

Product Sheet

MediaStore Manager

Archive manager Application Module

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MAM MediaStore Manager

MediaStore is the MAM (*Media and Digital Asset Management system*) proposed by SI Media. **MediaStore** is an application suite including server and client modules and is available in three different editions:

-**MediaStore Archive**

-**MediaStore Broadcast**

-**MediaStore Enterprise**

MediaStore is essentially a reliable database specifically addressed to the management of companies' digital assets: video, audio, images and documents.

With **MediaStore** it is possible to ingest with the desired format, catalogue the contents, archive and deliver them when needed.

MediaStore supports many languages, including Chinese, Russian and Arabic.

MediaStore is based on Microsoft SQL Server as it is written in C #, .NET and XML/UNICODE.

Server modules in **MediaStore** consist in a Windows® background service responsible for the execution of the tasks and an application for configuration, administration, monitoring and maintenance of the system.

Each change to the system's configuration is real-time stored into the database and made available to the on-air system.

The *Workflow* manager in **MediaStore** can automate import/export operations; it can send and receive *assets* of heterogeneous formats from multiple sources (**MediaRec**, *watchfolders*, third party *ingestions*, etc.) towards different destinations (*web*, *mobile*, *playout*).

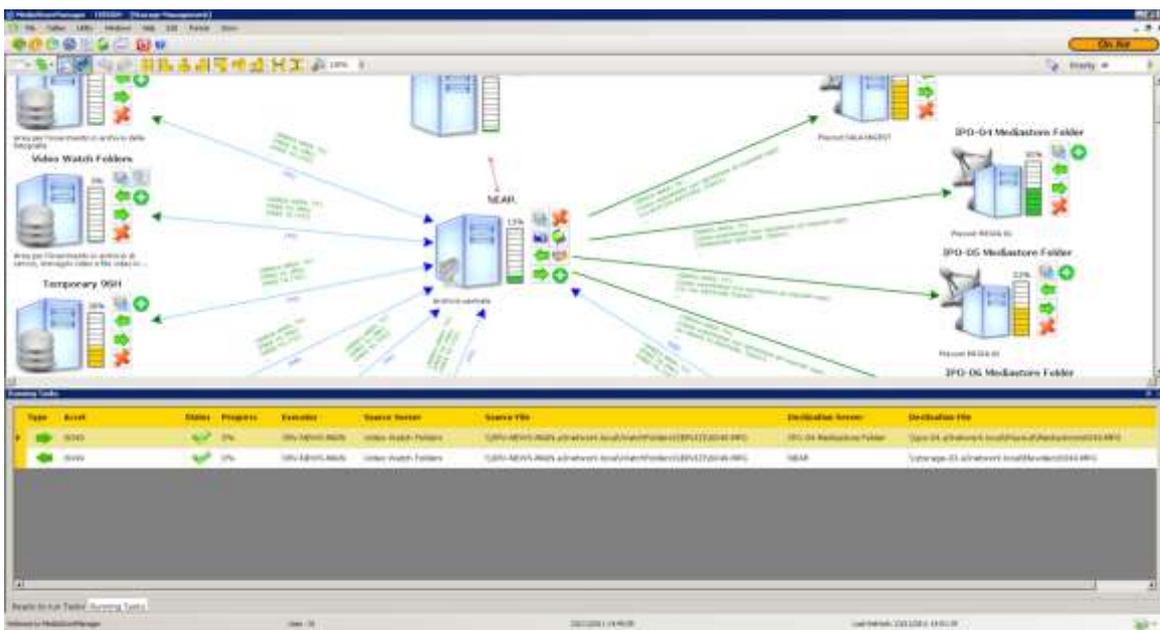
Client module in **MediaStore** consists in the management of the broadcaster contents archive. It allows to search through the archive (Simple, Full Text and Boolean search engine), to edit and add metadata, to index and categorize contents, to edit and cut them.

MAM MediaStore Archive

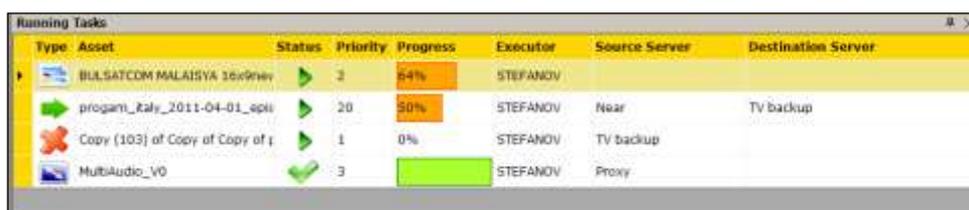
Mam MediaStore Archive is the solution thought to manage the transfers of assets across the different storage devices that are part of the workflow.

It allows the retrieving of metadata of the new contents incoming and the automatic detection of the contents of an asset.

It also allows to import new contents from watch folders or through ftp servers.



(MediaStore: main monitoring window with running tasks)



Type	Asset	Status	Priority	Progress	Executor	Source Server	Destination Server
VIDEO	BULSATCOM MALAYSIA 16x9rev	OK	2	64%	STEFANOV		
VIDEO	program_kaly_2011-04-01_spx	OK	20	50%	STEFANOV	Near	TV backup
VIDEO	Copy (103) of Copy of Copy of t	OK	1	0%	STEFANOV	TV backup	
AUDIO	MultiAudio_V0	OK	3		STEFANOV	Proxy	

(MediaStore: running processes)

MediaStore Archive is an application suite for the management of the media *assets* life cycle. Assets types supported are: video files, audio files, images, analogue or digital tapes and documents.

MediaStore manages *assets* creation (*ingest or content creation*), transfers across different levels of storage, deletion and delivery to final destinations (*web, mobile, playout*) or archiving.

At the time of creation, the new *asset* is identified and analysed; the first set of metadata is automatically inserted as soon as the content enters the system.

According to the user *workflow* the *asset* can be archived or moved to other storage devices, or it can be processed (categorization and cataloguing, low-resolution (i.e. proxy) creation and/or management, speech-to-text detection, etc.), according to the customer configuration.

At every moment, following the rules defined into the integrated *workflow* manager, **MediaStore** can move the *assets* to *OnLine* Archives or *OffLine* Archives, as needed, automatically.

This rule-based automation frees operators from any manual activity.

The *Workflow* manager can automate import from FTP sources and watchfolders.

The configuration is dynamic and can be adapted at any time to the evolving situation and needs. **MediaStore Archive** is designed to be *cooperative* and *multi-threading*; new servers can be added at any time to scale up the system elaboration power in order to fairly distribute the workload between them.

MediaStore Archive consists of two modules: **MediaStore** and **MediaStore Manager**. The first one is a Windows® background service responsible for the execution of the tasks. The second one is a client application for configuration, administration, monitoring and maintenance of the system.

Each change to the system's configuration is real-time stored into the database and can be made available immediately to the on-air system.

Key Features:

- *Retrieving of main metadata of incoming assets*
- **Automated management for Hashing, Metadata and Filling**
- **Automatic detection of the audio content of an asset**
- **Workflow management and integrated monitoring of the transfers among the different storage devices**
- *Import from FTP and watchfolders*
- **Complete and exhaustive user's policy management**
- **Integration with all SI Media applications and 3rd party applications**
- **Integration with all major IT vendors and Broadcast Brands**



Retrieving of main metadata of incoming assets

With **MediaStore Archive** it is possible to retrieve the main metadata of each asset that enters the system both coming from FTP or from watch-folders.

It means that this information will remain available in the system, visible and editable.

- **Wrapper** = MXF_OP1a
- **Content** = Mpeg2
- **Video Size** = 720x576
- **Field Order** = InterlacedTopBottom
- **Video Frame Rate** = 25
- **Video format** = PAL
- **Aspect-Ratio** = Ratio 4_3
- **Stream Count**= 2
- **External Essences** = False
- **Dropped Frame** = False
- **StreamId** = 05010100
- **Stream Type**= Video
- **Data-Rate**= 25
- **Time Scale**= 1
- **Frame Rate** = 25
- **Bit per Frame** = 0
- **Frame start** = 0 (00:00:00:00)
- **Frame count** = 185 (00:00:07:10)
- **Properties** =
 - **HOffset** -> 0
 - **HLen** -> 12288
 - **FOffset** -> 39415808
 - **FLen** -> 124
 - **IdxEntries** ->
 - **IdxUnitSize** ->212992
- **StreamId** = 06011000
- **Stream Type** = Audio
- **Audio Format** = Unknown
- **Data Rate** = 48000
- **Time Scale**= 1
- **Sample Rate** = 48000
- **Bps** = 0 (0 Kbps)
- **Bit depth** =0
- **Channel count** = 4

Automated management for Hashing, Metadata and *Filling*

Each new *asset* that has to be added to the archive is elaborated by **MediaStore**.

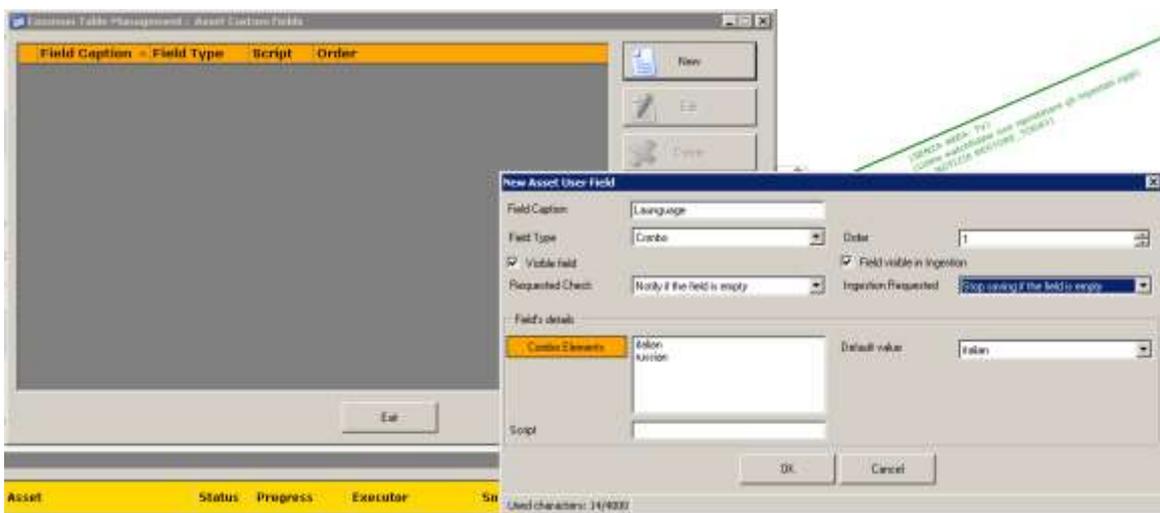
First step is to retrieve available metadata (descriptive information) like name, duration, *aspect ratio*, file size, etc. If the file contains an essence like MXF, GXF, MOV, IMX, etc., the internal available metadata are retrieved too (*filling*). This step is very quick and includes also the so called *hashing* (or *digital signature*) of the *asset*; the asset is so linked to a univocal code which allows comparing it to the archive contents in order to identify and avoid duplicates.

This feature allows an effective usage of the storage space.

Once checked the *hash*, the *asset* is saved into the database and ready to be used and transferred to any storage device of the system.

All these elaborations run in a separate thread, without interfering with the other running tasks of **MediaStore**.

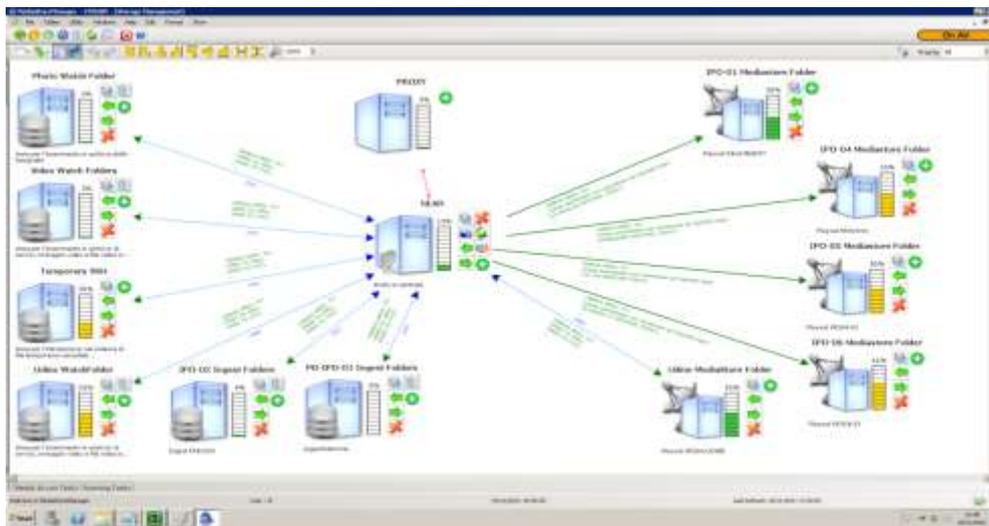
MediaStore provides the operator with an initial set of fields for categorization, but it's possible to add new custom fields. These custom fields can be mandatory, predefined with default values or calculated by scripts. They can be filled during the ingestion phase.



(Customization of asset Metadata fields)

Workflow management and integrated monitoring

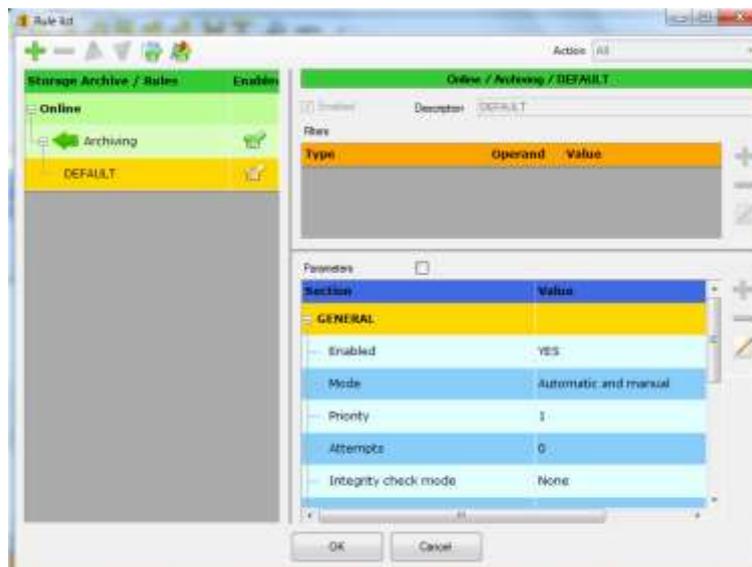
MediaStore Archive integrates a complete *workflow* manager. It is a design tool to set up the global architecture of the system and its behaviour. It also integrates a set of monitoring tools to survey the system status and warn administrators about conditions that require their attention. On the same window are located panels to display the running and waiting tasks executed by the installed instances of **MediaStore**. **MediaStore Manager** main console is intended to be the place where system administrators set up the system first and then maintain it.



(Workflow example of a non-trivial system)

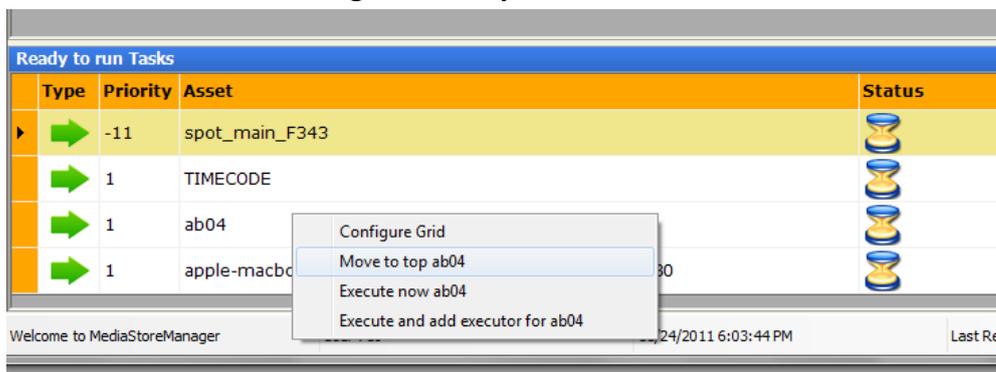
The first step is the storage device representation, in order to get a visual representation as in the above picture. Next step is to assign each one its behaviour, tuning the rules that will define the workflow.

Every rule can be customized: deletion, archiving, restoring, transcoding, etc. and to every action can be assigned a priority.



(Example of the definition of a rule)

These rules will lead to different behaviours which can be tested directly inside the workflow editor, without affecting the live system.



Hierarchical storage management

MediaStore Archive is a full featured *HSM* (*Hierarchical Storage Management*). Each storage device that is controlled by **MediaStore** can be categorized as *OnLine*, *NearLine* or *OffLine* archive.

OnLine storages are typically playout machines, video servers or ingest workstations.

They usually feature fast and efficient disks, but with high per-byte cost. In order to provide more storage space is common to have a central archive, called *NearLine*, with higher capacity but lower performances and costs. *NearLine* usually acts as a cache memory for the *OnLine* storages.

The *OnLine*'s contents that are not needed anymore for playout are *archived* into the *NearLine*, and restored when needed. To this scenario is also possible to add the lowest level of the hierarchical storage, the *OffLine*. This storage has lower performances than

other levels, but much more capacity with minimum per-byte cost. *OffLine* are usually LTO tape-based archives.

Those three hierarchical levels are the standard configuration in a broadcast environment.

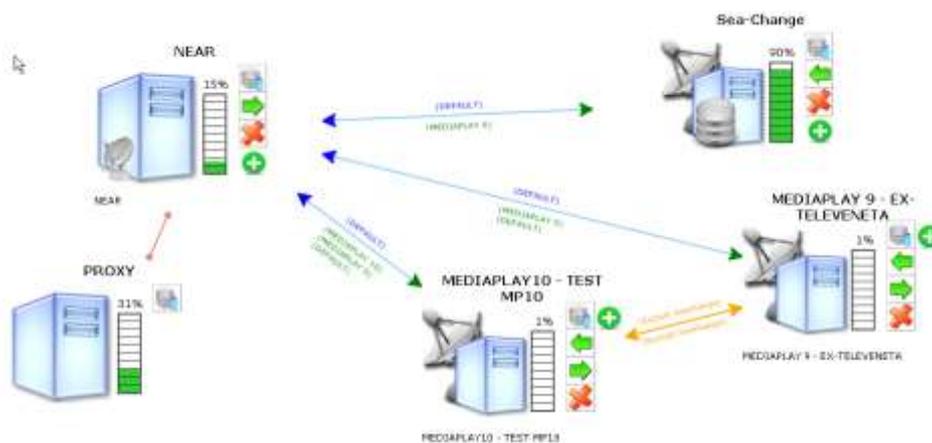


(Example of an HSM set up)

With **MediaStore** the HSM can be defined in a flexible and dynamic way, and its management is fully automated.

MediaStore will take care to move the contents according to the workflow needs. This configuration allows to store a very large number of files, without the need to delete anything, saving future re-digitalization of old deleted material.

MediaStore fully implements the HSM paradigm and extends it, allowing the broadcaster to customize every single step thanks to the *workflow* manager.



(Customized HSM set up, with heterogeneous storages)

Import

Import operations aims to add new contents into the system. These assets can be acquired along with their metadata, and **MediaStore** will take care of storing them and associate them to the content (*filling*).

Once imported, this new contents can be transcoded (*normalized*) to conform to the other MAM contents.

With **MediaStore Archive** it is possible to import contents from FTP servers and watchfolders.

Automated *import* operations (the ones defined in the *workflow* set up) are directly managed by **MediaStore** and require no operator actions.

Integration with all SI Media applications and 3rd party applications

MediaStore is a complete standalone platform, but expresses its full potential when joined with the other SI Media modules, like the *Newsroom* (MediaNews and MediaNewsPlay) and the *Automation* (MediaList and MediaPlay). The level of integration between these three modules is as strong as if they were one.

Both for *traffic* and *newsroom* clients. The communication across different applications is delegated to the centralized database.

MediaStore can be integrated in a unique flow with 3rd party automations, traffic systems or NRCS.

Integration with all major IT vendors and Broadcast brands

MediaStore not only runs on IT platforms like IBM, HP, Dell, Supermicro and Intel, (with AJA, Black Magic, Matrox...), but also with all major broadcast brands like Omneon (now Harmonic), Xor-Media, GrassValley, Harris, DVS and EVS.



(Some of the worldwide adopted brands supported by MediaStore)