Etere

a consistent system

TVONE PROJECT:

An enterprise tape library management

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1. INTRODUCTION

TvOne is one of the Indonesia's largest private television networks. TvOne is based in East Jakarta and it is owned by PT Visi Media Asia Tbk, an Indonesian media which focus on delivering news contents, providing contents especially sports and lifestyle through a wide range of platforms. TvOne programming comprises programs principally directed to A and B class, it includes sport, news and entertainment contents which are transmitted both via cable and satellite television.

At present, Etere and TvOne have a strong relationship based on many years of providing the best solution for the management and automation of TvOne's media workflow, from acquisition and ingest to playout and archive, a robust solution with Etere as the core element of the system.

TvOne has requested an upgrade of its tape management system to a full Etere-based "**Enterprise Tape Management System**" able to capture, barcode, index, catalogue, store and transparently manage the station's archived material through a robust tape management solution comprising the assignment of used and empty tapes, the loan and return of tapes as well as the location of tapes through a simple interface. The system will be a distributed solution which combines rock-solid reliability and high availability with increased bandwidth and storage, allowing operators to easily search, retrieve and browse any media from the archive.
Among the several benefits derived from the upgrade to an enterprise tape management system, it can be remarked the fact that the upgrade will permit TvOne to be ready for moving its current and future valuable contents to a fully tapeless workflow supported by a Sony PetaSite digital library that will permit network clients to store, retrieve and deliver programs and news.

This paper will describe how Etere is able provide TvOne with an "**Enterprise Tape Management System**" which covers all aspects of ingest, catalogue, storage (online, nearline and offline), browsing, tape management and delivery of content. Etere will allow digitizing content stored on video tapes into hires and lowres files and thus made them available over a network. The supported barcode generation and recognition capabilities will permit TvOne to easily and quickly identify offline tapes before either loading them into the system or simply consulting their main information and contained assets.

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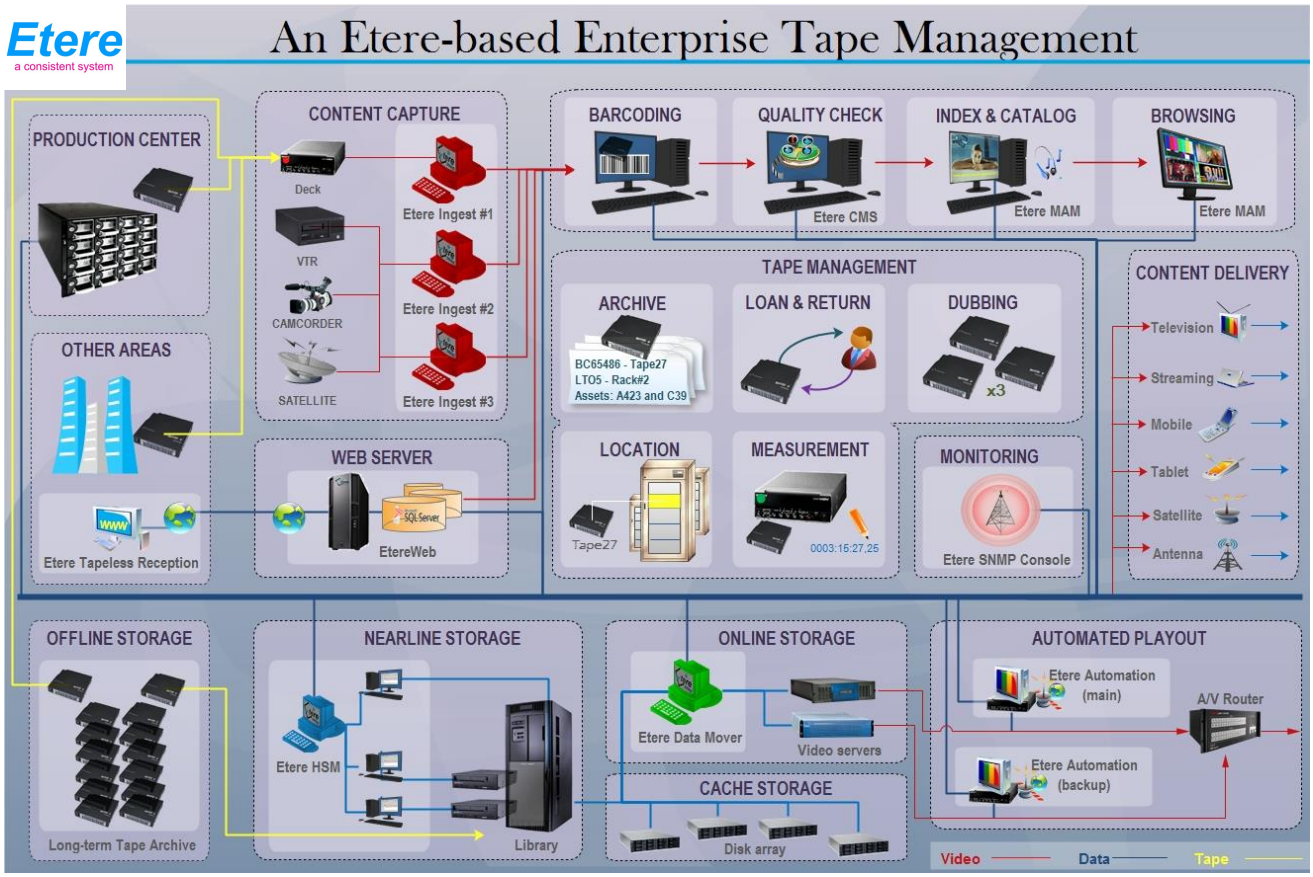
2. PROJECT OVERVIEW

Etere, a worldwide leader in broadcasting and media solution, will provide TvOne with an "**enterprise tape management system**" able to capture and catalogue local/remote content, search and query video contents, assign used and empty tapes, loan and return requested tapes, locate tapes within devices and much more. In order to permit and improve a future migration of TvOne to a fully tapes workflow, the proposed system has been implemented combining digital and tape content management features, just as illustrated in the figure below:



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- **Capturing**: Local content is acquired using Etere Ingest, a fail resilient system for capturing media from a wide range of feeds through multiples clients; it integrates tape loan and barcode printing capabilities as well as file-based acquisition for digital content (e.g. P2). Remote digital content is ingested via web through an Etere Tapeless Reception portal.
  Moreover, a low resolution copy is always generated for captured materials for performing an automatic quality control as well as for making them available (even if archived) for preview and browsing purposes.
- **Cataloguing**: A user-friendly module allows operators to browse and catalogue captured content, this, by inserting predefined information (keywords, people, media pools) and user-defined information (description, notes and unlimited SMPTE metadata) to specific content segments which can be partially retrieved on-demand by the operator.

- **Archiving**: Once captured and catalogued, content is stored into the nearline or offline storage according to the workflow assigned to their asset type. The **nearline storage** is based on a digital library managed by Etere HSM to perform archiving operations (launched via workflow) and restoring operations (automatically requested on-demand); furthermore, the **offline storage** formed by a large tape repository and used for long-term archiving is professionally managed to keep track of empty and partially used tapes in order to streamline the storage on barcoded tapes.

- **Searching**: A robust search engine tightly integrated on all the modules related to the management of assets allows operators to quickly and easily search, preview and retrieve (either entirely or partially) media content. **Offline content** can be retrieved by loaning the original tape, generating a copy into a new tape or digitizing it into **online storage** servers; instead, **Nearline content** can be automatically retrieved to an **online storage** server.
  It's worthy mentioning that content retrievals are fully logged by the system including most relevant information such as the requester, operator, barcode, retrieved time codes, etc.

Furthermore, due to the importance of the tape management within the station, Etere provides a wide range of features for facilitating and improving the daily management of tapes including:

- Barcode generation and recognition,
- Highly detailed tapes information,
- Standard and quick loan procedures,

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- Automatic notification of requested tapes,
- Definition of permissions for retrieval operations,
- Simple location of tapes within physical racks,
- Easy dubbing for tapes copying,
- Periodical quality control of stored contents,
- SNMP monitoring of all system operations.

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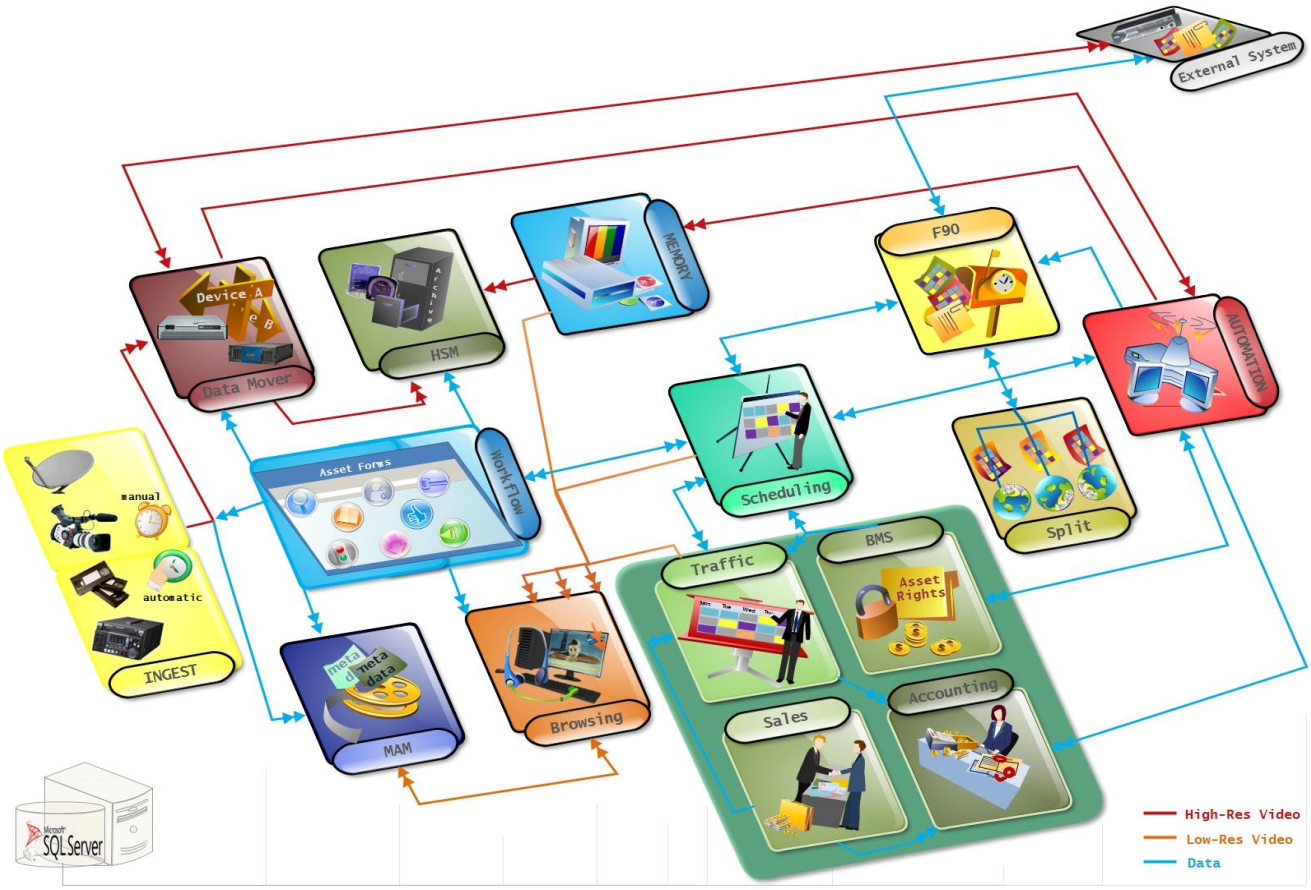
3. ETERE ARCHITECTURE

Etere is based on a distributed architecture which allows different modules to run on different workstations interconnected via a local area network. All system configuration parameters, security roles, user data, and pre-defined rules are stored in a reliable SQL database supporting backup and redundancy operations.

3.1 Distributed System

ETERE is a distributed, modular and fully integrated broadcasting system composed by a set of applications specifically oriented to efficiently perform each complex phase of the broadcasting chain synchronously within the same database environment, being all managed by suitable user-defined workflows that ensure an efficient overall system controlling.



Etere's distributed architecture allows achieving a top-level availability of resources and reliability of operations across the entire broadcast workflow thanks to its redundant capabilities to improve the fault resilience on any hardware or software failure.

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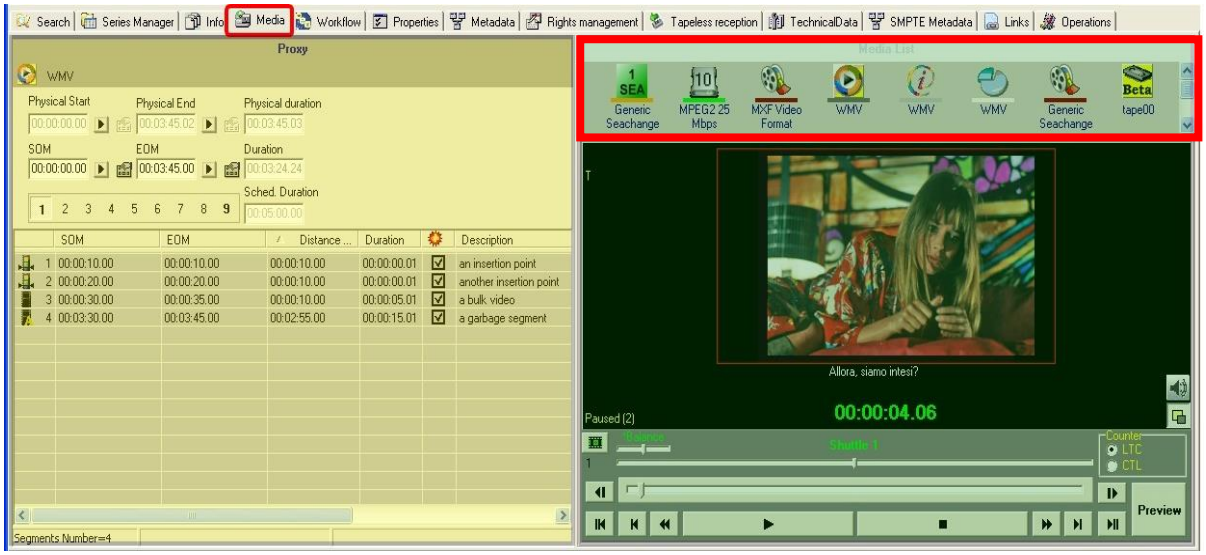
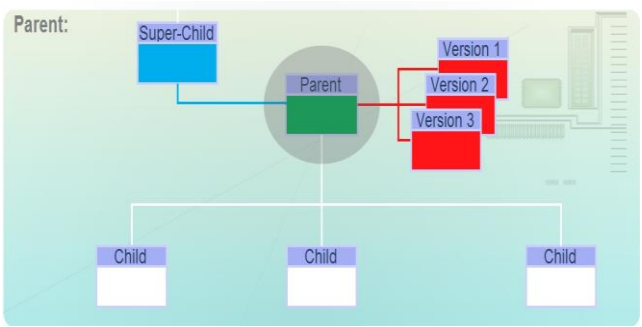
3.2 Multi-level Storage Hierarchy

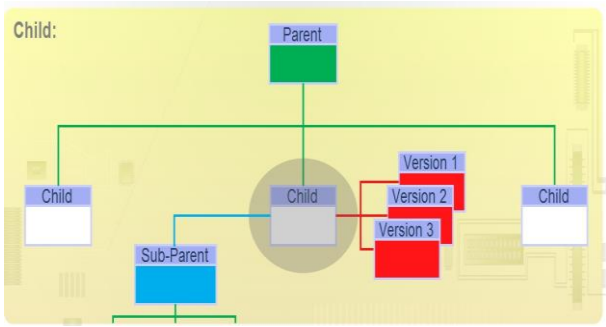
Etere systems improves the media management by introducing a multi-level storage management consisting in the use of different storage levels based on the frequency of use of the files stored on them. For example, data files which are frequently used will be stored on video servers (i.e. online servers) whereas those which are not used for a certain period of time (e.g. typically a few months) will be eventually archived in tapes (or any other long-term storage mean) and then automatically restored -to video servers- every time they are required by the broadcast playlist.

Etere offers a hierarchical storage management of media content, it allows to organize in user-specific levels an unlimited number of content versions with different access times (e.g. video servers, near-line servers, archive servers), being all these levels available to the operator under a simple and user-friendly interface:



Moreover, media holders (i.e. asset forms) can be organized –along with their related information- under a hierarchical structure based on Parent-Children relationships, thus allowing, for example, handling different versions of a same asset and all the assets derived from them:





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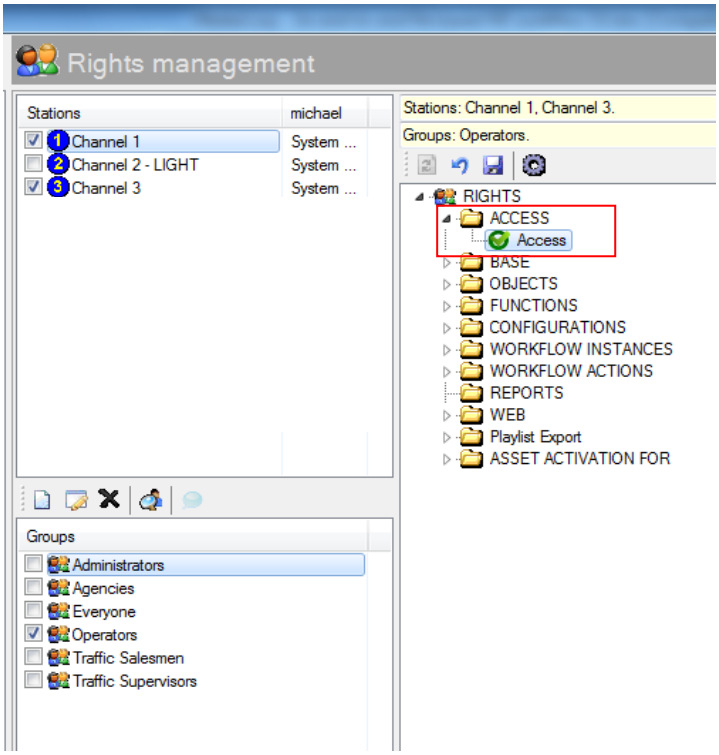
3.3 User Access Levels



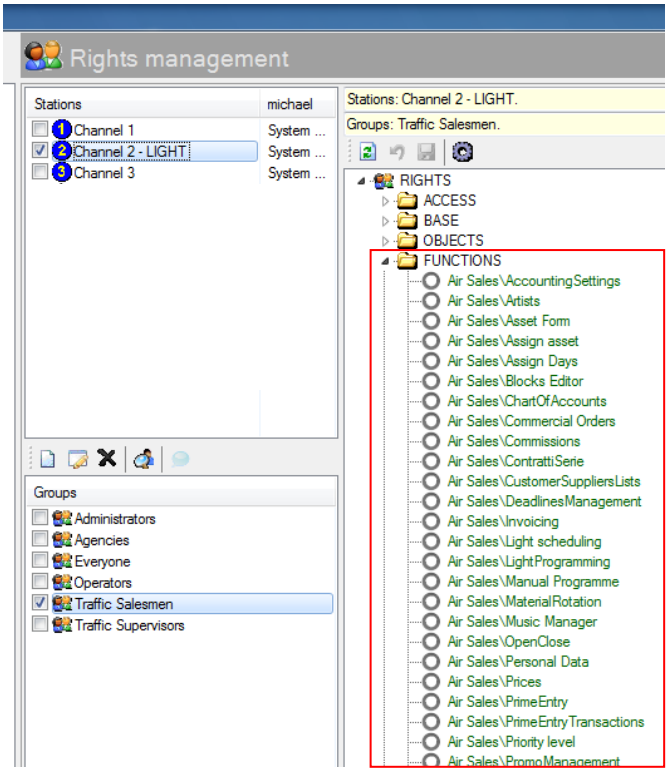
Etere provides stations with a 'Rights Management Tool' to control and track access to its various modules and functions, with it, stations will be able to freely assign (grant or deny) access to specific user groups (i.e. roles to which one or more users belongs to), thus allowing to set different mixtures of access levels for each group.

Etere allows managing different –and fully customizable- access levels for users which form part of the system, with Etere; it will be possible to configure specific access rights not only for different users, but also for different stations.

3.4 Rights-based Operations

All the functions provided by an Etere system (e.g. quality control, event scheduling, program playback, etc.) falls under different categories according to their nature (e.g. media manager, air sales, automation), the availability of these functions is determined by the 'Right Management Tool'.

Thanks to this tool, stations will be allowed to reflect into the Etere system the actual way in which rights are managed within the station facility, for example, scheduling operators will be allowed to use only those modules to which they are authorized to use, including (or excluding) some sensitive functions intended to be managed by system administrators.



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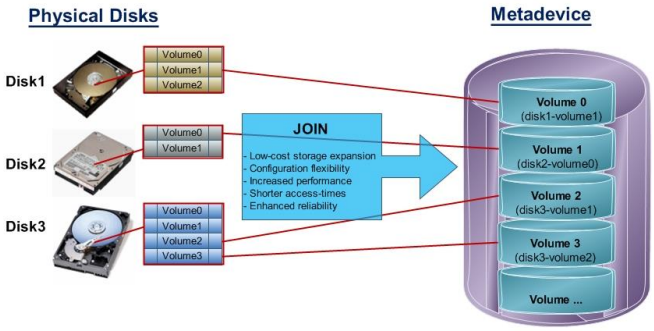
4. ETERE MEDIA FUNCTIONALITIES

Etere's solution features an integrated and professional approach based on a workflow management to optimize the station's entire broadcasting system, reduce operating costs and facilitate overall process control. Etere Workflow permits modules to for example, seek confirmation for sensitive process, follow specific rules, enhance the efficiency and reliability of process, and manage multiple workflows to perform different tasks simultaneously and independently.

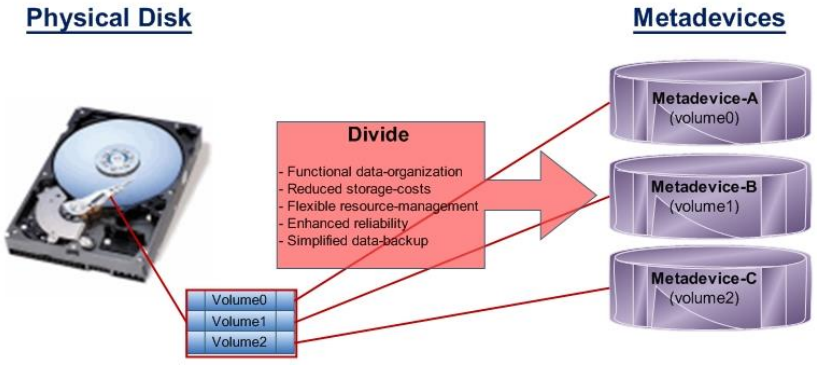
4.1 Multiple Storage Management

Etere reduce the complexity of managing storage devices by arranging physical storage devices present across the system into metadevices (logical devices), the use of metadevices improve the overall media management by offering the following features:

- Automated management via workflow of logical devices including arching, restoring, transcoding, etc.,
- Monitored storage space owing to the set of restrictions,
- Increased storage and better performance since metadevices acts as a virtual device representing several logical disks or disk systems:



- Distributed storage according to specific requirements without the need of creating partitions, just associate individual disk volumes to different:



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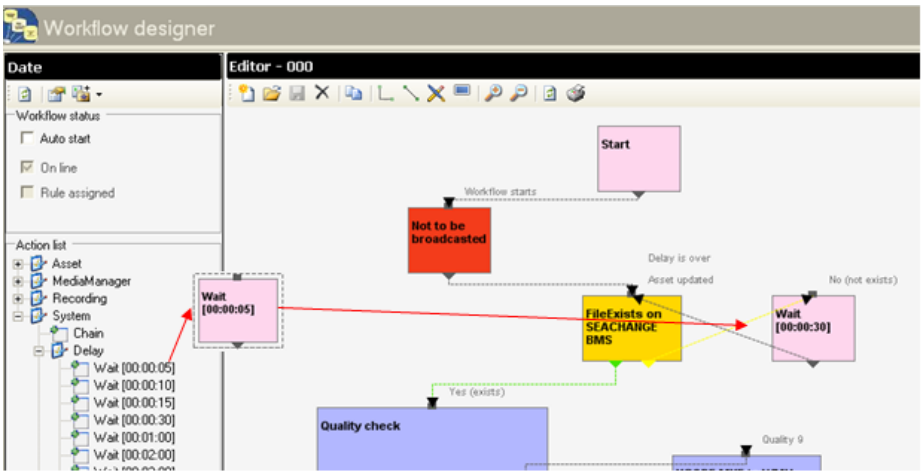
4.2 Custom Design Workflow

All workflows can be customized to fit the real needs of the station and thus give complete control over the overall system management which offers:

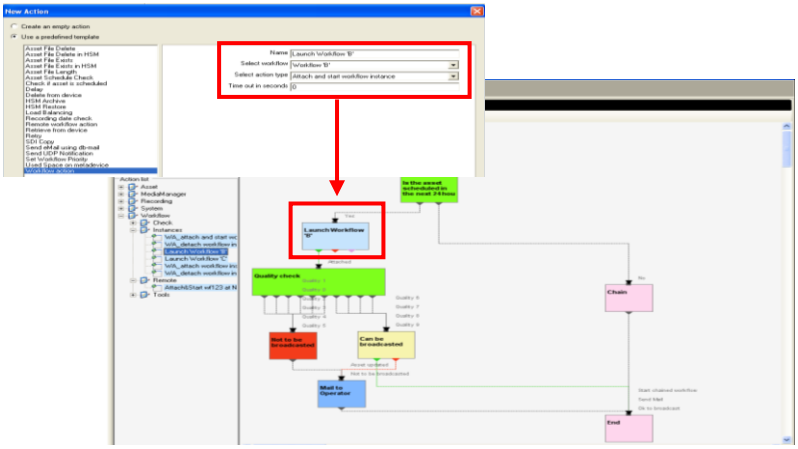
- Clear definition of each complex step of the broadcasting process,
- Visual representation of each step mapped out on a PC not in a paper document,
- Set of instructions and authorizations that must be followed in order to move forward,
- Complete log of all steps carried out, operations denied etc.

A comprehensive and user-friendly workspace allows creating suitable workflows based on custom actions just by dragging and dropping the necessary elements into it:



4.3 Integration between workflows

Etere allows calling workflows from others just by inserting an action that can perform a specific task (i.e.: attach, attach and start, start, abort, reset, restart, detach, etc.) on a certain workflow:



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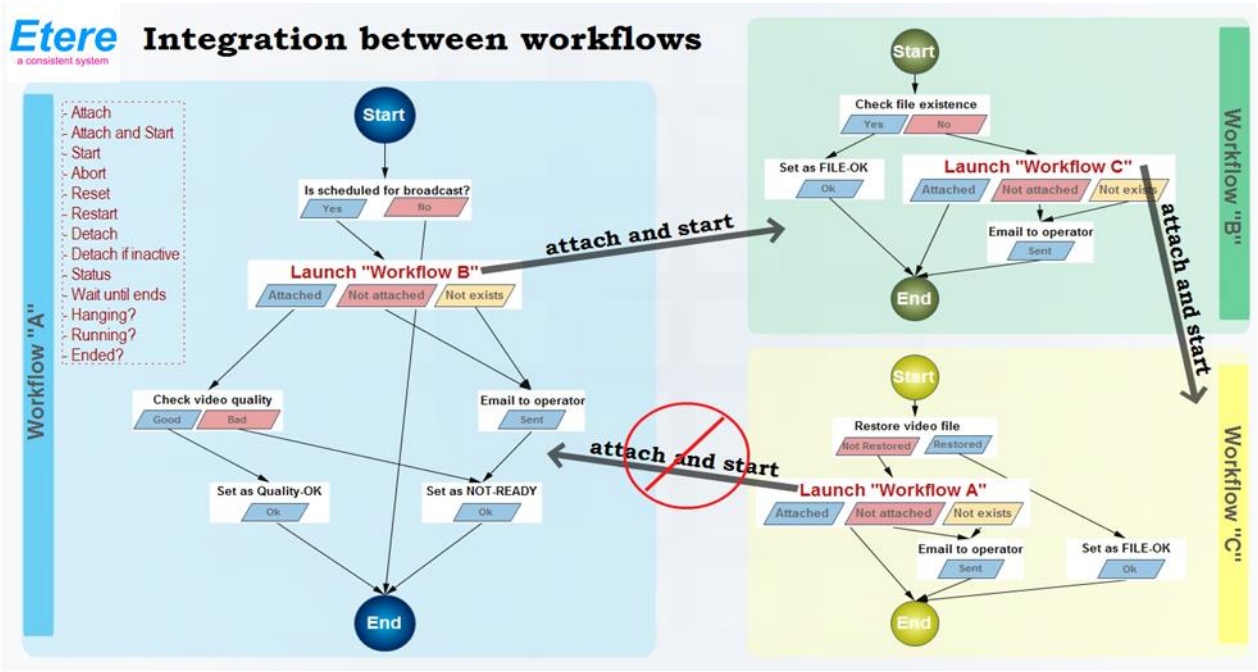
The diagram below illustrates how Etere maintains the system consistency by avoiding loops between workflows (a message is displayed indicating action incompatibilities between workflows):



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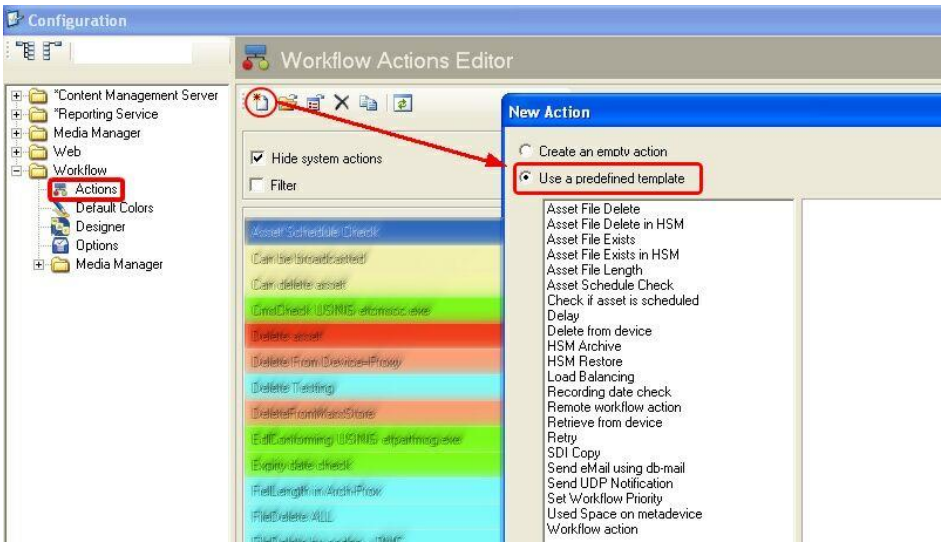
As shown above, for example, if 'workflow A' calls 'workflow B' and the 'workflow B' calls 'workflow C', the 'workflow C' will not be able to call the 'Workflow A'.

4.4 Workflow File-based Processing

Etere provides a wide range of templates for creating workflow actions regarding the most common file-based media operations, allowing customizing them and also using completely user-defined actions:



4.4.1 Content Check

Etere CMS, which stands for Content Management Server, an integrated file-based module for performing Quality Controls (QC) via workflow. Etere CMS is 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.

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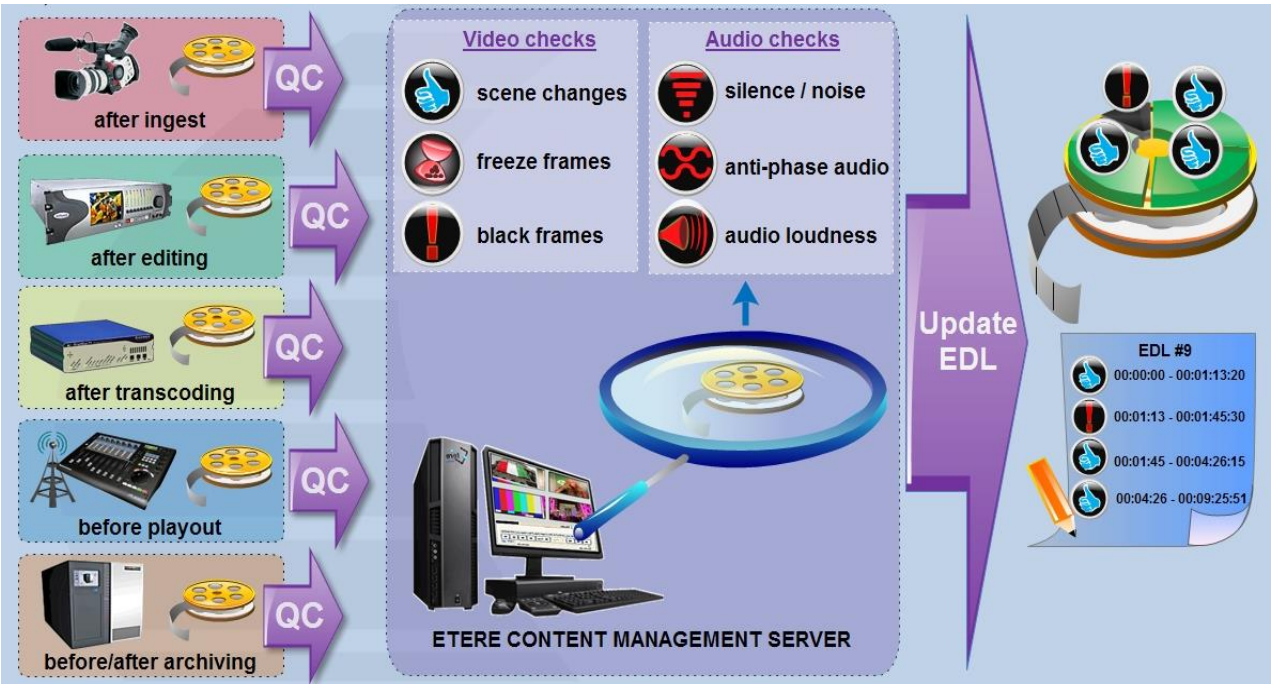

Etere CMS will speed up, automate and streamline the operational efficiency of file-based quality controls performed via workflow across the entire content life cycle. Etere CMS is based on a workflow action which, once included into a workflow that will automatically analyze the asset's proxy video to detect and log (into its EDL) the following audio/video issues:

- **Scene changes**: Video stream segment containing brightness differences between consecutive frames.
- **Black frames**: Video stream segment containing black frames and an audio volume lower than a reference level.
- **Freeze frames**: Video stream segment containing a single frame image repeated -as a frozen like a snapshot- for a period of time.
- **Audio silence**: Video stream segment containing silent frames (i.e. frames matching a certain silent audio level and a black video level).
- **Audio level**: Video stream segment presenting "noisy audio signals" which are greater than a given maximum threshold.
- **Anti-phase audio**: Video stream segment containing audio waves with "anti-phase signals", that is, opposite channels which mutually cancel each other out.
- **Audio loudness:** Measurement performed based on the ITU-R BS.1770 loudness metering algorithm widely used as loudness-compliant standard.

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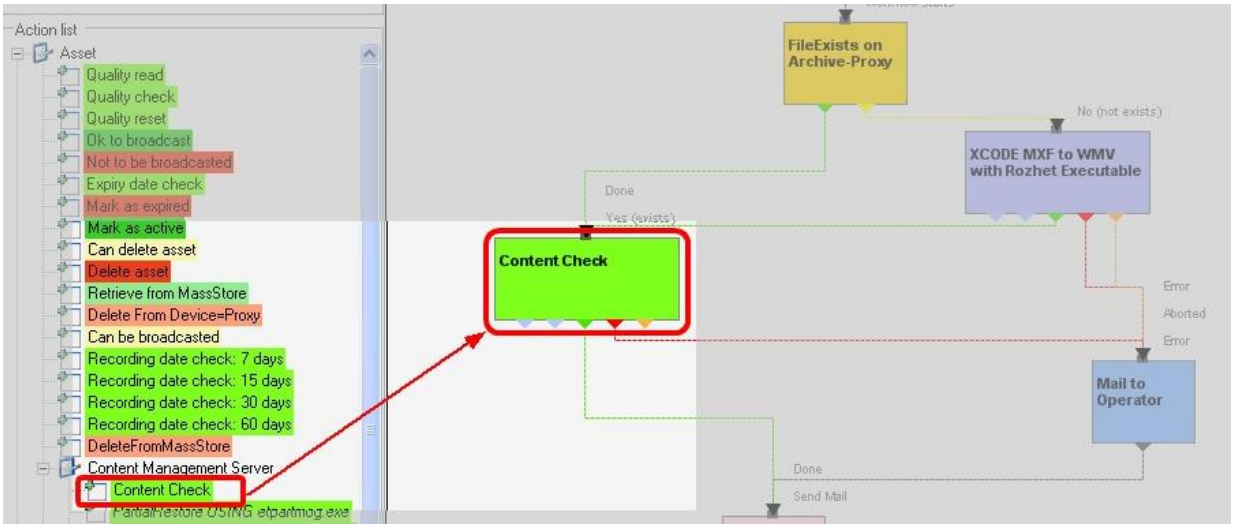
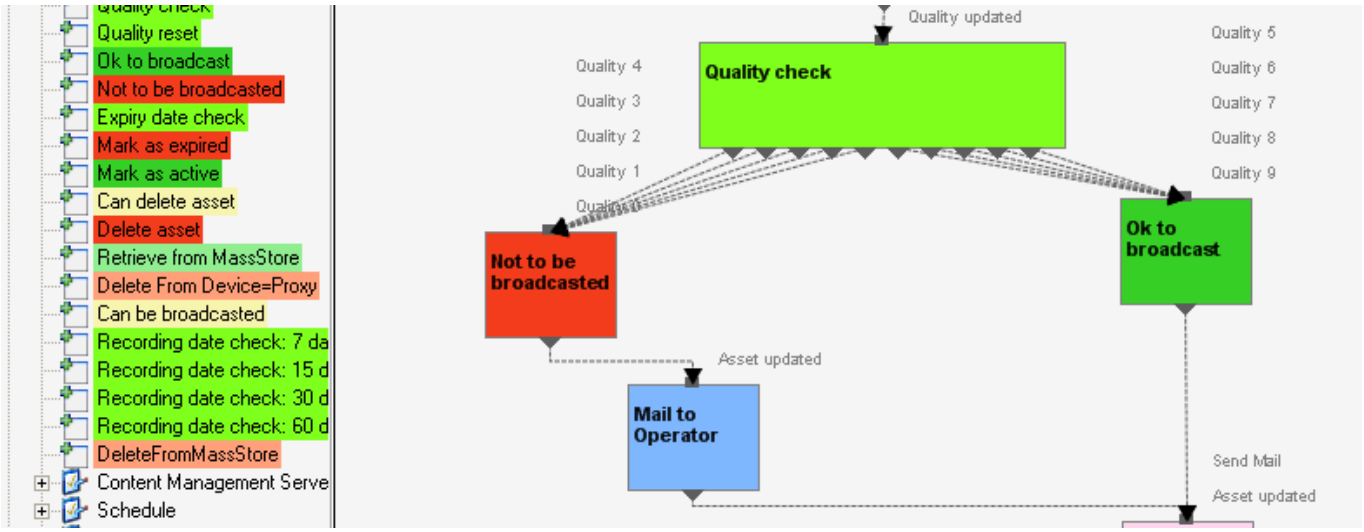


4.4.2 Quality Check

An Etere quality check workflow is able to automatically ask operators to assign a quality value to a certain asset(s) after browsing its video content:



4.4.3 Archiving

Etere allows you to design a workflow for archiving your assets on LTO tapes, including a quality and content check, a proxy copy generation and a final email indicating the result of the process:

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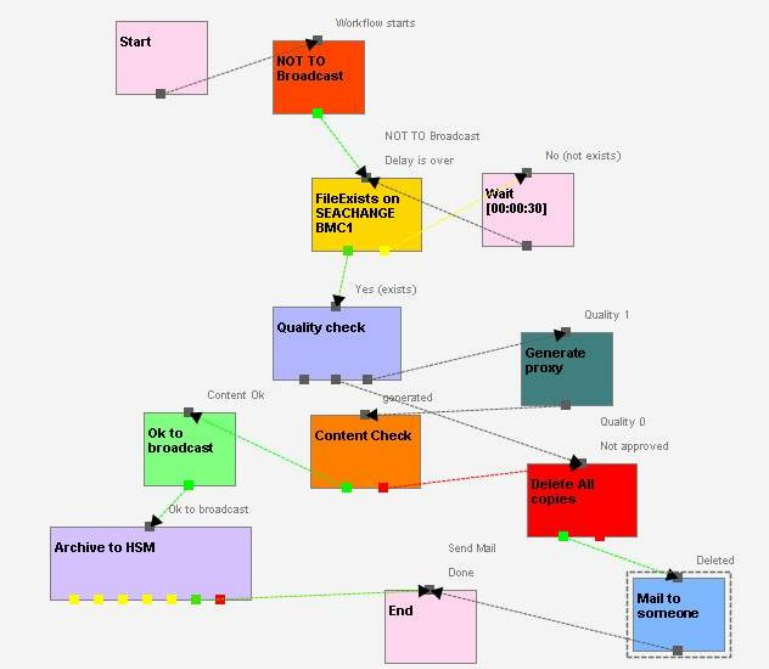
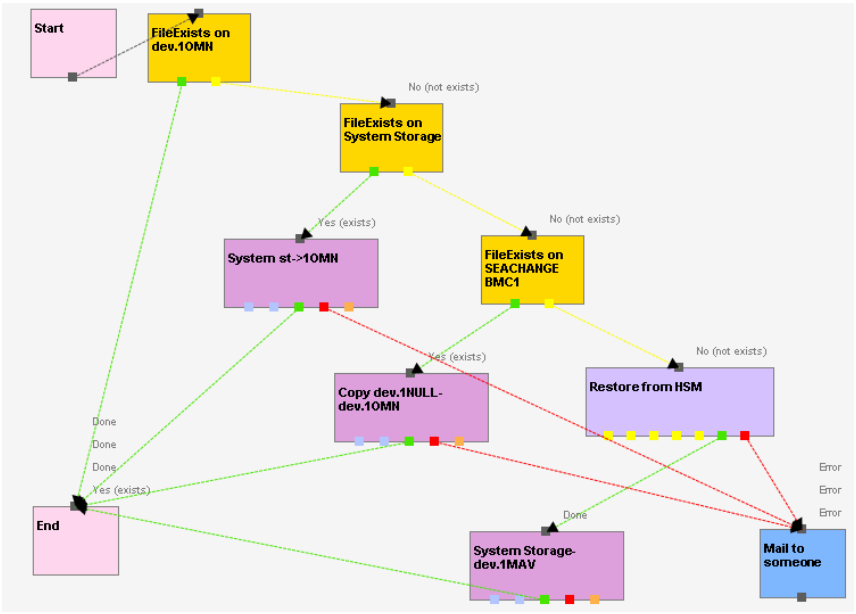


4.4.4 Restore

Create a workflow to automatically restore any scheduled asset for its playout by searching for them amongst a group of devices arranged on basis of their priority:



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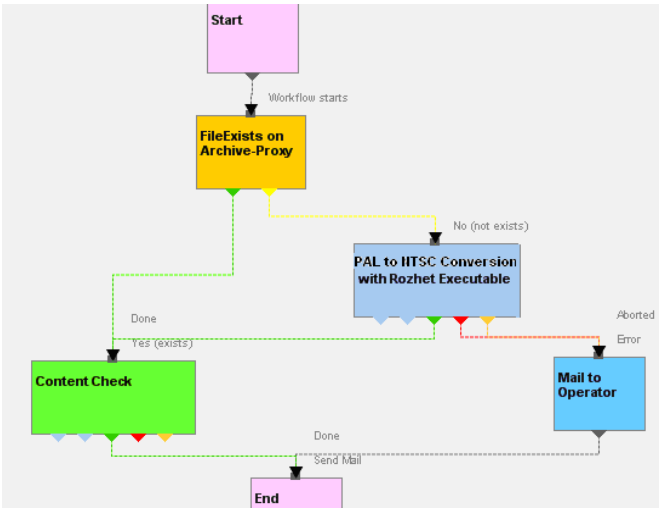
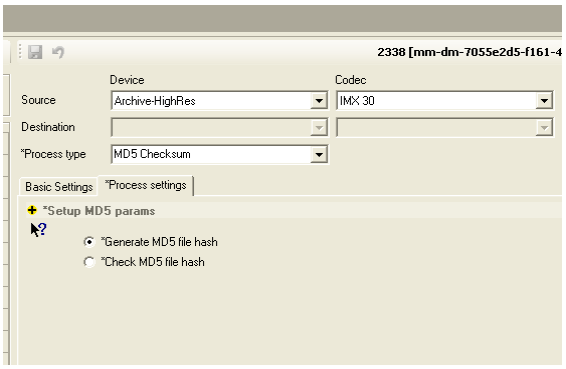
4.4.5 Transcoding

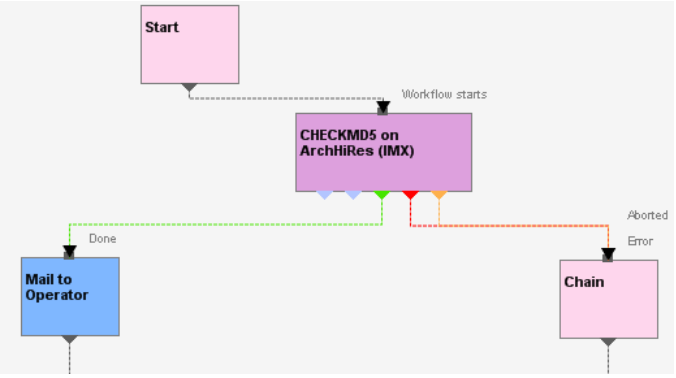
Etere's integration with Rhozet's Carbon Coder software handles a wide array of critical operations including format conversions, workflow operations that can be launched for example, immediately after a content capture:



4.4.6 Checksum MD5 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.

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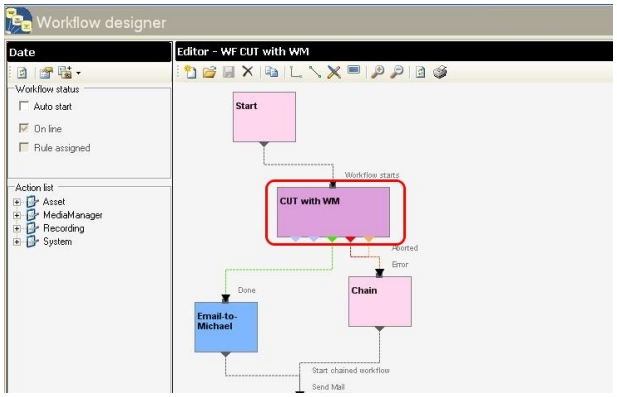
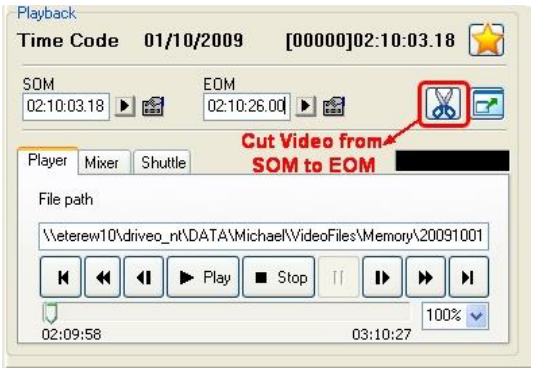
4.4.7 Video Cut

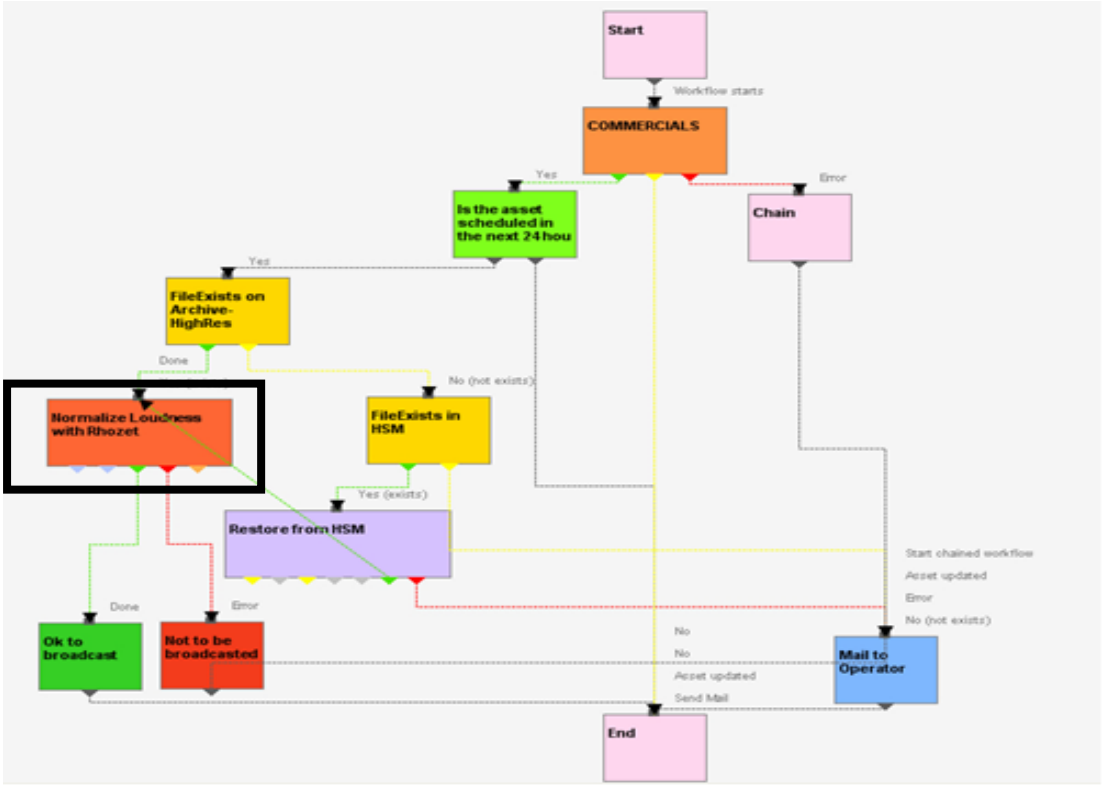
Etere offers ‘Cut actions’ that permits to take only a portion of a certain video file, using a given time code SOM and EOM. Defining and using a Memory Cut operation is as easy as shown below:





4.4.8 Loudness Normalization

Etere provides a file-based loudness control, allowing stations not only to check the loudness level of media contents but also to normalize them to meet specific limitations.



As shown in the sample above, “loudness normalization” workflows can be launched automatically for specific assets, for example, after their ingestion or tapeless reception (i.e. web upload).

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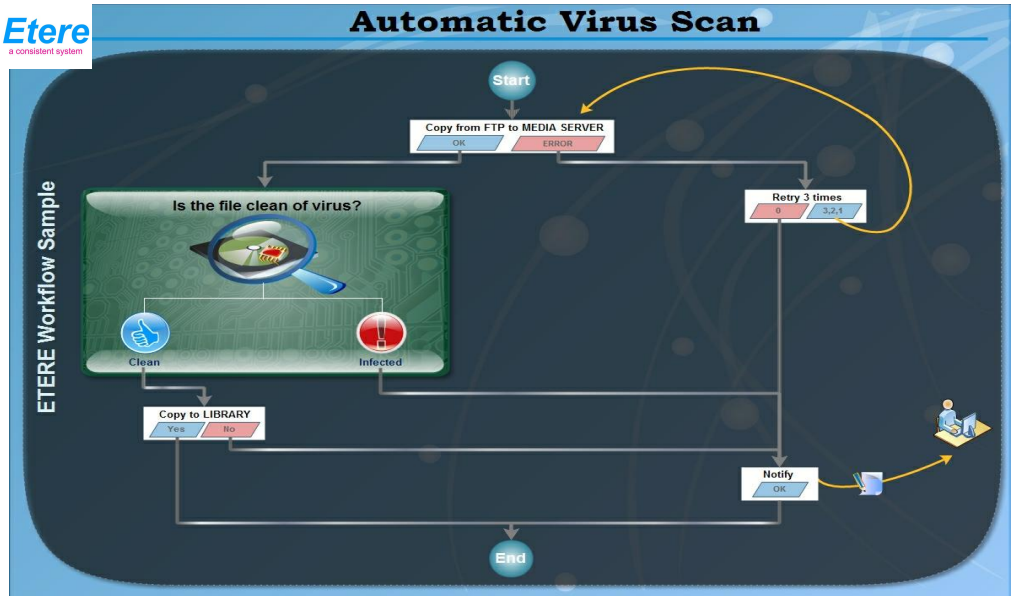
4.4.9 Antivirus Scan

Etere includes, as a part of its enterprise media management, the capability of integrating antivirus protection within workflows, allowing stations to improve their media workflows (e.g.: post-upload workflows) by giving them the capability of automatically scanning transferred files for virus and thus end their work with a flourish.



As shown in the figure above, the automatic virus scan capability can be easily integrated within any workflow at any stage just by inserting an action block configured to perform the virus checking; stations can insert them, for example, within the default workflow to be launched after an EtereWeb upload.

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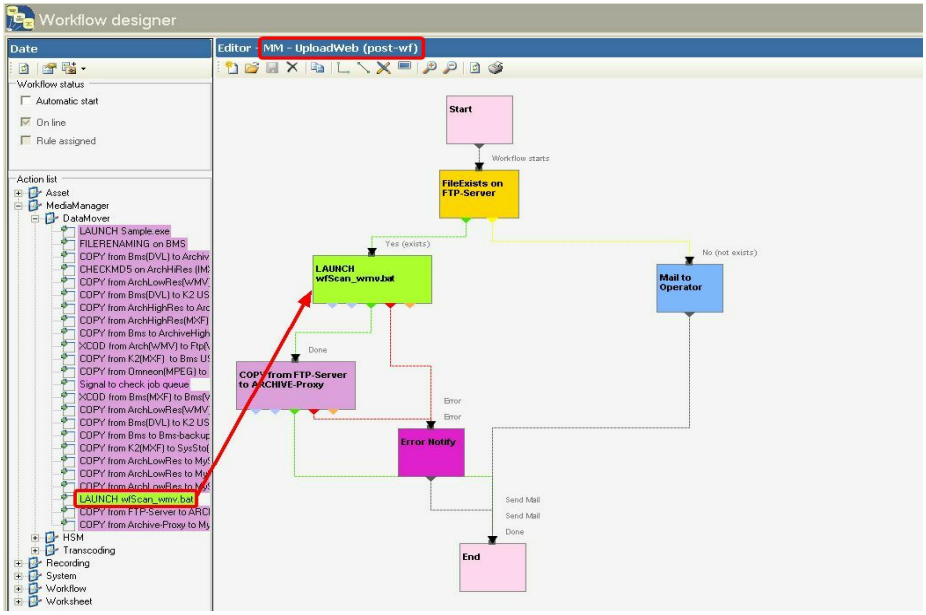
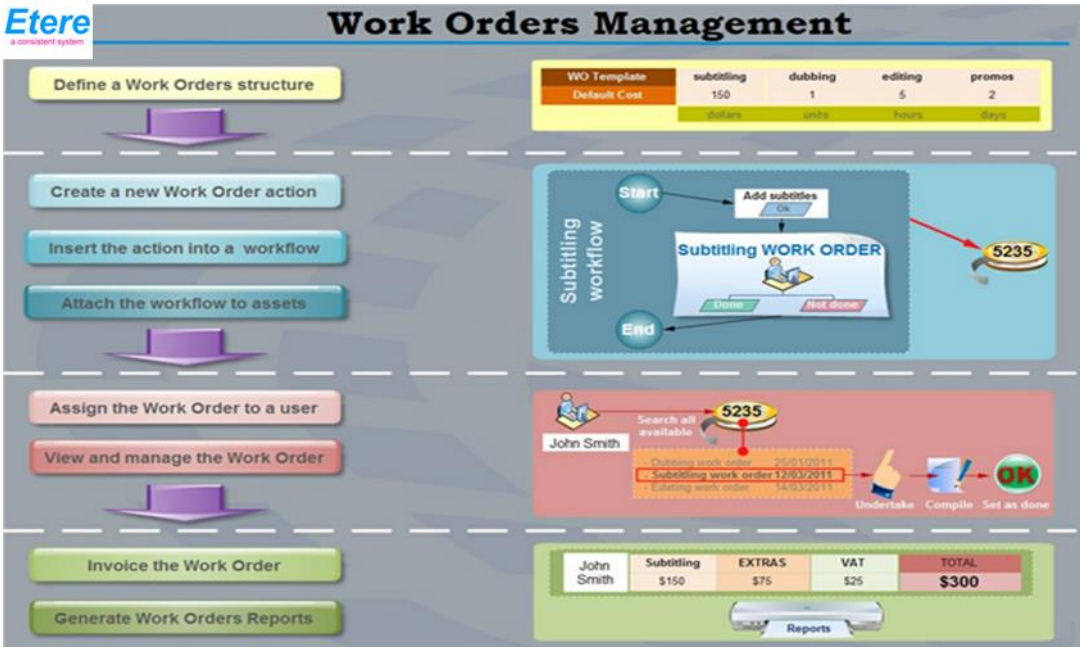


4.5 Work Orders Management

Etere's Work Order Management is the flexible solution that permits to virtually manage all operations actually involved in the media asset management, such as for example, subtitles generation, promo creation, tape copying, media editing, audio dubbing, etc. Etere integrates the management of work orders, from their creation and compilation to their tracking and invoicing:



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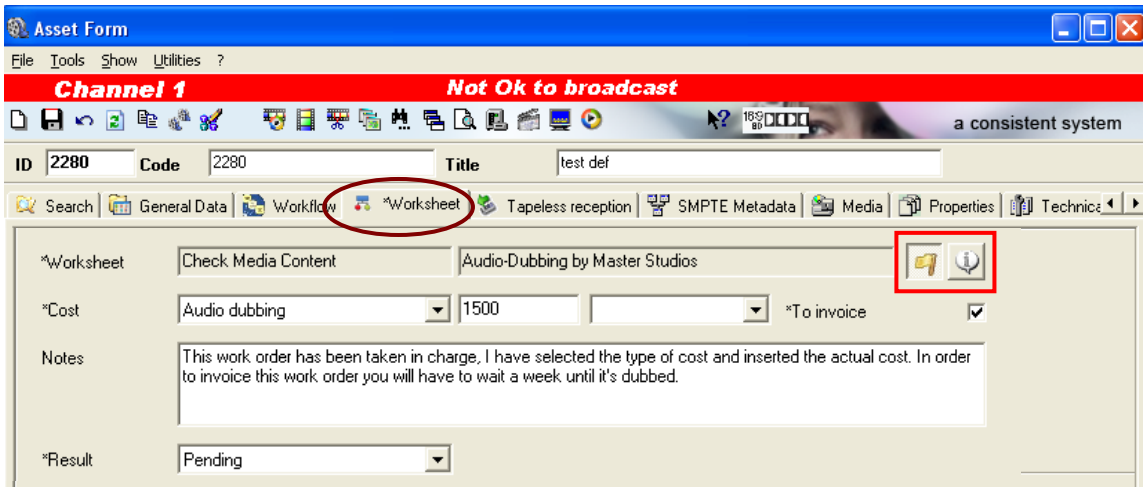
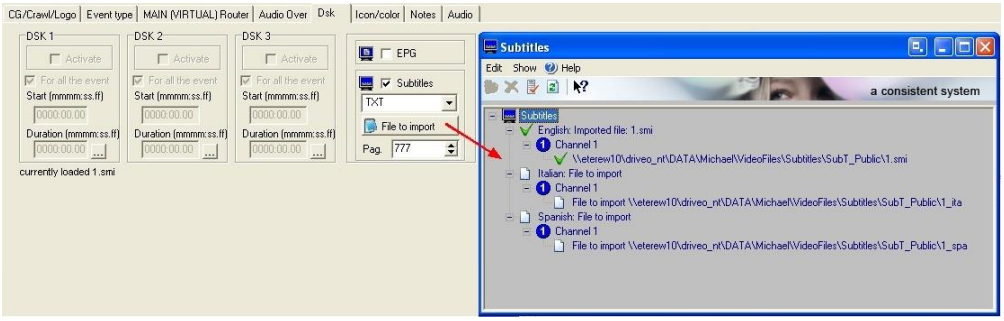
Work orders are based on a custom structure and are fully integrated into the workflow management, being possible to create user-defined work orders and include them in automated workflows which current status can be consulted at any time in real-time from either a desktop or web interface:



4.6 Subtitles Management

Etere includes, as a part of its enterprise media management, the capability of managing subtitles, subtitles can be generated whether using the WMP synchronized lyrics tool or any other external tool, in all cases Etere will import them automatically:



Once imported, subtitles are stored in a repository, ready to be moved to the subtitle engine when either the broadcast playlist will require it or a proxy preview will be performed (e.g. for quality check purposes):

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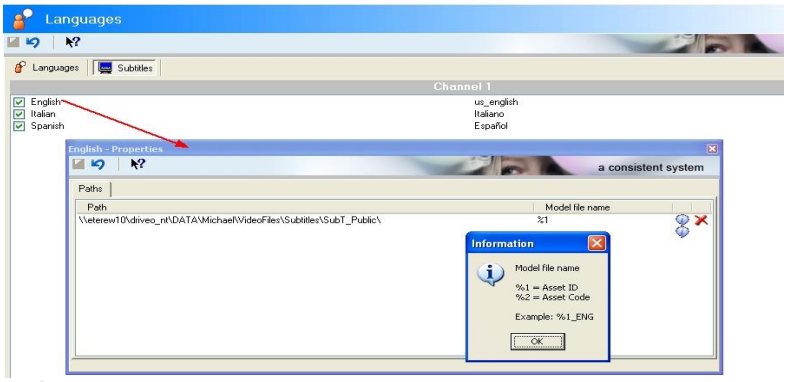
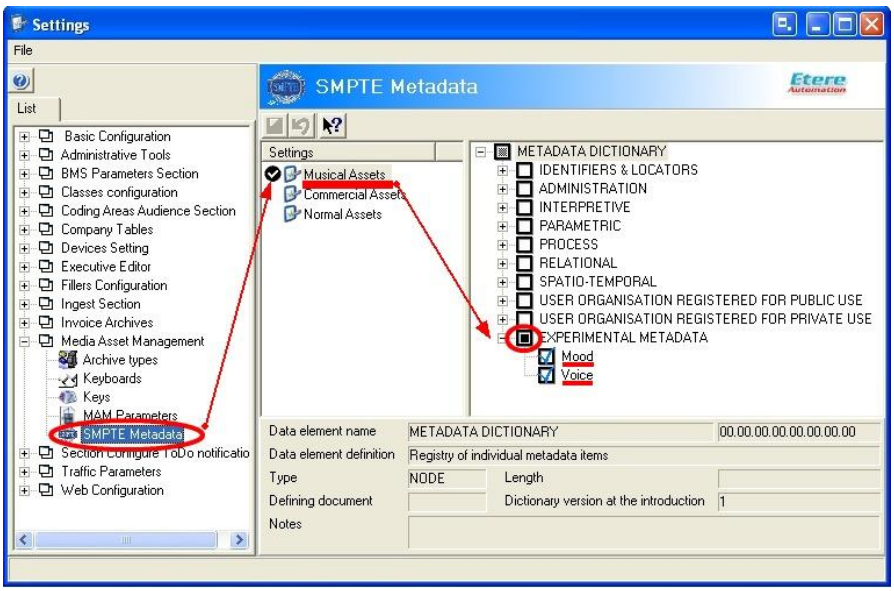
d.

Additionally, multiple language subtitle files are supported, allowing stations to specify so many subtitling languages as needed (including their storage paths):



4.7 SMPTE Metadata

SMPTE (Society of Motion Picture and Television Engineers) Metadata is a key part of the media management, that's why Etere provides a dedicated module for defining eventually useful metadata (e.g.: 'technical comments', 'descriptive names', 'intellectual rights') and store them into a robust SMPTE dictionary:



In Etere, all assets contain user-defined SMPTE metadata fields, these fields can be either manually compiled or automatically compiled (retrieved from specific asset properties):

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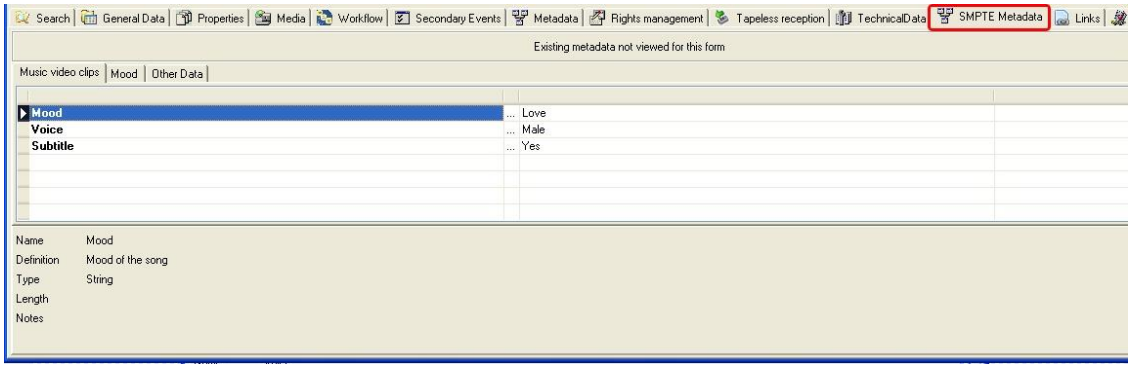

SMPTE metadata can be used also for cataloguing media content, allowing operators to quickly add specific information to a video segment.

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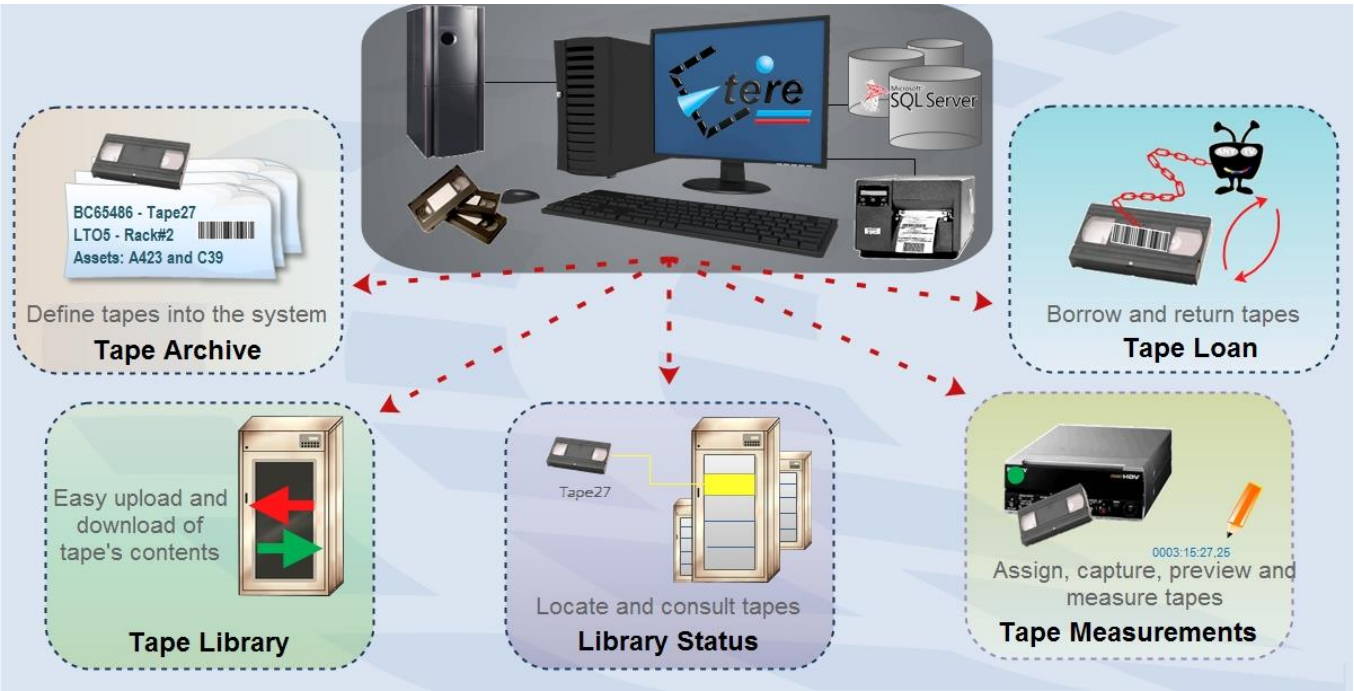
5. ETERE COMPONENTS

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.

All these operations are synchronously performed within the same database environment and managed by suitable user-defined workflows that ensure an efficient overall system control; these are some of the main features that make of ETERE a solution that can easily fit any media management workflow. All modules that make part of the Etere's proposed solution will be treated throughout this chapter, explaining their roles in the global distributed and integrated system:

5.1 ETERE TAPE MANAGEMENT: A powerful management of tapes

Etere allows stations to manage their tape archives (video tapes, data tapes, discs) through a set of modules specifically designed to perform the most important tape-related operations; these modules are illustrated in the figure below and described all throughout the current chapter:



It's worthy mentioning that the tapes management provided by Etere can be greatly complemented with the remote tapeless capabilities described in the chapter dedicated to the EtereWeb module.

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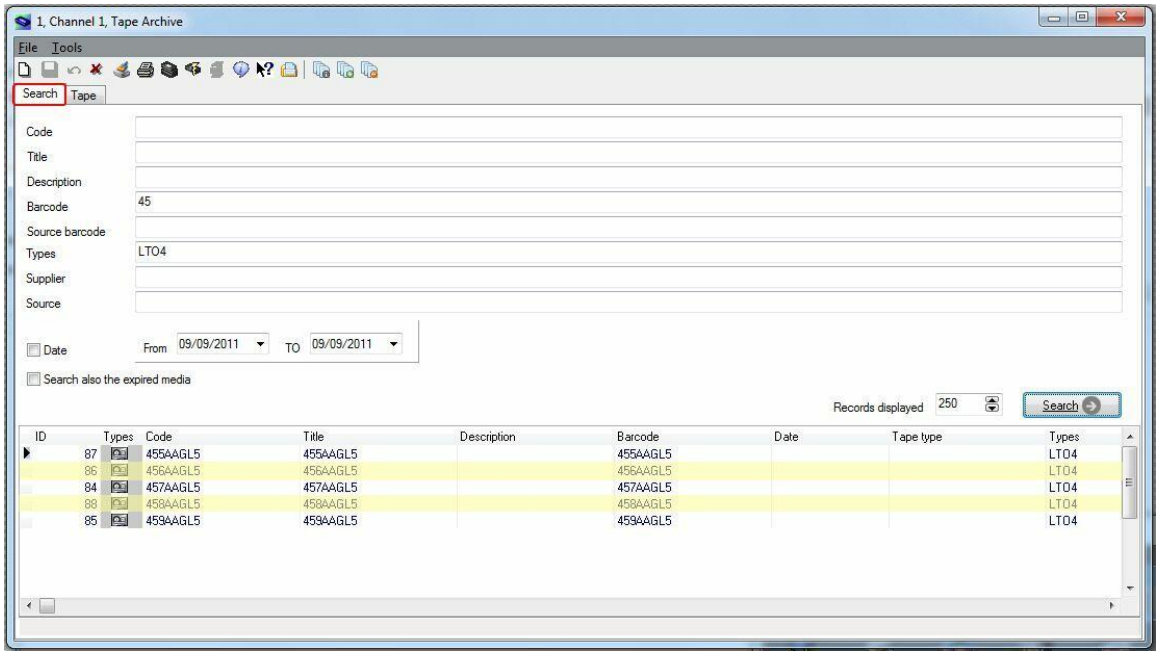
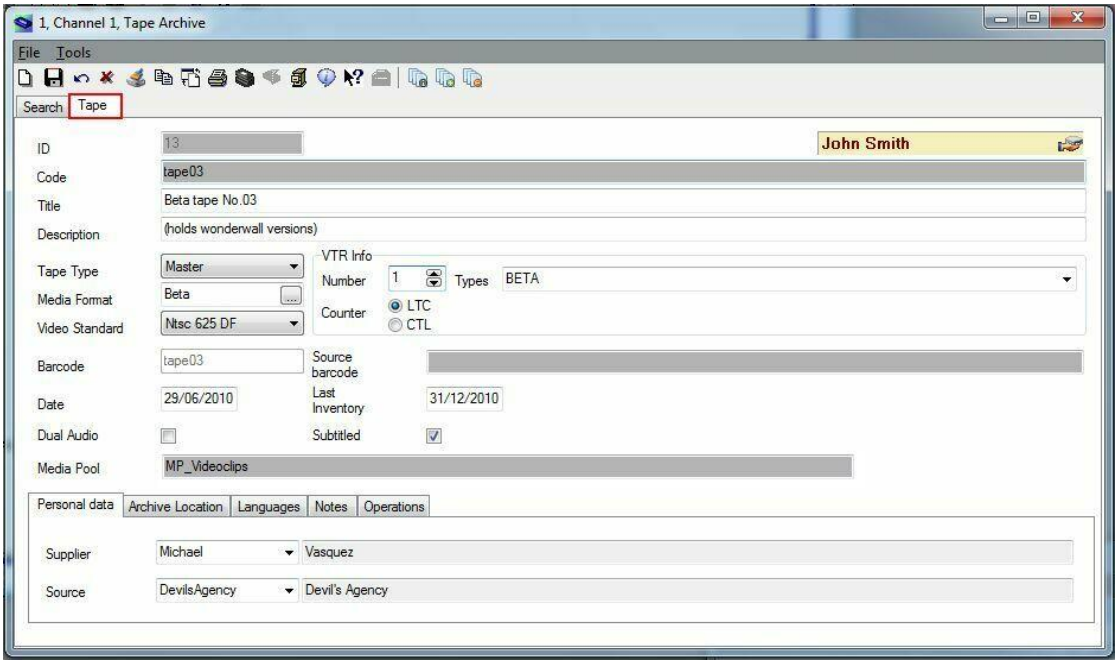
5.1.1 Tape Archive

The Tape Archive module is the inventory where all tapes managed within the system are inserted and defined, being possible to search them through a robust search engine (loaned tapes are highlighted to point out their unavailability):



Retrieved tapes can be consulted by viewing their main information (i.e. ID, code, description, type, format, barcode, media pool, rack location):



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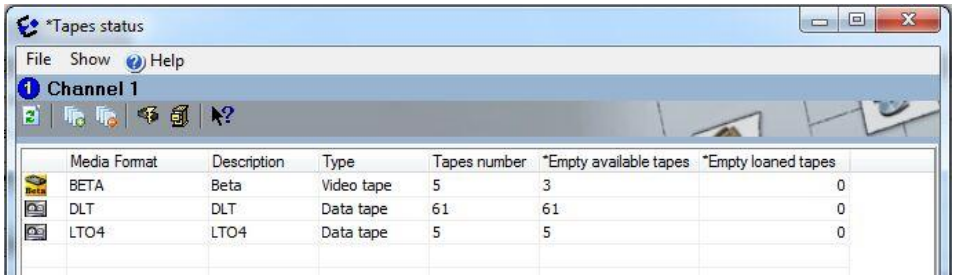
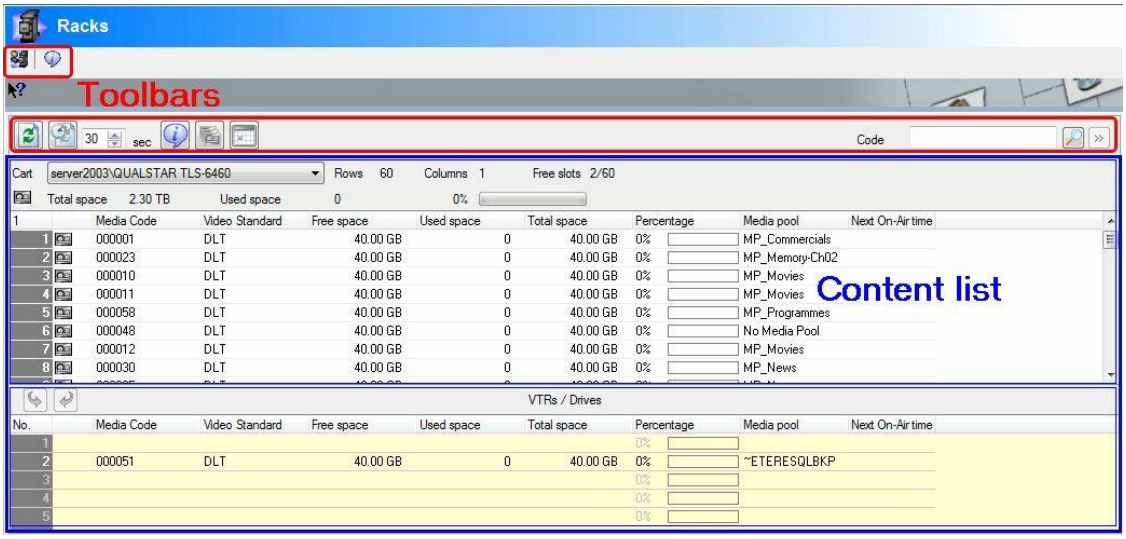
Moreover, it will be also possible to perform various operations such as tape creations, tape loans, tape copies and status consultations (e.g. empty tapes, loaned tapes, etc.):

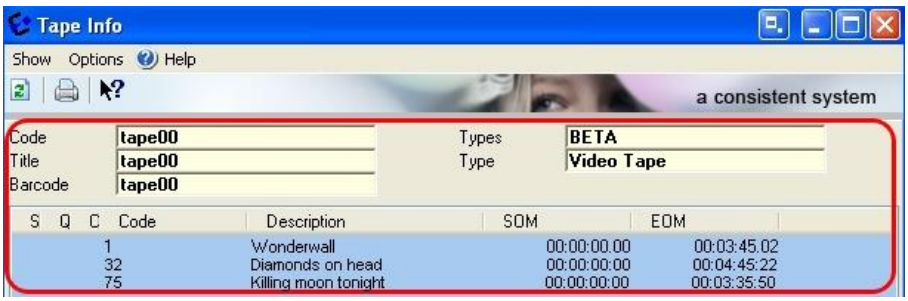


5.1.2 Library Status

The Library Status module provides a simple user-interface for locating tapes inside specific racks and libraries and consult some of their more important storage properties (e.g. free space, used space, etc.). As shown in the figure below, the user interface is mainly composed by the Content List (i.e. where contents of each single library/cart can be consulted) and a Toolbar (holding the functions supported for their management).



All tapes contained into a library can be consulted through a very useful “Tape Info” form which details some important information such as its code, type, barcode, title and contained assets:



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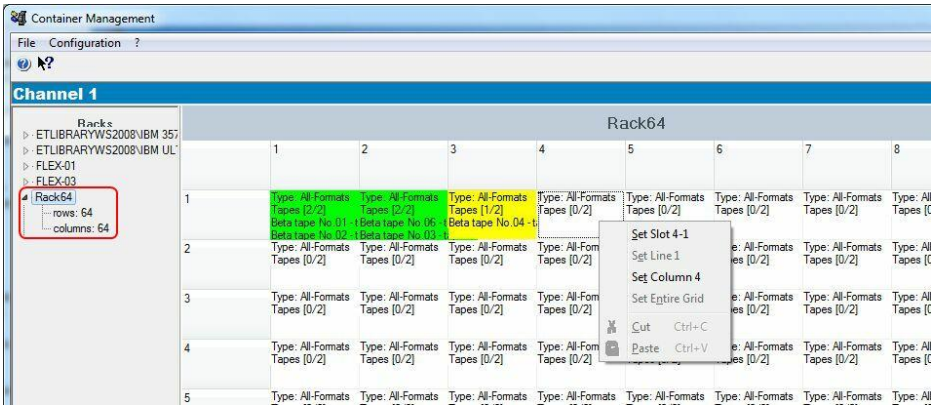
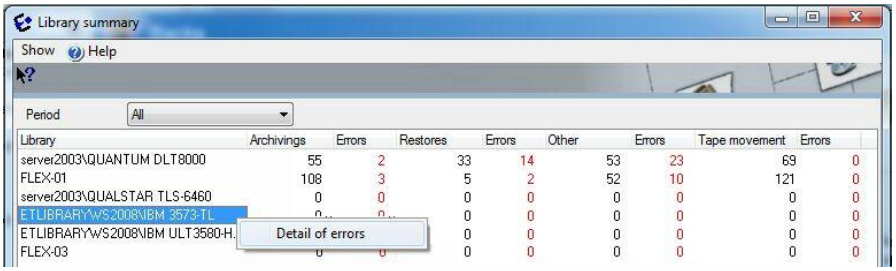
A "Container Management" form displays an array-view of the slots contained within Racks and provides visual information on their space status (e.g. green=empty, yellow=used, red=full):

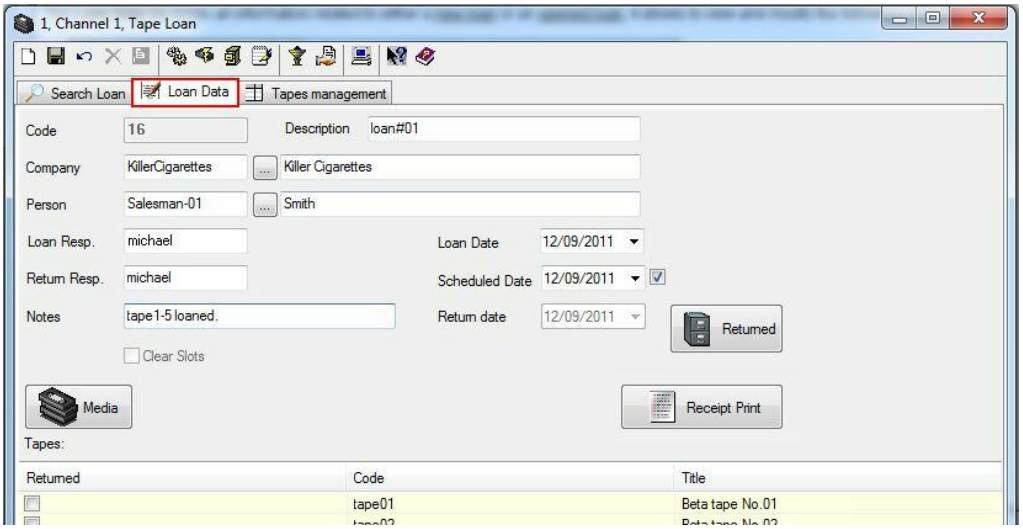


Moreover, a "Library Summary" form provides an overview of the HSM management of each library configured in the system:



5.1.3 Tape Loan

Etere Tape Loan is the module that allows managing all information related to the borrowing and return of tapes. Loans are recorded in the database detailing the loaner (company and person), the loan and return responsible, the actual loan data, the expected return data, the loaned media (tapes), being also possible to print a loan receipt document for each loan operation:



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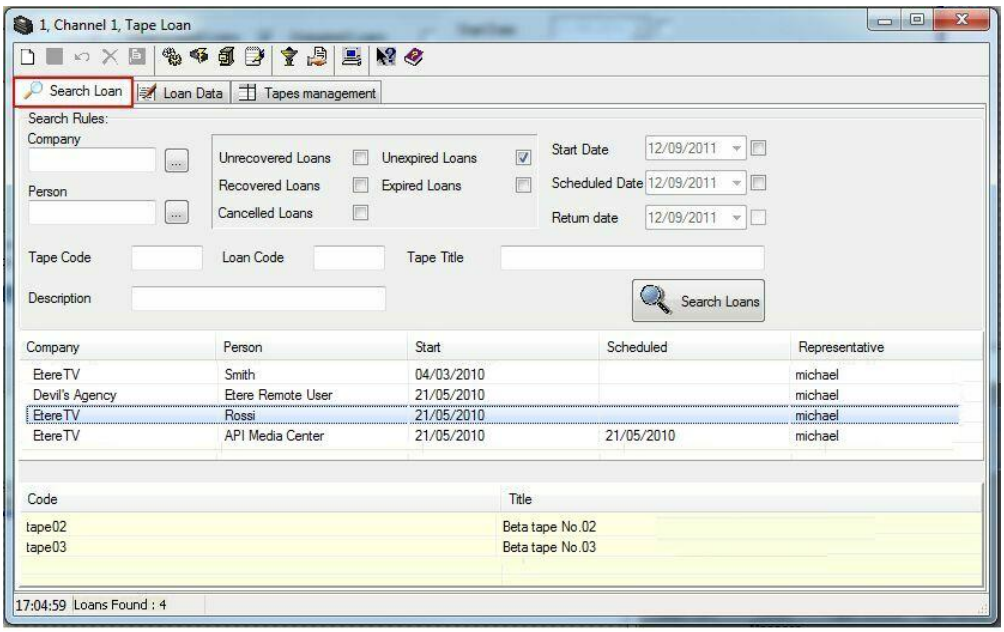
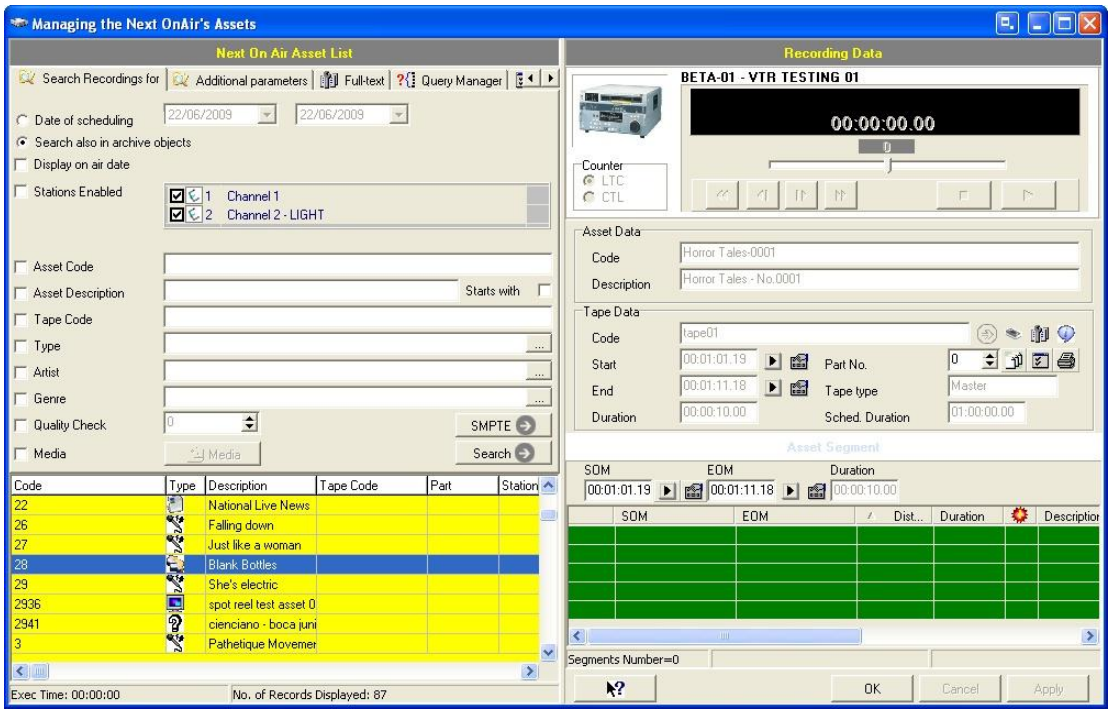
Stations will be allowed to search due-for-return tapes and consult pending loans, settle loan returns and print loan reports:



5.1.4 Tape Measurements

The Tape Measurements application allows assigning new or existing tapes to assets, detailing the information required for their subsequent recording (e.g. SOM, EOM, EDL instructions, split parts):



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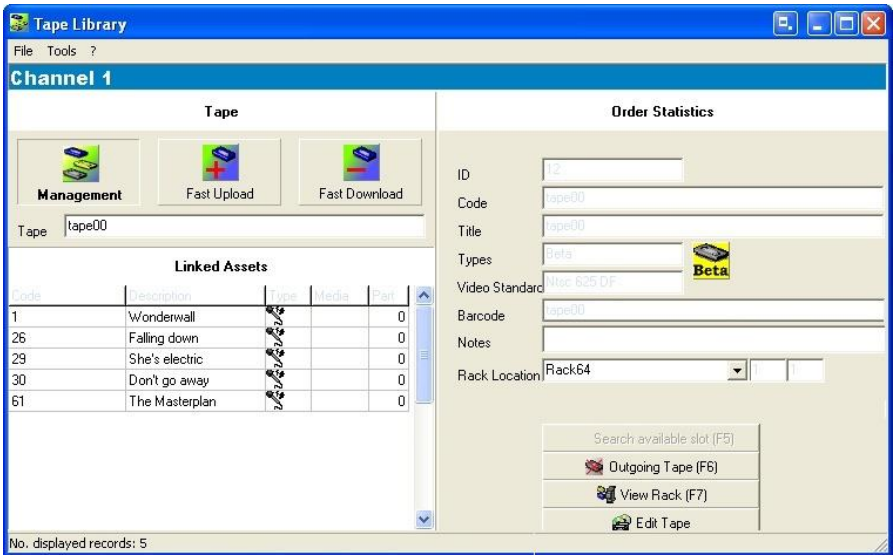
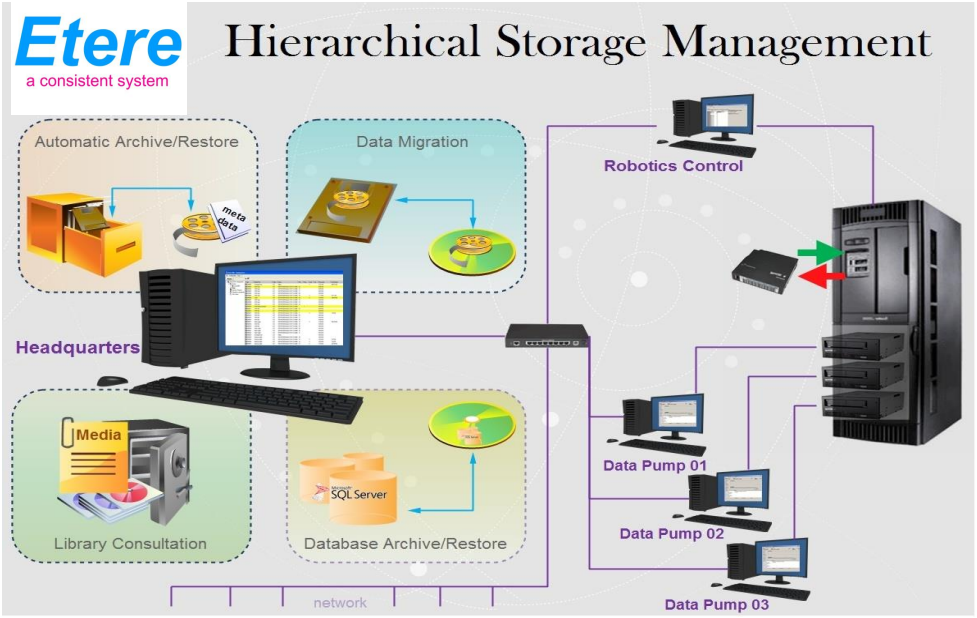
5.1.5 Tape Library

The Tape Library module allows to quickly upload/download tapes from a certain rack; through this module allows operators to view the main information of a tape and manage its content as well:



5.2 ETERE HSM: A Tape Based Archiving

LTO tape libraries present in the station will be managed by Etere HSM, the cost-effective solution to radically streamline the management of expensive tape libraries; allowing stations to optimize the migration of contents including high and low versions as well as associated metadata.



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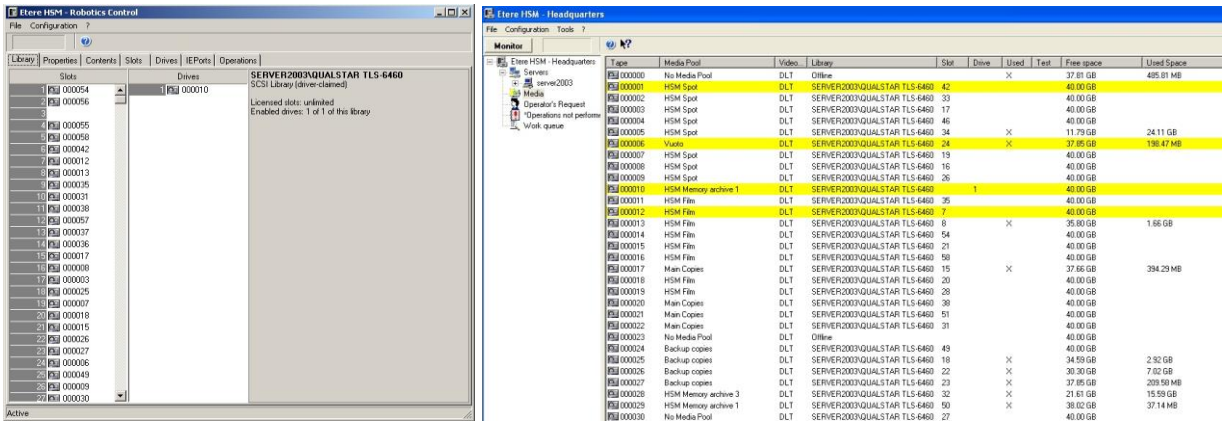
Etere HSM improves the management of libraries by controlling their mechanical movements through the HSM Robotics Control and HSM Data Pump applications, which are able to run several data pumps on different machines to boost their throughput, while offering access to real-time logs, reports and statistics.



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:

- Carry out loan-balanced movements 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.

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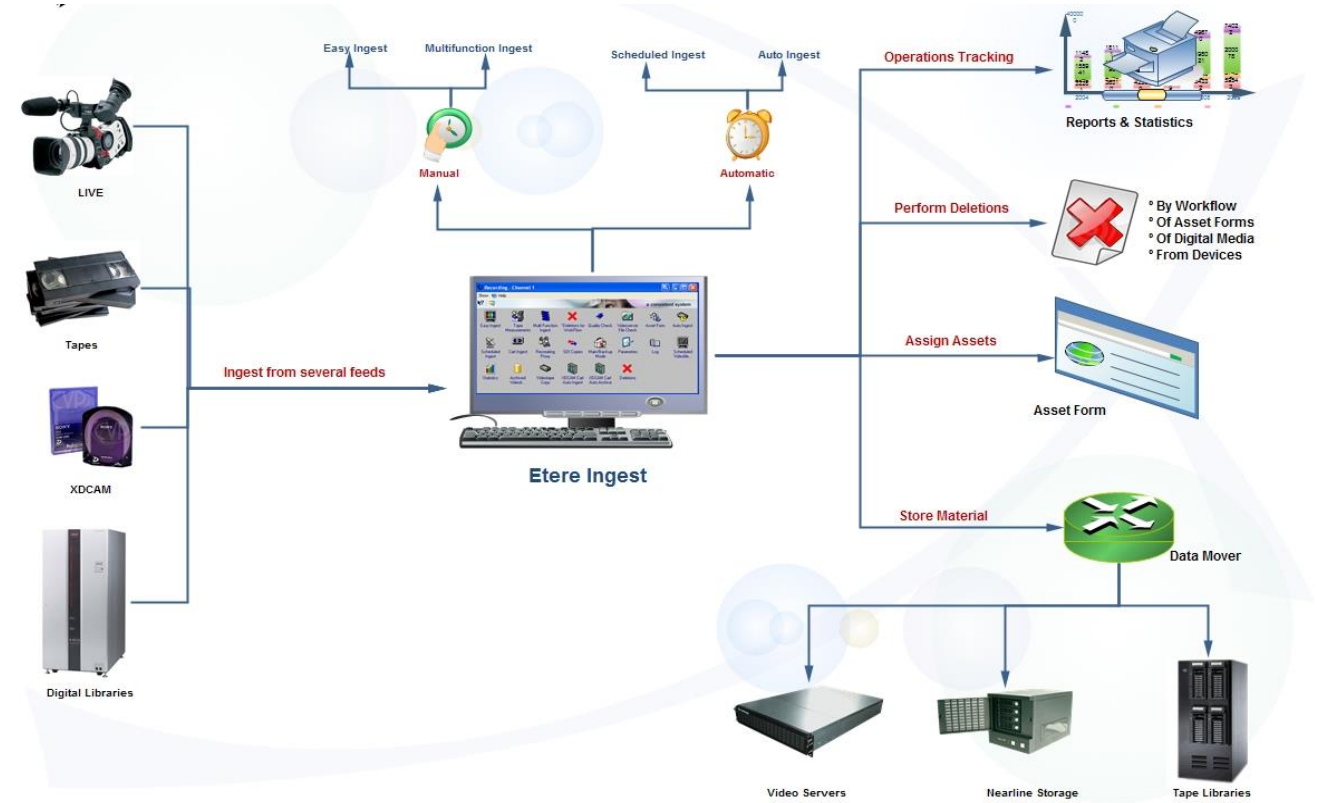
Etere HSM forms a tandem with Etere Data Mover to be the only solution in the market with an embedded multi-level and multi-rule cache that offers an intelligent management which ensures the best performances with low investments.

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.

5.3 ETERE INGEST: Enterprise Capturing System

Etere ingest is a versatile set of modular applications that significantly improves the digitization process inside a broadcasting system:



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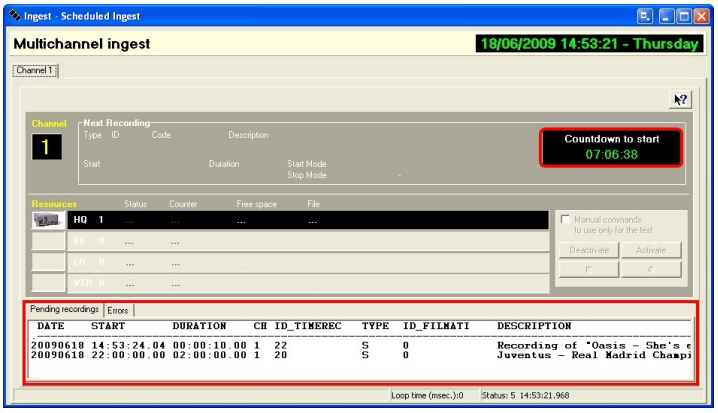
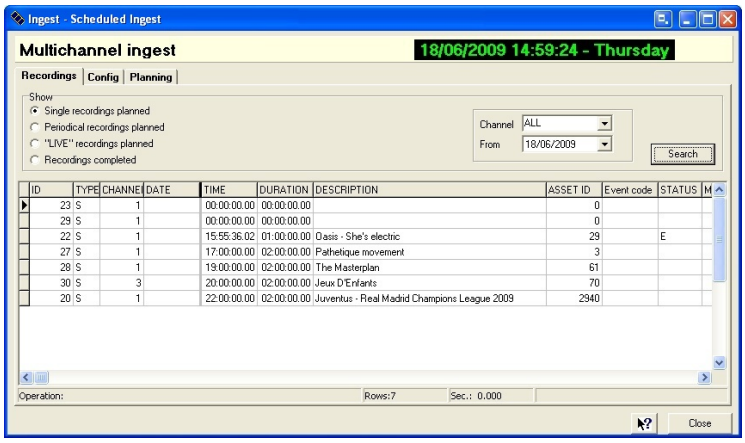
5.3.1 Wide range of capturing modes

Etere Ingest covers any particular requirement of the entire process such as automatic and scheduled ingests:



Automatic ingest



Schedule ingest

Etere Ingest supports multiple parallel ingest streams, managed automatically either on a single workstation or across various workstations, allowing also to schedule the video files to be ingested:

Planning View

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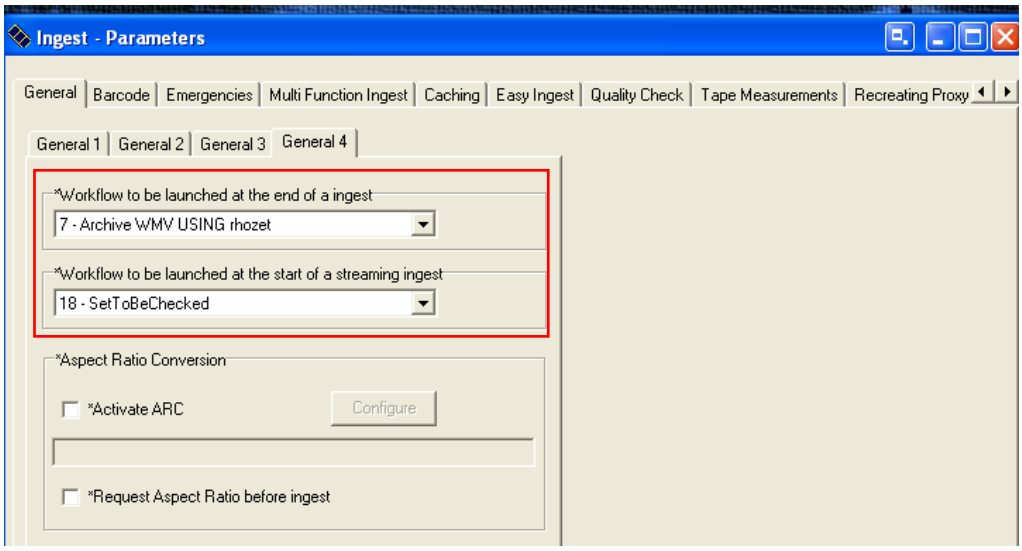
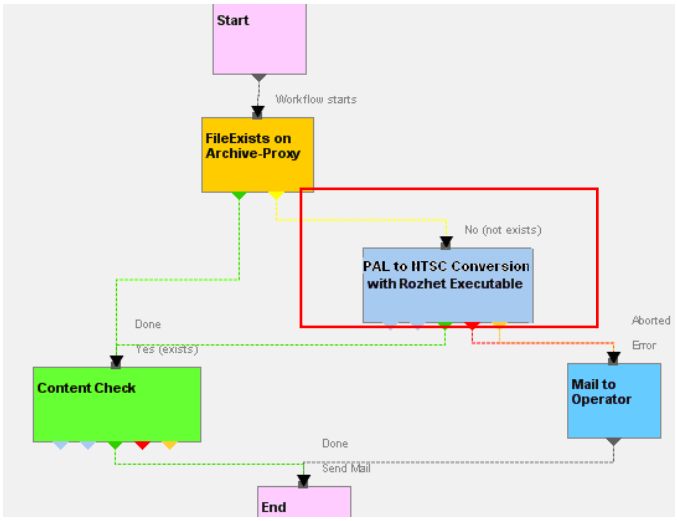
5.3.2 Automatic workflow actions

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, playout, etc.):



The image below illustrates how Etere allows setting the workflow to be launched at the start and end of an ingest process to for example, **create a low resolution** version or **normalize the audio** of captured contents:



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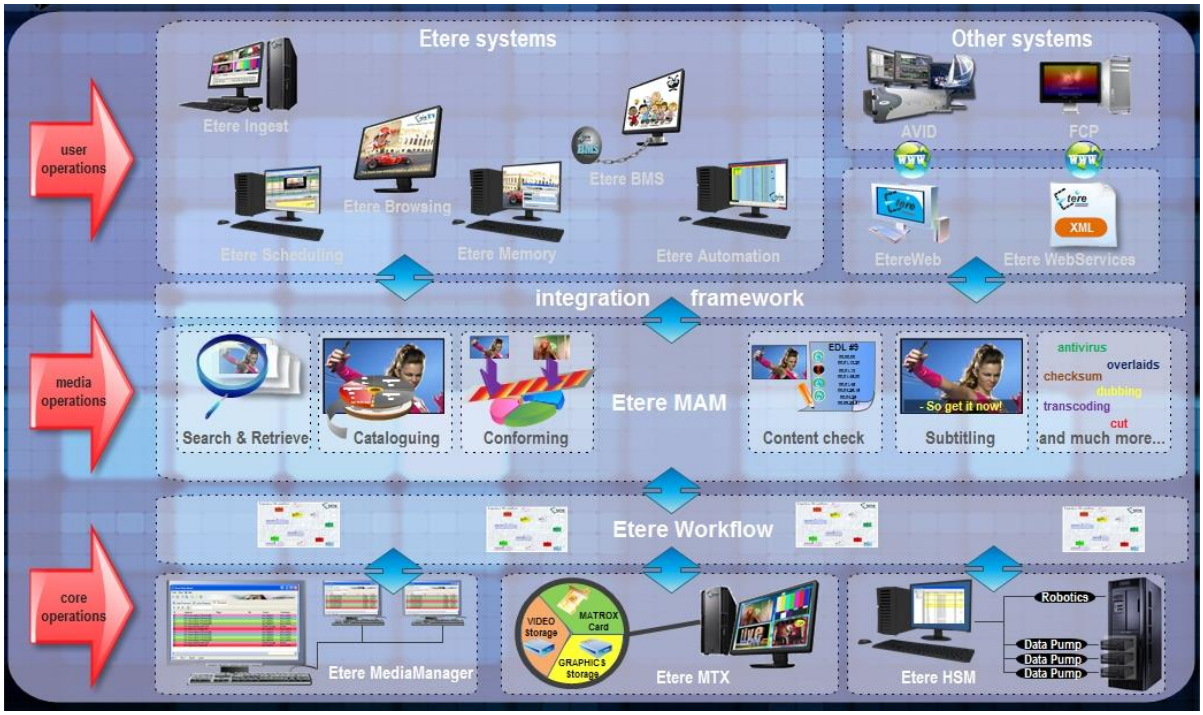
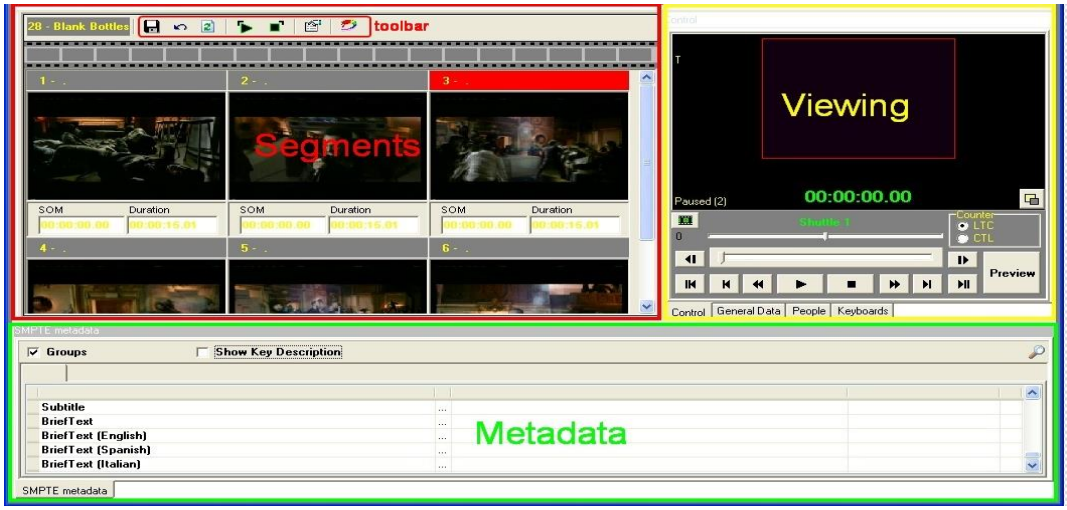
5.4 ETERE MAM: Browsing and Editing

Etere MAM will allow operators to store information, search media EDL, and transfer EDL-based media to the playout server and the editing systems:



5.4.1 Media cataloguing and Metadata Insertion

Etere enables comprehensive search and browse and cataloguing of rich media, its very intuitive interface establishes a bridge between the ingest department and the production department, allowing contents to be browsed simultaneously from various workstations thus enabling low-res proxy browsing over the network:



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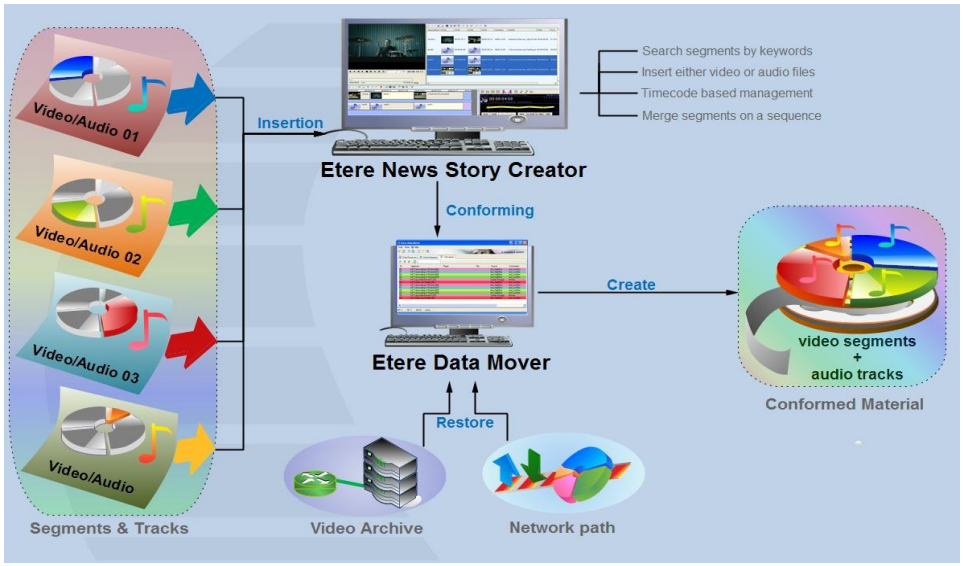
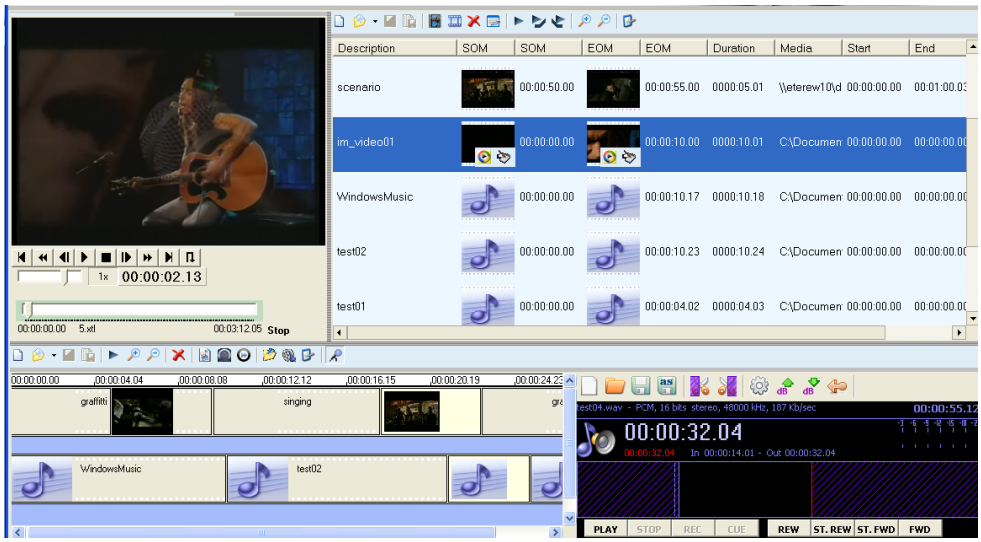
5.4.2 Video conforming and Audio over

Etere MAM permits to join cut segments from different sources, to create a single final video file containing all scenes selected by the operator:



Use this function to, for example, dubbing contents by overlaying audio tracks over a video(s):



The image above illustrates the user-friendly interface on which operators creates new video sequences of MAM captions which includes all relevant metadata associated to the inserted scenes.

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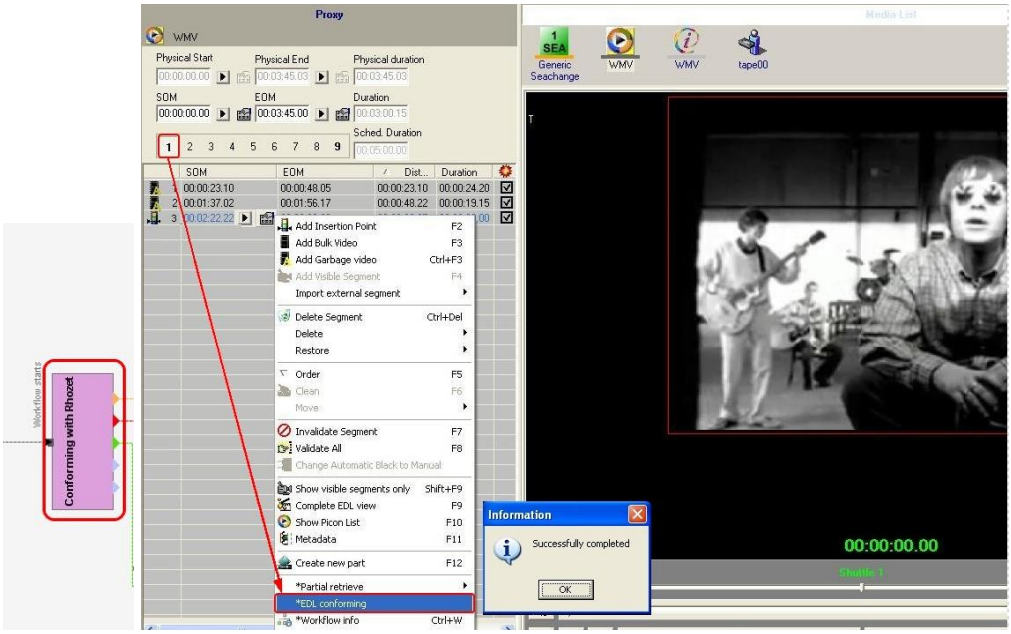
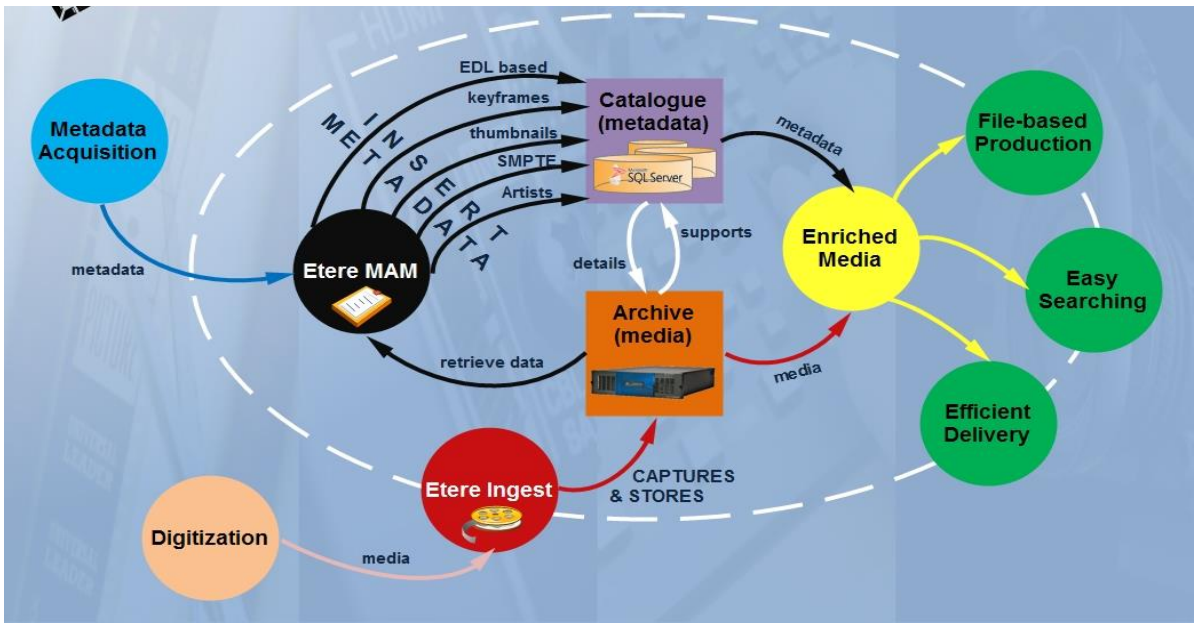
5.4.3 Partial restore of assets

Etere also allows restoring only a part of video files by creating either high or low resolution video files including specific segments described on the source video EDL, it is important to note that as usual on Etere's operations, the conforming of video files is fully performed via workflow:



5.4.4 Integration between MAM and Ingest

Etere MAM can be used along with Etere Ingest to enrich captured media contents and thus leverage all benefits of a file-based production including easy research and efficient delivery capabilities:



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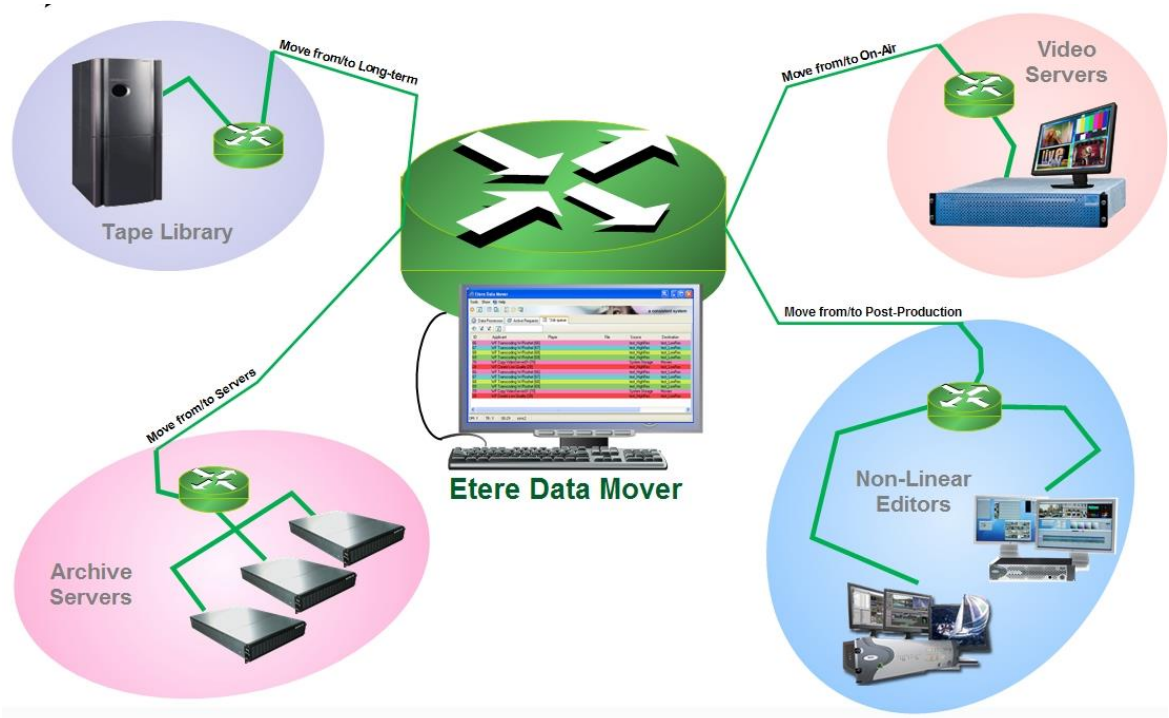
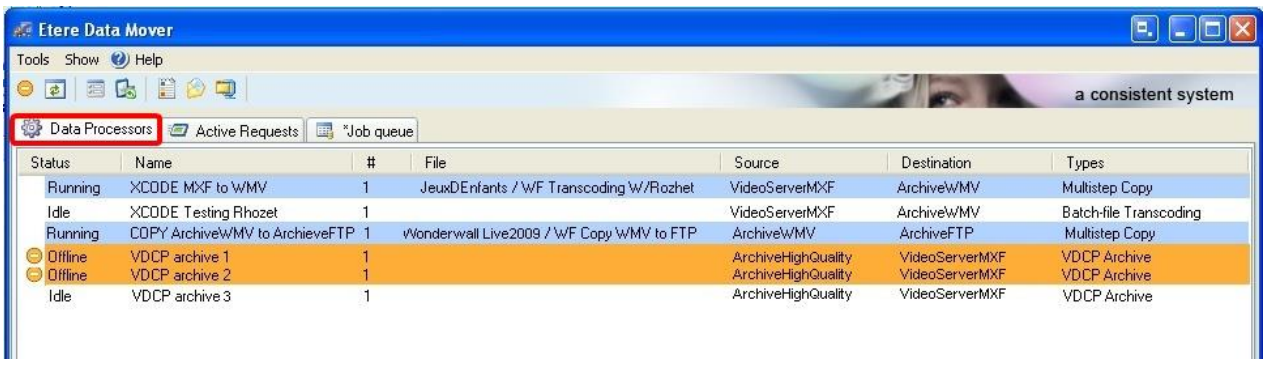
5.5 ETERE DATA MOVER: A Digital Archiving and Delivery

The Media Management solution proposed to encompass station's 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.



5.5.1 Simple and user-friendly interface

Video contents will be transferred between the various departments (e.g.: near-line storage, archive, post-production, playout, browsing, and even non-Etere systems) by Etere Media Manager; this migration process also includes rewrapping and transcoding capabilities.



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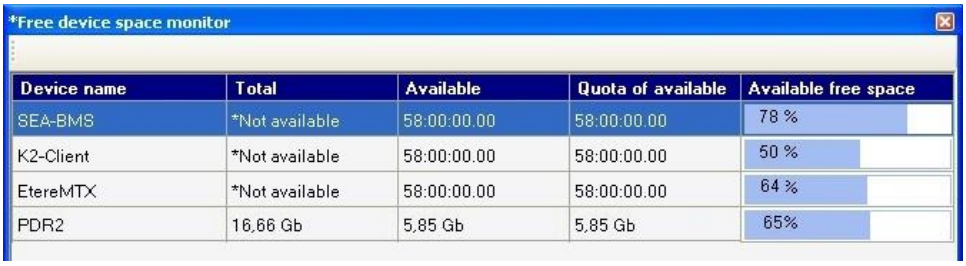
5.5.2 Logical management of data

Etere's approach is oriented to "virtualize" the entire media management process, improving it with flexibility, customization and most important cost-effectiveness.

Etere manages (logical) metadevices instead of (physical) devices, this approach results in a wide range of possibilities for the media management, for example, it is possible to control with one click the available space of all metadevices:

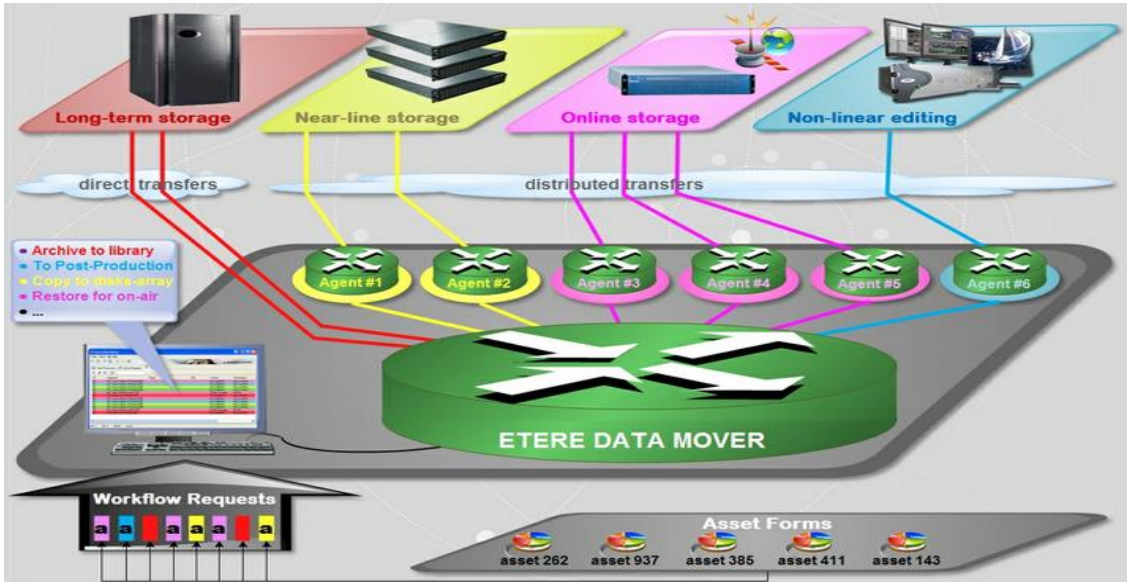


Device name	Total	Available	Quota of available	Available free space
SEA-BMS	*Not available	58:00:00.00	58:00:00.00	78 %
K2-Client	*Not available	58:00:00.00	58:00:00.00	50 %
EtereMTX	*Not available	58:00:00.00	58:00:00.00	64 %
PDR2	16,66 Gb	5,85 Gb	5,85 Gb	65%

Etere Data Mover is the application used to perform the physical storage and retrieval of video files, a typical Data Mover operation would be to move a video clip from a video server to an archive based on custom actions which are defined and executed via workflow.

5.5.3 Distributed parallel transfers

Etere Data Mover is capable to provide both, distributed processing for using an independent agent per data transfer and parallel processing for simultaneously performing different instances of one data transfer; these features will allow stations to exploit high computing resources to use a single workstation to perform multiple transfers, thus enhancing the flexibility, scalability and fault-tolerance of the entire Etere system.



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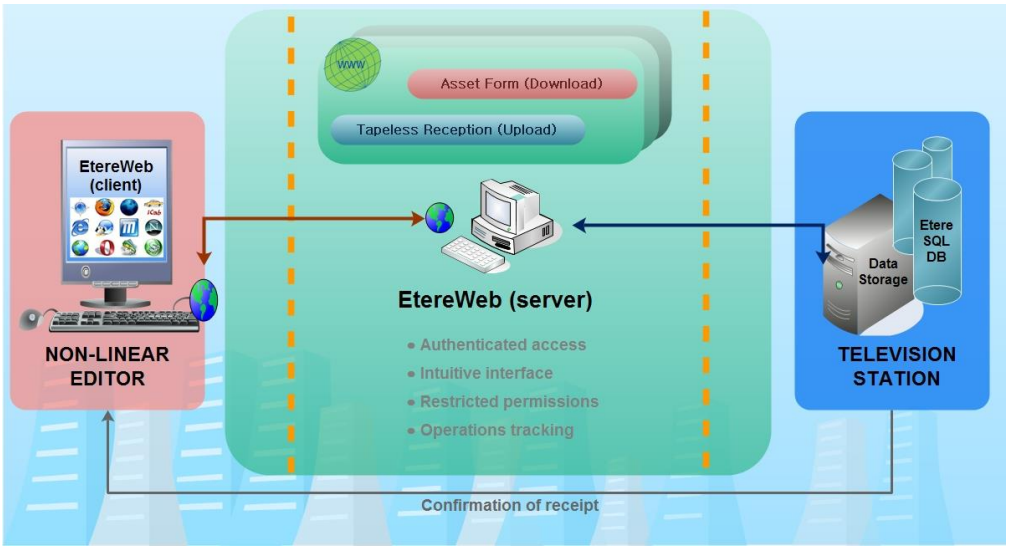
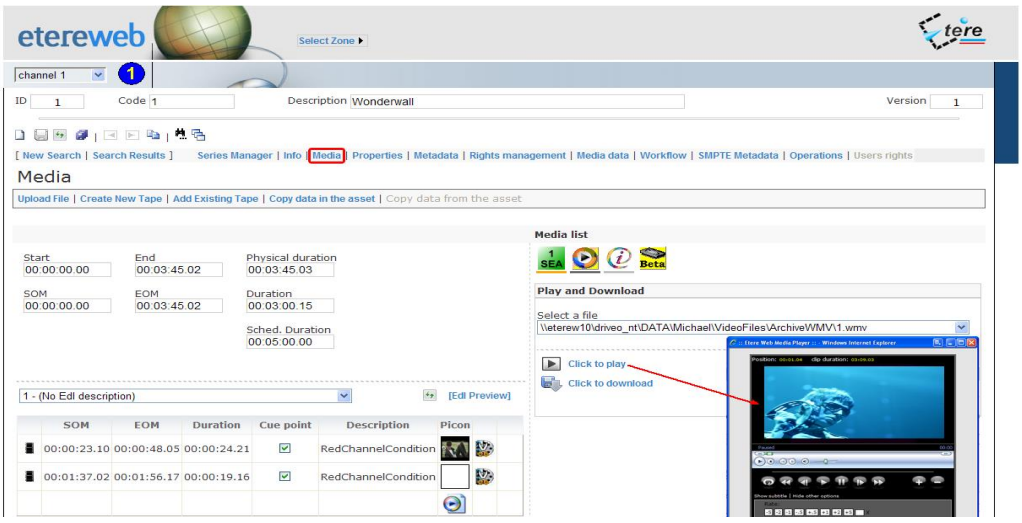
5.6 ETEREWEB: Post-Production Integration

Etere's NLE integration will allow stations to achieve a tight integration with NLE systems, without using insecure "hot folders" or "ftp open sites" but including full tracked uploads (i.e. digital receipt of files) and immediate workflow triggering. EtereWeb is best solution for integrating NLE systems (e.g. FCP, Avid, Edius) with the station's broadcast workflow; it provides non-linear editors with an authentication web portal for managing media contents through a user-friendly interface:



The EtereWeb web service 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:



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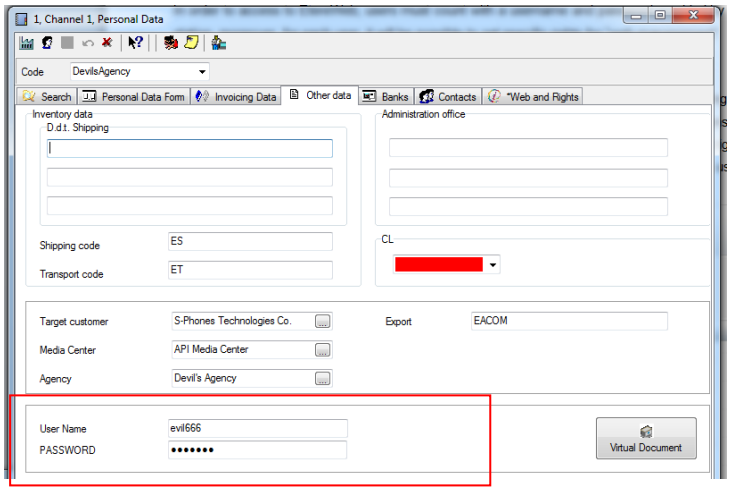
5.6.1 Authenticated access and rights

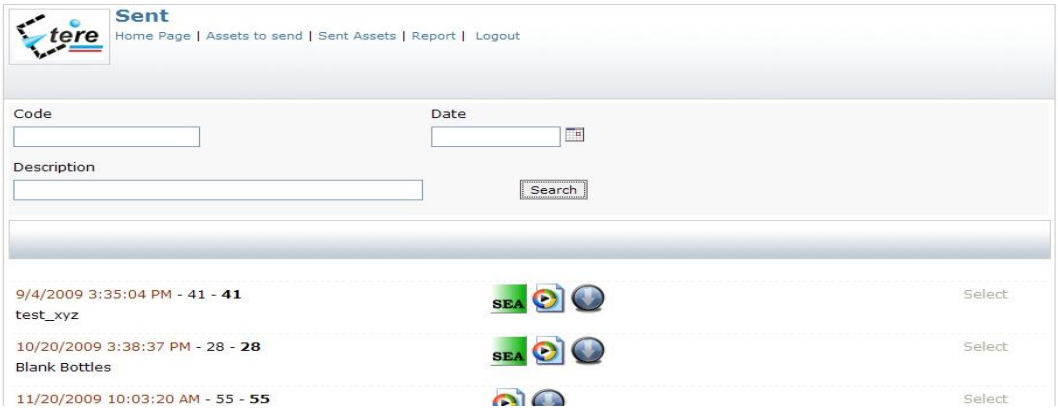
In order to ensure that only authorized persons access the web service, EtereWeb counts with an encrypted authentication method on which users must count with a username and password in order to enter the web portal:



5.6.2 Tapeless Reception

Etere Tapeless Reception takes full advantage of a tapeless environment to eliminate the need of creating physical copies, entrusting valuable material to private couriers, risking of excessive waiting times; enabling contents to be sent digitally (i.e. without using magnetic tapes) via internet, bringing a shorter delivery time than this required by a common consignment of magnetic tapes.

Etere Tapeless Reception is an extension of EtereWeb designed with the purpose of offering an efficient solution for multimedia content transfer between external agencies and stations, it 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:



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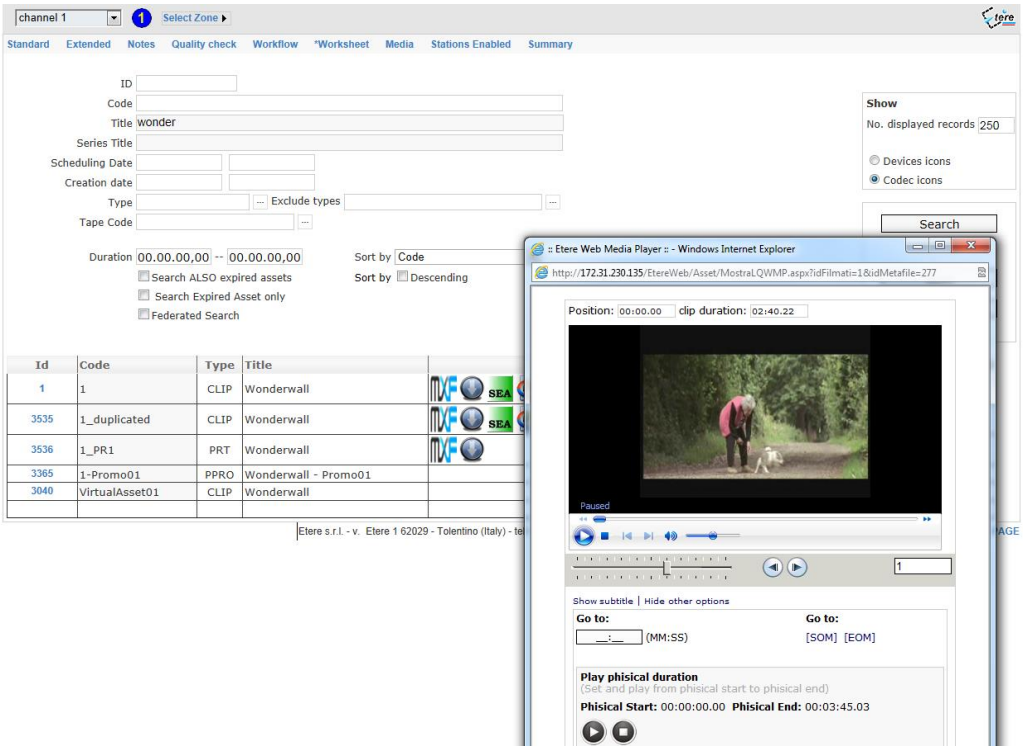
Etere provides Etere Tapeless Reception to allow remote clients to deliver digital content into the library, this web portal will permit other station's areas (e.g. NLE systems, News providers, MAM systems) to easily and safely upload content (and its related metadata) into a web server; once content is delivered (i.e. uploaded), a post-upload workflow (e.g. nearline archiving) is automatically triggered and a confirmation email is sent to the deliverer (attaching a proxy video) and the station operator.

Additionally, a customizable security policy will allow the station to determine different levels for accessing the files delivered through the web portal, thus making possible, for example, to dictate that a certain web user (e.g. NLE system) will be allowed to retrieve only its own delivered files whereas another web user (e.g. MAM system) to retrieve its own delivered files and also other user's files.

5.6.3 Search, retrieval and preview

The Quick and robust search engine of EtereWeb allows users to easily search and preview assets, even during the search:



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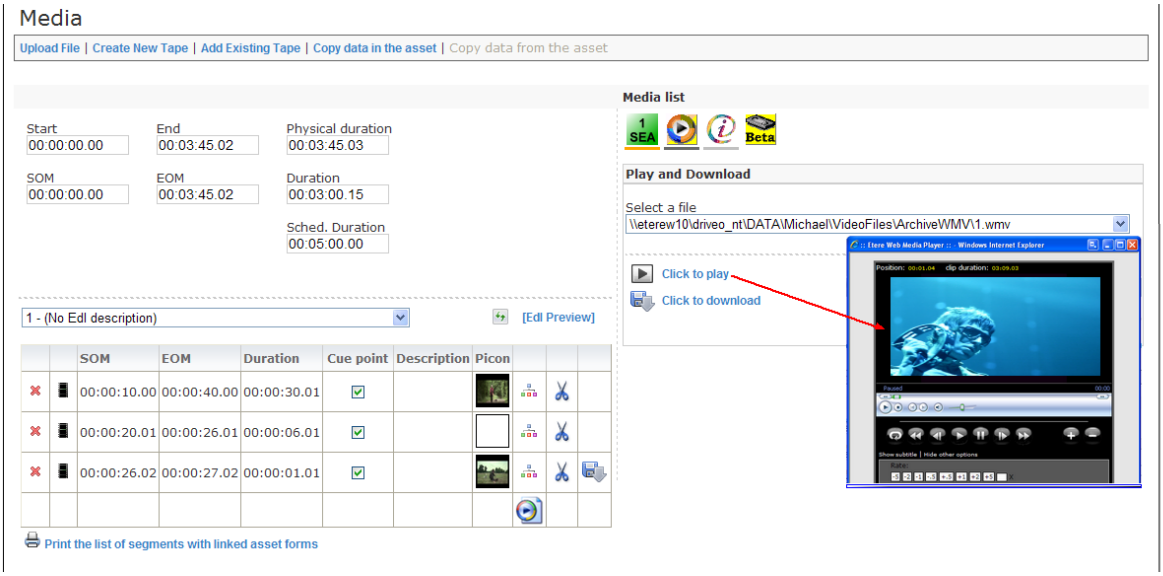
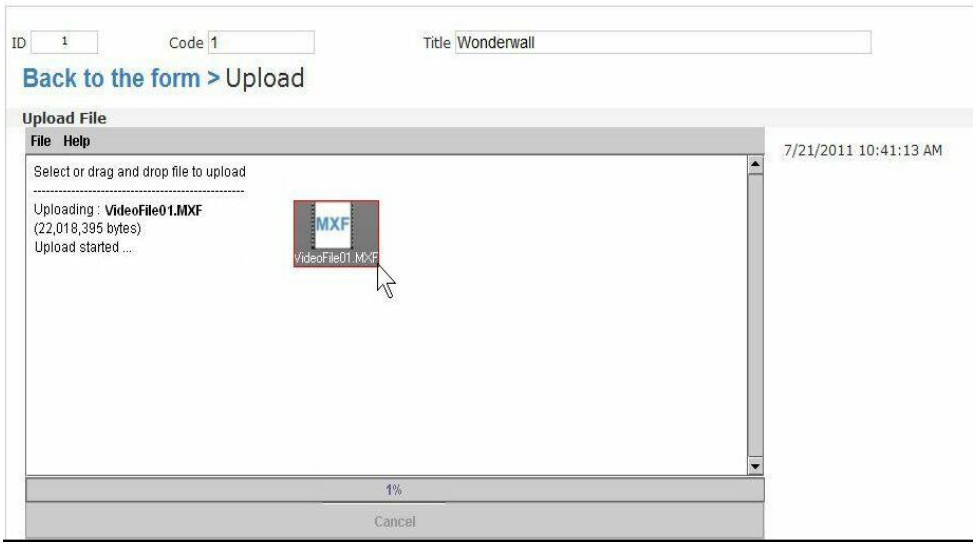
The Media tab holds information regarding the media associated to the asset, time code details and EDL configuration. By double clicking on any media item, if available, it will be available the preview and download of the asset:



5.6.4 Selective upload interface

EtereWeb allows uploading media files into the server through a simple and intuitive wizard procedure. Depending on the upload interface set in the system, it will be possible to upload the media file using either a java-applet or an active-x interface:

- **Java-Applet:** This interface allows dragging and dropping the media file(s) to be uploaded from the file explorer into the web browser:



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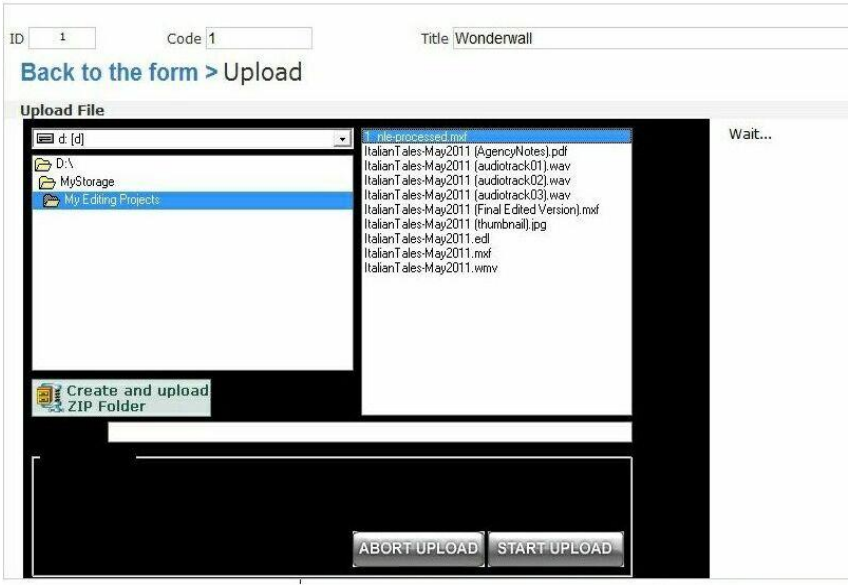
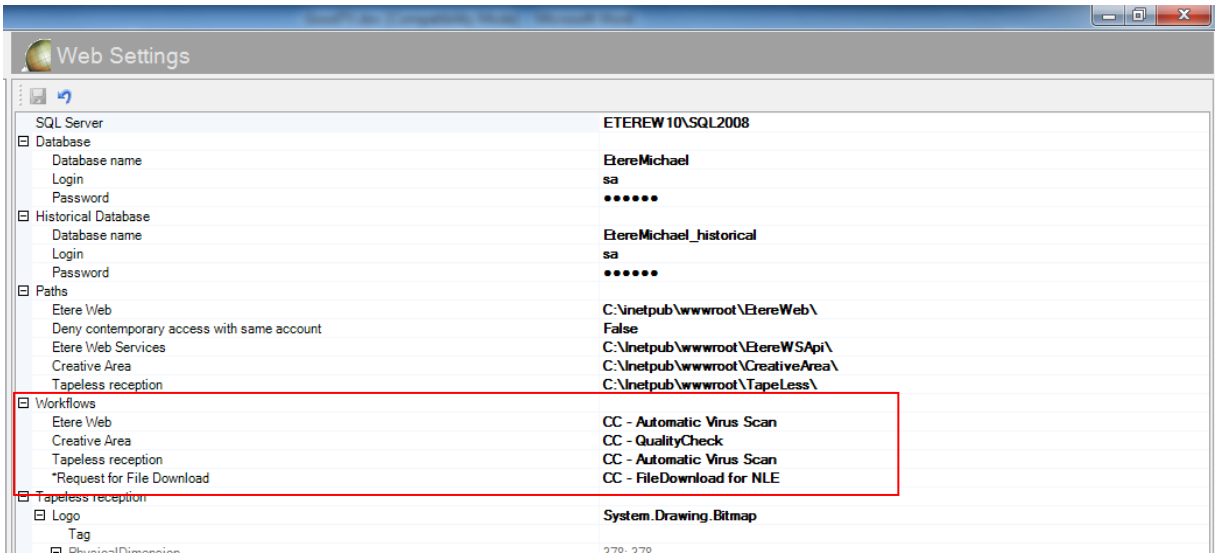
- **Active-X control**: This interface allows browsing for the media file(s) to be uploaded, being also possible to create a zip file for uploading an entire directory:



5.6.5 Pre and Post upload workflow triggering

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

- **Pre-upload workflow**:



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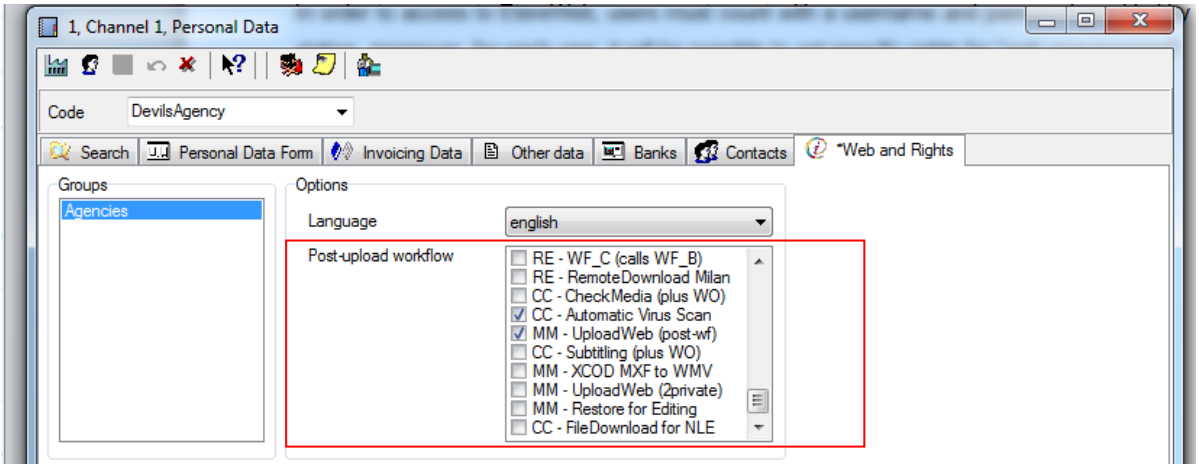
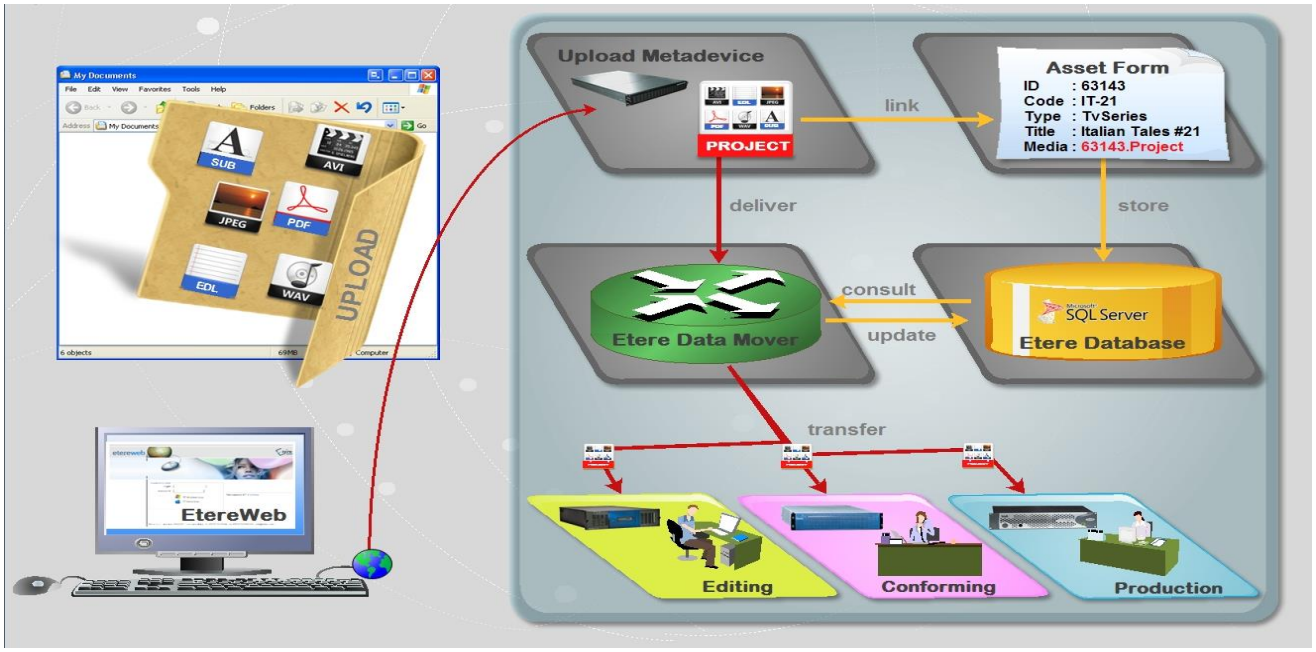
- **Post-upload workflows**:



5.6.6 Multiple file upload

EtereWeb supports not only uploading multiple files with a simple drag and drop action, but also manage them as a single metafile:



This feature allows NLE systems to, for example, upload into the station's 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:

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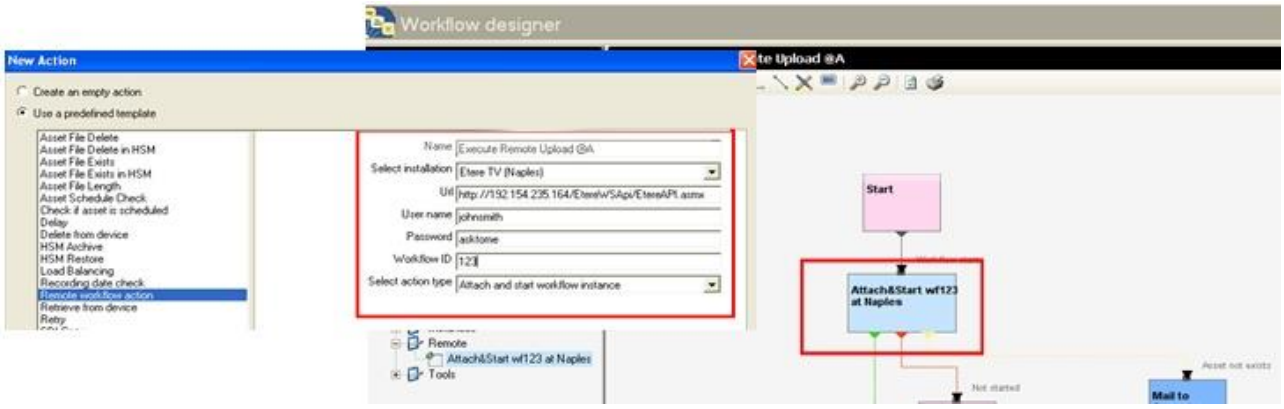
5.6.7 Workflow integration with NLE systems

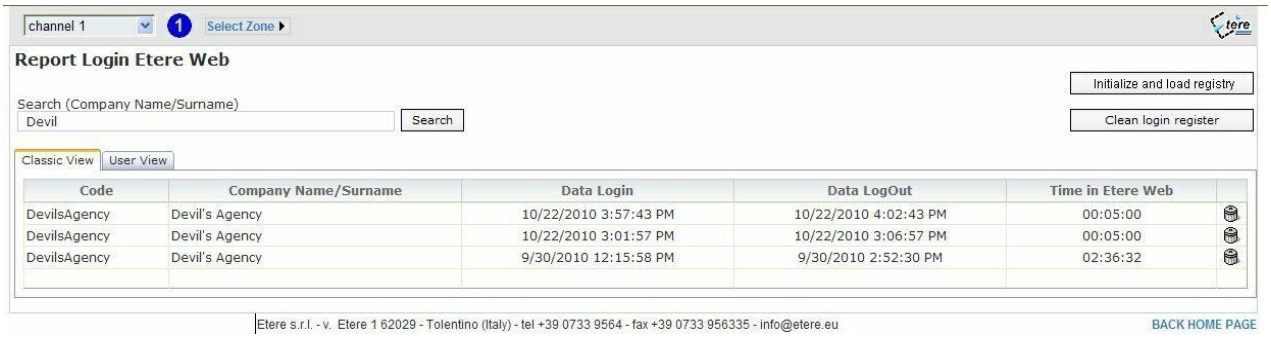
Thanks to the file-based approach of its media management, EtereWeb supports interfacing centralized NLE systems (Avid Transfer manager, Final cut pro server) via workflow. With Etere, it will be possible to transfer video files from and to NLE systems automatically via workflow, these workflows can be attached, for example, to assets which requires editing:



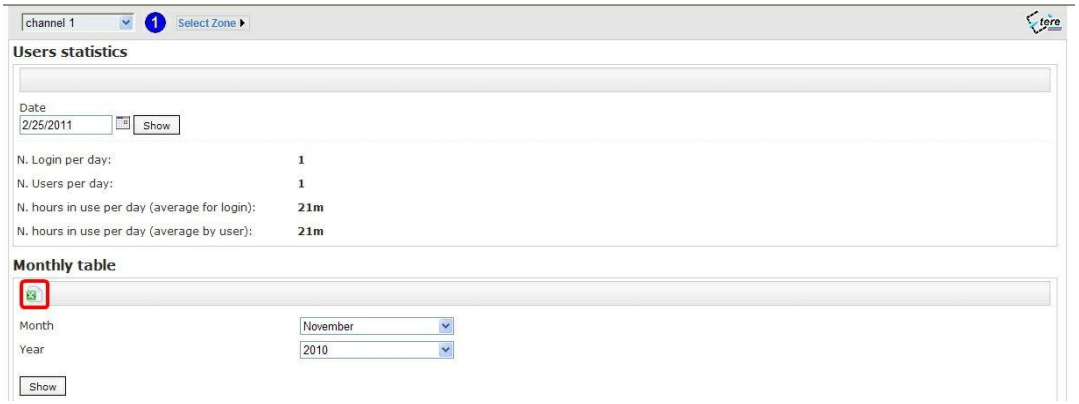
5.6.8 Centralized monitoring

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:



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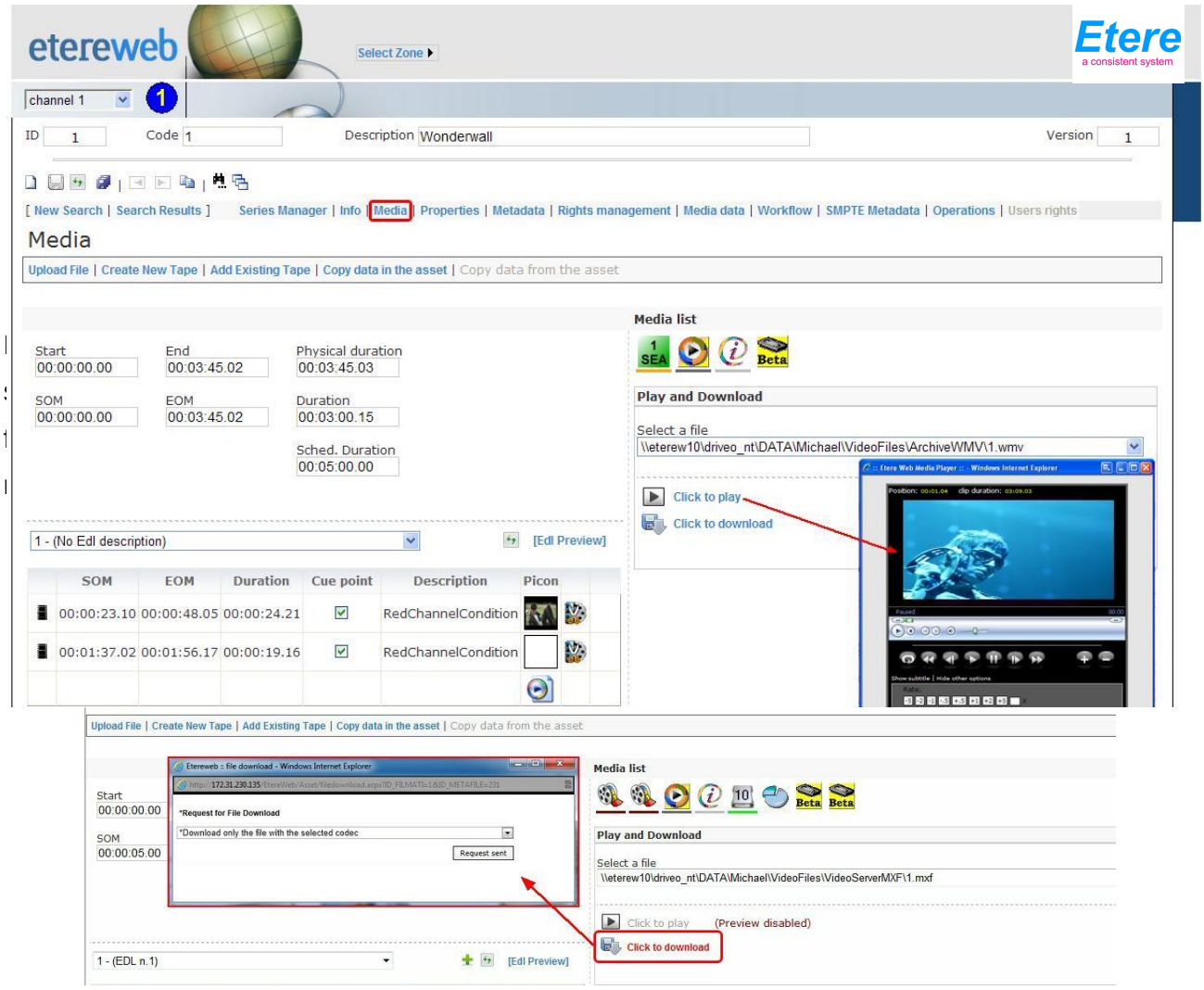
5.6.9 Remote archive consultation

EtereWeb allows web users to check and also control the digital archive remotely via web. Web users will be provided with a fully-tracked access to the most relevant Asset Management operations through a robust search engine and including a wide set of function-specific sections (i.e. general information, linked media, main properties, available metadata, rights management, technical data, attached workflows and much more).



Web requests are managed via workflow to allow a custom and automatic launch of worksheets:

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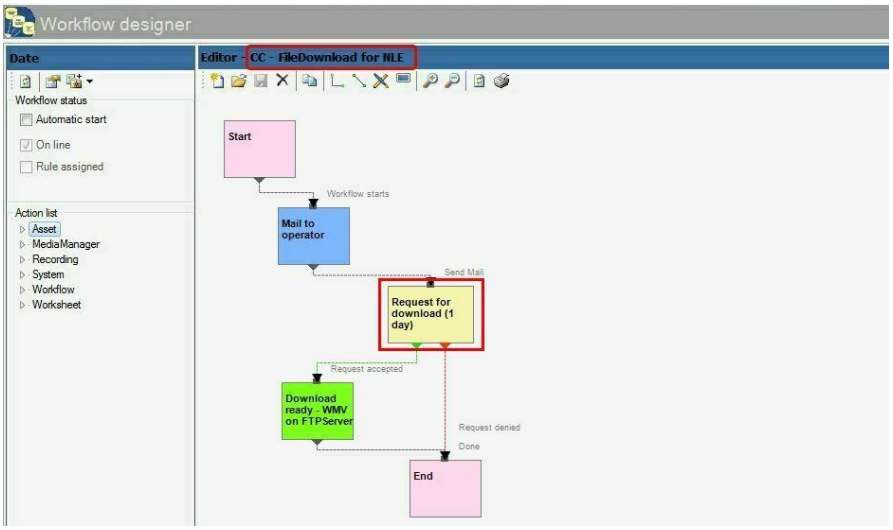
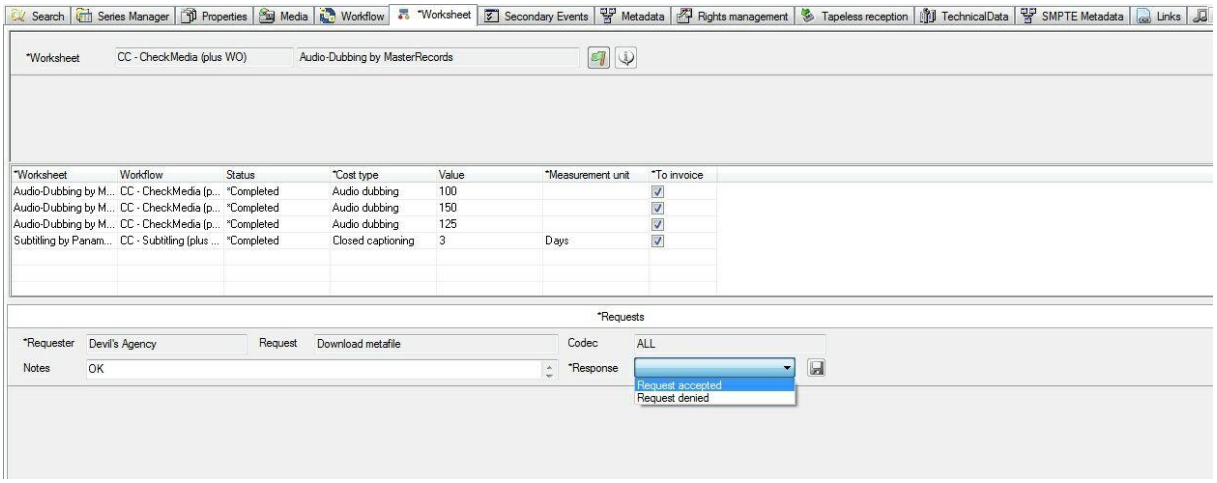


Supervisors count with a dedicated interface for viewing pending requests and accept/deny them:



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:

From:	supervisor@mytv.com [system-profile email account]
To:	user5@agencies.com [personal-data email account]
Subject:	WORKFLOW INFO -----(workflow status report)----- Personal data ID : 7 [personal-data code] workflow: CC - Download for NLE [workflow holding the web request action] status: Workflow active result: 0 message: <empty>

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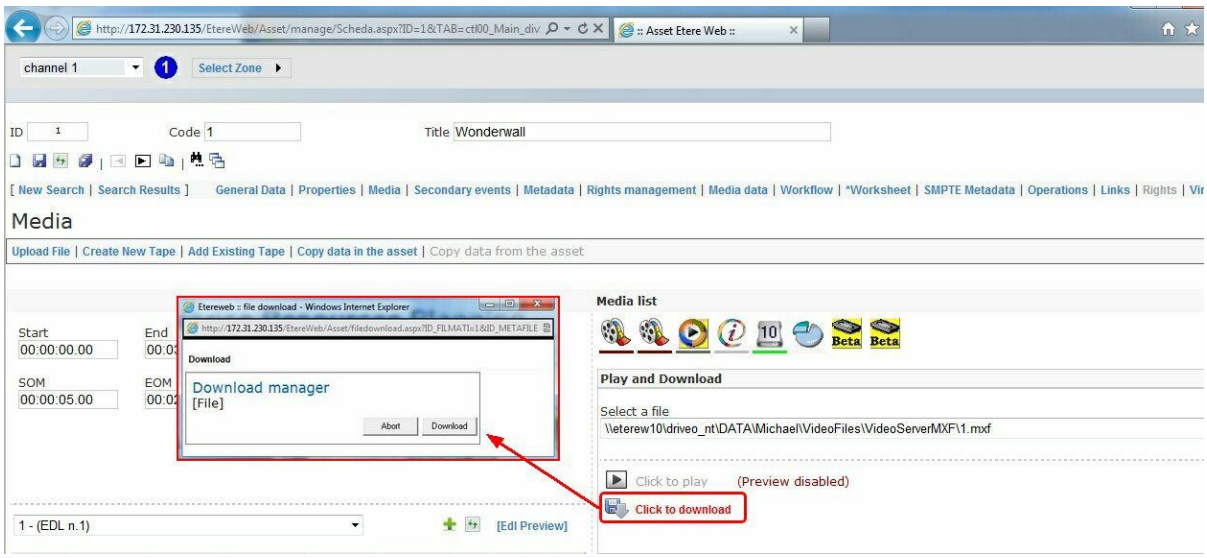
Finally, in case the request is accepted, the web-user will be now allowed to download the requested file(s) through EtereWeb:



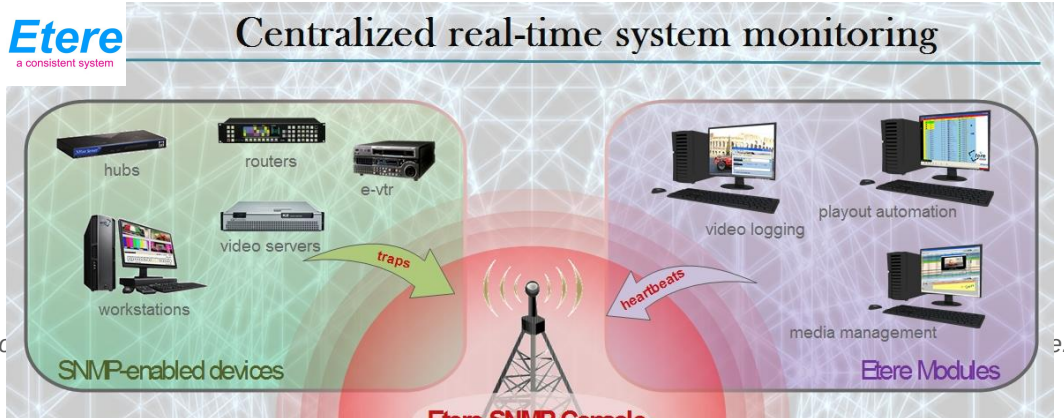
5.6.11 Security Integration

EtereWeb works perfectly behind routers so remote access and ftp transfers are drastically improved. NLE systems can deliver contents via Etere Web as a digital equivalent of physical reception, where selected people can deliver video and metadata to the station, but owing to its digital nature, operations are perfectly organized, performed and logged, avoiding loss of any content information.

Moreover, as a further security level, Etere provides direct authentication of web users through the station's active directory domain.

5.7 ETERE SNMP: A Complete System Monitoring

The Etere SNMP Console is the solution that allows to monitor any Etere module which collects and stores its management information (errors, warnings, etc.) through the locally installed Etere SNMP Agent which sends messages containing this information to a remote Etere SNMP Console which in this way monitors all the Etere's modules; through this console the operator can decide about the receiving policies (content, validity, filters, etc.).



© Co e.

The Etere SNMP Console is a key part of the broadcasting process because it permits to have a complete report of the way the Etere modules are working, allowing to catch errors, store them in a database for a further analysis and also forward them to an another console (forward the message to the pertinent operator who is intended to solve it) and thus saving time and resources on real-time which are invaluable assets in the broadcasting business.

5.7.1 Graphical real-time monitoring

The monitoring system (i.e.: Etere SNMP Console) detects missing heartbeats and sends both a visual-alarm and an e-mail notification to the operations department. Owing to the use of this feature, the general health of the Etere system can be further examined to isolate raised faults:

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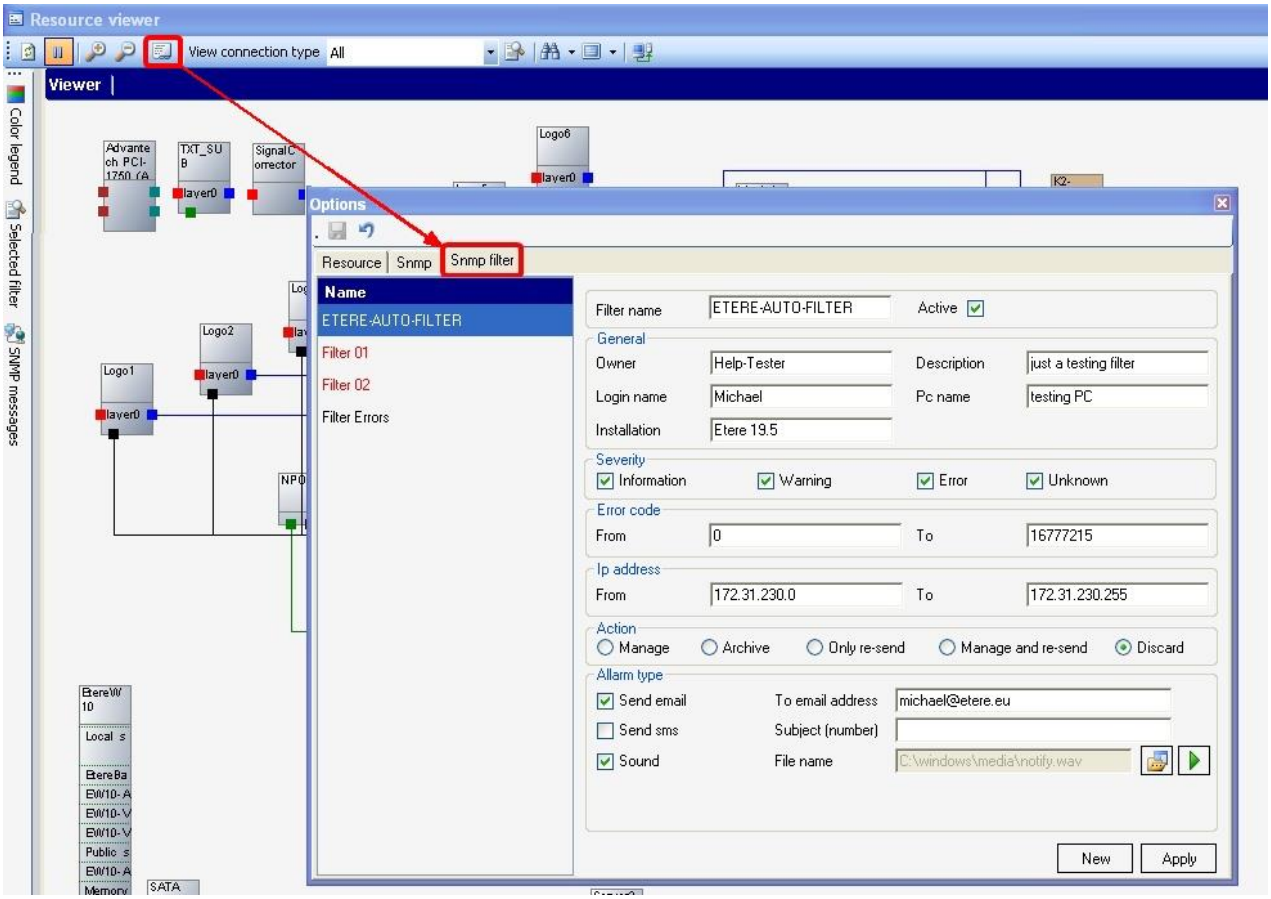

5.7.2 Overall system integration

In order to improve monitoring of modules and devices, all Etere components are automatically subscribed to the Etere SNMP Service, so it will monitor the periodic heartbeats sent via SNMP by the components.

5.8 ETERE AUTOMATION: Playout System

Etere Automation is the powerful, reliable and modular playout system able to enhance the station potential in terms of functions and workflow design, it is based on a unique approach which combines in a single product real-time device control and media asset management, offering a powerful mix of solutions and capabilities under a graphical user-friendly interface displaying for

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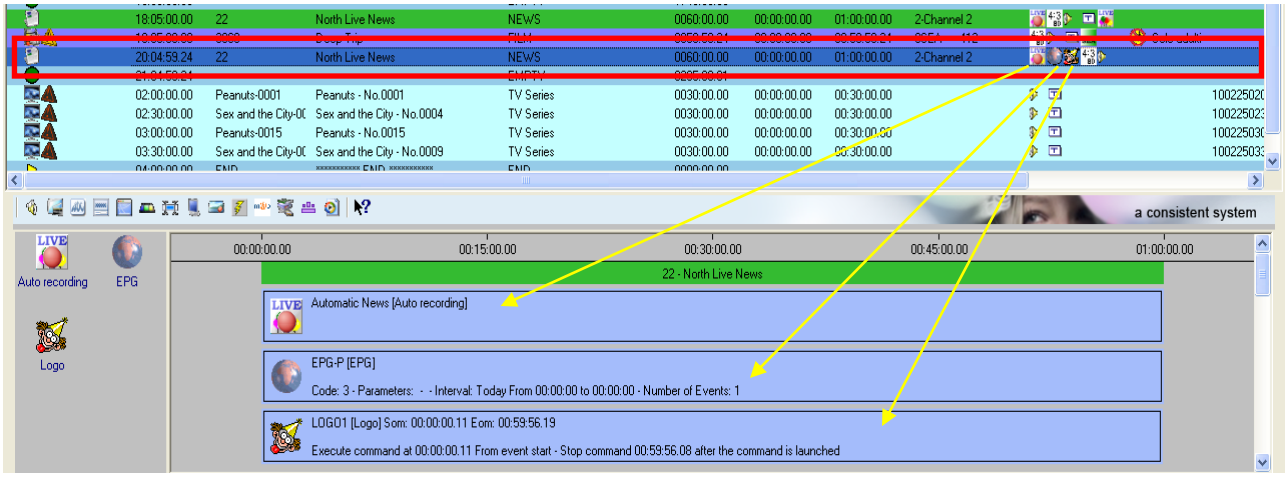
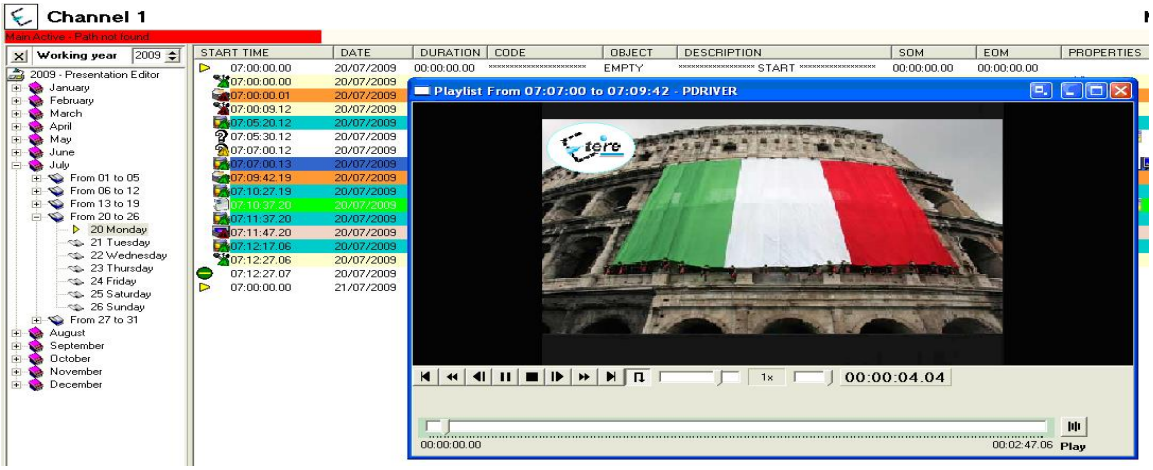
each event its source, type, description, properties, live status, secondary events, time code, GPI status, scheduled and real times, etc.:



5.8.1 Secondary Events Management

Etere Automation manages all the secondary events intended to be transmitted by dedicated devices (e.g.: Logo Generators, Crawl Generators, Subtitlers, etc.) with a simple graphical tool, allowing previewing secondary events in low res before their playout through a browsing application:



5.8.2 Live Events Management

Etere Automation offers complete support for live events present on the daily schedule, being possible to manage various different live inputs that can be switched at any time, few minutes before the event broadcasting or even during its transmission:

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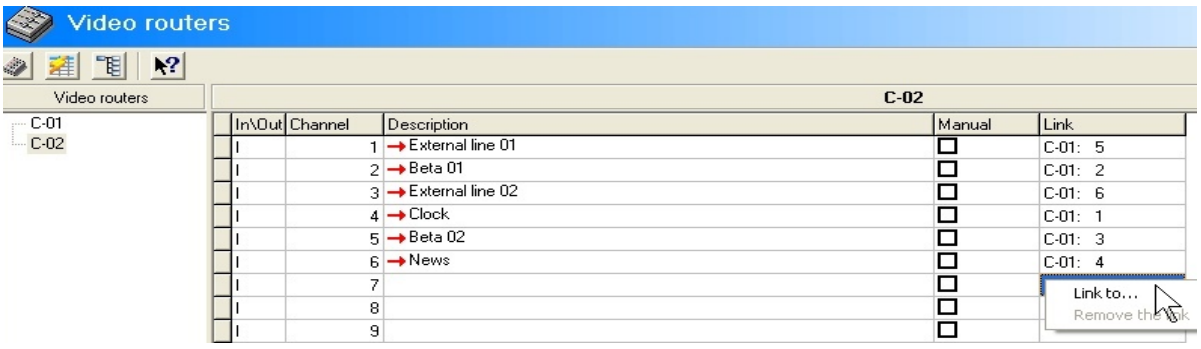
Additionally, Etere allows managing one video router per automation, being possible to create links between routers so when a channel is switched in the Main Router; the equivalent channel is also switched in the Backup Router:



5.8.3 As-Run Logging

Moreover, the ability to export As-Run logs containing the schedule “actually” transmitted allows an easy reconciliation between planned and real playout, being possible to send to multiple (UNC and FTP) destinations a frame-accurate log in any of the available formats:

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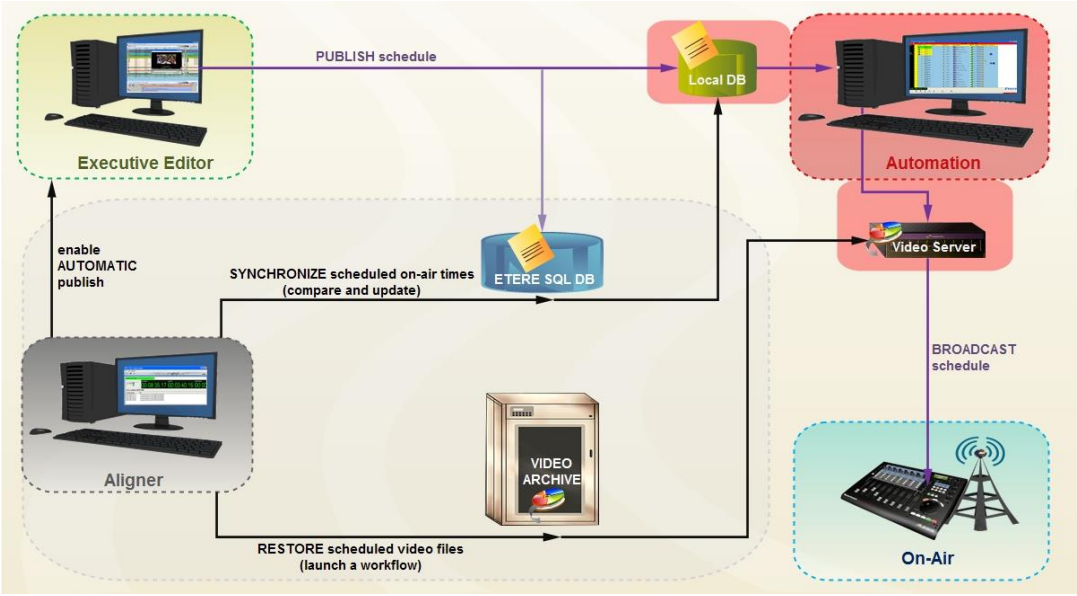
```
[-   ] 04/28 15:09:20.593 |            |Log Started
[  APP   ] [2010-04-28 15:09:20.21AUTOMATION RESET
[  APP   ] [2010-04-28 15:10:31.05AUTOMATION IS ONAIR
[  CLIP  ] [2010-04-28 15:10:30.17Y, 210136785149, 22  , 0LIVE00000    , Live News , F, 00:00:00.00, 00:59:59.24, 01:00:00.00
[  CLIP  ] [2010-04-28 16:10:01.19Y, 210135546001, 28  , 0MCL  CBBot   , B-Bottles , F, 00:00:00.00, 00:00:08.18, 00:00:08.19
[  CLIP  ] [2010-04-28 16:17:03.21Y, 210136107001, 70  , 0MCL  JeuxD   , Jeux D'E  , T, 00:00:00.00, 00:30:00.00, 00:30:00.01
[  CLIP  ] [2010-04-28 16:47:08.02Y, 100000008996, 3   , 0MCL  PathMov, PathMov  , T, 00:00:00.00, 00:08:12.24, 00:08:13.00
[  APP   ] [2010-04-28 16.48.13.20PLAYOUT COMMAND: STILL
[  APP   ] [2010-04-28 16.48.14.19PLAYOUT COMMAND: RESTART_FROM_CURRENT
[  APP   ] [2010-04-28 16.48.20.07PLAYOUT COMMAND: STILL
[  APP   ] [2010-04-28 16.48.23.01PLAYOUT COMMAND: RESTART_FROM_NEXT
[  CLIP  ] [2010-04-28 16:48:23.01Y, 100000008998, 32  , 0MCL  Minuet  , Minuet    , T, 00:00:00.00, 00:11:10.24, 00:11:11.00
[  CLIP  ] [2010-04-28 16:52:12.06Y, 100000009000, 33  , 0MCL  Prima   , Primavera , T, 00:00:00.00, 00:09:19.24, 00:09:20.00
[  CLIP  ] [2010-04-28 16:54:13.12Y, 100000009003, 49  , 0MCL  Vivace  , Vivace    , T, 00:00:00.00, 00:04:59.24, 00:05:00.00
[  APP   ] [2010-04-28 16:55:16.11PLAYOUT COMMAND: SKIP
[  CLIP  ] [2010-04-28 16:55:16.11Y, 100000009005, 51  , 0MCL  OdeJ    , Ode Joy   , T, 00:00:00.00, 00:04:59.24, 00:05:00.00
[  CLIP  ] [2010-04-28 16.57.46.19Y, 100000018164, 12  , 0LIVE00001    , Meloldy01 , T, 00.00.00.00, 00.00.14.24, 00.00.14.15
[  APP   ] [2010-04-28 16.59.53.01PLAYOUT COMMAND: EMERGENCY_LIVE_START
[  APP   ] [2010-04-28 17.05.57.05PLAYOUT COMMAND: EMERGENCY_LIVE_END
[  APP   ] [2010-04-28 17:15:35.06AUTOMATION STOP
Log Closed
```

5.8.4 Etere Aligner for broadcast synchronization

Etere Aligner is the application that maintains the published schedule constantly synchronized, it aligns the independent automation schedule with the Etere stored schedule, this operation is very important for the broadcast process since published on-air timings may vary and will need to be updated:



Etere Aligner provides stations with the following key features on managing broadcast schedules:

- Automatic publishing of the schedule by Executive Editor,
- Ensure consistency of the published schedule by updating it with last changes,
- Launch workflows automatically to restore video clips scheduled to go on-air.

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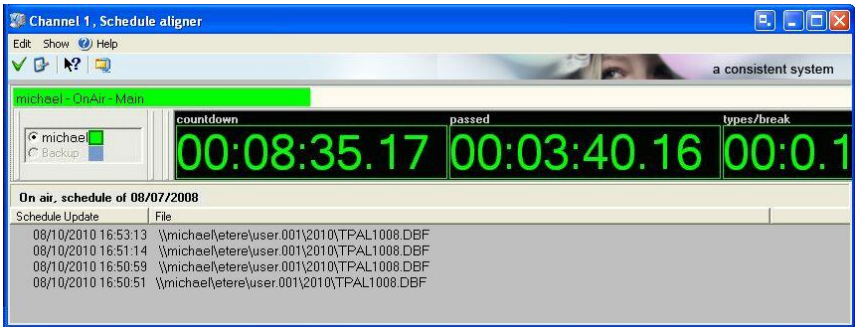
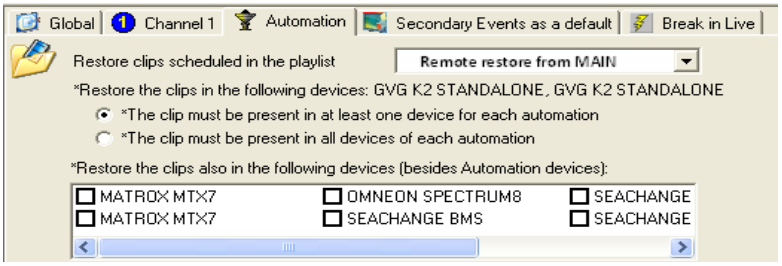
In Parameters you are also able to specify that the system also carries out publication of the schedule at each Etere F90 request.



Moreover, Etere Aligner allows restoring via workflow all those video files associated to scheduled events and which are missing in the remote archive, either manually or automatically:



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6. BENEFITS

This paper has described how the development and deployment of a comprehensive Etere-based "**Enterprise Tape Management**" system is able to provide the station with a large number of operational benefits and advantages derived from the correct use of ultimate media management technology; Etere will entirely manage the station contents, from acquisition to delivery, by providing them with the following key features:

- **Reliability**, an innovative workflow designer to reflect the real station's operations into the management system, allowing also monitoring operations through fully detailed logs.

- **Usability**, a simple and sophisticated interface guarantees a smooth use whereas a robust metadata definition ensures an accurate and enterprise management.

- **Flexibility**, all requirements are always provided, thanks to a versatile media management system tightly integrated with any device, media and workflow.

- **Scalability**, the components used across the system can be increased at any time without altering its workflow complexity, minimizing operational overheads and overall costs.

- **Efficiency**, drastic reduction of repetitive manual operations by allowing an "in-advance" definition of workflow operations, thus ensuring also a sensitive increment of productivity,

- **Security**, all operations are based on specific user permissions based on either the station's Active Directory domain or custom groups defined for accessing and using media.

- **Integration**, other areas can be tightly integrated through a web-portal or web-service for accessing the station's archive while making use of the highest security standards.

- **Accuracy**, the entire media management process is performed under a continuous monitoring and control to eliminate the risk of errors when arching and retrieving contents.

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7. ABOUT ETERE

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 20 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.

Etere: a consistent system

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