On-demand media **transcoding** to always deliver the correct media format
- **Quality control** to ensure the reliability of archived assets over short and long terms
- High preservation and **high availability** of archived and catalogued media content
- Browsing features including **preview**, slow-motion, time code, bookmarking and metadata
- Robust **editing** functions including video cut, merge, overlay and restore
- Best flexibility on **digitizing** media content from multiple sources
- Full integration support for **NLE systems** including archive upload/download
- Reliable **monitoring** of the modules and equipment integrated within the global system

ETERE is an integrated broadcasting solution that implements a modular system formed by a set of modules specifically oriented to cover each complex phase of a broadcasting system, focusing to efficiently carry out specific operations such as ingest, archiving, transferring, browsing, etc. Modules typically included in a **post-production system** are listed below:

MODULES

- ➤ **EtereWeb,** web-based access to view, preview, manage and download/upload assets
- ➤ **Etere Ingest**, flexible media acquisition from a wide range of sources including live feeds
- ➤ **Etere HSM,** automatic tape-based storage system for long-term storage management
- ➤ **Etere DataMover,** intelligent and fast transfer and transcoding between devices (SAS, NAS, etc.)
- ➤ **Etere Workflow,** automated management of assets and resources
- ➤ **Etere Player**, Browse hires and lowres files with advanced cataloguing capabilities
- ➤ **Etere CMS**, Automatic control of audio and video issues on stored media
- ➤ **Etere QC Integration,** Connect the most common QC solutions (e.g. Baton, Aurora, Cerify, etc.)
- ➤ **NLE Plugins**, straight archive access from Adobe Premiere and project archiving for Avid

▼ 3.1.   BUNDLE PROJECTS

Etere supports **bundle assets**, special assets that contain other different assets and/or files referenced through a parent-child relationship:
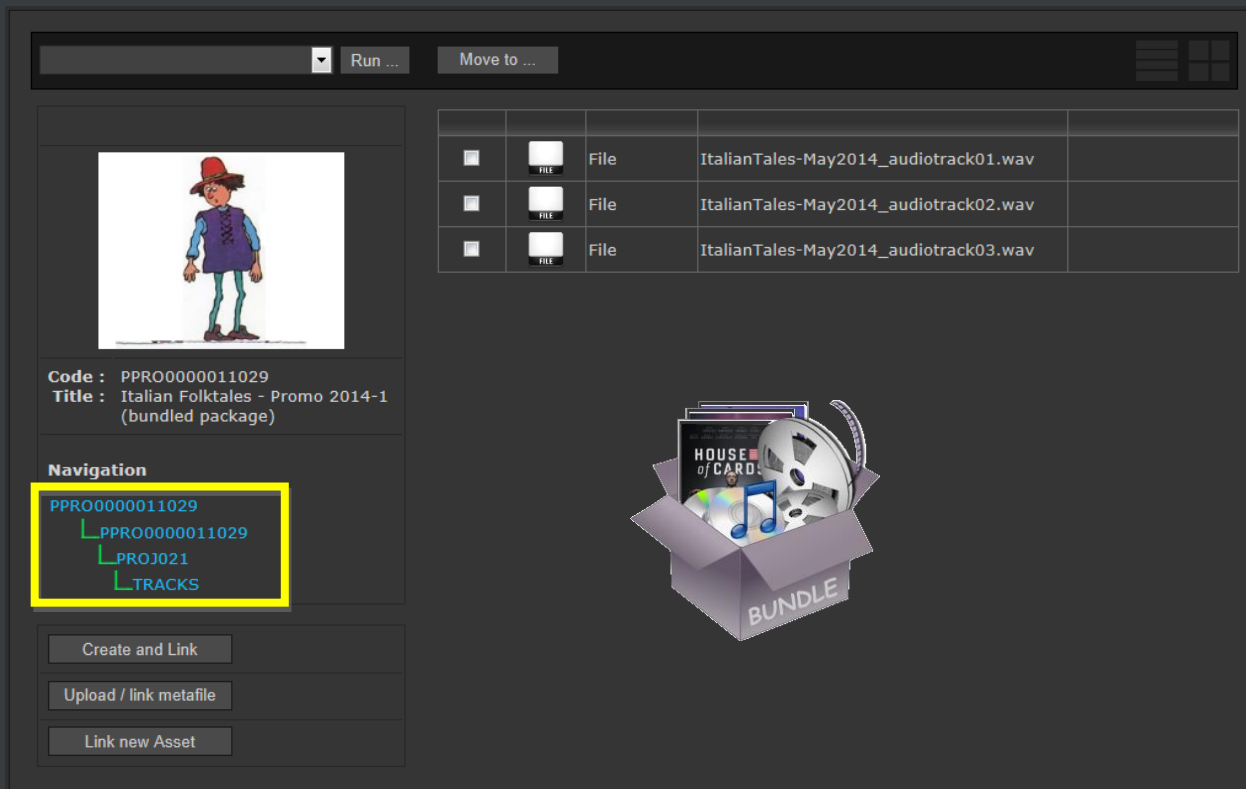
- ➢ Bundle assets are managed through a special interface

- ➢ Bundle assets can contain multiple items (assets, files and directories)

- ➢ Bundle assets are stored maintaining a folder structure

- ➢ Bundle assets support uploading/downloading individual contained items

- ➢ Bundle assets can be managed using item-specific workflows

- ➢ Bundle assets are defined through a special property

Multiple files belonging to a project (e.g. within a given folder) can be loaded in the Etere system as a single metafile, keeping and moving all them together when requested:

External storage (source)				Etere archive (target)		
Original path	Original sub-path	Original filename		Target path	Target unique name	metafile
\\Projects\BundleJersey\		Script.docx	->	\\Archive\Hires\	06450000000000007443	06450000000000007442
\\Projects \BundleJersey\		Lowres.mov	->	\\Archive\Hires\	06450000000000007444	
\\Projects \BundleJersey\		Hires.mov	->	\\Archive\Hires\	06450000000000007445	
\\Projects \BundleJersey\	Audio	musix.aif	->	\\Archive\Hires\	06450000000000007446	
\\Projects \BundleJersey\	Audio	sfx.aif	->	\\Archive\Hires\	06450000000000007447	
\\Projects \BundleJersey\	Audio	sot.aif	->	\\Archive\Hires\	06450000000000007448	

Additionally, a key feature allows exporting projects restoring their original structure (i.e. path, sub-path, filename) using a **"Multistep Copy DataMover"** action:

Etere archive (target)				External storage (source)		
metafile	Target path	Target unique name		Original path	Original sub-path	Original filename
06450000000000007442	\\Archive\Hires\	06450000000000007443	->	\\Projects\BundleJersey\		Script.docx
	\\Archive\Hires\	06450000000000007444	->	\\Projects\BundleJersey\		Lowres.mov
	\\Archive\Hires\	06450000000000007445	->	\\Projects\BundleJersey\		Hires.mov
	\\Archive\Hires\	06450000000000007446	->	\\Projects\BundleJersey\	Audio	musix.aif
	\\Archive\Hires\	06450000000000007447	->	\\Projects\BundleJersey\	Audio	sfx.aif
	\\Archive\Hires\	06450000000000007448	->	\\Projects\BundleJersey\	Audio	sot.aif

A detailed **report** on all imported files can be generated at any time to view the content of a project:

Metafile properties

Name	06450000000000007442
Codec	PROJ - PROJECT
Device	ARCHIVE

Path	Filename	Size	Original subpath	Original filename
C:\demo_archive\HIRES\	06450000000000007443	16.1435 M b		MTV_WDS_JERSEYSHORE_S5_EP_502_15SEC_LOWRES.mov
C:\demo_archive\HIRES\	06450000000000007444	110.715 M b		MTV_WDS_JERSEYSHORE_S5_EP_502_15SEC_PAL_CL_IMX.mov
C:\demo_archive\HIRES\	06450000000000007445	11.71 Kb		MTV_WDS_JERSEYSHORE_S5_EP_502_15SEC_SCRIPT.docx
C:\demo_archive\HIRES\	06450000000000007446	2.74982 M b	MTV_WDS_JERSEYSHORE_S5_EP_502_15SEC_AUDIO\	MTV_WDS_JERSEYSHORE_S5_EP_502_15SEC_MUSIC.aif
C:\demo_archive\HIRES\	06450000000000007447	2.74982 M b	MTV_WDS_JERSEYSHORE_S5_EP_502_15SEC_AUDIO\	MTV_WDS_JERSEYSHORE_S5_EP_502_15SEC_SFX.aif
C:\demo_archive\HIRES\	06450000000000007448	2.74982 M b	MTV_WDS_JERSEYSHORE_S5_EP_502_15SEC_AUDIO\	MTV_WDS_JERSEYSHORE_S5_EP_502_15SEC_SOT.aif

▼ 3.2.   STORAGE

Etere leverages their more than 24 years of experience in the broadcast and media management field to provide a fully comprehensive solution to ingest, archive and use media, offering a single platform able to manage your assets with the maximum of flexibility and accuracy:
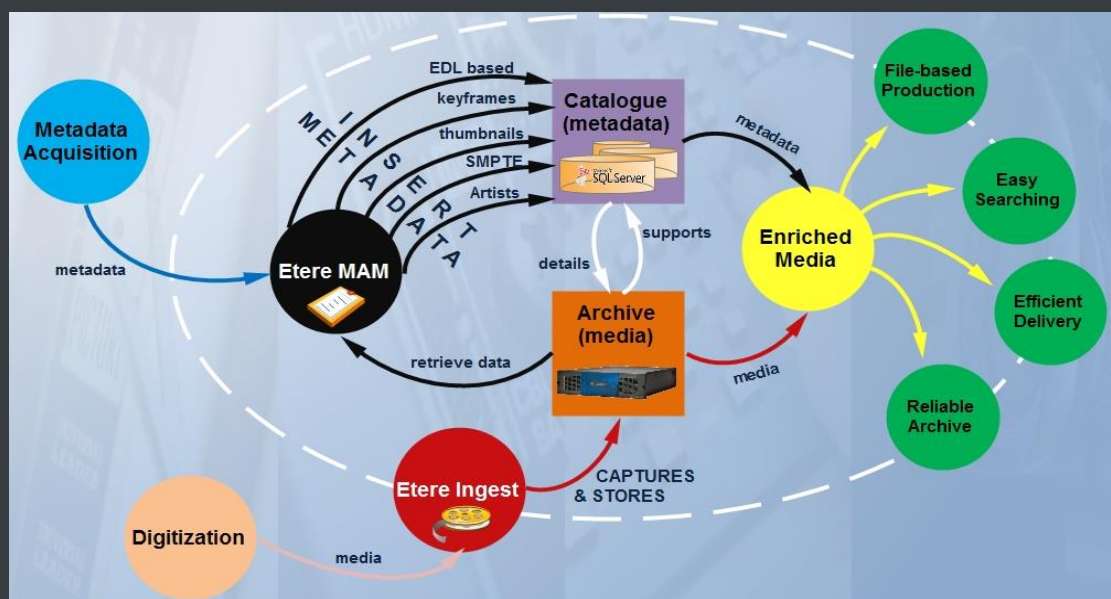
▼ 3.2.1.   Media Ingest

Etere Ingest improves digitization inside a broadcasting system, it supports baseband and file-based acquisitions of parallel ingest streams, managed automatically by a single or multiple workstations:

(Automatic ingest)

(Schedule ingest)

(Planned ingest)

(File-based ingest)

Once ingested, video files are transcoded into the specific format of the destination device on which they will be stored, in the same way, video files are transcoded each time they are moved from one device to another (e.g.: archiving, delivery, etc.):
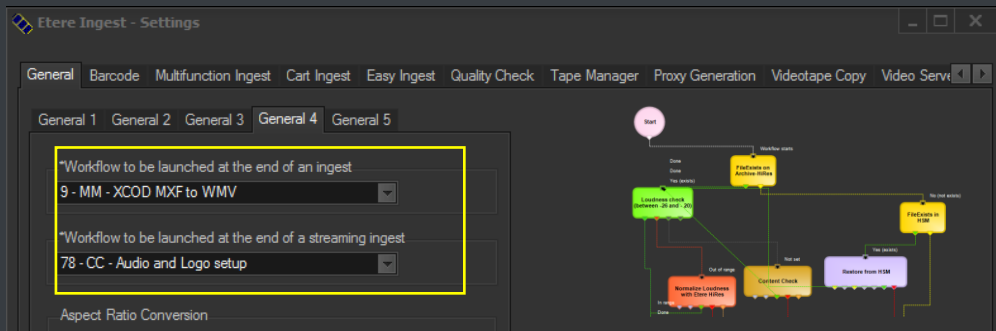
▼ 3.2.2.   Automatic Archive/Restore

E Etere HSM brings workflow-based archiving capabilities to ensure disaster recovery, continuity and shared management. Archiving operations can be performed via workflow, said workflows can be triggered either automatically at scheduled times on when specific conditions occurs (file arrives into a metadevice) or manually by an operator.
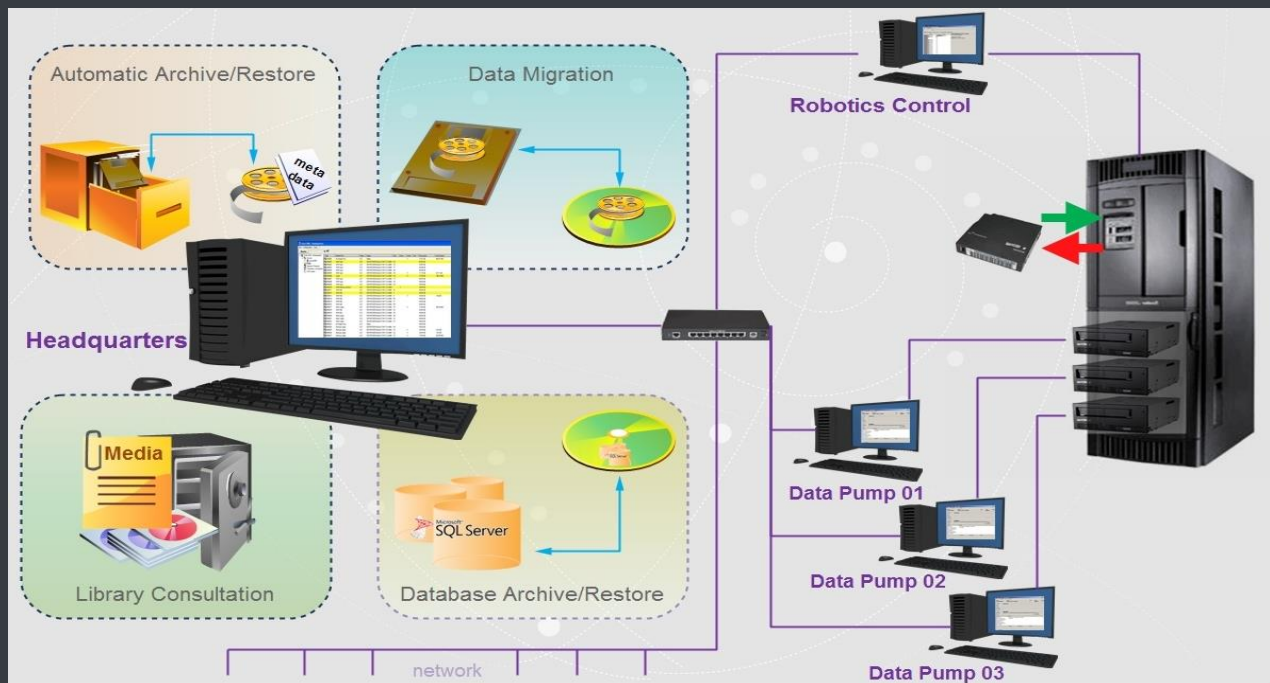
Etere HSM is the cost-effective solution to radically streamline the management of LTO tape libraries; optimizing offline/nearline storage including high and low versions as well as associated metadata:

Etere HSM distinguish four different archiving levels into a broadcasting workflow, these levels required distinct access times which vary from 0 minutes (video server) to 15 minutes (standard video tapes). All these levels are managed "virtually", that is, you can use logical devices (metadevices) based on physical devices to free design your storage layout, enriching in this way the entire system with the benefits derived from the use of metadevices:

• Perform loan-balanced transfers on an intelligent multi-volume scenario
• Extend your storage space by joining physical devices into one metadevice, without altering the archiving workflow
• Categorize your storage devices by dividing them into metadevices with no partitioning required
• Space limits and storage distribution are defined by the user and not by devices itself
• Classify metadevices in media pools in order to automate their management
• Background defragmentation and online/offline tape management,
• Scheduled archiving of devices, media contents and entire databases.

Etere HSM forms a tandem with **Etere Data Mover** to be the only solution in the market with an embedded multi-level and multi-rule cache that offers an intelligent management which ensures the best performances with low investments.

Moreover, owing to Etere's comprehensive character, these applications are perfectly integrated with other modules (e.g. Ingest, EtereWeb, etc.) to allow all these modules to use shared resources and have unlimited communication.

▼ 3.3.   QUALITY CONTROL

Etere provides all the solutions required to control the quality of media files, including a built-in tool able to detect most common audio/video issues and a tight integration with industry's most popular QC systems.

The execution of QC operations from within workflows allows taking specific decisions based on QC results; for instance, carrying out manual verifications in case issues are detected for a certain media file:
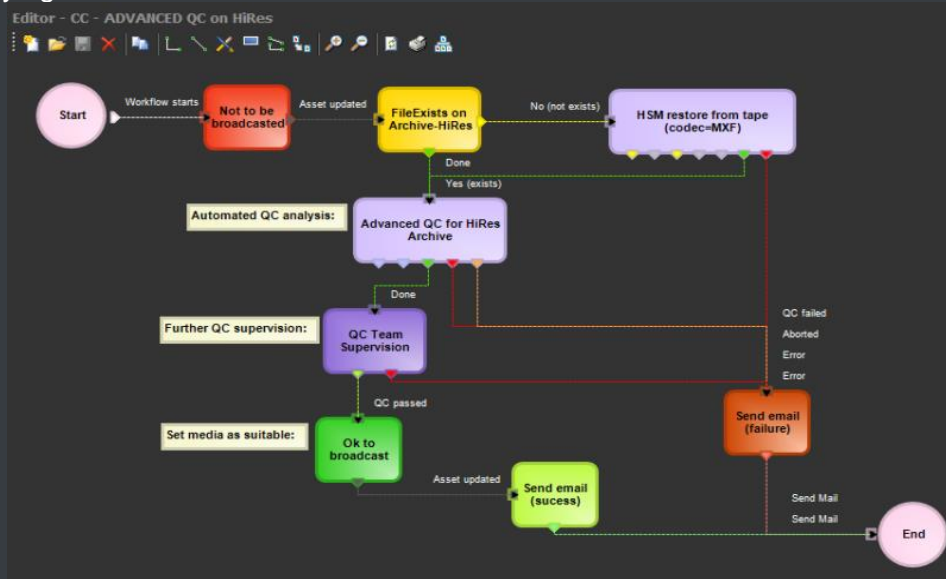

QC results are automatically stored into the EDL of analyzed assets, thus allowing to consult encountered issues and create full reports:

▼ 3.3.1.　　Built-in Content Check

Etere CMS is the solution provided by Etere to accomplish Quality Controls (QC) requirements without using third-party systems. This tool can be easily included in media workflows to analyze **media files** (including MP4 and WMV proxies), automatically detect audio/video issues and write results directly into an asset EDL. Among the supported controls the following can be mentioned:
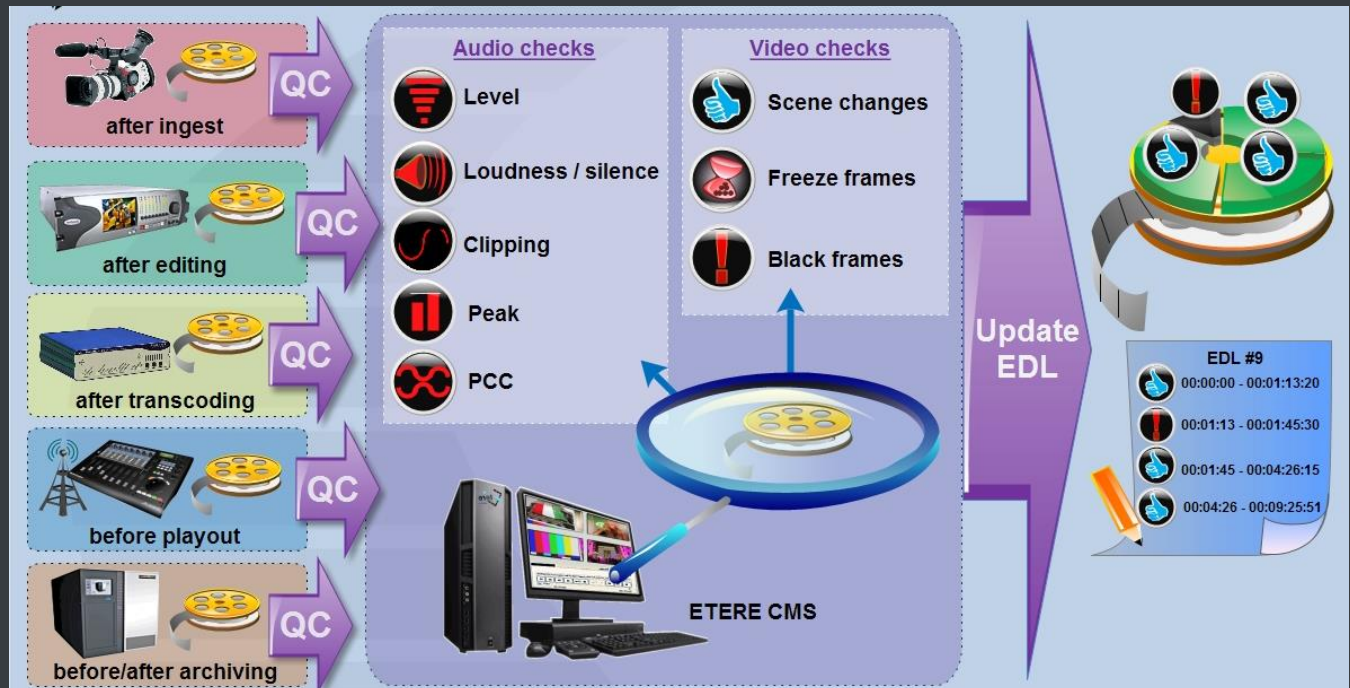

Detected Audio Issues	Detected Video Issues
✓　Loudness (EBU-R128)	✓　Scene changes
✓　Silence	✓　Black frames
✓　Level	✓　Freeze frames
✓　Clipping	
✓　Peak level	
✓　Mono doubled to stereo	
✓　Anti-phase	

As shown in the figure above, **Etere CMS** can speed up, automate and streamline the operational efficiency of file-based quality controls performed via workflow across the entire content life cycle, it's the best solution for checking audio/video either **prior** (e.g. playout, repurpose, archiving) or **after** (e.g. encoding, ingest, editing, transcoding, archiving) a media operation.

▼ 3.3.2.   Integrated QC Systems

Etere allows integrating **third-party QC solutions** to create **custom workflow actions** that request to an external system to analyze media files stored in the Etere cloud and return all detected issues (visual, audio or metadata). As mentioned before, results can be consulted in form of **EDL segments** and **PDF reports** or even used to automatically take decisions from within workflows:
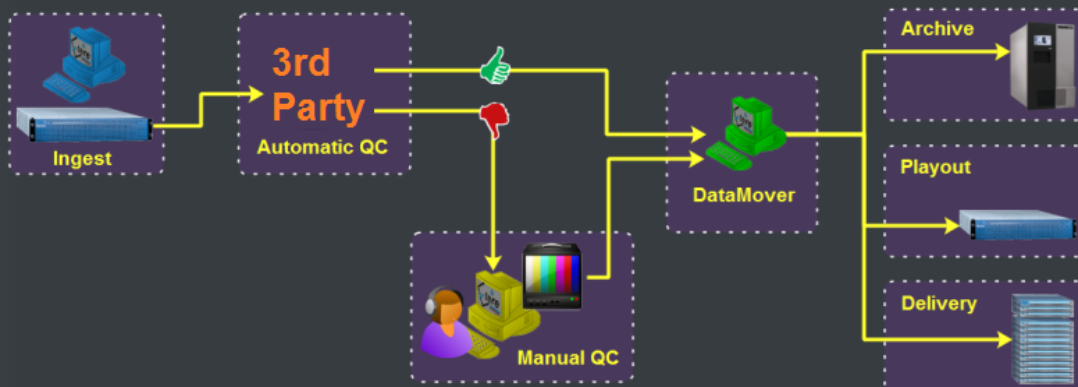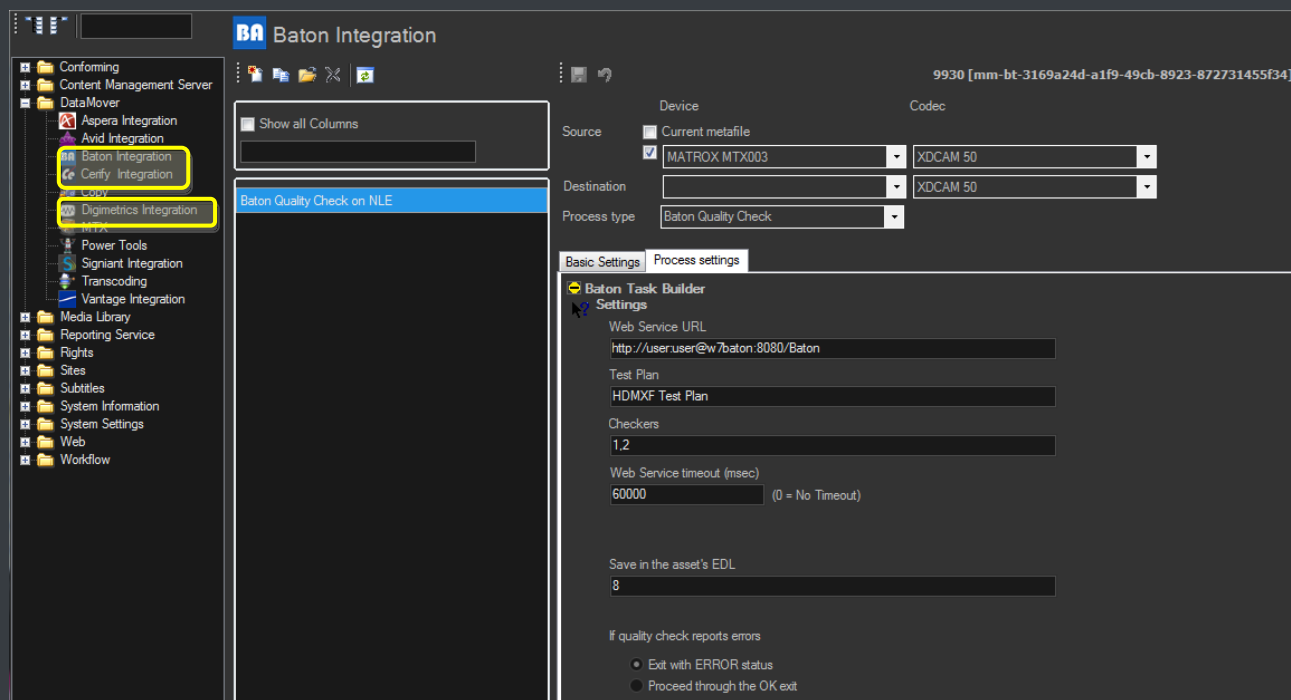

➢ **Interra Baton**   ➢ **Tektronix Cerify**   ➢ **Digimetrics Aurora**

The tight integration with third-party QC systems is based on SOAP API technology, which enables Etere to communicate through web services and exchange all QC related information:

▼ 3.4.   CATALOGUING

Adding metadata is a quite important part of the workflow as it is crucial to enable retrieval of the available content in all other stages of the content lifecycle. Etere provides a comprehensive tool to allow users to quickly and easily enter metadata through a well-structured interface, empowered with browsing capabilities to preview Hires files (using Etere Player) and Lores files.

▼ 3.4.1.   Metadata Insertion

In Etere, all assets contain user-defined metadata fields (e.g. technical comments, descriptive names, intellectual rights, etc.), these fields can be either manually compiled (by users) or automatically retrieved (from asset properties, files, etc.):
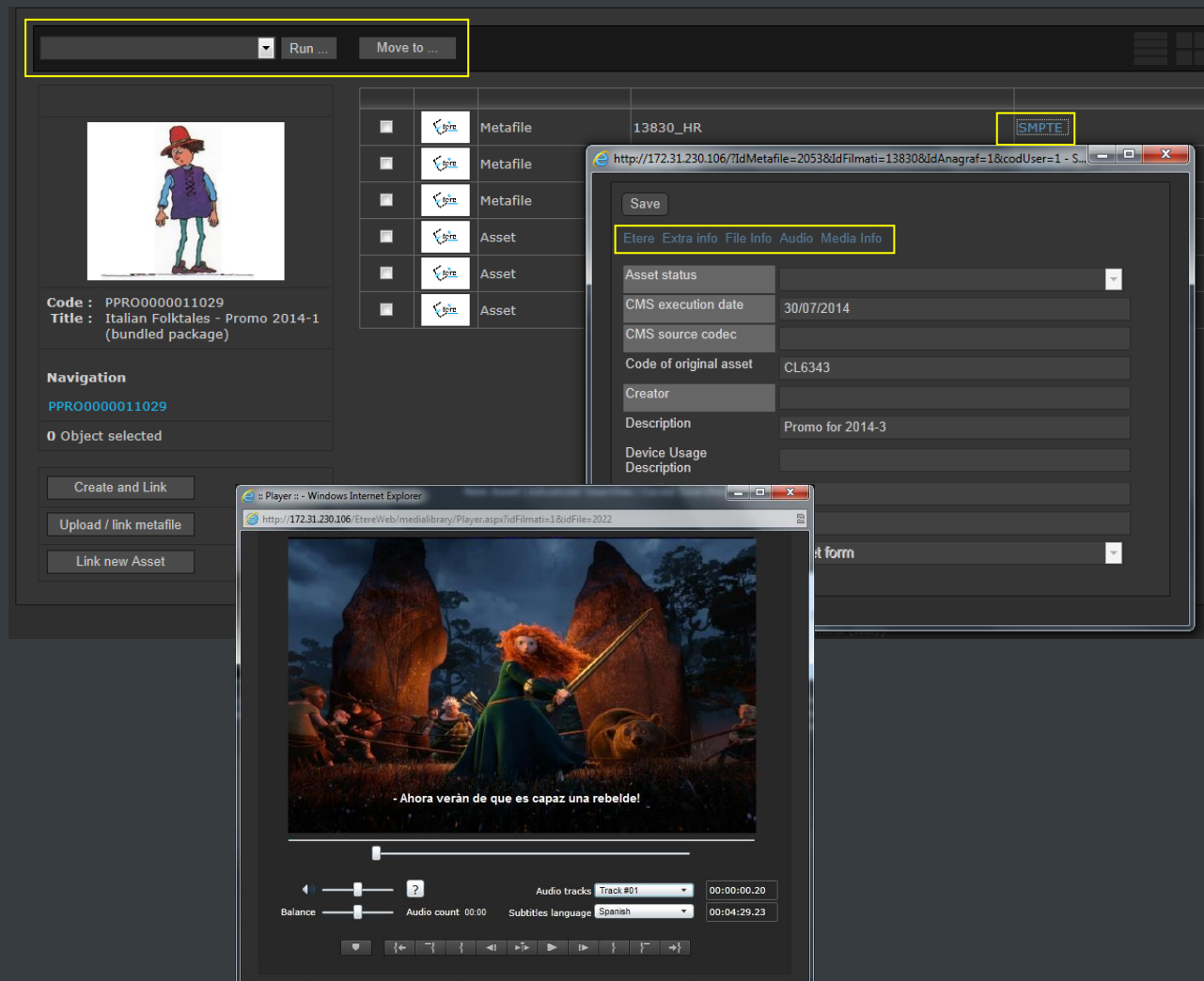
Metadata used across the system can be defined and organized into a robust dictionary, where **metadata fields** are freely added, modified and grouped into layouts enabled for specific users:
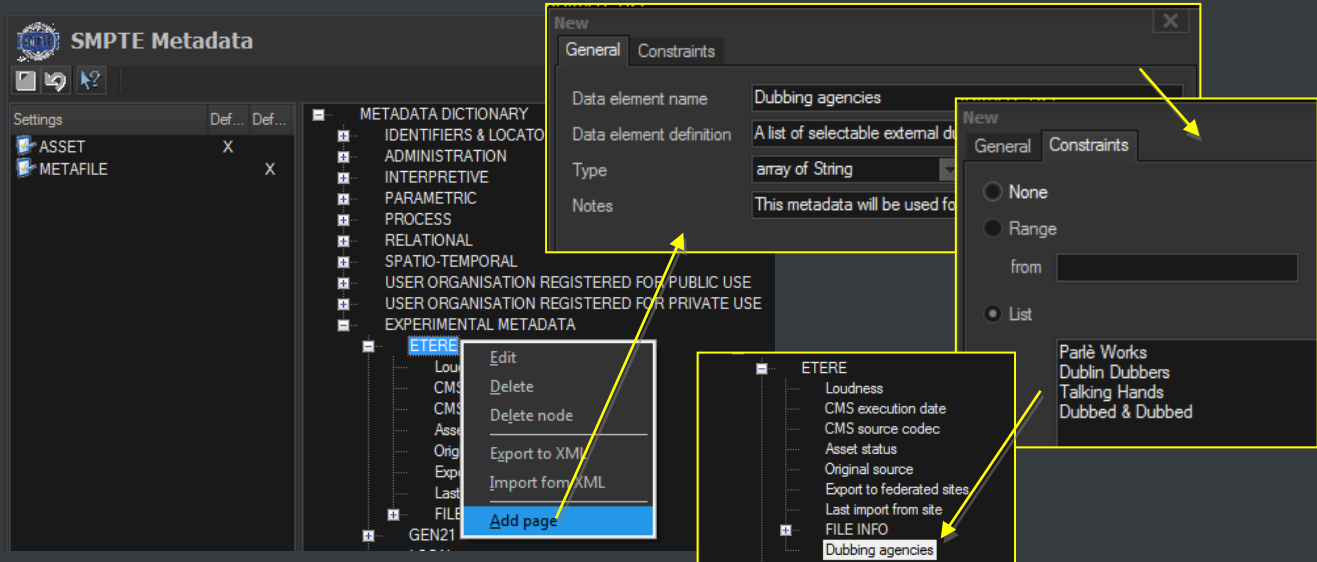
▼ 3.4.2.   HiRes Browsing

Frame accuracy is crucial in **post-production** and in order to ensure a precise and reliable process, high resolution browsing and advanced audio functions can be considered as essential requirements.

Etere Player is a modern and very functional media player specifically designed to satisfy all current and forthcoming browsing challenges faced in broadcast, production, post-production and distribution companies. **Etere Player** doesn't miss any of the most important features needed by post-producers to uphold audio controls with the highest quality, key capabilities include:

- ➤ Bullet-proof decoding of HiRes and LoRes
- ➤ Frame-accurate jog & shuttle
- ➤ Multi-language closed captions
- ➤ Multi-language audio tracks
- ➤ Embedded tracks and external audio files
- ➤ Built-in VU Meter display
- ➤ On-screen data (timecode, properties, etc.)
- ➤ Extensive encoding information display
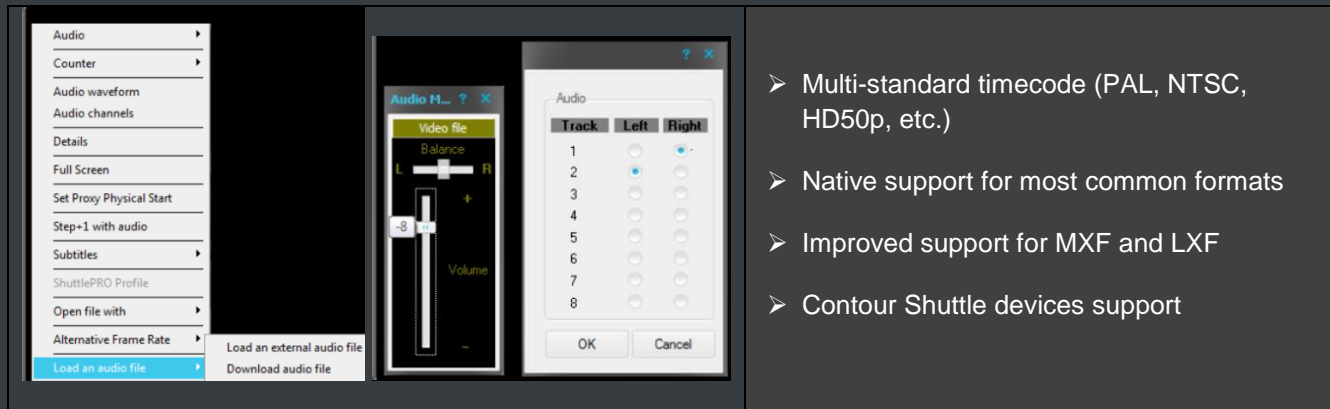
- Multi-standard timecode (PAL, NTSC, HD50p, etc.)
- Native support for most common formats
- Improved support for MXF and LXF
- Contour Shuttle devices support

In order to fully leverage the full resolution of hires material, **Etere Player** supports using a second monitor to quickly switch the video stream playback:
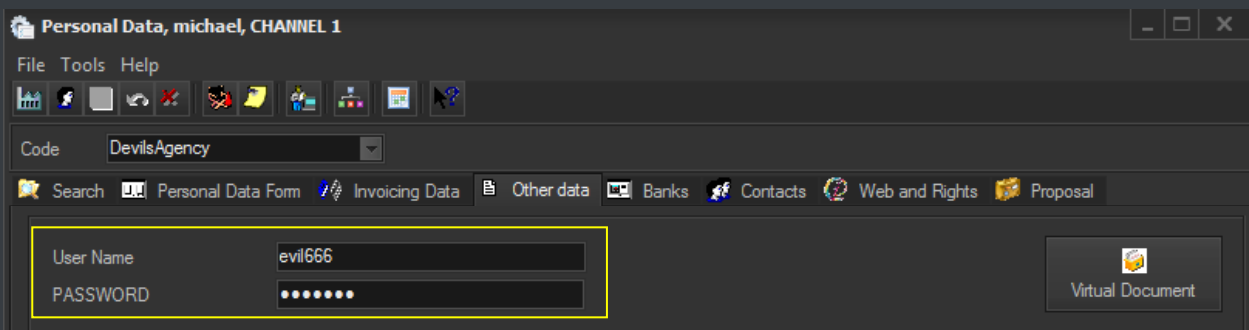
▼ 3.5.   SEARCH

EtereWeb is a web service that supports all major browsers including Microsoft Internet Explorer, Mozilla Firefox and Apple Safari; thus ensuring the reliability and quality of the service. EtereWeb integrates the latest streaming technologies for video distribution and a comprehensive rights management system that gives to authorized users the possibility to access via web to a user-friendly interface:
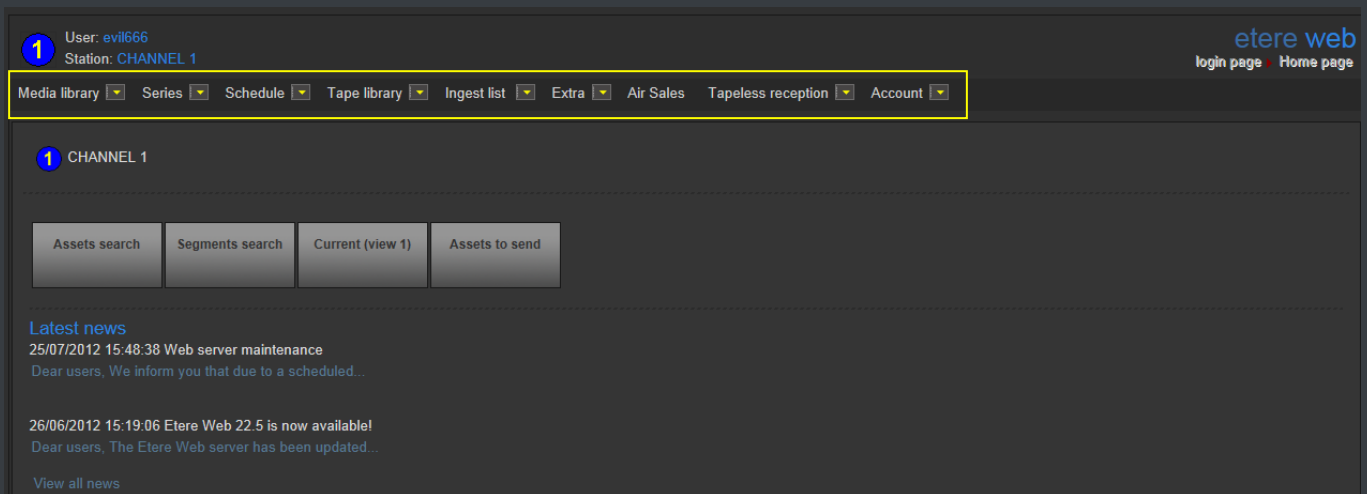
- Search for assets based on **database fields**,
- A **Full-text** search across various fields of assets,
- Full-text results are sorted on **degree of relevance**,
- Search for **synonyms** to extend the range of results,
- Searches can be saved as **profiles**,

- **Batch** management of several assets at once,
- **Customizable** tabs and fields, drag & drop enabled,
- Results can be **grouped** by types, genres or artists,
- Add, launch and view **workflows** on-the-fly,
- Filter results by **Metadata** or **Metadevice**.

▼ 3.5.1. Authenticated access and rights

In order to ensure that only authorized persons access the web service, EtereWeb counts with an encrypted authentication method on which users must count with a username and password in order to enter the web portal:

▼ 3.5.2.   Search, retrieval and preview

The robust search engine of **EtereWeb** allows users to easily search and preview assets, even during the search. Search filters can be classified according to their nature into the following categories:

Base	Base descriptions about the asset: **Id, code, title, type, stations, sites, genre, artist, etc**
Media	Media information regarding devices, files and processes: **Duration, metadevice, codec, video file, workflows, worksheets, etc**
Dates	Dates on which specific asset operations have been performed: **Production, ingest, creation, arrival, scheduling, validity start, expiry, etc**
Flags	Flags detailing specific asset properties: **Ok to broadcast, live, expired, ingested, archived, inactive, not tapeless, etc**
With	Properties that indicates the existence of a certain object associated to the asset: **Edl, video tape, data tape, subtitles, cad approval, detected blacks, etc**
Full-text	Special search performed simultaneously performed across multiple tables: **Title, segments, artists, genres, roles, metadata, subtitles, documents, etc**

The **Media** tab holds information regarding the media associated to the asset, time code details and EDL configuration. By double clicking on any media item, if available, it will be available the preview and download of the asset:
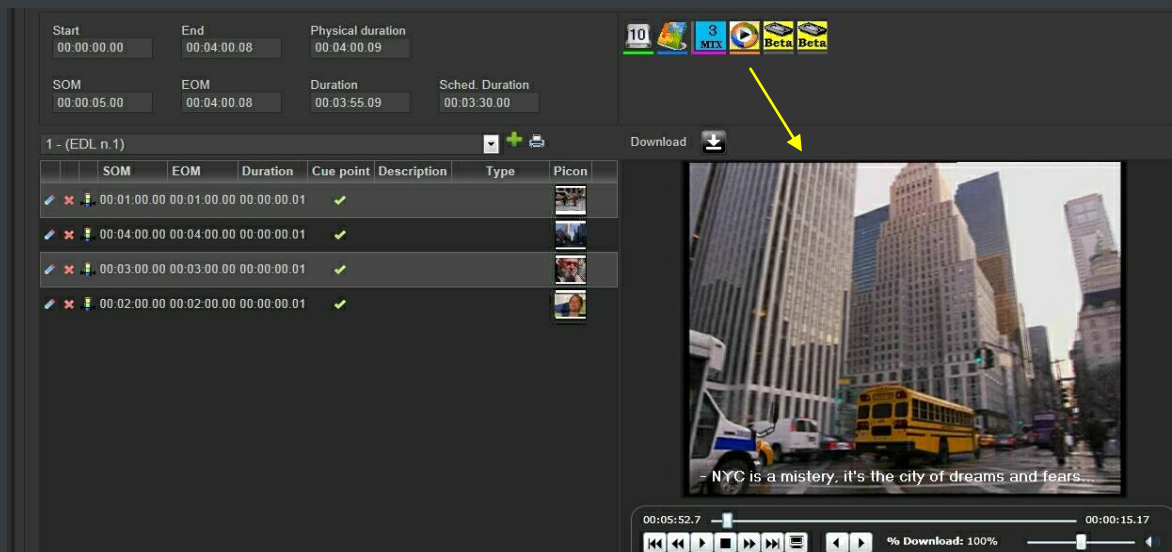
▼ 3.5.3.   Secure Download

EtereWeb allow not only to share the right files to the right persons but it also allows sharing contents with the right permission levels; this capability is based on granting/denying function-specific permissions through Etere Worksheets, the module that allows web users to request temporary permission for specific functions (e.g. download a file linked to a certain asset):
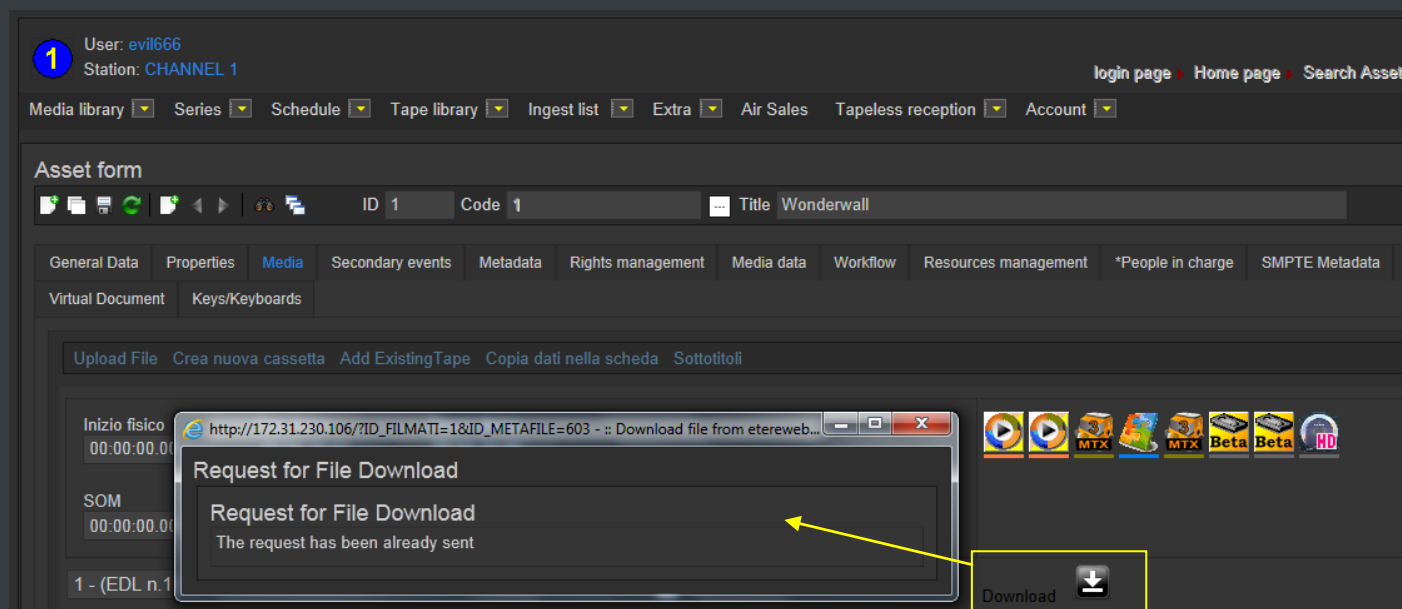
Web requests are managed via workflow to allow a custom and automatic launch of worksheets:
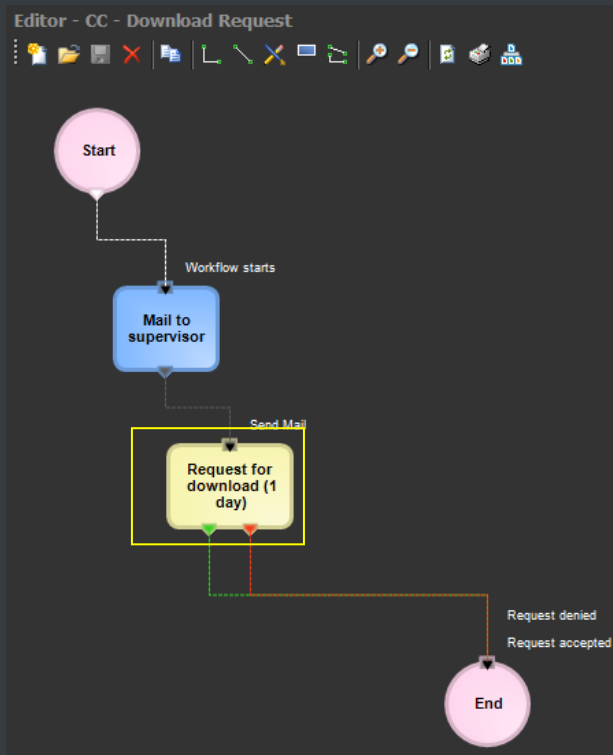
(download request)
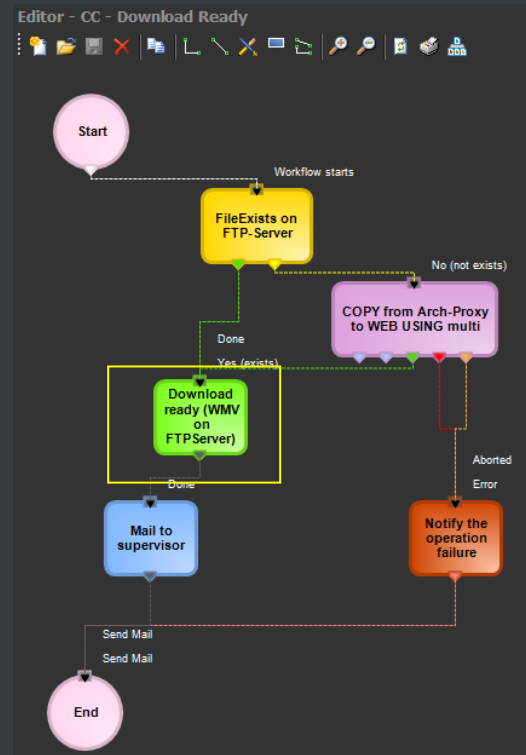
(download ready)

Supervisors count with a dedicated interface for viewing pending requests and accept/deny them:

Once the requested is evaluated, web-users will automatically receive an email notification containing the information (e.g. ID, codec, fixed note and an evaluation note) about the asset for which the request has been performed. The email notification will be sent to the email specified in the personal data of the web-user who performed the request, this, depending on the entity type:

Finally, in case the request is accepted, the web-user will be now allowed to download the requested file(s) through EtereWeb:
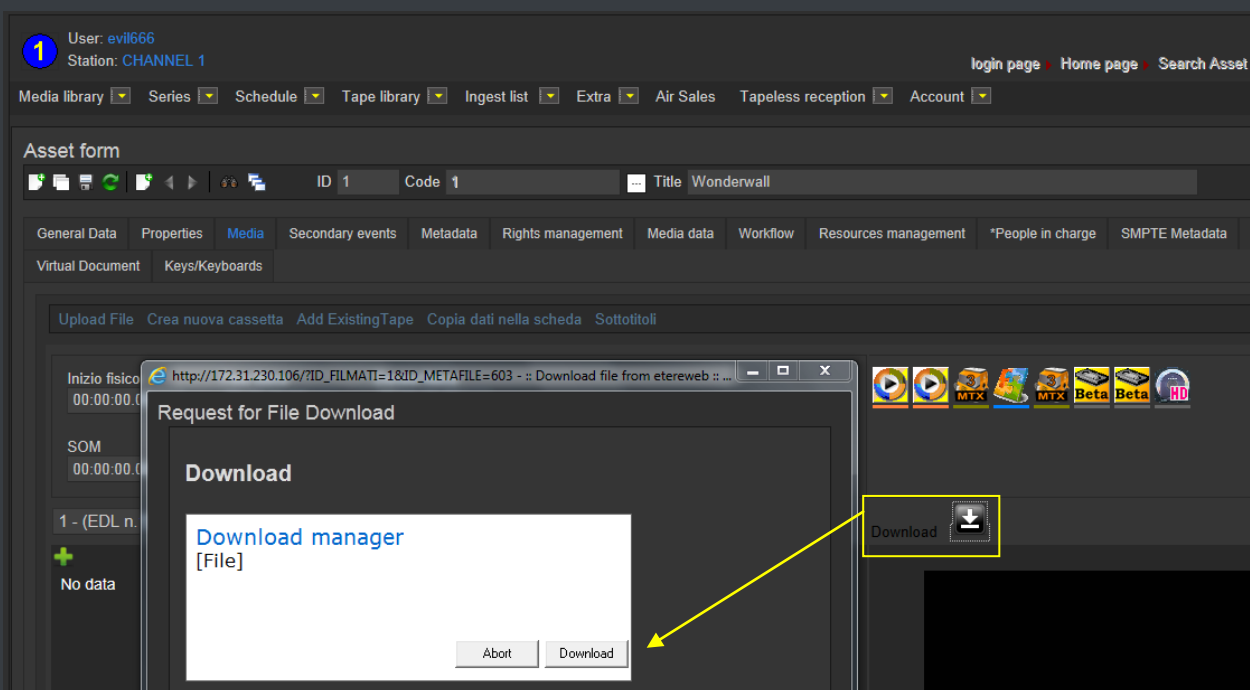
▼ 3.5.4.   Multi-file upload

EtereWeb allows uploading media files into the server through a simple and intuitive wizard procedure:
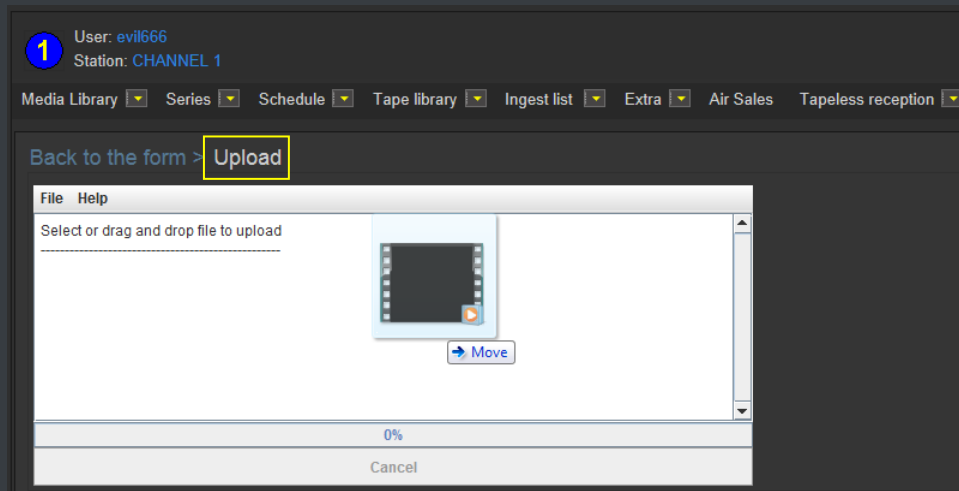
EtereWeb supports not only uploading multiple files with a simple drag and drop action, but also manage them as a single project. This feature allows NLE systems to, for example, upload into the facility server all the files which make part of a project (e.g. production of promos, conforming of separate scenes, editing of source material, etc.) and deliver them to the related department with a single click and with the reliability of a workflow management:
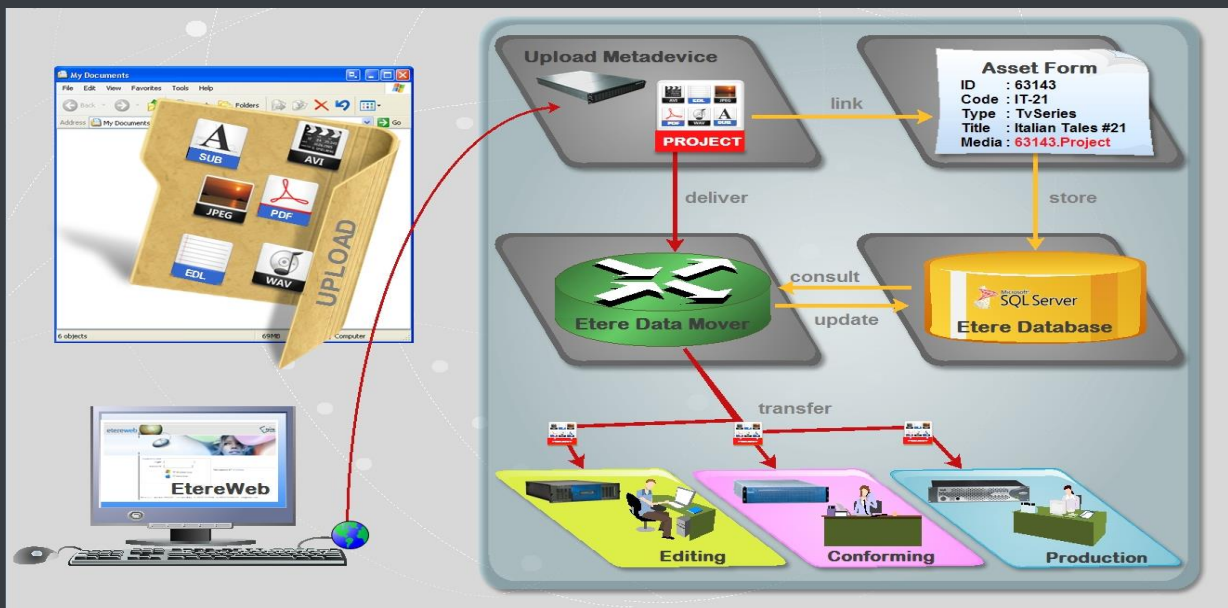
▼ 3.5.5.   Pre/Post upload processing

EtereWeb allows setting different workflows to be launched at different stages of the web management, for example, it is possible configure the following workflows:

- **Pre-upload workflow**:

- **Post-upload workflows**:

▼ 3.5.6.   Centralized monitoring interface

EtereWeb provides administrators with two key sections from which they will be able to consult:

- **Login Report** : Detailed information about user-specific accesses:

- **User Statistics** : Overall information about daily and weekly accesses:

▼ 3.6.   DELIVERY

Edited content can be delivered through the simple execution of a workflow:
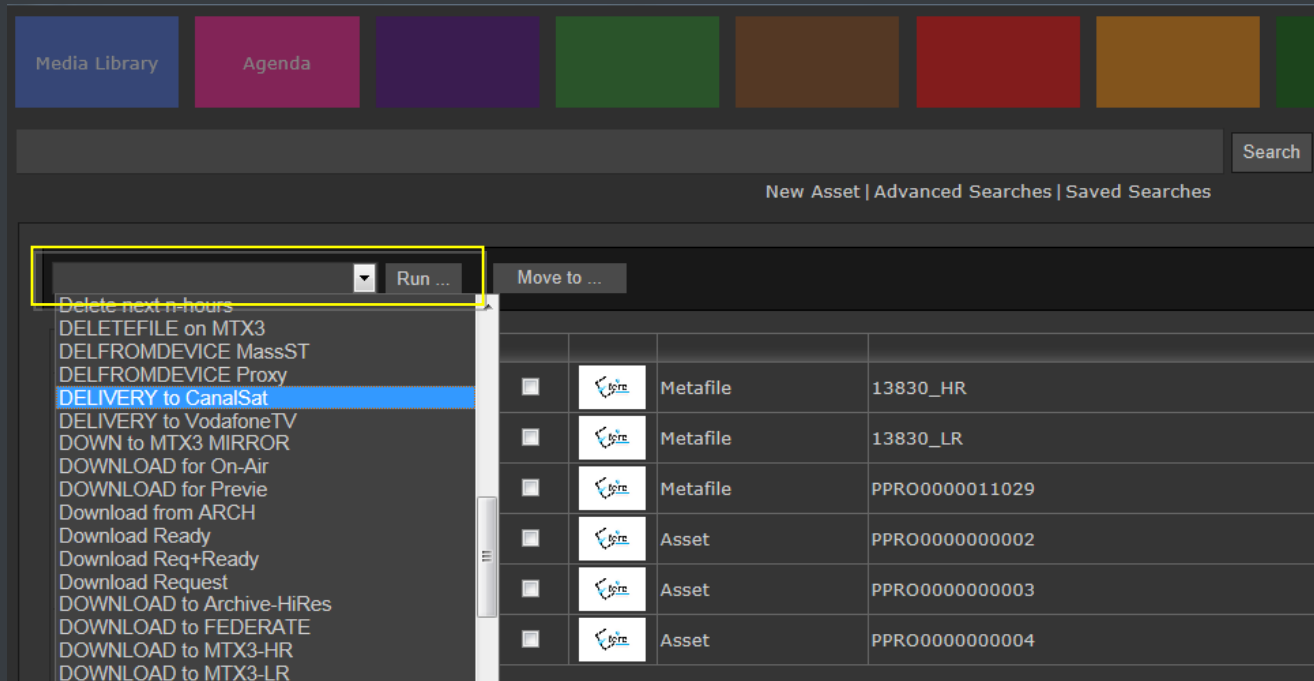
Etere Data Mover is a solution proposed to encompass content transfer and archiving goes beyond of a simple copy concept by moving video files based on custom policies, transcoding video files when required and offering a full track of all operations.
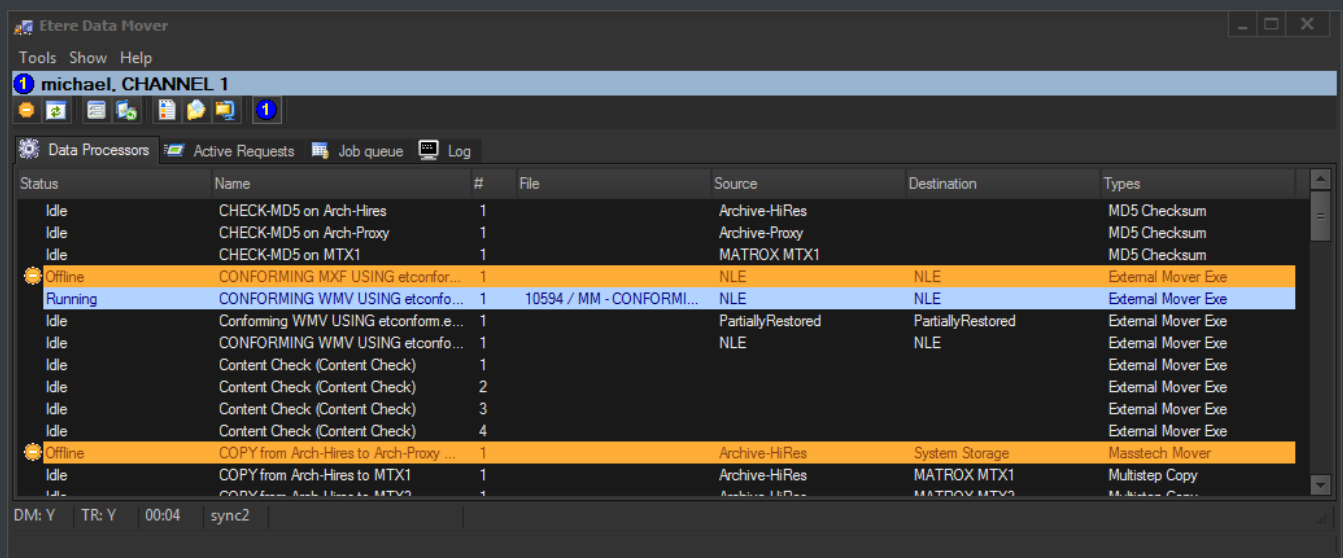
▼ 3.6.1.　　EDT protocol

**EDT (Etere Data Transfer)** is a technology developed by **Etere** based on the high-performance data transfer protocol UDT (UDP-based Data Transfer), it uses a streamlined algorithm capable to utilize all the available WAN bandwidth, making of it the ideal solution for data intensive transfers over high speed wide area networks (it's 7 times faster than FTP).

Etere EDT is included in the **Etere FTP server** for custom and faster FTP transfers, providing a wide set of parameters (e.g. enabled users, EDT range, etc.) and a detailed log of <u>operations</u> and <u>connected users</u>:
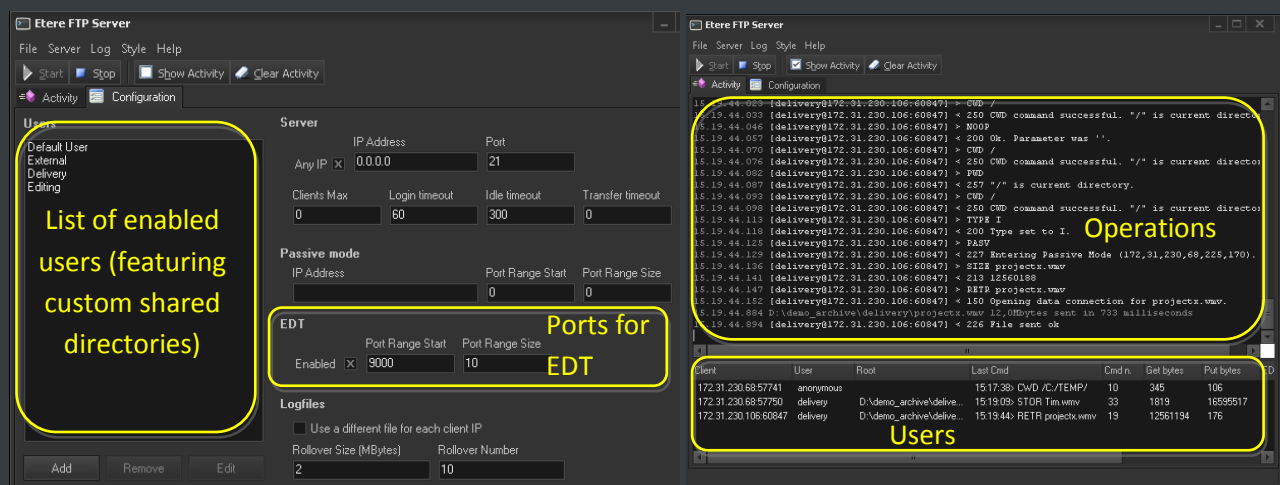
▼ 3.6.2.　　Third-party integration

Etere provides tight integration with major transfer solutions such as Signiant and Aspera, supporting transfers based on standard protocols including FTP, SFTP, SMB and CIFS.

In this chapter is illustrated the tight integration of Etere with **Signiant**, allowing to trigger jobs and get updates of progress and status information. Custom "**Signiant integration**" workflow actions allows requesting -via workflow- the execution of file transfers based on Signiant jobs for files stored in Etere:
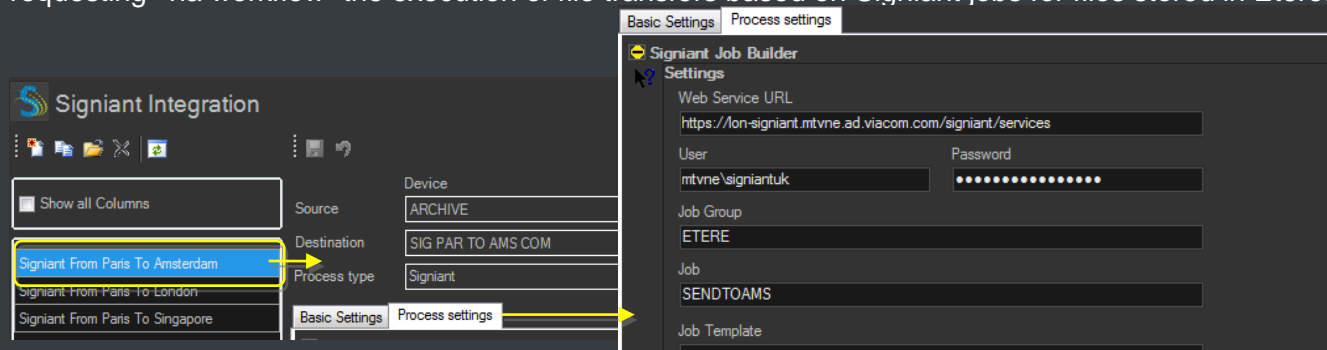
As shown above, the workflow action that enables the integration allows configuring all the parameters required for a tight integration including:

Web service URL	URL on which the **Signiant web services** is available (i.e. where jobs are managed)
User	Username for accessing the web service.
Password	Password for authenticating the username in the web service.
Job group	The organization group under which the job falls.
Job	ID of the job the in Signiant system
Job template	Signiant job template. If this parameter is blank, the existing job will run.
Job template library	Signiant job template library
Job variables	Set of *custom variables* to pass to **Signiant web service** for carrying out the job.
Output filename	The **custom name** with which files will be named on the target location.

Both **job variables** and **output filename** parameters are set using the **Rules Editor** tool, which enables users to freely build custom names *(e.g. to name files on their target destinations)* combining **database references** (e.g. Table Fields, Flexi-Metadata) and **free text**:
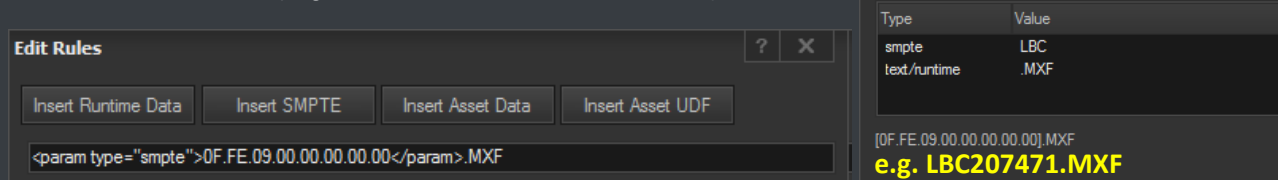
Delivery workflows can be easily and quickly triggered by enabled users from the **Media Library**, just by launching the pertinent workflow:
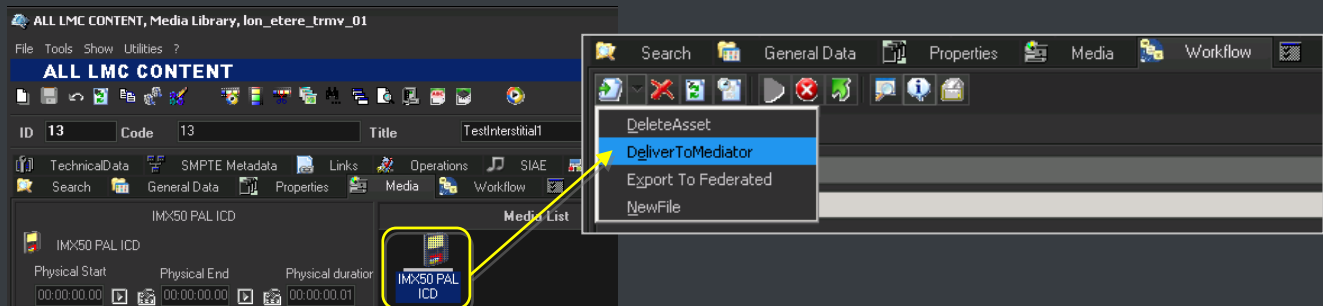
The status and progress of requested transfers will be traceable -from the Workflow Monitor- that will display all information regarding the delivery action including a <u>progress bar</u>:

Besides from the **Workflow Monitor**, a detailed report on the **delivery workflow** can be consulted from the **Media Library**:

Once the transfer is complete, the new media will appear in the asset's **Media** tab:

▼ 3.6.3.   Checksum verification

Etere offers an enterprise control of video files integrity; it keeps a **log** of the hash MD5 of video files such in a way that it is possible to verify at any time if they have been modified after their approval.

All video files registered on the Etere's database can be **verified** through an md5 checksum, this control is performed via workflow, each time that a video file is moved from one device to another, its initial hash MD5 is calculated to allow a future checking:

The **workflow editor** allows creating custom checksum workflows to either generate or check the MD5 hash of a video file:

(generate checksum)

(verify checksum)
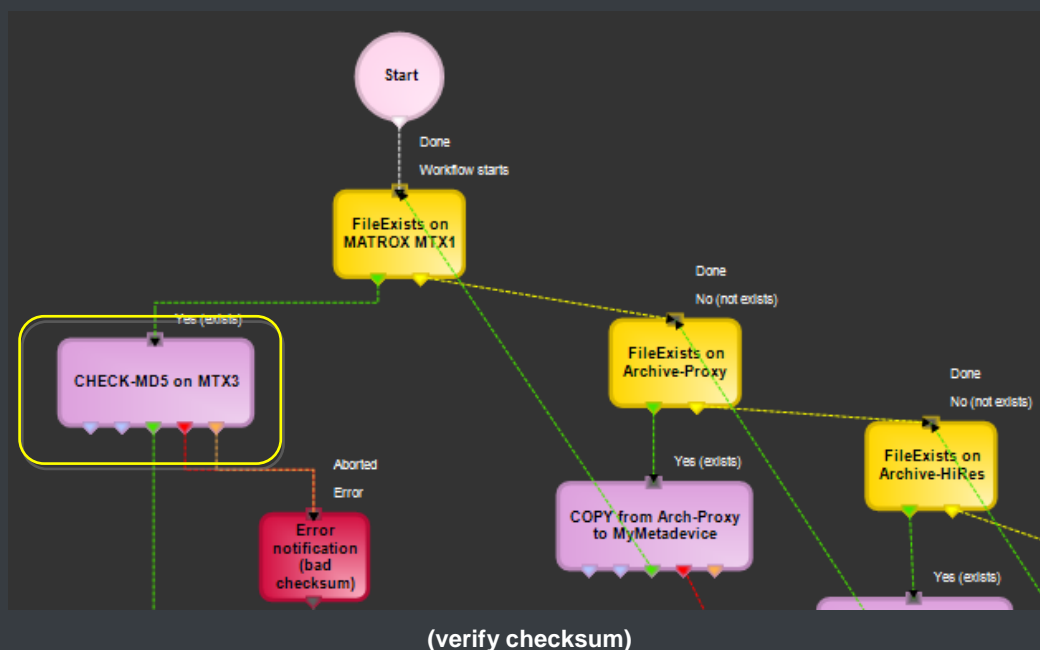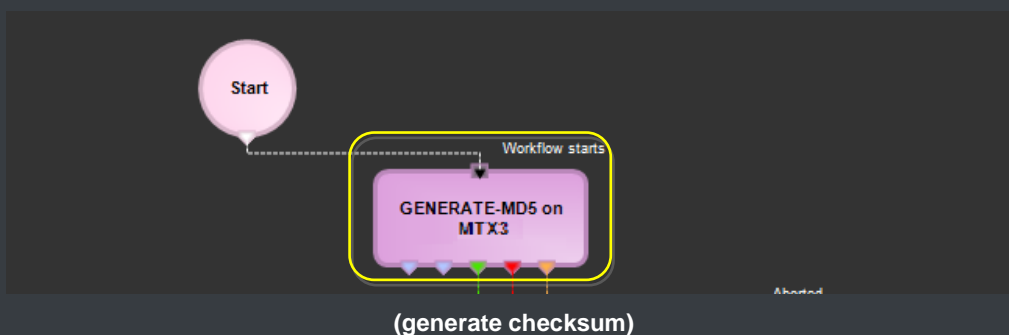
▼ 3.6.4.   Integrated transcoding

Etere's integration with **Carbon Coder** software handles a wide array of critical operations including format conversions that ensures content to be always stored in the right place in the right format:
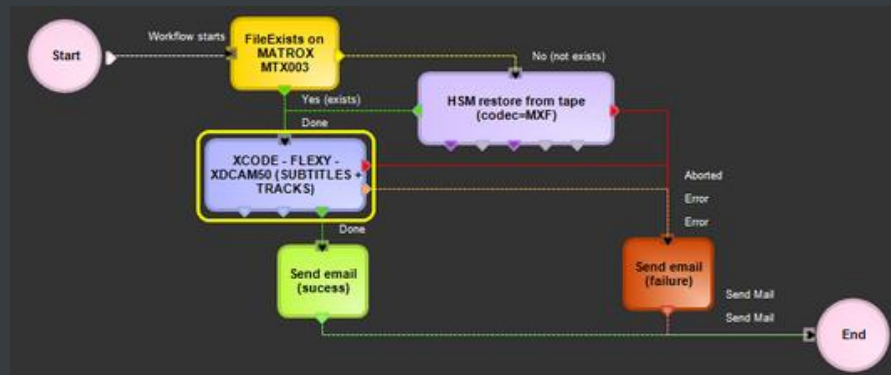
Etere provides multiple ways to use Carbon Coder within workflows, you can use Carbon **presets** as well as complex **projects.**

▼ 3.7.   NLE PLUGINS

For a more tight integration with major NLE systems, Etere provides specific features for Avid and Adobe Premiere systems:

▼ 3.7.1.   Adobe Integration

The Compliance operations for **content** performed using **Adobe Premiere ® Pro** will be integrated into **Etere MAM**, empowering **authenticated users** to interactively run faster video editing from the Etere archive across virtually any network. Our Adobe Premiere extension w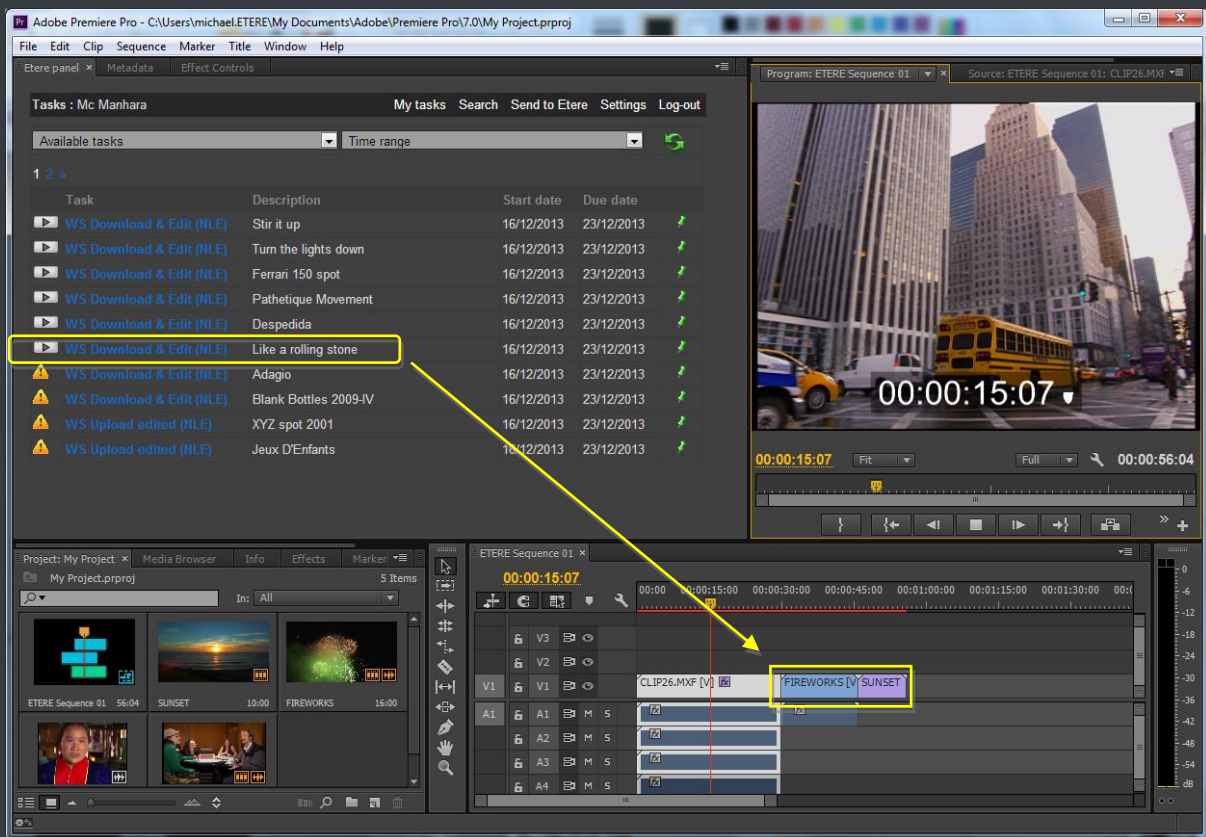ill give **Editing operators** with a user-friendly interface to view their <u>assigned tasks</u>, select and take the one to be imported:

Once editing is finished, final media will be automatically rendered based on a preset **EPR profile** (e.g. DV25 MOV 4 Tracks), then, it will be uploaded into the Etere archive. Once media is uploaded into the archive the task is set as completed and the workflow continue its execution (e.g. notifying availability of the edited version and starting a QC).

It's worth mentioning that asset versions uploaded during editing process will be managed using the Etere's versioning standard, maintaining a parent-child relationship with the master.

▼ 3.7.2.   AVID integration

Etere provides the ultimate solution for broadcasters, production and post-production houses to preserve editing projects while optimizing **ISIS storage** utilization and adding contemporary archive storage technologies.

ETERE provides a simple but powerful toolset able to enrich any **AVID editing system** with all the major features of its world-class Media Asset Management system, enabling users to archive and restore AVID projects together with all their associated media in any storage location and transfer projects in the cloud.
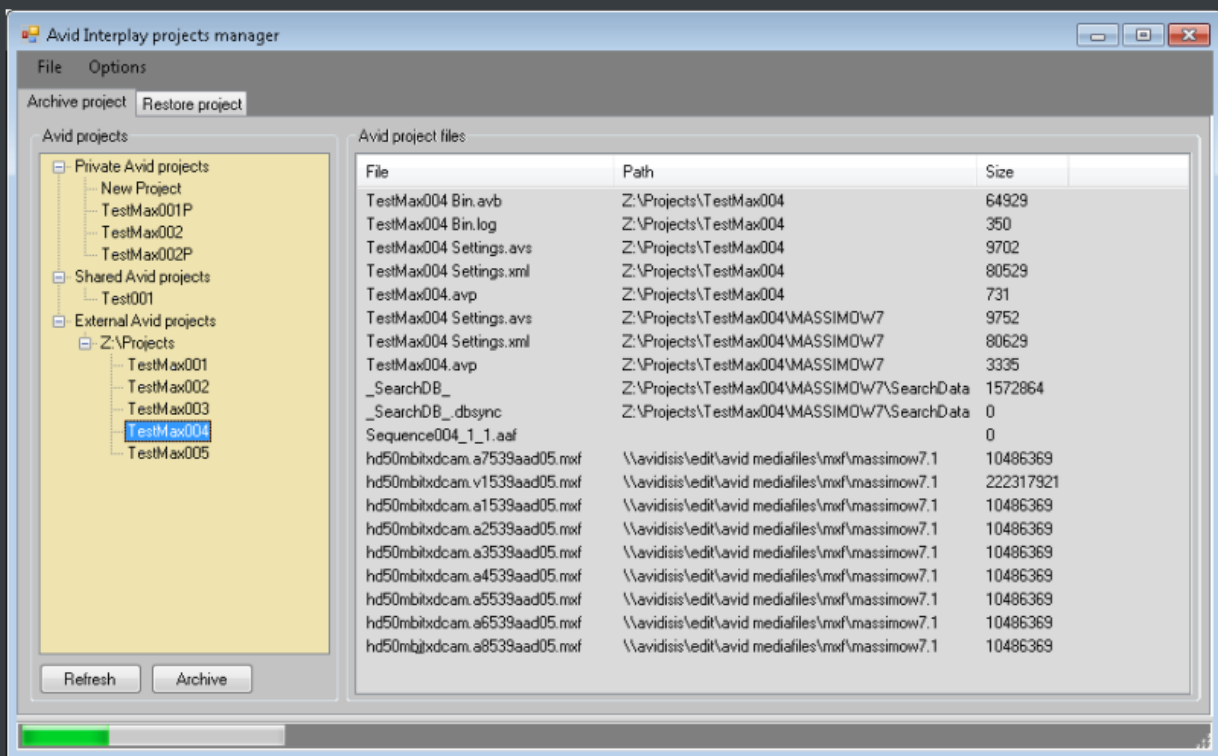
ETERE enables users to easily archive NewsCutter and Media Composer projects and either free-up editing storage space, keep backup copies or create version snapshots.

- ➢ Key set of features to ensure an effective storage management:
- ➢ Archive from any pc with access to projects and media
- ➢ Restore to original workspace or any location
- ➢ Automatic update of project's media and metadata
- ➢ MD5 checksums to ensure bit for bit identical copies
- ➢ Partial restore of sequences and master clips
- ➢ Low-cost LTO and ODA are used to extend ISIS servers
- ➢ Accurate reports on archive completion status

Etere: a consistent system!

Etere is an international leader in the media market. Etere develops and distributes a wide range of high technology software for broadcasting and media businesses. With more than 24 years of experience, Etere provides powerful, flexible, cost-effective, high-performance, end-to-end media solutions. Etere is the only company worldwide that can offer you a solution to all your media needs in one single package.

Etere is the only solution 100% workflow based for all broadcast and media environments. It's a common framework where there is real-time sharing of all the data among several applications to manage all media business requirements. The workflow approach allows a fully customized design with edge performances.

From its headquarters in Tolentino, Italy, Etere guarantees the best after-sales support service on the market with engineers ready to give professional assistance 24 hours a day, 7 days a week. The service includes voice, email, VPN and VoIP with unlimited calls and connection time, and a pro-active system to help diagnose problems before they appear.

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