



LogDepot Conference

Technical information

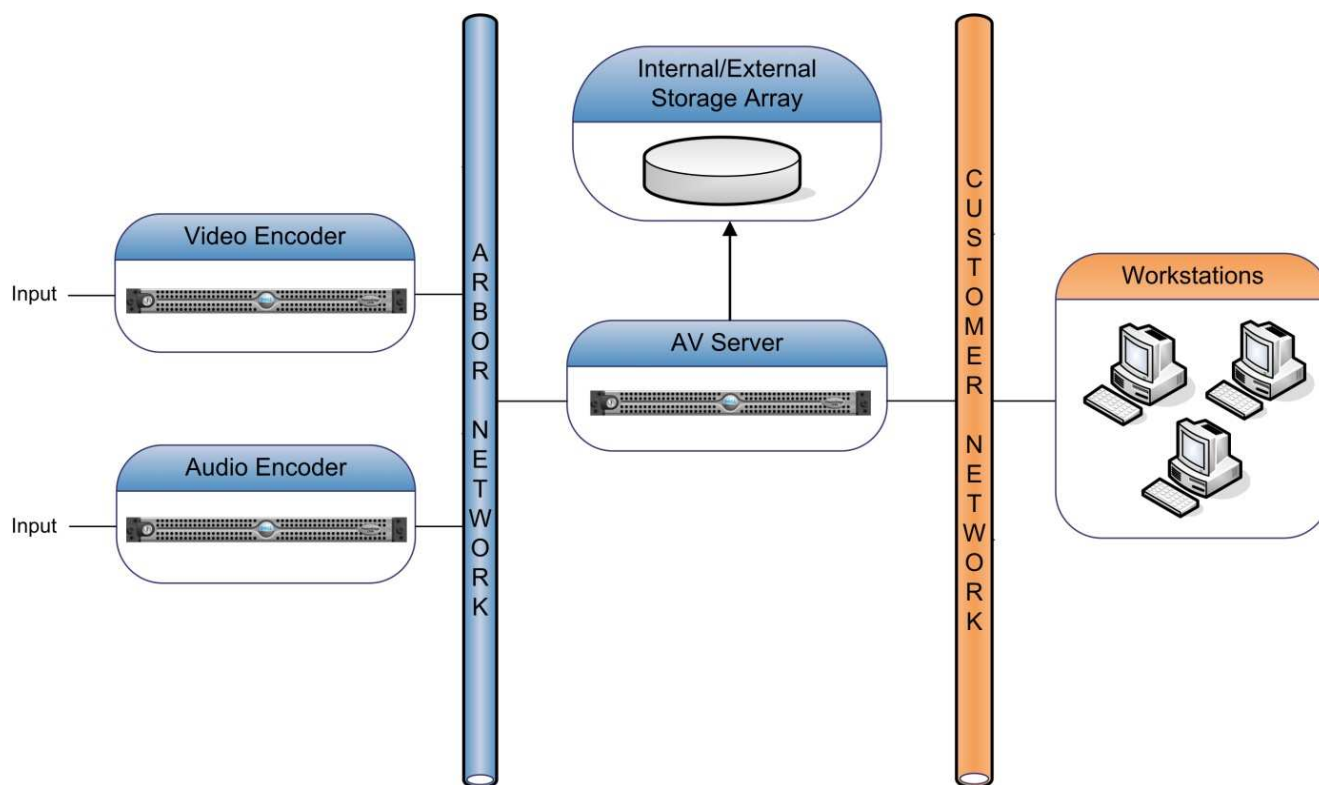
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The Concept

The LogDepot architecture is powerful, yet simple in design. It was designed to be robust and reliable, but also scalable, flexible and efficient.

A standard LogDepot system is shown in the picture below:



The audio/video backends receive the input signals and record the signal on their local disk, while encoding or transcoding to the required formats. The system is capable of handling a number of input signals on one backend server PC: varying from a few to dozens. And there is virtually no limit to the number of backend servers, so scaling up the system is as simple as adding another backend server PC.

The fetcher process, residing on the AV server, continuously fetches small parts of the AV backends and stores the media onto the central storage.



The webclient, also residing on the AV server, provides the GUI (Graphical User Interface) for the users on the customer network. The picture below shows the web based LogDepot Video GUI. On the next page the LogDepot Audio web client is explained and shown.

LOGDEPOT V5 Logout | About

Main channel: Original Video
Secondary channel: English

Date: 22-04-2009

April 2009

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	1	2
3	4	5	6	7	8	9

Time selection: Night, Morning, Afternoon, Evening, Late night

Event: 00 01 02 03 04 05

Time: 06 07 08 09 10 11

Fragment selection: Start 22-04-09 10:02'49.29, End 22-04-09 10:03'48.02, Total 0 days 00:00'58.73

Export video with original audio: ☐

Description:

Action: Export to MP3, OK, View

Downloads:

Media

Speaker Name: (Unknown858)

Meeting Number:

Commission:

Meeting Status:

Speaker Language:

Speaker Party:

Agenda Item: Tests in progress -

Timeline: 0 5 10 15 20 25 30 35 40 45 50 55 60

Playback controls: 10:02'52.03

Original Audio

Gereed

Internet | Beveiligde modus: uitgeschakeld



Recording Audio with the Audio Logger

The Audio Logger can receive audio input signals from a variety of inputs, including Balanced analogue, AES/EBU, ADAT, MADI, ASI or TS-over-IP.

The audio backend software module, running on the Audio Logger, will encode or transcode the incoming audio inputs to a relatively low-bit rate Proxy format, suitable for browsing and optionally a high quality signal to be used for archiving and as source for other export processes.

The LogDepot is able to record **multiple streams** in multiple formats from one physical input.

LOGDEPOT V5 Logout | About

Main channel: Einslive

Date: 14-01-2008

January 2008

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

Time selection

	00	01	02	03	04	05
Night						
Morning	06	07	08	09	10	11
Afternoon	12	13	14	15	16	17
Evening	18	19	20	21	22	23
Late night	00	01	02	03	04	05

Fragment selection

Start: 14-01-08 14:11'18.53 + Set Clr

End: 14-01-08 14:12'10.36 + Set Clr

Total: 0 days 00:00'51.83 Clr both

Description:

Action: Export to MP3 OK

Downloads: Downloads

Metadata

Program Service Name	1LIVE	Decoder Information	true
Program Type	10	Music/Speech	true
Program Type Name	Info	Traffic Announcement	false
Radio Text	1LIVE die Backhaus	Traffic Program	false
Alternative Frequencies	.7 107.0 107.2 107.3 107.5 107.7 107.9 93.6 96.0 98.2 99.7		



The audio backend stores the material in a cyclic buffer on the local disk. The size of the local storage is typically enough to overcome at least a couple of days of network and/or server failure (see also: Reliability and redundancy).

The audio backend user interface shows the status and the modulation level on all audio inputs.

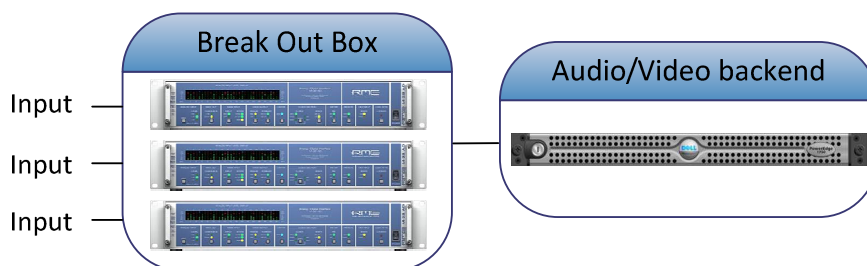


Supported output formats

- Windows Media Format
- MPEG 1 Layer II
- Linear PCM
- AAC (MPEG4)

These are **native** storage formats; conversion to many other formats is possible with the export process.

The audio backend runs on a standard server, equipped with an ADAT or MADI interface card. Break-out boxes are used to convert balanced analogue and AES/EBU signals to ADAT or MADI, and thus provide the interface to audio backend server PC. One backend server can handle up to 64 audio inputs.



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Recording Video with the Video Logger

The Video Logger will receive the video input signals from a variety of inputs, such as Composite Video, Analogue HF, SDI, ASI, TS-over-IP, DVB-S, DVB-C, DVB-T.

The video backend module, running on the Video Logger will encode or transcode the incoming video inputs to a relatively low-bit rate Proxy format, suitable for browsing and optionally a high quality signal to be used for archiving and as source for other export processes. The high quality format can be original format (the original TS/ DVB format).

The LogDepot is able to record **multiple streams** in multiple formats from one physical input.

The video backend stores the material in a cyclic buffer on the local disk. The size of the local storage is typically enough to overcome at least a couple of days of network and/or server failure (see also: Reliability and redundancy).

The video backend user interface shows the status and preview of all video inputs.





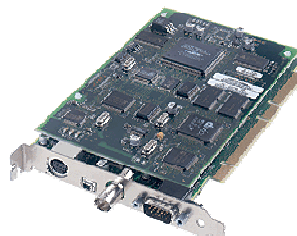
Supported output formats

- Windows Media Format
- MPEG2
- H.264/AVC (MPEG4)

*These are **native** storage formats; conversion to many other formats is possible with the export process*

The Video Backend runs on a standard (server-) PC, equipped with traditional Video Capture cards with Composite Video or SDI interface. The number of video inputs on one Video Backend server is usually limited by the hardware interface capabilities.

LogDepot Video Encoders



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Multilingual Recording

In multilingual situations, a conference room will provide a video output signal with a corresponding audio signal ("floor") plus a few (or many) translated audio signals, from interpreter booths. LogDepot will record all these streams simultaneously while "time stamping" each individual track. As the picture shows, in the web client GUI the user can choose one of the interpreted signals (e.g. Spanish) and listen to the interpreted signal only or mix the translation with the original floor signal.

In this situation all interpreted channels will be stored as separate files, so that a user can choose between the floor signal and one or more of the interpreted signals when exporting.

Time selection		Event		Time		
Night	00	01	02	03	04	05
Morning	06	07	08	09	10	11
Afternoon	12	13	14	15	16	17
Evening	18	19	20	21	22	23
Late night	00	01	02	03	04	05

Specify additional export parameters for export action: **Download**

Channel: Conference room - floor
Sub channel:
Cue in: 29-03-11 14:08'19
Cue out: 29-03-11 14:10'50

Channels to export:

☒ Conference room - floor
☐ Conference room - english
☐ Conference room - french
☐ Conference room - spanish
☐ Conference room - german
☐ Conference room - russian
☐ Conference room - japanese
☐ Conference room - arabic

[Check all](#)
[Uncheck all](#)
[Reset to default](#)

OK

* = required field



The fetcher process

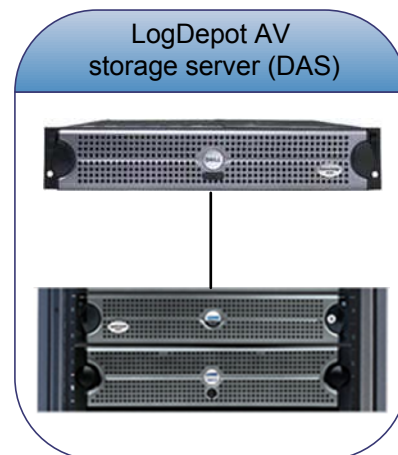
The fetcher module, running on the central AV server, is responsible for the storage of the media files onto the central storage system. The server can use internal Hard disks, DAS (Direct Attached Storage) via SAS or Fibre channel adapters, NAS (Network Attached Storage) or SAN (Storage Area Network) to archive the recorded media files.

The fetcher module retrieves all the stored files in the cyclic buffers from each AV Logger. This process takes place “on the fly”, so that the delay is minimized. Media files can typically be accessed by client workstations over the customer network within 15s for audio and 30s to 60s for video.

The central server with storage keeps the media files for a limited amount of time, varying from a few days to a few years and automatically takes care of the cleaning process. The size of the storage duration may be different for the different filetypes: in many cases, customers choose to keep the low bitrate Proxy files longer than the High Quality files.

If parts of the recordings must be archived permanently, the Export Server is used to execute this process (automatically, if possible).

LogDepot supports the use of multiple servers, in which cases each server will collect the media recordings in a continuous process.





Reliability and redundancy

The most important feature of any Audio/Video recording system is the reliability of the recording itself: Material may not be lost due to any hardware failure. This fact and the knowledge that any hardware part can fail, were important factors for the design of the LogDepot architecture.

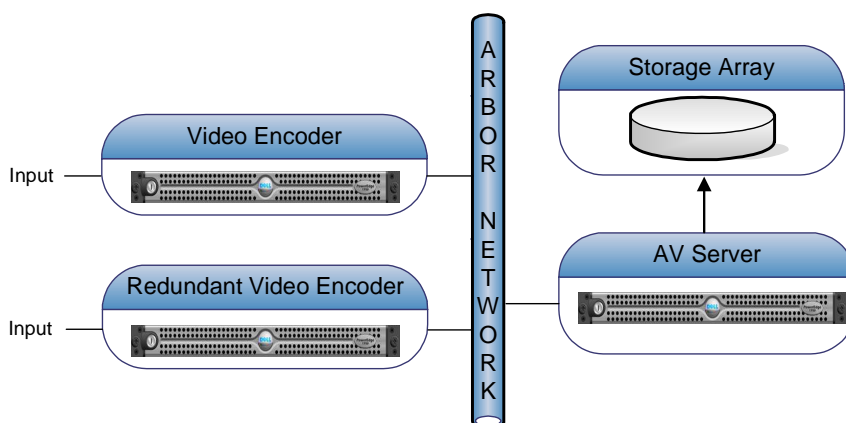
The Logger applications (Audio and Video backend) have been designed so that their only task is capturing and digitizing the incoming AV signals, convert them to the required, native media formats and store these on their local hard disk. The backends are not aware of the rest of the system, neither the AV server, nor the network, nor the users. This is the only way to warrant that network and/or server failures will not affect the basic recording process: Even when the whole network stops working, the loggers will continue to record.

The Fetcher process on the AV server is responsible for the gathering of recorded material onto the central storage. The Fetcher “knows” what it needs (e.g. Room 517) and where to get it (on Logger #3 or on Logger #4). It will attempt to fetch the media files from Logger #3, and if this fails try to fetch from Logger #4. If both (or better: all) attempts fail, it will retry after a while and continue to do so, until the attempt succeeds.

This means that LogDepot can be designed completely redundant, when used in mission critical environments, which means that all encoders are mirrored. If an encoder fails, the server will automatically detect the problem, and will switch over to the mirrored counterpart. Failure of an encoder will not lead to any loss of video material.

The encoders have local buffers to keep a few days (typically) of media recordings. This can overcome a few days of network or server failure.

Apart from mirroring the Loggers, it is also possible to mirror the LogDepot server and storage (typically in another geographical location).





Metadata handling

The LogDepot architecture involves an unique, generic metadata handling mechanism. It can handle an user-definable metadata structure, allowing each customer to define metadata fields according to his requirements.

The concept for handling the metadata is similar to the handling of the media files. Various metadata backend modules can read metadata from a particular source, convert the structure to LogDepot-internal generic format and store this locally. The metadata fetcher, running on the AV Server, will fetch metadata from an unlimited number of metadata backends and store it in a central metadata database.

The following metadata modules are (among others!) available for conference applications:

Bosch DCN Read the metadata available in a Bosch DCN Microphone System. Typically, a DCN system provides speaker names and microphone numbers, but it may provide additional information, as well.

Televic Read the metadata available from a Televic Microphone system. Typically, Televic provides speaker names and microphone numbers, but it may provide additional information, as well.

XML Read metadata from any XML or Text file. A built-in XSLT (XML Converter) allows a customizable conversion from the source file to the LogDepot internal presentation.

Custom Customized metadata backends can be created to capture metadata from special sources, including customer databases, internet sites or others.

Metadata	
Speaker Name	President of the Conference
Meeting Number	S1299-C
Commission	Plenary
Meeting Status	Active
Speaker Language	English
Speaker Party	N/A
Agenda Item	12th sitting



Export & Processing

The Export Server and Process Engine allow the customer to set up export profiles according to his own requirements. The configuration may be complex, as it requires lots of detailed information, but the result of a correct configuration, is an extremely powerful and easy-to-use export mechanism.

The export process will cut out the user-defined part(s) of (High Quality) video file, assembling them into one file if required and hand this file over to the processing engine, accompanied by an XML file containing all the relevant metadata.

The processing engine is able to convert audio, video and metadata and deliver the result to the target endpoint. Typically, the endpoint is folder on a server, but there are also more specialized endpoint available, such as the CD/DVD Robot Server, which will automatically author the audio/video files, burn the CD/DVD and print the label.

Processing modules include - among others - the possibility to:

- Convert Audio
- Convert Video
- Extract & embed metadata
- Deliver to file servers
- Deliver to archiving systems
- Burn CD/DVD

To support additional workflows, an administrator can design a special "export form", requiring the user to enter specific information for this export process. This way, the administrator can require the user to enter a category, an ID, a description or anything else, before the process is started. The export form may contain mandatory and optional fields. The data entered in the export form will be included in the XML-metadata accompanying the media files, so that it can be processed by subsequent modules or systems.





Eplayer

A popular example is the possibility to create an "Eplayer" DVD automatically. This DVD can be created with a few mouse-clicks from the webclient and will contain a complete meeting with speaker information, agenda items (if available) and all the language tracks. The required Arbor Eplayer application is burned on the DVD together with the Media files so that it will automatically run on a PC.

