x-dream-media GmbH

Consulting, Development, Deployment, Training and Support for Media-IT

Product:	**x-dream Media Suite**
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Autor:	Stefan Pfuetze
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Versioning

Date	Version	Chapter	Name	Change
18.08.25	1.0	all	SP	Creation Version 1.0
16.12.25	1.1	2.2	SP	New Module Ingest GUI

1   The suite of tools to run your end-to-end business process

The x-dream Media Suite is a collection of enterprise software products for the most common needs in professional file based and live video production, processing, archiving, broadcasting and publishing. All products share a job management layer. It consists of user interfaces to start and monitor jobs, to queue and load balance jobs across multiple computers, to integrate with 3rd parties or drive build-in processing services.

The x-dream Media Suite is based on the 4th generation of x-dream-media's OneGUI what is positioned as central cockpit to monitor file-based processing at one or multiple 3rd party software products. It is extended by a) a new user interfaces to manually queue files to processing services or to ingest source files to post-production software, b) a watchfolder service that automatically queues individual files or set of related files to processing services and c) a live scheduler user interface to automatically perform actions like recording.

The x-dream Media Suite includes a new job management layer that holds a list of jobs to be processed by software engines that do not include a job queue. This applies for instance for various command line type of applications. Other important elements of the job management are job preset editing, load balancing, error handling, fault redundancy and logging. Operational functions like pausing, resuming, requeuing, stopping, etc. of jobs are exposed at the monitoring user interface. Live scheduling is a variant of job list management.

The x-dream Media Suite does also come with processing engines for various use cases, see below. Depending on the integrated engine a different product is created. This modular approach makes development efficient for us. But even more important it allows our customers to adopt fast, easy and very cost efficient to changing functional needs or growing throughput requirements. Operators and administrators can operate new business process elements via known user interfaces and ecosystems while making use of a completely different processing engine.

The x-dream Media Suite can run on-premises, in selected data centers, private or public clouds or in the field, just as needed.

The x-dream Media Suite is brand new but also the newest development in a long history of its predecessors. It must have been around 2009 when a Widget for Windows 7 desktop was developed to monitor Harmonic's Carbon and WFS series. The WFS WebGUI was developed around 2012 as the second more powerful generation and true browser based remote monitoring for Harmonic WFS. OneGUI followed in 2015 as third generation and with a completely changed product idea. It was concepted as service that can monitor and operate any 3rd party application that processes files in batches. For 8 years it got expanded with new connectors and functionalities. The fourth generation again pushes limits, brings the processing engines build in and manages the processing farms.

1.1 Typical Use Cases

The x-dream Media Suite can be used individually or combined to fulfil more complex needs. Common use cases are:

• Processing Software Monitoring and Operations
• Manual and automatic Start of File and Live Processing

- • File Transcoding
- • File Quality Control
- • Recording and Playout
- • Transcription
- • Translation
- • Face Recognition
- • Fingerprinting
- • Watermarking

1.2 Target Customers

The x-dream Media Suite addresses a wide spectrum of customers such as:

- • Broadcasters (Regional, National, News, Special Interests)
- • Post-Production facilities
- • News Content Agencies
- • Content Aggregators
- • Content Agencies
- • Network Operators
- • Corporates
- • Organisations
- • Event Venuesx-dream-Fabrik addresses a wide spectrum of customers such as:

1.3 Pleasant User Interface

The x-dream Media Suite is made for users with an operational or a more technical focus. There is a strong focus on easy, efficient and nicely to operate user interfaces. It aims for a reduced, simple-to-understand and pleasant look and feel for focused usage. Production users are not challenged with technical details but adminstrators have full access to all detailed settings.

Based on the user's role(s), permissions and current tasks they have access to the related products, can carry out interactions like starting jobs, can see certain configurations and monitor processings.

1.4 Flexible Architecture

The x-dream Media Suite is based on a microservices architecture to process and deliver media data as well as to interact with surrounding systems. Every user interface module communicates via the webAPI microservice with its corresponding backend microservice. All management and processing modules are wrappend in microservices. Helper tools are wrapped in microservices too. Connectors to 3rd party products are also wrapped as microservices. The microservices are communicating directly or by the webAPI. It offers scalability and redundancy by running the microservices on two or more machines.

The x-dream Media Suite will have a build-in lightweight workflow orchestrator. The purpose is to handle processing jobs case-sensitve, to run processing tasks as sequence and to manage exceptions.

The x-dream Media Suite is not a monolitc product. Individual solutions are created by freely combining modules. This is achived by modules that can work autonomously but also have the ability to interact.

An individual x-dream Media Suite is composed by licensing the modules as required. Default sets of modules are defining the standard products as shown in chapter 3.

1.5 Comprehensive Configuration

The x-dream Media Suite combines driving 3rd parties and brings lots of build in processing engines and helper tools. A commonly used method to configure all such software is to use preset/profile/settings files. Thus, Media Suite manages all such configuration files, offers editors for build in functionality but requires the editors of 3rd parties being used too. All in all, this results in the maximum possible flexibility and convenience.

1.6 Successful Projects!

The x-dream Media Suite aims to supply an out of the box experience for standard needs in production and as standard element in projects. Many different kinds of processing engines are made available by nicely to operate user interfaces and a strong harmonized API. And while many 3rd parties of your existing ecosystem are respected and can be integrated, it includes well selected and build in engines too. This makes the Media Suite to be come your central processing hub and results in a fast and low-risk project deliveries.

2   The modules and plugIns

An individual x-dream Media Suite and the standard products are composed from frontend and processing modules, the control plane and helper plugIns. The common web frontend gives access to the required and licensed functionality.

2.1   File Queuer

The File Queuer module is made to manually start processing jobs at either a build in processing engine or a 3rd party product.

Operators can browse for source files at defined locations, can idtentify files based on a thumbnail, can define processing settings and finally start the job. When selecting files, they can either select individual or multiple files. List of files can be requested to be stitched or treated as a group that has a relationship with each other.
For the start of jobs engine related presets can be called and completed with job individual settings and metadata.

The panel shows on the lef-hand side the folder browser in the middle the file selector and on the right-hand side the engine related job settings dialogue.
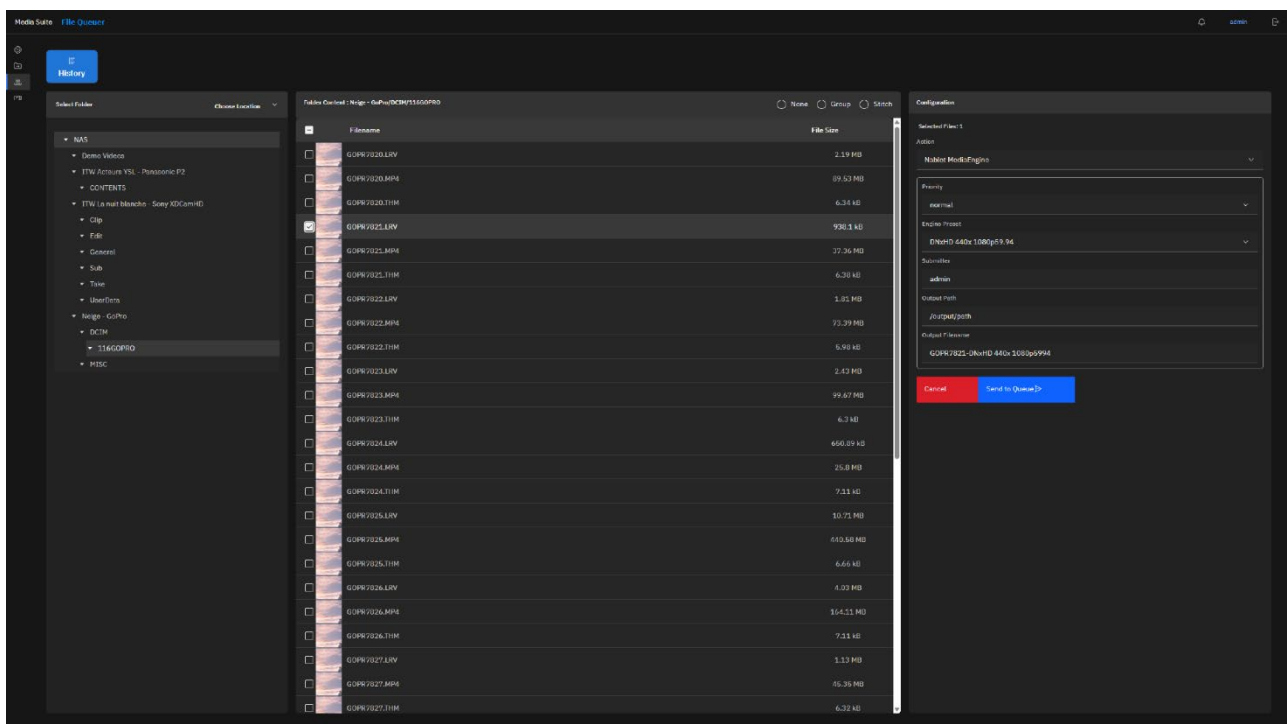

Figure 1: File Queuer with already selected file ready to send to queue

The History popup shows the history of jobs manually started from the File Queuer. It offers filtering by filename, processing engine, preset and start time. When selecting a job it shows its details.
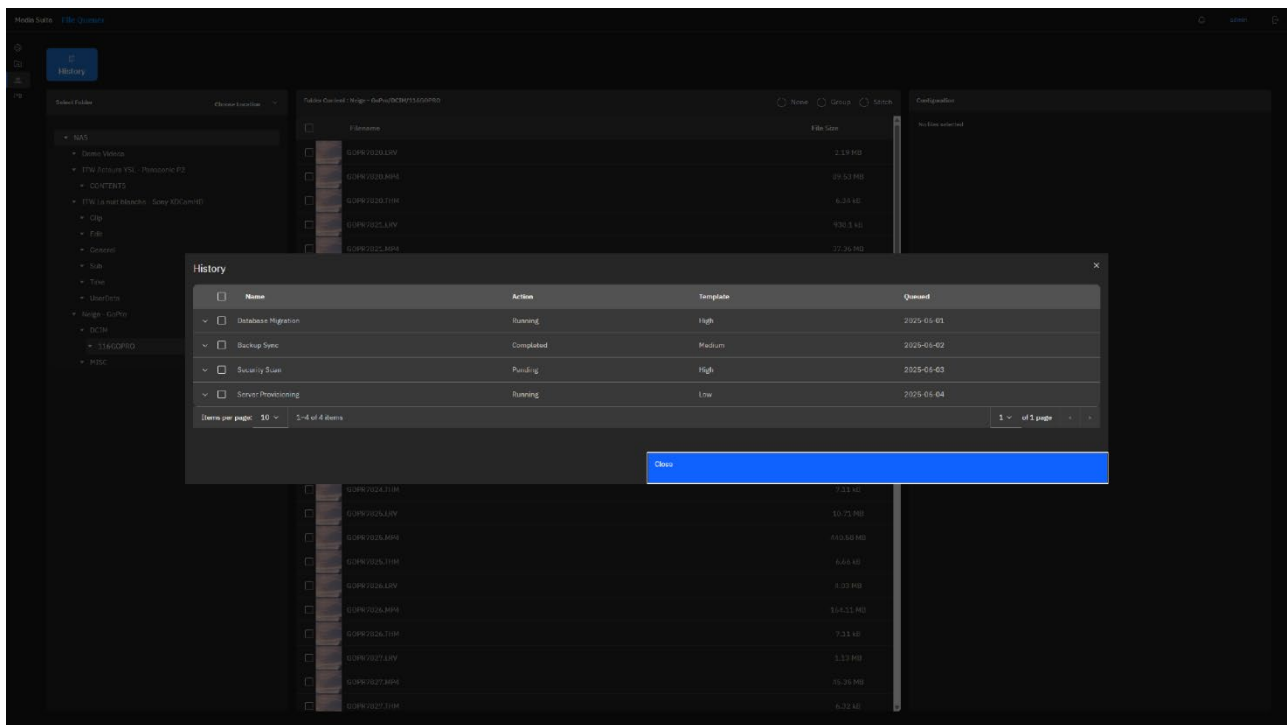

Figure 2: File Queuer with the queue history open

2.2 Ingest

The Ingest module is made to manually send individual files or file structures into an ingest processing workflow. Sources can be device specific like from camera cards or from generic storage devices like USB drives or sticks.
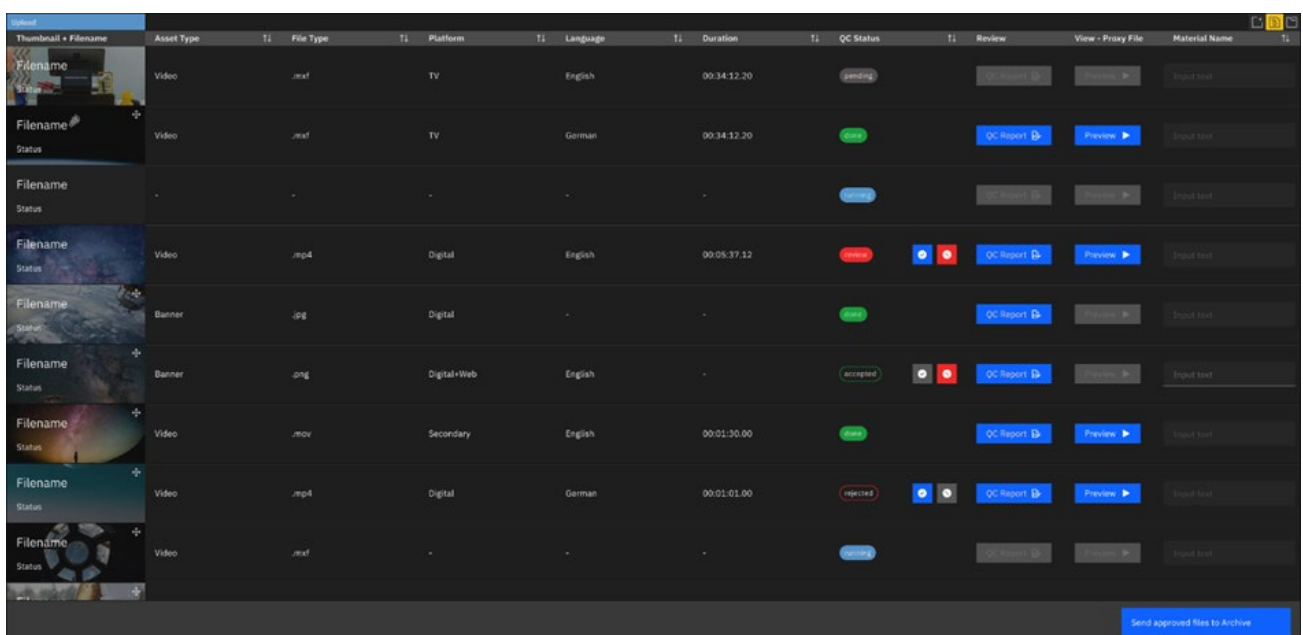

Figure 3: Ingest User Interface

The actuall processing happens either at a build in processing engine or a 3rd party product.

Operators can browse for source files at defined locations, can idtentify files based on a thumbnail, can define processing settings and finally start the ingest job. The ingest workflow can consist of re-wrapping and transcoding only. But xIngest offers source validations based on pre-defined technical metadatasets of allowed sources, checked technical file conformance, OCRed text from the video sources (e.g. lower thirds, pre-rolls, opener, closer), checked audiovisual quality, etc.
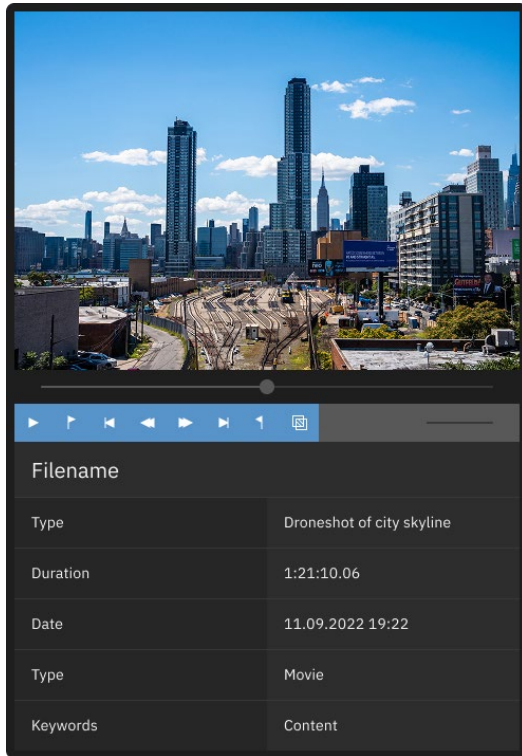
Operators can review the results from the initial source validation and the various quality control actions. Detailed reports can be downloaded. The files can be visually reviewed. Ultimatively, the files can be individually approved or declined.

Prior to the start of the ingest jobs related processing presets can be called and completed with job individual settings and metadata. Finally, the batch ingest is started.

The panel shows on the lef-hand side a list of sources that have been loaded from the source location. In the middle it shows the resuls from the automatic source validation and quality control. On the right-hand side source individual actions are offered, e.g. approval. The ingest is started with a button in the footer row.

Figure 4: Ingest Preview Player

2.3 Watchfolder

The Watchfolder module is made to automatically start processing jobs at either a build in processing engine or a 3rd party product.

Administrators or operators can define folders to be watched for new source files to arrive and processing settings to apply for automatically creating jobs. Settings are based on engine related presets. Job individual settings and metadata are limited to the folder or file properties.

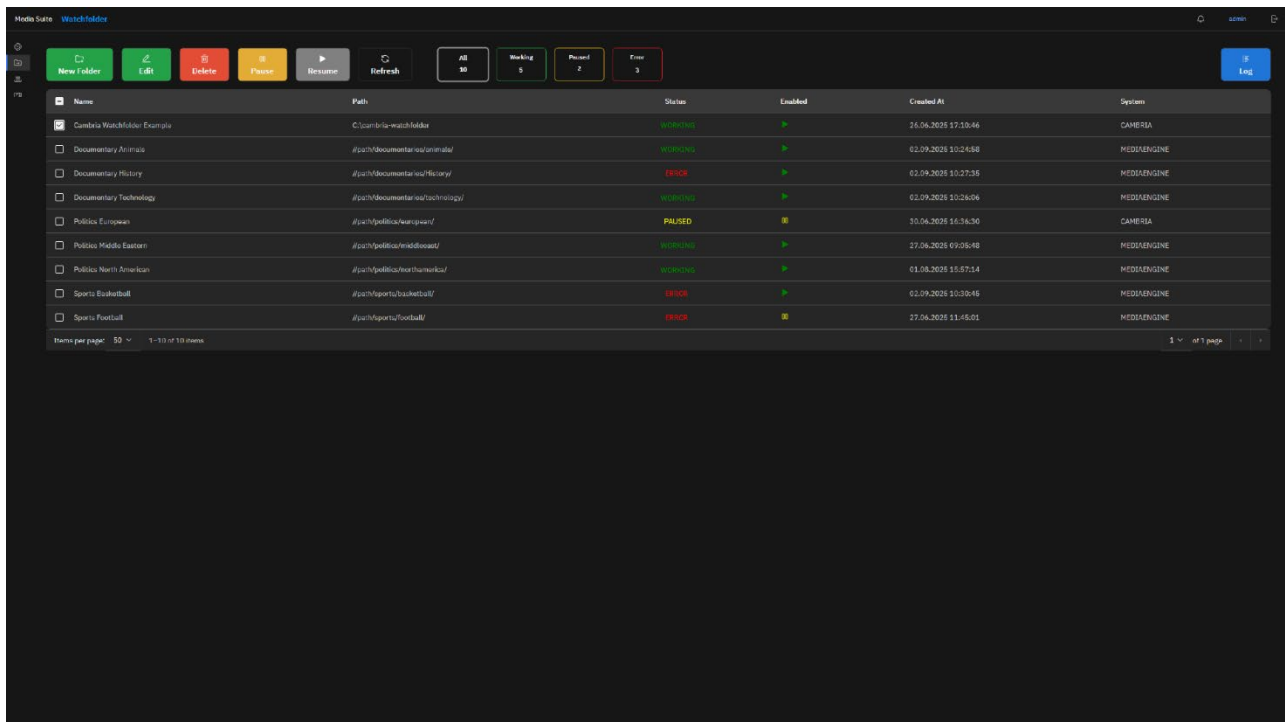The panel shows all the configured watchfolders and status information at the top.

Figure 5: Watch Folder default view with one watchfolder selected

The "Edit Watchfolder"-popup shows the watchfolder configuration settings and the engine related preset selection and watchfolder individual settings.
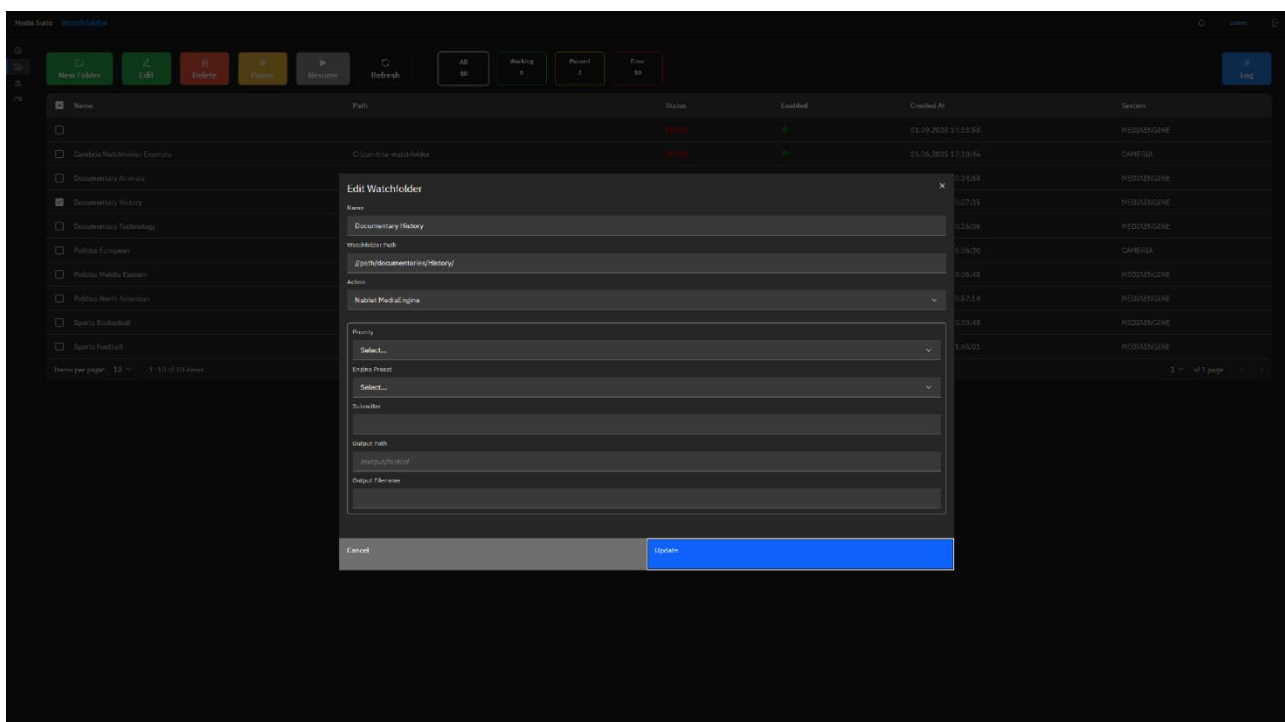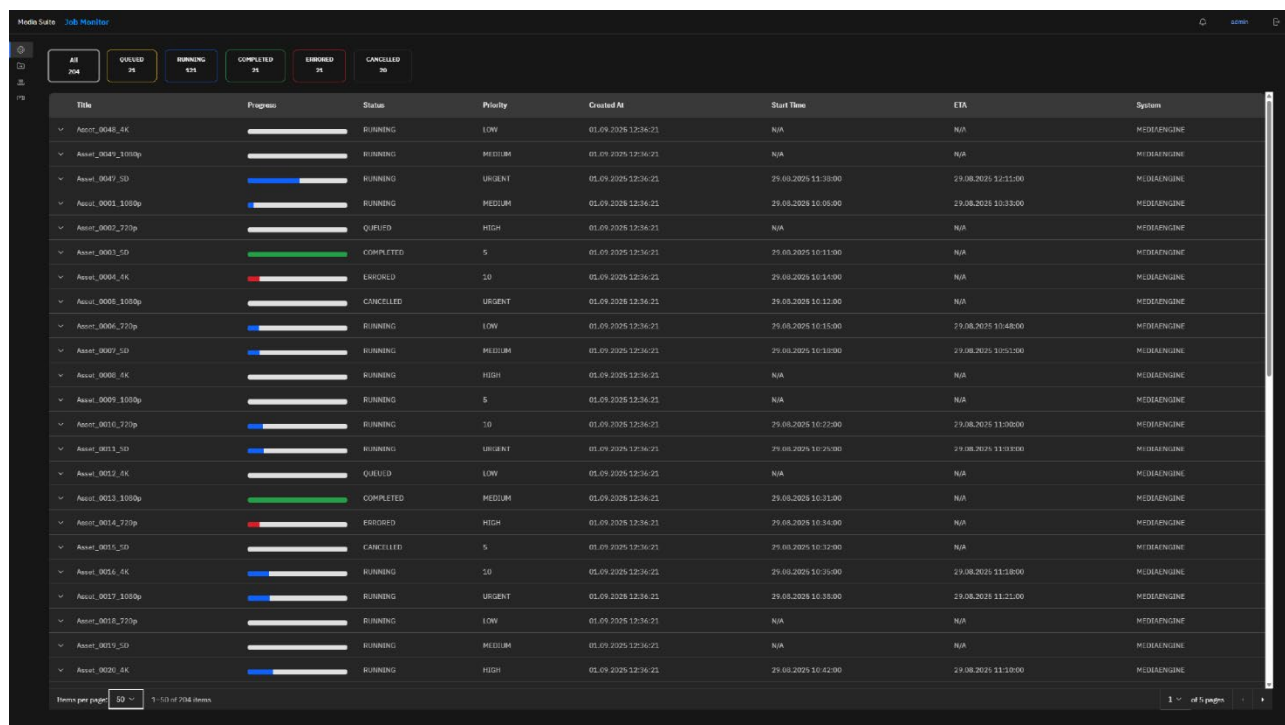

Figure 6: Watchfolder with editing menu open

2.4 Monitoring

The Monitoring module is made to overlook and manage processing jobs at either a build in processing engine or a 3rd party product. It does not matter whether the jobs have been started by the File Queuer, the Watchfolder, the API or directly at the engines.

Operators can see at a glance the progress and status of all the jobs in the listing. They can filter jobs by name, engine, status, priority and dates.

The panel shows all jobs in a dense list view and highlevel status information at the top. When selecting a job, the list expands and shows the jobs details according to the connected engine jobs data.

Figure 7: Job Monitor default view
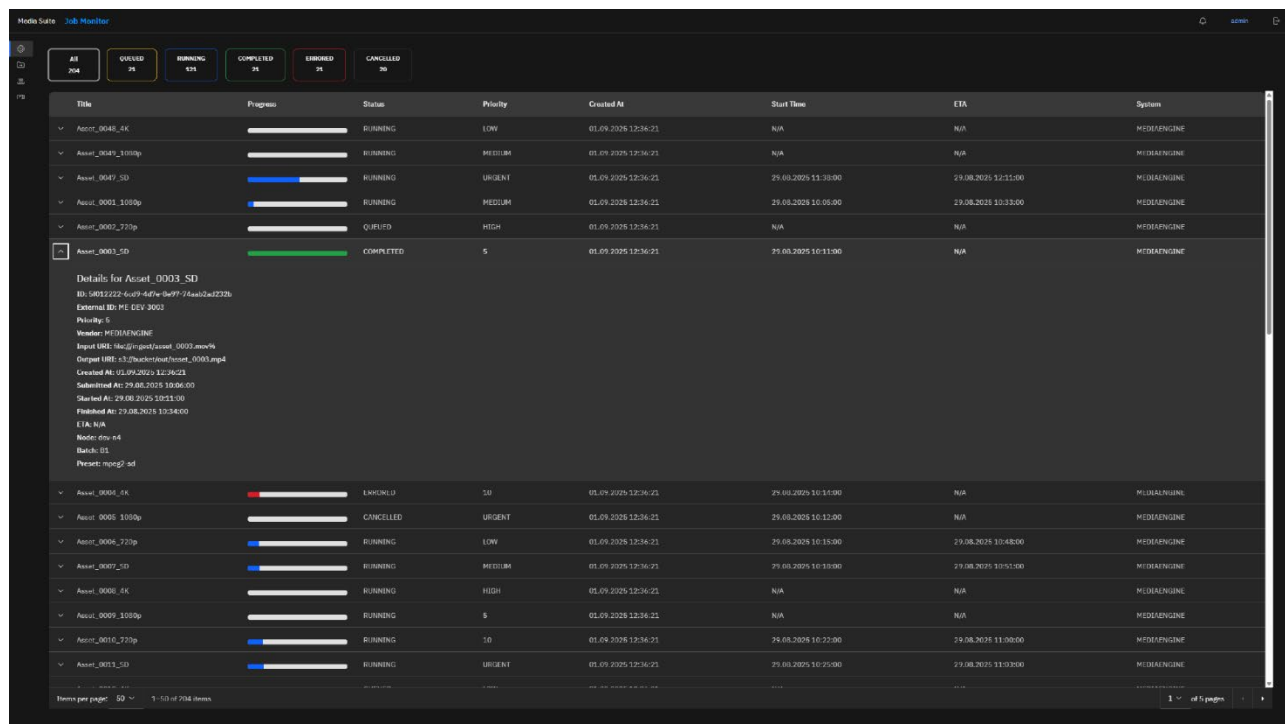
Figure 8: Job Monitor with further details of a selected job open

2.5 Statistics

The Statistics module is visualizing processing runtime data in a retropespecive way for farm management, SLA reporting and invoicing purposes.

Jobs can be filtered by
- Date
- Status
- System/Engine

Data can be aggregated by
- Processing duration
- Waiting time
- # of jobs completed vs. failed
- # of jobs completed in time vs. delayed

Information can be shown as
- Bar diagram
- Pie diagram
- Line diagram

2.6 Up/Download

The Up and Downlaod plugin is used to fetch files prior to processing and to delivery processing output to a target storage.

Supported protocols are
- FTP/SFTP
- SMB
- S3

2.7 Command Line

The Command Line plugin is used to integrate additional functionality on a project base. It receives job status data with the call and expects a return status code. Tasks executed by the commanline tool are monitored as part of the end-to-end process. Thus it can implement any additional need tightly within the processing platform.

2.8 Notification

The Notification plugIn is used to inform customers, operators, administrators and subsequential systems about processing status. Thus, it can be used to tell the customer about his job to be finished, the operator to put attention, the administrator to fix an issue or another system to import an output file.

The notifications can happen upon
- Start
- Finish
- Failure

per
- Email
- Comandline
- Webservice call
- Logfile

3 The Products

The x-dream Media Suite allows its modules to be combined with complete flexibility. Some combinations result in products for common needs on production or projects. They can be extended to be come farms or merged to form a platform. This chaper specifies the standard products available.

3.1 xIngest

xIngest is a general-purpose file ingest solution for file-based production workflows. Its build-in transcoding engine guarantees highest quality audio and video processing but even more important most standard conform media file format creation. Its upload and delivery connectors are the base for highly efficient workflows. Notifications are completing the feature set with system and operator support.

3.1.1 Use case

File Ingest to
- ❖ Processing
- ❖ Post-Production
- ❖ Archiving
- ❖ Publishing
- ❖ Playout

3.1.2 Features

- ❖ File Browsing
- ❖ Transcoding
- ❖ File Delivery
- ❖ Notification

3.1.3 Modules & plugIns

Included Modules and PlugIns:

- ❖ Ingest
- ❖ Transcoding
- ❖ Upload
- ❖ Notification
- ❖ Monitoring

3.1.4 Target Customers

Broadcaster
- ❖ Regional TV
- ❖ National TV
- ❖ News channels
- ❖ Special interest channels
- ❖ Event channels,
  e.g. sports, news, entertainment

Post-Production Facilities
- ❖ On-premises Editing
- ❖ Distributed Production
- ❖ Content Delivery

Localisation Agencies
- ❖ Translation
- ❖ Subtitling

Content Owner
- ❖ Archive Ingest
- ❖ Asset Aggregation
- ❖ B2B content delivery

Media Groups
- ❖ Archive Ingest
- ❖ Event channels, e.g. sports, music, society
- ❖ Special interest channels

Corporate & Public
- ❖ Content Production
- ❖ Cross Media Publishing
- ❖ Archive Ingest
- ❖ Business TV

3.2 xTranscode

xTranscode is a general-purpose transcoder product for file-based production workflows. Its build-in transcoding engine supports many source formats and lots of target formats in post-production, archiving, broadcasting, streaming and social media. It provides highest quality audio and video processing and encoding at highest speed. Its download and upload services are adding fetching source files and delivering target files as enabler for efficient workflows. Notifications are completing the feature set with system and operator support.

3.2.1 Use case

File Transcoding at
- ❖ Post-Production
- ❖ Archiving
- ❖ Broadcasting
- ❖ VOD Portals
- ❖ Social Media

3.2.2 Features

- ❖ File Browsing
- ❖ Watchfolder
- ❖ Transcoding
- ❖ File Delivery
- ❖ Notification

3.2.3 Modules & plugIns

Included Modules and PlugIns:
- ❖ File Queuer and Watchfolder
- ❖ Transcoding
- ❖ Down-/Upload
- ❖ Notification
- ❖ Monitoring

3.2.4 Target Customers

Broadcaster
- ❖ Regional TV
- ❖ National TV
- ❖ News channels
- ❖ Special interest channels
- ❖ Event channels,
  e.g. sports, news, entertainment

Post-Production Facilities
- ❖ On-premises Editing
- ❖ Distributed Production
- ❖ Content Delivery

Localisation Agencies
- ❖ Translation
- ❖ Subtitling

Content Owner
- ❖ Archive Ingest
- ❖ Asset Aggregation
- ❖ B2B content delivery

Media Groups
- ❖ Archive Ingest
- ❖ Event channels,
  e.g. sports, music, society
- ❖ Special interest channels

Corporate & Public
- ❖ Content Production
- ❖ Cross Media Publishing
- ❖ Archive Ingest
- ❖ Business TV

3.3 OneGUI 4.0

OneGUI is a powerful monitoring AddOn to nearly every job-based media processing software. It can be used to show the job list in ingester, transcoders, video standard converters, audio processors, re-wrappers or QC tools as well as workflow systems.

OneGUI gives access to all information and controls that are relevant to the software operators. And it hides all options and controls that a user at his role level should not have access to.

OneGUI allows connections to various processing farms at the same point in time. For instance, it can be used as central monitoring and operating interface to transcoding farms from different vendors.

3.3.1 Use case

File processing Monitoring at
- ❖ Post-Production
- ❖ Archiving
- ❖ Broadcasting
- ❖ VOD Portals
- ❖ Social Media

3.3.2 Features

- ❖ Job list Monitoring
- ❖ Job Operations (Priority, Pause, Requeue, Stop, etc.)

3.3.3 Modules & plugIns

Included Modules:
- ❖ Monitoring
- ❖ Statistics

3.3.4 Target Customers

Broadcaster
- ❖ Regional TV
- ❖ National TV
- ❖ News channels
- ❖ Special interest channels
- ❖ Event channels,
  e.g. sports, news, entertainment

Post-Production Facilities
- ❖ On-premises Editing
- ❖ Distributed Production
- ❖ Content Delivery

Localisation Agencies
- ❖ Translation
- ❖ Subtitling

Content Owner
- ❖ Archive Ingest
- ❖ Asset Aggregation
- ❖ B2B content delivery

Media Groups
- ❖ Archive Ingest
- ❖ Event channels, e.g. sports, music, society
- ❖ Special interest channels

Corporate & Public
- ❖ Content Production
- ❖ Cross Media Publishing
- ❖ Archive Ingest
- ❖ Business TV

3.4 Format Support

Containers

- ❖ MXF
- ❖ MOV
- ❖ MP4
- ❖ TS
- ❖ AVI

Protocols

- ❖ HLS
- ❖ MPEG-DASH

Video Codes

- ❖ AVC-Intra
- ❖ AVC-LongGOP
- ❖ XAVC
- ❖ XDCAM HD
- ❖ MPEG-2
- ❖ AVC/H.264
- ❖ HEVC/H.265
- ❖ DNxHD
- ❖ ProRes
- ❖ DV

Audio Codes

- ❖ AAC
- ❖ MP2
- ❖ MP2
- ❖ MP
- ❖ PCM

4 Releases & Roadmap

The x-dream Media Suite is developed in modules. The first module releases are available. Feature additions and enhancements lead to update releases. New modules are continuously developed and thus products are released frequently.

4.1 Release

Release 0.1 (09/25)
- ❖ xTranscode
- ❖ Available modules:
  - File Queuer
  - Watchfolder
  - Monitoring

4.2 Roadmap

Release 0.2 (02/26)
- ❖ xIngest
- ❖ OneGUI 4.0
- ❖ New modules:
  - Live Scheduler for Recording

4.3 Backlog

- ❖ New modules:
  - Transcription
  - Translation
  - Face Recognition
  - Quality Control
  - Fingerprinting
  - Watermarking

- ❖ New products:
  - xQuality
  - xTranscribe
  - xTranslate
  - xFaces

- ❖ New solutions:
  - PROtect