



Broadcast Electronics



AudioVAULT

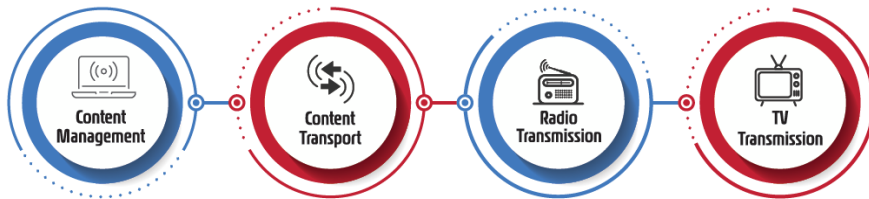
AudioVAULT 11

Enterprise Class Audio Content Management
and Radio Automation

Overview

Broadcast Electronics has an over 65-year legacy of providing innovative technology to enable radio and TV broadcasters to deliver compelling content to their audiences and create revenue-generating business opportunities. Supporting global innovation and next generation content delivery, Broadcast Electronics embodies a customer first approach to the market from the company's headquarters in Quincy, Illinois in the United States.

Customer focused solutions from Broadcast Electronics are built on four technology areas:



AudioVault is BE's award-winning suite of Content Management software enabling live and automated program creation and playout, news solutions and digital logging as well as data management.

The Marti range enables content Transportation, powering audio contribution and distribution for point-to-point (STL) wireless connectivity.

Radio Transmission is the heart of Broadcast Electronics with multiple product lines to support AM and FM transmission. The BE STX line of HD Radio® ready FM transmitters provides superior sonic quality and low operating cost. Elenos ETG/ET analog FM transmitters deliver compact, energy efficiency in a cost-effective package. The BE AM line of transmitters provides for rugged, reliable, energy efficient peace of mind for your AM radio station.

Broadcast Electronics complete line of **low and high-power TV transmitters** are designed around a software defined core exciter that can cover all the global analog and digital TV standards. With solutions covering UHF and VHF frequency bands and options for liquid and air-cooling configurations, BE can craft the right solution to meet your technical, budgetary and operating requirements.

Broadcast Electronics is proud to be part of The Elenos Group, a global technology company dedicated to driving innovation in broadcast technology. The Elenos Group provides market leading solutions for software-based content management, Radio & Television transmission, and scientific applications of radio frequency for advanced physics, biomedicine and aero-spatial development.

The Elenos Group has been providing high-tech solutions for broadcasters under the brands of Broadcast Electronics, Elenos, Itelco and Pro-Television for more than 65 years in over 170 countries. All of our products and services come from a heritage of creativity and innovation unmatched in the industry, in fact the groups



Founder and CEO, Leonardo Busi is hands-on every day developing innovative solutions for customers problems.

The group leverages the technology innovation across all the brands to provide customer focused market leading solutions that enable the cost-effective management and delivery of content for radio and TV broadcasters. The Elenos Group operates across all regions of the globe and is headquartered in Ferrara Italy.

AudioVAULT 11

Rock Solid, Flexible, Simple to Use, Cost Effective

Broadcast Electronics AudioVAULT® 11 is a cutting-edge media management and play-out solution designed to revolutionize the way broadcasters create, manage, and deliver content. AudioVAULT 11 gives you powerful yet simple to use tools that are flexible and scalable with remote accessibility to improve the efficiency of the smallest stand alone station, to large global broadcast networks.

In an increasingly connected world, remote access and operation have become essential. AudioVAULT 11 debuts AVAnywhere to deliver simplified yet powerful remote access. This flexibility empowers broadcasters to voice track, monitor and control their broadcasts from anywhere around the globe, using standard any web browser as an interface, ensuring uninterrupted operation and maximizing efficiency.

Disaster recovery is a key topic for every business today and AudioVAULT 11's powerful CloudVAULT shared storage solution enables broadcasters to securely store, organize and access their media assets with ease. With centralized cloud storage on the Microsoft Azure platform, content creators can efficiently retrieve and manage their audio, enhancing productivity and collaboration within broadcasting teams. Together with its advanced redundancy features, AudioVAULT 11 provides the highest level of reliability available.

AudioVAULT 11 simplifies content creation with seamless integration with Adobe® Audition digital audio editing software. Streamline production with powerful new metadata tools to simply load audio into AudioVAULT directly from Adobe Audition, eliminating tedious data entry.

One of the standout features of AudioVAULT 11 is its advanced scheduling capabilities, allowing broadcasters to efficiently manage complex program and content distribution tasks. This intuitive feature simplifies workflows and ensures seamless broadcasting experiences.

AudioVAULT 11 has seamless integration with all the major traffic and billing systems to make monetization of your content a snap. Our interfacing with all the popular music scheduling systems ensures your programming choices are executed flawlessly.

To experience the power of AudioVAULT 11 firsthand, we invite you to request a personalized demo. Witness how this game-changing solution can transform your operations, drive efficiency, and empower you to stay ahead in the ever changing media landscape.



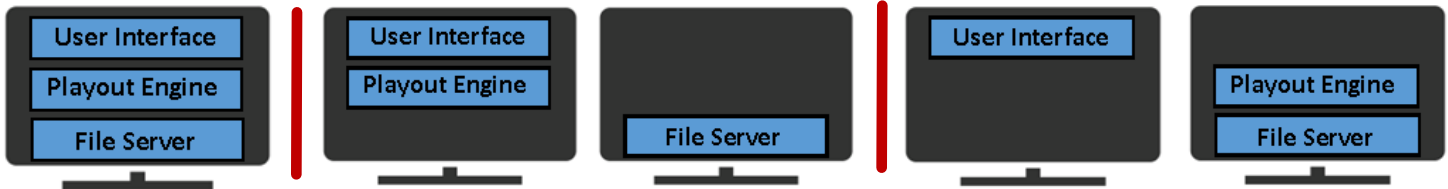
Put these powerful capabilities to work for you

- Enterprise Class Radio Automation controls any part of your Audio Delivery Networks from any place
- Stand alone, centralized, or distributed architecture supports your operational requirements
- AudioVAULT Anywhere schedules and controls your station from any place, anytime via a browser on any device
- CloudVAULT enables disaster recovery, distributes & synchronizes audio assets via the Cloud to all your locations as needed
- Scalability that can be implemented on Virtual Machines
- AudioVAULT has full integration with our Music and Traffic system partners
- Advanced Music Master integration for maximum efficiency
- Multiple UI's per Playout Engine
- Customizable "Gadgetized" UI's
- Each user can have their own UI configuration
- Separate UI and Playout Engine
- Perfect Timing™ Squeeze / Stretch
- Redundant Playout Engines with synchronized SQL Schedule Database
- Seamless backup transfer between Active and Backup Playout engines
- Flexible File Storage options
- Audio File Server redundancy with inaudible Failover
- Intelligent File Synchronization

AudioVAULT11 Operational Architecture

Flexibility to scale from single workstation to a global wide area cloud network

AudioVAULT 11 is scalable, allowing components to be distributed and spread out across many computers. For example, the User Interface can run independently from the Playout Engine and File Server which can be controlled from your console and many other devices via AudioVAULT 11 GPIO support. All AudioVAULT critical utilities can have a backup running on another PC/Server with automatic failover from the primary to the backup.



Single Workstation: all AudioVAULT functions and file storage is available on every AudioVAULT system PC's. Files are synchronized across all workstations using the NFServer utility. Schedules are stored in a SQL database to allow redundancy options. Redundancy is provided by duplicate workstations for example One Air and Production.

User Interface & Playout Engine / Server: the UI interface for either On-Air, Production, or Editing and the Playout Engine is on a studio PC, with file storage on a server in the station master control. Redundancy is provided by User Interface and Playout Engine on a separate workstation or separate studios, and a backup server in the station master control. Schedules are stored in a SQL database and synchronized between servers. Files are synchronized using the NFServer utility.

User Interface / Playout Engine & Server: the UI interface for either On-Air, Production, or Editing is on a studio PC, the playout engines and file storage on a server in the station master control. Multiple UI's can be configured for each playout engine. Redundancy is provided by User Interface on a separate workstation or separate studios, and Playout Engine & files on a backup server in the station master control. Schedules are stored in a SQL database and synchronized between servers. Files are synchronized using the NFServer utility.

All Configurations & Cloud VAULT: As an additional layer of file storage, and back up, Cloud VAULT can be added to any AudioVAULT system. Cloud VAULT is built on Microsoft Azure—Get security, reliability, and sustainability from the ground up—backed by a team of experts, and proactive compliance trusted by enterprises, governments, and startups.

Audio VAULT File Structure: AudioVAULT uses standard MP3 metadata fields and the "Cart Chunk" standard plus a file header with additional user defined categories and classes to give you the power to manage, sort, store, transport and save your content to match your workflow at the click of a mouse.

Cloud VAULT

Share content with centralized connectivity and cloud storage for your group, and protect against natural disasters or cyber attacks. Cloud VAULT provides you the tools you need in today's dynamic media market.

Shared Audio Storage

Connect all your stations with the power of Cloud VAULT. Simplify sharing Production, News, Commercial's and Music content

Disaster Recovery

Automatic backup of your content - Complete database from music to commercials so you are always protected

Simple Restoration

Smart content recovery from the cloud looks for the content on your logs first to ensure critical content gets to air on time.

AudioVAULT 11 Software Modules

Powerful and easy to use modules you can mix and match to customize your workflow

The operation and configuration of a modern radio station software system requires maximum flexibility. AudioVAULT functions are separated into different software modules:

The AudioVAULT UI is a collection of “Gadgets” that are configured based on the workstation purpose. There can be multiple UI’s on a given workstation for multiple purposes. For example, a workstation that is used for On-Air would have a UI configured for On-Air and might also have a UI configured for production that could be used during automated dayparts. The On-Air has specific controls dedicated to On-Air use: Auto/Manual, Auto Segue, Start Next, Fade

The AudioVAULT UI “frame” has “docking areas” where UI gadgets can be located based on the UI use and the user’s needs. UI gadgets can also be “undocked” and “floating” on the Windows desktop.

Gadgets can be organized in “groups” to maximize gadget visibility and usefulness in a UI. For example, if there are multiple Inventory Gadgets defined, a group of Inventory Gadgets can be “docked” in the same slot with easy selection of the desired Inventory subset.

The top border of the UI is user configurable to display important station information, such as time of day, day of week, time left in current event, time left in break or sweep, intro time, and over/under hour timer.

If desired, a different UI configuration can be created for each user. Selection of the UI would be determined based on the logged in Windows user. Further UI customization is available: Layouts, Skins, Widgets

AudioVAULT UI Gadgets: Any gadget can be added to any UI. Most common uses are suggested in (>):

Schedule Gadget (On-Air, VTK)

The Schedule Gadget shows all elements that are scheduled to play. The operator can preview, move, add, or delete elements. If the station uses a Music Master scheduling system with AudioVAULT integration, any additions can be chosen from a list of Music Master “suggestions”.

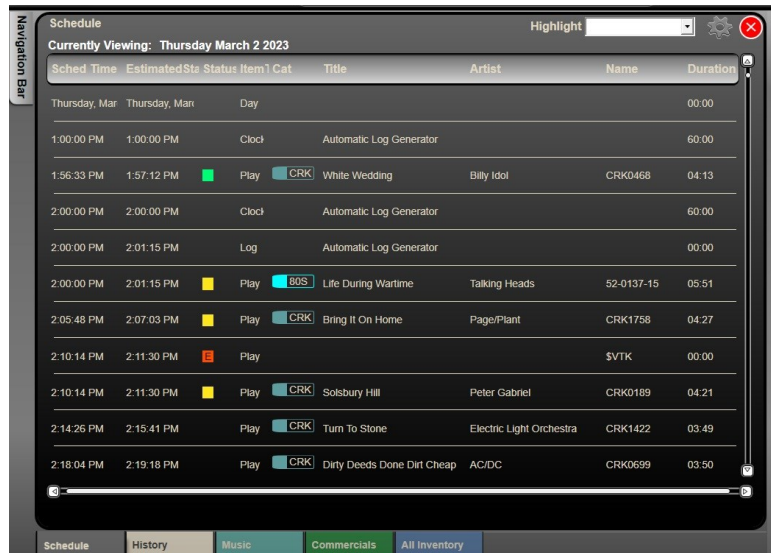
The Schedule Gadget has two display modes: Nested, where elements are grouped by day, hour, and segment.

Flat, where all elements are shown ungrouped with a separation for days.

Quick Start Gadgets can be configured for single or multi-fader payout.

Multiple Quick Start Palettes can be configured.

Each Quick Start button shows the asset name. If it is playing, a countdown timer shows time to end of audio.



AudioVAULT 11 Software Modules

Engine (Deck) Gadget (On-Air)

The Engine Gadget “Decks” show the current playing element, and the elements from the Schedule Gadget that will play next. The number of “Decks” is configurable. Each deck has controls: Start, Stop/fade, Pause, Preview, Hook, Loop

Decks have visual indication, of their status whether playing, paused, preview active, or stopped.

Decks can be grouped in an auto-segued “stack” feeding a single fader for automation, be individual feeding separate faders for manual operation. The Engine Gadget can also be configured with a combination of an auto-segued deck “stack” and standalone decks.

The metadata information displayed in each deck is customizable.

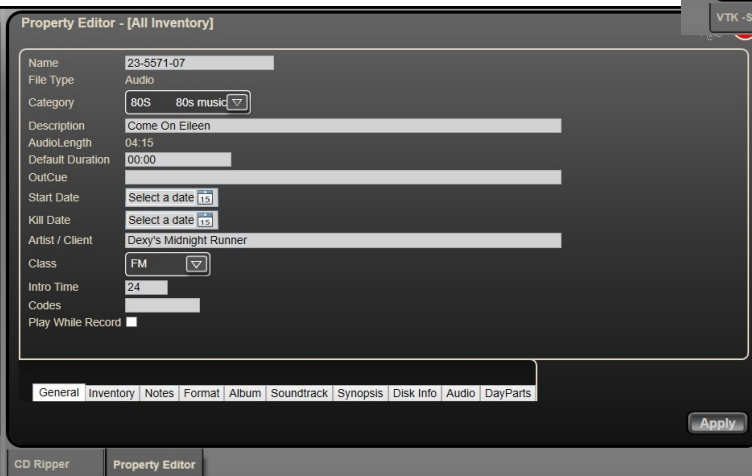
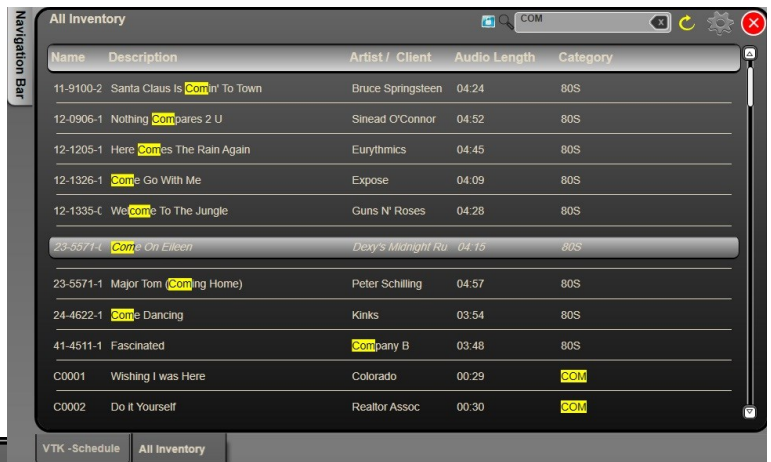
Inventory (Asset Management) Gadget: (On-Air, Editor, Production)

The Inventory Gadget is used to display, access, and manage audio assets stored in the AudioVAULT system. The metadata items displayed for each asset can be selected from any available metadata field. Examples: Cut number, Artist, Title, Length, AudioVAULT category, Etc.

There can be multiple Inventory Gadgets, each managing a different AudioVAULT Category or Categories. A given Inventory Gadget can show ALL AudioVAULT Categories, an Individual Category, or any Combination of Categories.

Any asset displayed on an Inventory Gadget can be previewed, as well as dragged into a Schedule or Engine gadget for playback.

Asset search bar can be configured to use any or all asset Metadata fields.



Property Editor Gadget (Production)

The Property Editor Gadget provides a simple and intuitive interface for management of audio asset metadata.

CD Ripper Gadget (Production)

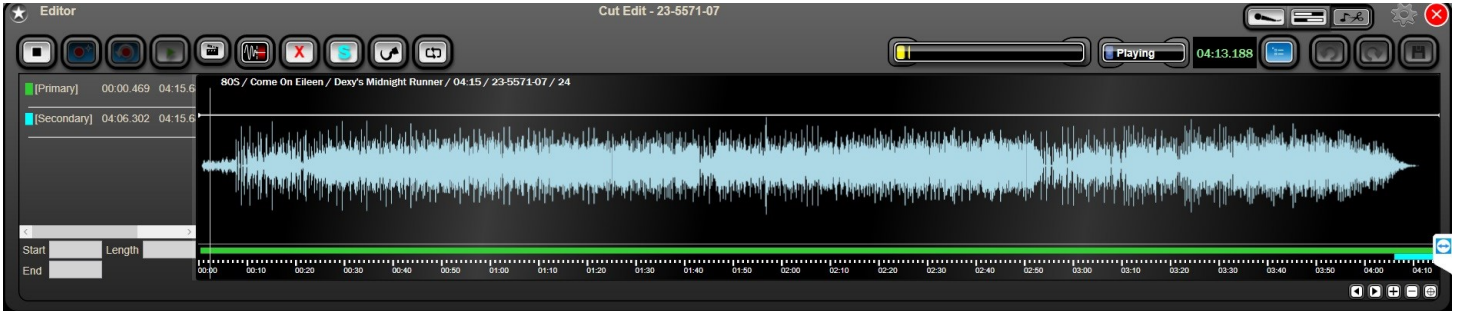
The CD Ripper gadget allows the production staff to easily rip CD tracks into AudioVAULT and assign categories, classes, and other metadata

AudioVAULT 11 Software Modules

Editor Gadget (VTK, Production)

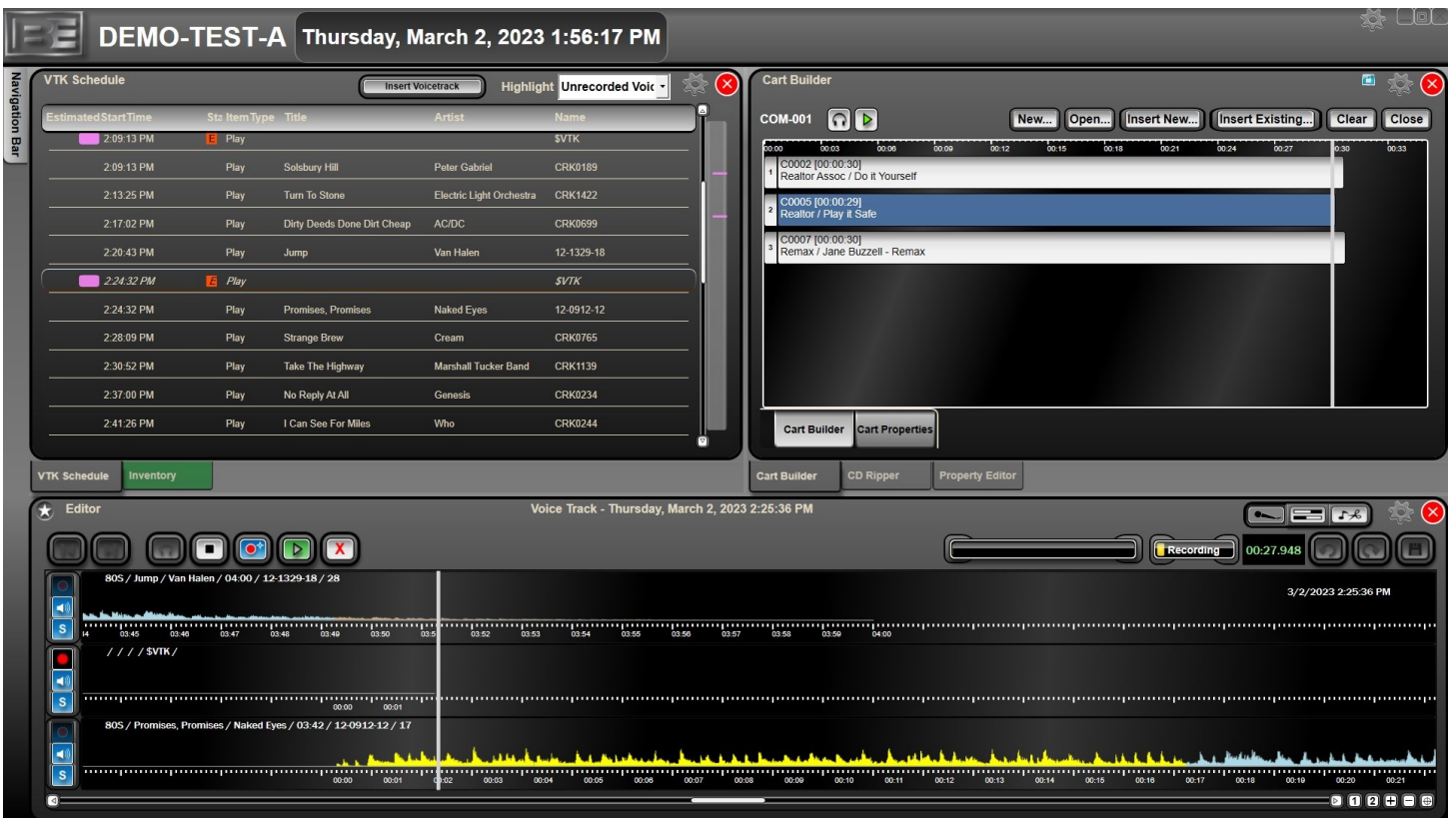
The Editor Gadget functions in 3 modes:

Basic 2 channel audio editor.



Segue Editor, in conjunction with a Schedule Gadget, allowing adjustment of the segue between 2 cuts.

Voice Tracker, in conjunction with a Schedule Gadget, allowing the creation of pre-recorded Voice Tracks for use in automated segments



Cart Builder (Production)

AudioVAULT supports a digital version of the traditional broadcast “cart” where multiple audio assets are loaded into a single “container” for playback. The Cart Builder Gadget allows the production operator to create the “cart”.

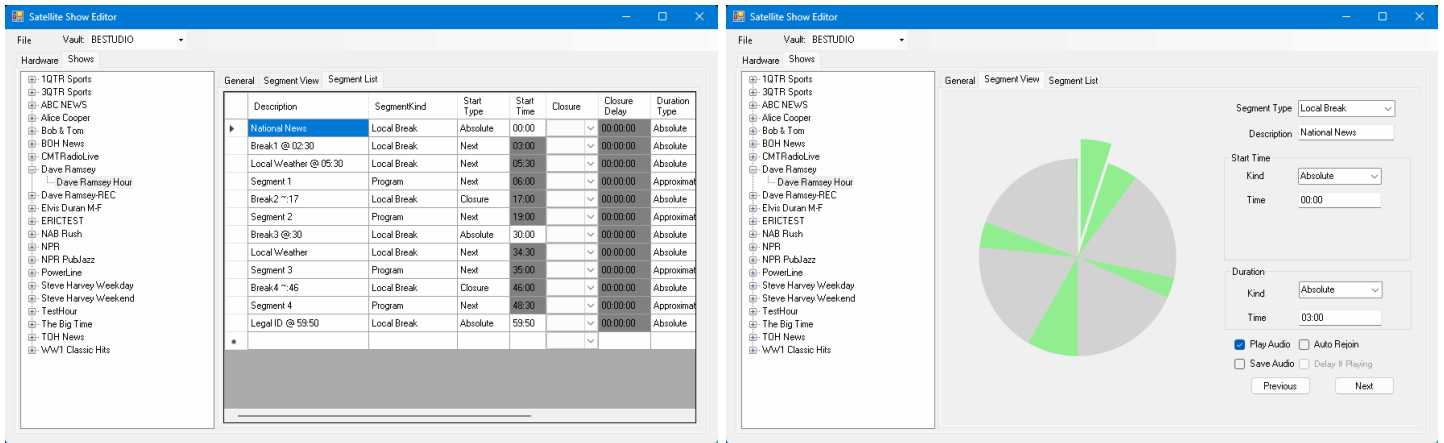
Assets can be manually loaded to the cart by asset name/number, or dragged to the “cart” from an Inventory Gadget.

AudioVAULT 11 Software Modules

Satellite Gadget (On-Air) allows display and monitoring of the status of Satellite or Internet distributed Network Programming, it also allows display and monitoring of the status of scheduled audio recordings from Satellite or other audio sources.

The **Satellite Show Editor** allows configuration of Satellite shows and Audio recording. It includes sections for defining satellite receivers, their related GPIO configuration, and the “mapping” of GPIO’s from/to automation functions.

AudioVAULT Perfect Timing™ uses audio squeeze and stretch, combined with auto-fill and autodrop to make sure hours or segments end on time. No more playing :29’s and :59’s! Plus, if you use MusicMaster™, auto-fill songs will be chosen in real-time by MusicMaster™, so they will always follow your programming rules and keep you sounding great!



WFUV picks AudioVAULT® 11 to power New York’s Source For Music Discovery



WFUV worked with BE to upgrade their audio media management system to AudioVAULT 11. WFUV has the distinction of being the highest rated Alternative music station in the Number 1 market in the United States.

“WFUV, the noncommercial, listener-supported public media service of Fordham University has the unique mandate to champion music discovery and foster an appreciation of our diverse musical heritage but also to train the university’s next generation of multimedia professionals through educational programs and practical experience,” said George Evans, Director of Technical Operations at WFUV. “We value our long-term relationship with BE and count on AudioVAULT to deliver our unique blend of programming to the number 1 market and prepare our student journalists for the evolving media landscape.”



AudioVAULT 11 Software Modules

Utilities help you manage your content

The **AudioVAULT Engine Server** module handles all playout and automation functions. The Engine Module can run as a Windows Service, allowing a given workstation to be “locked” from user access, or, for combined UI and Playout workstations, for a user to log in/out to load their individual UI.

AVAirSync and AVHarmony utilities handle ingest and synchronization of schedules between different AudioVAULT Engine Servers when the AudioVAULT system is configured to use redundant synchronized playout engines.

NFServer: AudioVAULT provides a rock-solid, reliable file transfer and synchronization utility named NFServer. NFServer continually monitors each file storage location (known as “VAULTS”) for file addition, deletion, and metadata or audio changes. The VAULT or VAULTs that NFServer copies to and from is determined by the AudioVAULT Class assigned to the asset. VAULTS can be located: Local LAN, WAN, Cloud

AVImport manages asset ingest into the AudioVAULT System. AudioVAULT file name, Category, and Class can be automatically assigned at ingest based on predetermined rules. Different types of ingest include: Files dropped into local folder, Downloads from FTP and/or SFTP, HTTP Downloads if a direct download link is available.

AVTime is the AudioVAULT utility that handles time synchronization across an AudioVAULT location. One instance is defined as the “Master”. The Master is configured to get it’s time setting from an NTP source (or sources) and distribute the time setting to other workstations running in “Slave” mode. Backup AVTime utilities can also be configured in case the “Master” workstation is disabled.

AVWatchDog is a monitoring and startup application. It can be used to launch all the applications on an AudioVAULT computer, including non-AudioVAULT apps, and then monitor them, looking for application failure. Its capabilities include restarting failed applications, notification to the user of the failure or restart.

AVMaint is the AudioVAULT utility that allows engineering staff access to different configuration settings in an AudioVAULT System. Setting examples: System Settings, Category Management, AVWatchDog, AVTime, Hardware Configuration, Audio Level Control, GPIO Testing, Security, Password Management, Create/Edit Users, Playout and UI Configuration, Change User Password, Out of Date asset handling, Create/Edit Stations, Select UI “Frame” buttons, Configure UI Layouts



AFN deploys AudioVAULT 11

The American Forces Network has deployed AudioVAULT 11 for all their audio content management and delivery across the globe. AFN operates 11 fulltime global networks distributing content to nearly 200 radio stations and the AFN Go streaming platform. Content includes global network programming with music formats, sports, news and talk content as well as localized programming in each of the regions of the world served. AudioVAULT 11 is used for all network and local content playout. AFN’s AudioVAULT 11 uses seamless integration with Music Master for scheduling, and AFN has the worlds largest CloudVAULT to store and share content around the world using Microsoft Azure platform for rock solid disaster recovery.



Connected Ecosystem of Powerful Partners

Seamless Integrations Give You the Tools to Efficiently Create Compelling Content

AudioVAULT 11 delivers simple to use yet powerful integrations with all the leading Traffic, Billing, Music and Program scheduling software ranging from the simplest stand alone application to cloud based wide-area solutions. The AudioVAULT 11 scheduling integration enables log editing, playlist delivery, real-time reconciliation, and auto run-date sync to streamline your workflow to get from creation to playout to billing rapidly.



MusicMaster
SCHEDULING

AudioVAULT 11's real time integration with Nexus API, provides access to MusicMaster's database and scheduling intelligence. With real-time communication between systems, you can save time, reduce error and open up new functionality in each system.

- **Library Exchange:** When you enter new music or update songs in either MusicMaster or AudioVault 11, those changes are instantly reflected in the other system. This saves time, reduces error, and keeps your systems updated and in perfect sync.
- **Instant Schedule Changes & Smart Song Replacement:** Quickly respond to breaking artist news by updating your log on the fly. You can push any changes you make to the schedule directly to the AudioVAULT 11 even if the log is already airing. Search the MusicMaster library right from AudioVAULT 11. See which songs are ideal candidates based on your history and rules. AudioVAULT 11's exclusive Perfect-Timing™ feature can automatically use the suggested song, and adjust the timing to keep you on track with no user intervention.
- **Automatic Reconciliation:** Any changes made to your scheduled log in the studio can be instantly reconciled back to MusicMaster, so you are always working with the most up-to-date airplay history



POWERFUL TECHNOLOGY FOR RADIO NEWS PROFESSIONALS

NewsBoss is powerful user friendly software designed for broadcast professionals by broadcast professionals. It is the fastest and easiest to use radio news system available and also the most flexible and configurable. NewsBoss is the heartbeat of many great newsrooms worldwide, from single user sites to integrated national networks with hundreds of staff.

AudioVAULT 11 features a real time integration with proven workflows to increase your efficiency and simplify News creation. Seamlessly move audio content between systems and across locations to leverage your news assets and content wherever it might be.

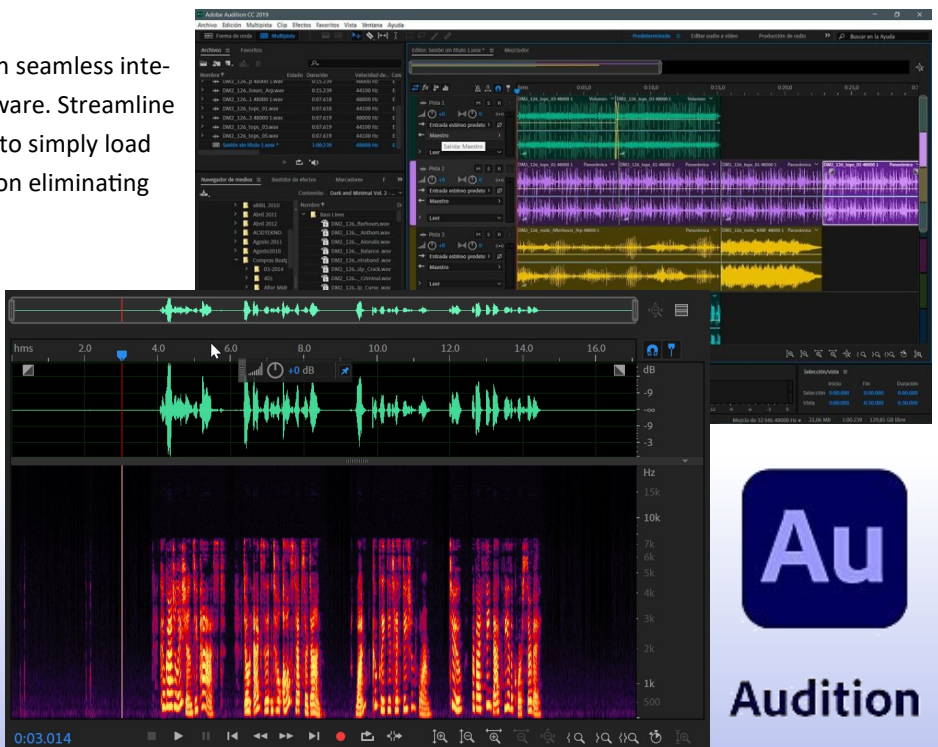


Audition is a comprehensive toolset that includes multitrack, waveform, and spectral display for creating, mixing, editing, and restoring audio content. This powerful audio workstation is designed to accelerate production workflows and audio finishing — and deliver a polished mix with pristine

sound.

AudioVAULT 11 simplifies content creation with seamless integration with Audition digital audio editing software. Streamline production with powerful new metadata tools to simply load audio into AudioVAULT 11 directly from Audition eliminating tedious data entry.

Previously, audio editors would have had to export a limited audio file to a shared folder on the storage platform and then import it into AudioVAULT 11. Important details such as metadata were lost in the transaction. With the new streamlined integration all the AudioVAULT 11 metadata fields are integrated inside Audition, you never leave the program. Streamline operations, making the most of your valuable time, and simplifying your workflow.



Audio I/O

Flexible solutions to meet your needs today and tomorrow

AudioVAULT 11 gives you the maximum flexibility in audio configurations offering a wide range of configurations to blend perfectly into your facility. Industry leading computer sound cards from Audio Science and Digigram give you the rock solid performance you have come to expect with version starting with a single stereo I/O ranging up to multiple simultaneous independent audio channels on a single card.



The latest generation stereo sound cards are designed for the most demanding professional audio applications, recognized as an industry standard and are used in thousands of radio, studio and installed audio locations around the world. Available with analog and digital audio connectivity and an on-board mixer that allows for the routing and mixing inputs to the outputs. Use them anywhere you need high channel, high quality input and output for AudioVAULT.

Ideal for smaller control rooms, voice tracked stations and production or news studios, the Angry Audio® USB Analog Audio Gizmo is a cost effective stereo I/O that connects directly to your PC for the simplest, most reliable, best sounding device available for getting analog +4dBu audio in and out of a computer. Available in either Analog or AES configurations featuring premium components to deliver years of flawless 24/7 operation.



ANGRYAUDIO



If your system requires audio switching for background recording, or the input selection of multiple satellite channels, AudioVAULT 11 supports a wide range of solutions, including

the ultra reliable and cost effective Broadcast Tools switchers in analog and AES digital versions.

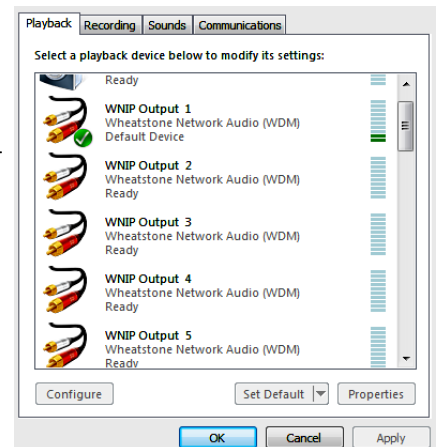
Modern AOIP is a networking system that utilizes Internet Protocol to enable audio to be W H E A T N E T intelligently distributed to devices across scalable networks. It enables all audio sources to be available to all devices (such as mixing consoles, control surfaces, software controllers, automation devices, etc) and controlled from any and all devices. Harnessing the power and flexibility of IP networking AudioVAULT 11 supports seamless integration to your AOIP network with no sound cards, external logic connections or added routers.



AudioVAULT 11 fully supports protocols for AES67, Dante, Livewire, Ravenna and Wheatnet, imagine fully integrated audio automation and routing eliminating the cost and complexity of audio cards.



The various AOIP drivers appear as a standard ASIO or WDM Sound device on Windows with no additional hardware or software. Many AOIP drivers support up to 64 simultaneous playback and record audio channels — PC performance dependent. AOIP drivers, especially Dante, enable the use of low cost audio interfaces instead of costly sound cards even if you have a convention analog or AES studio facility—often times less than half the cost. These range from simple inline dongles to professional rack mount devices. These options can significantly reduce your costs with AudioVAULT 11.



Specifications

System Requirements		Required Minimum Specification for Workstation and Server type Computers
Supported Processors	Intel Processors with a Benchmark of 5000 and higher are the only processors compatible with AudioVAULT 11. AMD Processors are NOT compatible. http://www.cpubenchmark.net/	
Workstation Operating System	Windows 10 Professional 64-bit - Windows 7 and earlier OS versions are NOT supported	
Server Operating System	Windows Server: Server 2012 R2 Standard, Server 2016 Standard	
Memory	16 GB of RAM for 64-bit Operating System	
Workstation Video card	Onboard Video if CPU supports Intel HD Graphics 4000 or higher Video card with 1 GB of RAM (if processor does not meet above spec)	
Monitor size and resolution	22" monitor widescreen with resolution capable of 1920x1080 24" monitor widescreen with resolution capable of 1920x1200	
Hard Drives	Operating System: 256 GB minimum Audio Storage drive(s) based on library size. BE recommends the use of SSD driver for Windows OS	
Network	BE recommends the use of network devices running at 1 Gbps.	
Virtualization	Virtual Computer operation supported using VMWare or HyperV	

A faster CPU and more RAM (recommended when applicable) will increase the performance of your system. Audio Storage requirements should be planned ahead for adequate inventory space.

Service and Support

We know that having the right support behind a product is every bit as important as the features and capabilities it delivers. At Broadcast Electronics we are committed to provide you with not only great products and software, but a dedicated team of service experts to help you keep your station running smoothly for years to come.

Training

Broadcast Electronics has long provided training programs for our products to educate and prepare users to operate and maintain them in the most effective possible manner.



AudioVAULT University enables you to fully leverage the capabilities of your AudioVAULT system while increasing readiness for emerging technologies. We empower teams to enhance their technical and professional skill sets while increasing productivity and efficiency.

- Online web based sessions
- In House, On-site and remote hands-on training sessions
- 1-day to 5-day customizable courses

Training features a mix of instruction with hands-on operation and troubleshooting. Training programs can be crafted to meet your local needs. Many of our programs can provide SBE ongoing educational credits.

Warranty

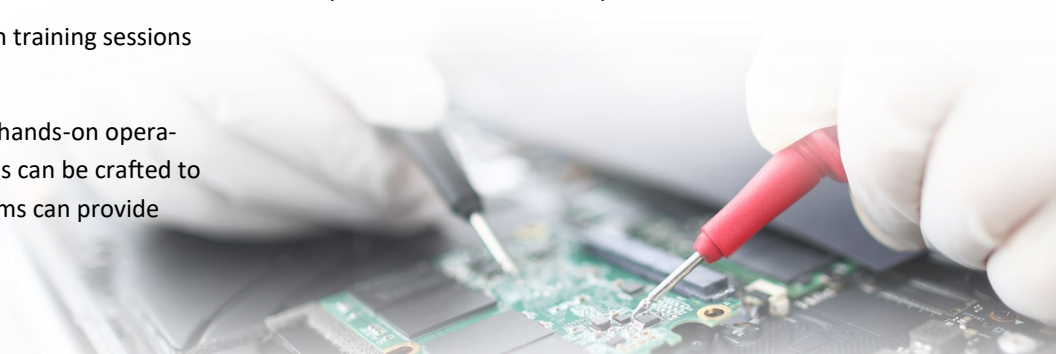
You can rest assured that Broadcast Electronics stands behind its products and services to provide complete satisfaction. Our products offer a standard set of warranty services that exceed others in the industry.

Repair Service

As a leader in providing innovative products and solutions to broadcasters around the globe, Broadcast Electronics understands the needs for long life and years of trouble-free service. You can feel secure that if disaster strikes and your products need service, we offer complete repair and refurbishment service to get you back on the air delivering your high-quality programming quickly.

On-Site Service and Installation

Regardless if you simply need some additional help troubleshooting an existing transmitter or Audio Vault system, or a complete installation of a new one, let the global service team at Broadcast Electronics help you get things up and going quickly. If you just need commissioning, on site set up and test, or an extra pair of hands, we can help with that too.





Broadcast Electronics

Telephone (217) 224-9600
4100 North 24th Street
Quincy, Illinois 62305-3606 U.S.A.
www.bdcast.com

 **elenos group**
DEDICATED RELIABLE CREATIVE

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