DAVID

GmbH

Digital Audio & Video System Integration & Development

DigaSystem.

The Radio & TV Operating System

BroadcastServer Concept

DigAS

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Overview

Overview

DIGITAL AUDIO VIDEO INTEGRATION DEVELOPMENT
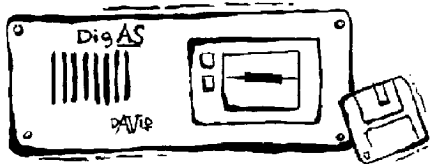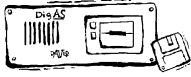
1   Overview

1.1 Motivation

DigaSystem – synonymous for news oriented production and content exchange in the broadcast world - has been evolving over the last few years into a complete "Radio Operating System". An important part of this evolution is the development of a tool that provides planning and scheduling for complete radio programs - incorporating news, spoken words, music, advertising and format elements. Presenting our *BroadcastServer* - designed to offer all of this and more. D.A.V.I.D. GmbH already has successful tools designed to handle specific tasks, e.g. *DigaCartwall* for format elements, *DigAdCom* for advertising, and *DigaNewsPlayer* for news, now with the introduction of *BroadcastServer*, it is no longer necessary to integrate an external system for scheduling.

1.2 Structure

The *DigaSystem BroadcastServer* Concept is based on a modern Client/Server Structure consisting of the following modules:

- Broadcast Server - the central database for manipulation, distribution and storage of all relevant data and actions concerning the broadcast schedule

- Scheduling Client - the planning module for broadcast information

- OnAir Client - the studio delivery module

- Import Clients - automated or semi automated import of data from other systems (music rotation, advertisement disposition etc.)

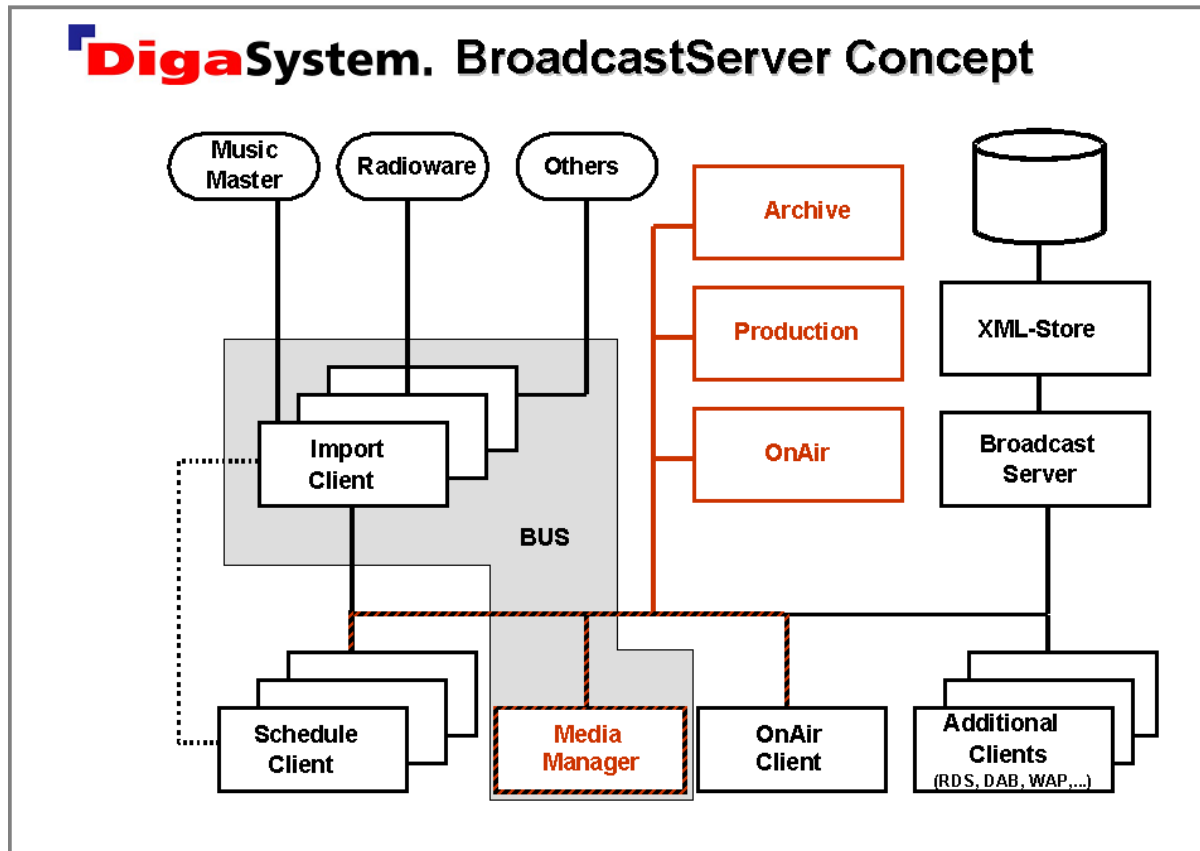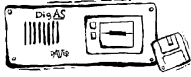- Other Clients - e.g. for RDS, DAB, Internet, WAP etc.

<u>Table</u>: Components of the *DigaSystem BroadcastServer* Concept

The **Broadcast Server** is used for storage of all schedule related information. It is also responsible for the gathering and coordination of all data from any active client. This structure enables a real multi-user mode and guarantees high integrity of data.

All data is stored in an XML based tree structure, which is more suited to reflect a scheduling structure, and enables an operation speed near real-time as well as easy modification to future developments.

The **Scheduling Client** allows the visualization and manipulation of all information stored in the Broadcast Server. Entries from other delivery modules (e.g. the DigaSystem Database Manager) can be imported by drag & drop, or new entries can be created within the scheduling client. Scheduling elements can be assigned to any show, without time restriction, or provided for different show pools. It is also possible to create and classify templates. All data manipulation is immediately transmitted to the Broadcast Server and from there to all active clients working on this data.

The **OnAir Client** is used for the distribution of a program schedule. It is the interactive interface between user and system, which visually displays the progress of the show and manages the processes necessary for the show. All relevant data is stored locally to guarantee reliability, as well as reflected in the connected Broadcast Server, enabling quick-change modifications to the show.

The **Import Clients** handle automated or semi automated import of data from other systems (music rotation, advertisement disposition etc.). The automated import from the scheduling software *MusicMaster* (A-Ware) and from the advertising system *RadioWare* (AluP) is already supported. The creation of other Import Clients is easily possible due to the XML based format.
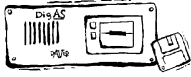
Another feature is the ability to combine events on different levels (from different media) e.g. data services like RDS or DAB. You can even prepare data for Web or WAP services via other Clients.

> *The principle of dedicated Clients makes flexible expansions and individual adjustments to future systems much easier*

The communication between server and active clients is event-driven and based on TCP/IP. All clients are immediately informed about relevant modifications in their area.
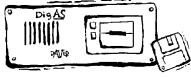
2 **Dig**AIRrange – The Schedule Client

DigAIRrange - the *DigaSystem* schedule client – provides planning and scheduling for complete radio programs incorporating news, spoken words, music, advertising and format elements.
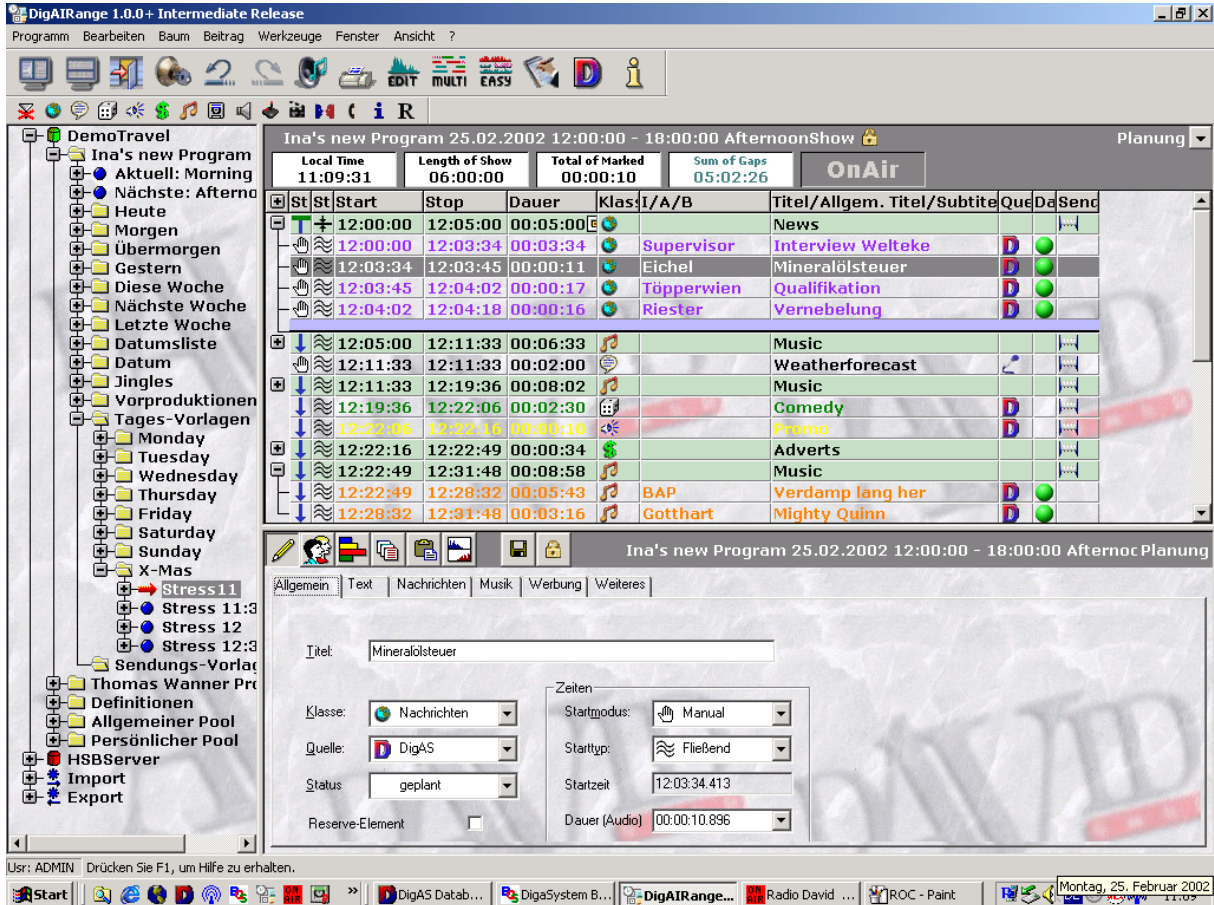
Figure1: Screenshot *DigAIRrange*

Schedules can be created for individual stations, shows, times or any user defined criteria. These schedules can be created without time limitation for any desired period. Each schedule has a corresponding "pool" for collecting audio material, format elements etc., and it is possible to create pools for a individual shows or people.
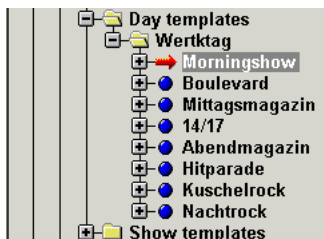
DigAIRrange supports the administration of templates - periodically (daily, weekly, monthly...) as well as for special events (Xmas, Olympic Games…)

The schedules are created by drag & drop from every source that supports this functionality. These can be internal sources (planning or import pools) as well as external software, e.g. the *DigaSystem Database Manager*.
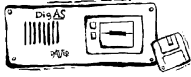
DigAIRrange supports the import of data from different delivery systems (music rotation, advertisement disposition, etc.). Independent Import Clients convert the data from these systems into XML.

Import Clients for the following systems are currently available

- Music Lists from *MusicMaster* by *A-Ware*
- Advertisement lists from the disposition system *RadioWare* by *AluP*
- Advertisement lists from the *DigaSystem AdCom Manager*
- News lists from the *DigaSystem News Scheduler* (SePl 2.0)

Each element can be combined with one of the following start attributes:

- manual → manual start

- sequenced → automatic start directly after the previous contribution
- start on time → automatic start at a given time (auto stop)
- end on time → automatic start directly after the previous contribution with end on time

Based on the start time of a show, the system automatically calculates gaps and overlapping times in the schedule. Modifications of inserted auto stops are taken into consideration as well.

🖐	12:09:00	00:03:19	🎵 USER	Want Love		D	🟢
	12:10:18	00:03:30	🎵 USER	Latin Thing		D	🟢
🖐	12:13:48	00:04:44	🎵 USER	I Luv You Baby `95	00:02:00.000		🟢

Other parameters (depending on the OnAir Client) to be set by the user are:

- Mark-in and mark-out times defining the start and end of a contribution
- Fade-in, fade-out and link-parameter for setting transitions between contributions
- Channel assignment allocation - to specify a contribution's transmission device (e.g. music, advertisement, presenter)
- Intro-points to define sections for live content (presentations)

Modifications in a playlist created on the *DigAIRrange* desktop are simultaneously reflected on all desktops working on the same list. The rights of individual users to modify a list can be managed by the administrator.

Summary

- Open for import from different systems (music rotation systems, advertising scheduling, etc.)
- Open interface to different on-air playback tools
- Can be fully integrated into existing DigaSystem structures or operated stand-alone
-
- XML-based database independence guarantees rapid response times as well as future compatibility
- Scheduling and broadcasting of content via multiple, distinct routes – for example, internet, intranet, WAP, etc., in addition to the classic on-air broadcast route
- Each element can be scheduled for separate sound processing on different playback channels (music channel, voice channel, advertising channel)
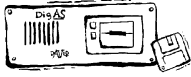
- Support for transmission structures such as daily/weekly structures, seasonal structures, etc.
- Unlimited planning into the future, for example, special events, holidays, major events, which require long-term preparation and scheduling)
- Broadcast, day or person pools, allow for flexible material organisation
- Immediate display of schedule conflicts
- Intuitive user interface with drag & drop
- Client-server architecture allows multiple users simultaneous access
- Extended possibilities for User Rights Administration

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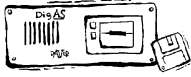
3 **Diga**ROC – The OnAir Client

DigaROC – the *DigaSystem* OnAir Client – serves as delivery tool for the schedules created in the *DigAIRrange* program. It offers two audio channels for playlists and pre-fader listening, and includes an integrated jingle bank. The basic audio engine is fully compatible with all internal audio and data formats.

Any modifications will immediately be reflected via the *BroadcastServer* to OnAir Client and Schedule Client. The rights of individual users to modify a list can be managed by the administrator.
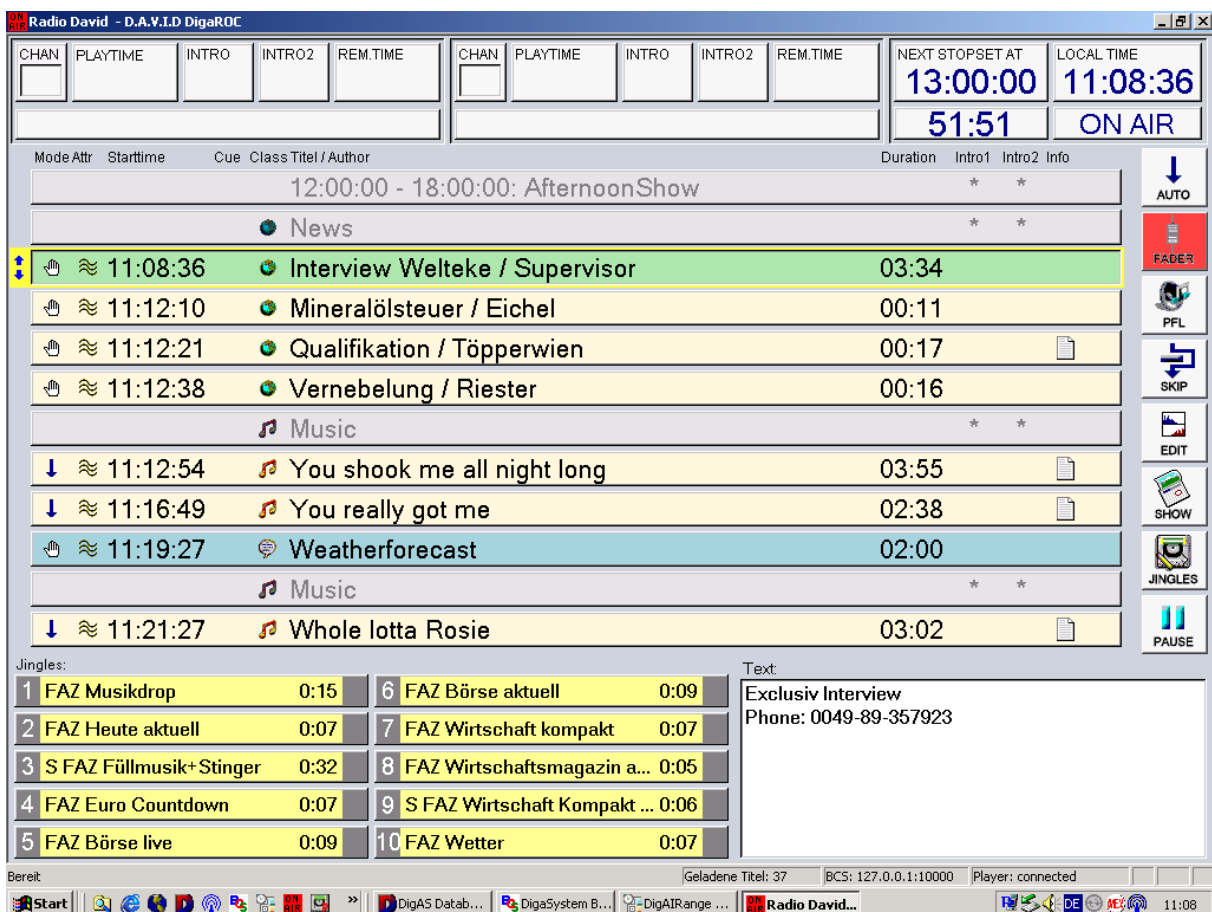

Clear displays keep the show's progress in view. The following information is also displayed:

- Progressive playing time of a contribution (numeric and graphic)
- The remaining time
- An Intro-Countdown
- The channel used for playing out
- Color changes (when the contribution is played out)
- Commentary field (displayed when contribution is highlighted) or display of occurring error messages

The button bar on the right hand side of the desktop offers more functions like:
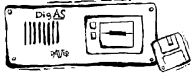
Auto Play	→	Starts the show automated and plays all entries on sequence ignoring the original start attributes
Fader Start	→	Default – starts the highlighted entry by fader impulse. Can be taken out to deactivate start impulse
Edit Mode	→	Gives extended editing possibilities in single track or crossfade mode (see below)

An individual adjustment of the play list is possible by various functions like skip, move (exchange of any entry), flip (exchange of the two first entries) or edit.
The editing function allows fading and crossfading of entries by setting mark, fade and link points
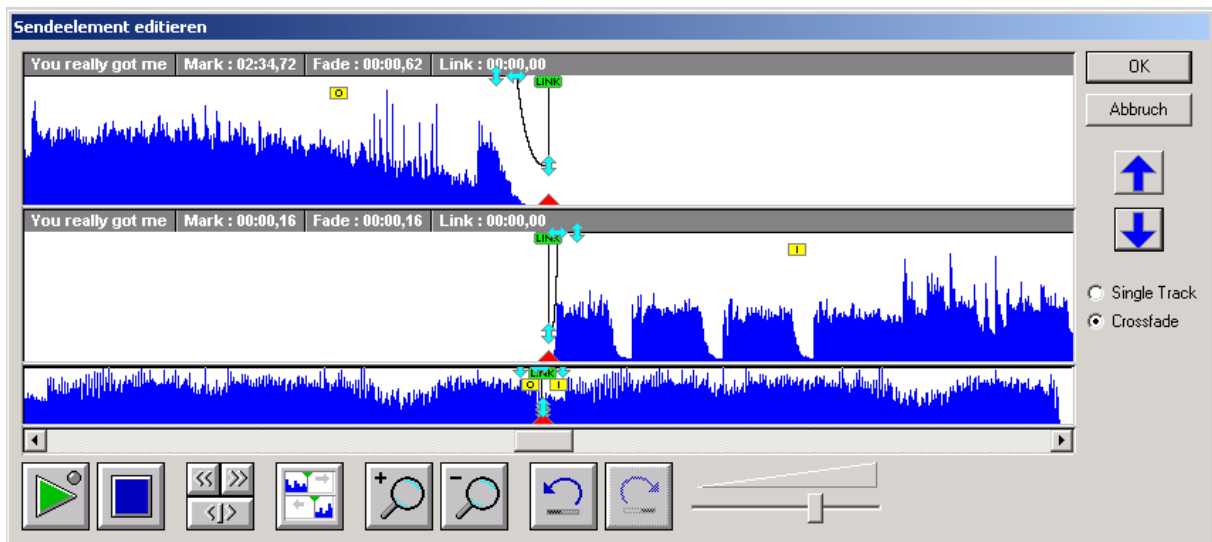

Fig. 3: Crossfade editor

It is switchable from cross fade (default) to single track mode
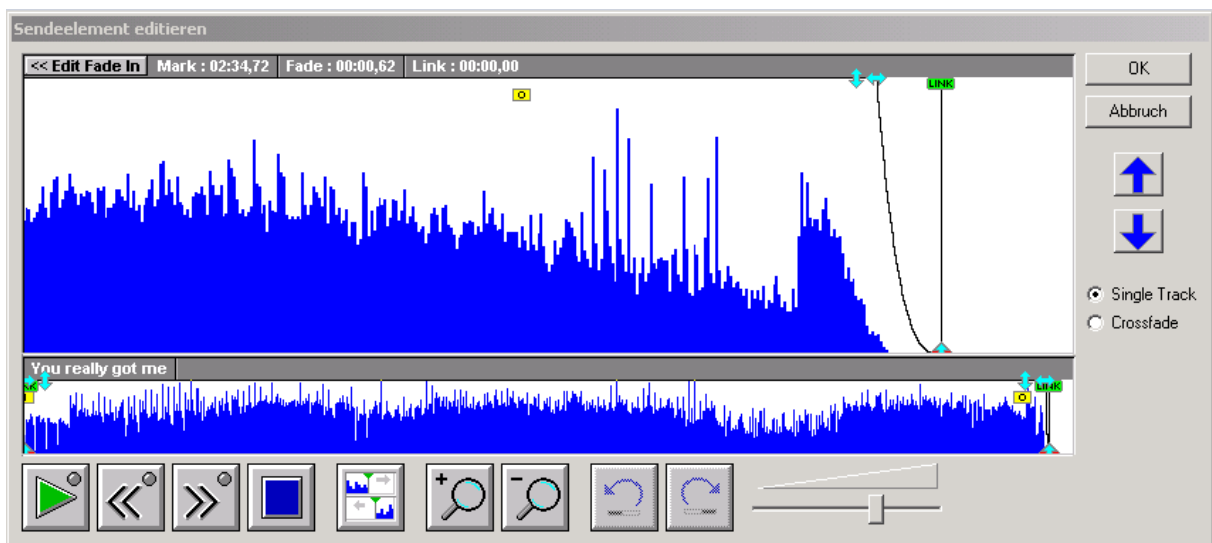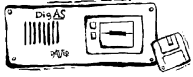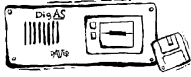

Fig. 4: Single track editor

3.1 Additional features

- Backup of play out even when disconnected from network
- Online updates between all clients at BroadcastServer network
- Drag & Drop from jingle slots or Database Manager into playlist
- Fully or semi-automatic broadcasting and scheduling or live assist

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