playout in a box

Self-contained channel in a box for all channel types

Pebble's powerful and compact playout in a box solution leverages our best-of-breed automation and integrated channel technology to deliver a HD ingest and playout solution, with comprehensive redundancy options for systems up to 4 channels.

In addition to hosting your simple clip-based channels, our Playout in a Box is also capable of handling more complex, reactive channels which regularly feature late-breaking changes. Its exceptionally intuitive user interface, coupled with powerful graphics and DVE functionality, combine to deliver a 'best of breed' solution at an affordable price.
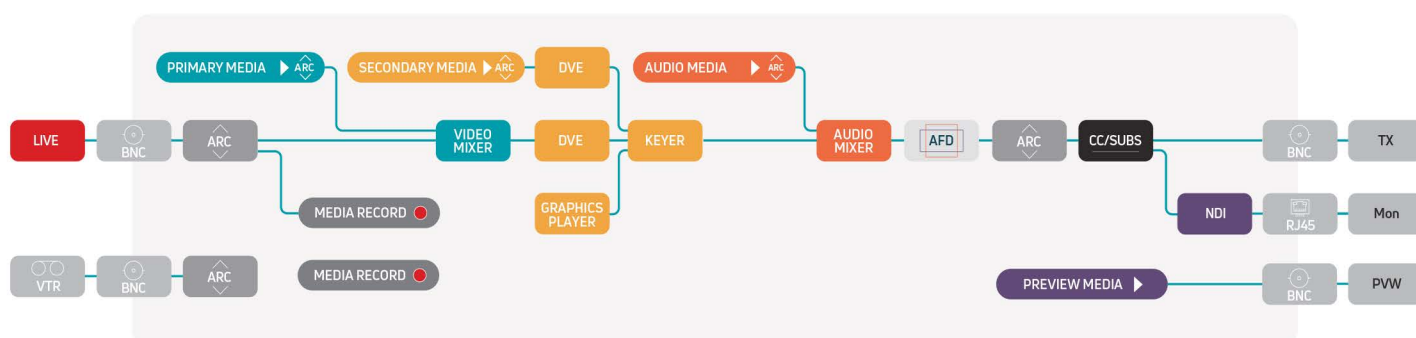
pebble

The rich **Playout in a Box** feature set incorporates encode and decode, up and down conversion, graphics, DVE, ARC, subtitling, voice-over and optional Dolby® encode and decode. For ingest, file format and compression ratios can be selected on a per job basis, and clips can be trimmed and segmented even while the ingest is in progress. Operators are able to view playout and ingest processes using an IP monitoring window directly within the UI. Each solution is scaled to meet your specific needs in consultation with our expert team of engineers. It is then delivered as a pre-built and pre-tested unit for quick on-site integration and one-stop support access. With fewer points of failure, simpler maintenance, and lower energy costs, it adds true playout in a box functionality to the Pebble family of automation and integrated channel solutions.

Each **Playout in a Box** solution is delivered as a pre-built and pre-tested solution for quick on-site integration. The hardware implementation offers fewer points of failure, simpler maintenance, and lower energy costs than larger and more complex on-site configurations.

Playout in a Box Offers:

- Scalable up to 4 channels on two 2U rack servers with options for redundancy
- Comprehensive ingest functionality with file format and compression selectable on a per job basis
- SD/HD (upto 1080i) SDI solution with multiformat playback and mixed formats on the same timeline
- Comprehensive User Rights options to safeguard the integrity of each channel's playout
- Fully featured traffic interface for schedule import and AsRun export
- Offline playlist editing
- 4TB of usable storage capacity per server (RAID protected and expandable)
- SDI and NDI Program Output and SDI live input feed
- SDI input for video ingest and SDI output for video preview

Complex Channel Delivery

With live inputs included the Pebble **Playout in a Box** also supports FXP or FTP transfer with automatic caching of primary and secondary media from nearline storage.
Able to handle complex events incorporating a live feed, secondary media, dual DVEs and multiple graphics layers, it can deliver even your most complex channels to air.

Compact and Cost-Effective

Delivering best of breed functionality at a realistic price, making it ideal for single site operations where the integrity and quality of your output is key.

Reliable and proven

Deploying the technology which underpins Pebble's powerful **Automation** and robust **Integrated Channel** platforms, it delivers high performance playout in a box capability with an exceptionally comprehensive control user experience.

Versatile and Responsive

Ideal for the deployment of a wide range of channel types, including more complex dynamic channels which incorporate extensive live content and frequent schedule changes.

Scalable and Efficient

With a straightforward upgrade path from 1 to 4 channels, the system can grow as your channel counts increase and multiple channels can be controlled from a single operator position.

Resilient

Pebble has a strong reputation for delivering robust solutions. Our playout in a box offers redundant configurations hosted on a separate server to safeguard the delivery of your channels.

Operational Flexibility

The operator interface delivers sophisticated and intuitive multi-channel control and monitoring from a single operator position. It offers clear visibility of operations for efficient channel management, along with direct desktop view of channel playout.

Configurations:

Playout in a Box is available in 4 different configurations, each of which can be supplied with full redundancy. Every configuration is supplied with one client licence, additional clients can be ordered separately. Each configuration features an SQL media database, a generic XML-based traffic interface and AsRun reporting, centralised serial, or GPI control if appropriate, system logging and other essential functions. **Playout in a Box** offers configurable user accounts to manage system access and privileges. System configuration, diagnostic checks and modifications are handled by an engineering user which has access to each channel in the system.

	1	1R	2	2R	3	3R	4	4R
	1 Pipeline Non-Redundant	Fully Redundant 1	2 Pipelines Non-Redundant	Fully Redundant 2	3 Pipelines Non-Redundant	Fully Redundant 3	4 Pipelines Non-Redundant	Fully Redundant 4
Servers	1	2	1	2	2	3	2	4
Dub Panels	1			2		3		4
Live Panels	1			2		3		4
Playlists	1			2		3		4
Prep Lists	1			1		1		1
Client Licences	1			1		1		1

Intelligent Playlist Manipulation and Powerful Graphics

Playlist Management

The playlist provides full flexibility of editing whilst on air, with edits possible even on the next clip to be aired. The playlist can handle:

- Multiple event types including live, clips, graphics (such as animated logo, ticker, now next later), subtitles, DVE, Active Format Description (AFD) and voiceovers
- Multiple classifications such as commercials, promos, live and news
- Different event starts and end types that can be timed, manual or sequential
- Overrunning or underrunning events, Playlist interrupt, e.g., announcing breaking news (optional)
- Multi-channel timeline view

User Interface and Control

Thanks to **Playout in a Box's** customisable look and feel, users can specify how their screen layout looks and reload their preferences when they log on. Changes to the list can be made on the fly and close to air, where drag and drop functionality makes the system intuitive and simple to use.

Comprehensive user rights management tools give unprecedented control over access and privileges to different areas of the system.

User Interface and Control
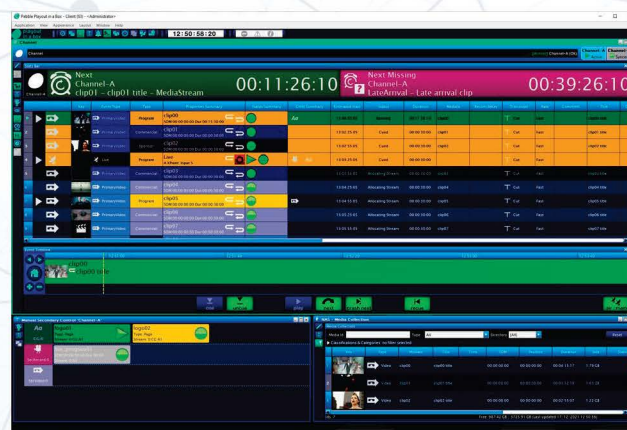
Workflows

Playout in a Box workflow capabilities set a new standard delivering:

· The ability to load, insert or append schedules to a preparation playlist or a running transmission playlist. In addition to the native Pebble XML format, it supports a variety of schedule formats including Neptune XML, Imagine ADC (.lst), Omnibus (.ocs). A separate user-configurable translation application can also be provided, that will convert Excel and txt files into Neptune XML playlist format files. This translator can be run on the Client or another customer-supplied device:

· Where no traffic system is used, the ability to use an offline prep list to create on air schedules provides a view of all available clips, both in transmission and nearline storage systems

· Detailed reporting via AsRun statistics, including logging of user activity

· Support for the automatic capture of live events via secondary record for replay at a future time

Validation

All primary, secondary, and tertiary events in the playlist are automatically and continuously checked for availability and timing anomalies. QC status and classification of events are also checked to guard against unverified or inappropriate materials being broadcast.

Full Audio Track and Multilingual Management

Multiple audio tracks are managed in association with a single stream of video, dynamically selecting the appropriate audio tracks on a per event basis to deliver multilingual services, audio description, audio according to target audience requirements, or audio mixing during voiceovers.
Multi-channel audio (e.g., Dolby Digital) can be managed in line with the channel processing capabilities.

Playout in a Box delivers a host of tools to safeguard the smooth playout of all channel types:

• **Summary Cell** – concise at-a-glance display of device and media status

• **Media Validation** – visibility of upstream media validation data ensuring all elements are ready to play

• **Conditional Playout** – context-based playout rules. All playlists are linked with the database and immediate changes can be applied if media is embargoed

• **Join in Progress** – enables the schedule to be re-joined after an overrunning live event.

pebble

Keyers

The pipeline can be configured with up to 3 Keyers enabling outputs to multiple platforms, each with unique branding. For example, both an SD simulcast, and a streaming web service could be output from the pipeline, each with different graphics. Each keyer has 10 input layers which can be fed video and key from any of the Alpha Router sources. Sources include Pebble Integrated Channel graphics players, 2D DVE's, optional 3D graphics, external graphics devices and the timeline video sources from the main router.

2D Graphics

Depending on complexity and the host server capabilities, each **Playout in a Box** Channel pipeline supports up to 10 graphics players that are controlled by secondary playlist events, or manually from the Pebble Automation Smart Panel. Static graphic formats include TGA, GIF, JPEG, PNG, SVG and SWF. Animated graphics are supported through sequential TGA and GIF or SWF (Adobe) files, and graphics can be sized and positioned from within the playlist. Graphics are created using Adobe Animate CC and can be designed to receive dynamic textual data from the playlist. The data can be included in the traffic schedule or manually entered by the automation operator. Data for text crawls can be supplied from XML or RSS feeds.

Adobe graphics can also control **Playout in a Box** Channel DVEs. This provides a powerful method for coordinating graphics and DVE effects from a single secondary event.

2D DVE

Digital Video Effects are used to resize and position video on the screen. Two 2D box DVEs are available for squeeze back and picture in picture.

These can be controlled by playlist secondary events or from an Adobe graphic.

Audio Shufflers

The Audio Shufflers are controlled by automation and can change the arrangement of the audio tracks. The track shuffle for each event can be scheduled or edited manually from the playlist.

It can also provide audio substitution for different audio content, e.g., If you have pre encoded Dolby E content you can pass this through and fall back to a locally encoded Dolby E source when native content is not present.

Subtitle/Closed Caption Inserter

This provides Closed Captions and Subtitle support where multiple inserters can be configured for each pipeline. Each inserter will be driven from a separate subtitle/caption file stored on a storage location, making it possible to output multiple subtitle or closed caption languages.

Supported Subtitle features include:

· Multi-language support with validation
· WST and OP47 subtitle insertion into configurable VBI lines and teletext pages
· Inserts open subtitles into video
· Line 21, CEA-608 and CEA-708 closed caption insertion
· Supported file formats include EBU .stl, .pac, .chk, .890, .scr, .scc, .xml (tt)
· DVB Bitmap

Dolby Audio Encoding and Decoding

It's possible to perform Dolby E and Dolby Digital Plus encoding using dedicated processors to encode audio as required to be delivered over SDI outputs. Dolby E can also be decoded from file or live input, with Dolby Digital Plus decoding possible from live inputs.

pebble

Video Player

The Video Player can decode and play back video from any of the supported SD, HD codecs. Each pipeline can support up to 5 video players depending on the hardware chosen to support the software.

Video player features include:
· Seamless back-to-back HD and SD video clips playback
· Plays clips of single frame duration
· Plays clips whilst the file is transferring.

Note:
· Representative files should be supplied to Pebble for testing
· Supports MOV QuickTime self-contained or reference files
· Up to 32 audio channels/tracks of stored audio per ID
· Up to 16 audio output channels depending on wrapper & codec
· Audio sample size can be 16- and 24-bit PCM @ 48KHz depending on codec.

Video Recorder

The channel pipeline can be configured with Video Recorders which are controlled by Pebble Automation ingest operations.

These include dubbing, scheduled recording or crash record. The Video Recorder can also be controlled by secondary record events and used for clean recording of live programs.

Key features include:
· Encoding profiles, allowing Pebble Automation users to easily change formats and codecs
· Exporting of clips as they are being recoded
· Inbuilt low-resolution proxy browse transcoding
· Key frame generation.

Flexible Router

Each Channel pipeline has an internal video/audio router. The pipeline editor connects logical devices and routes video to external inputs and outputs. The router supports v-fade, cut-fade, fade-cut, and mix. A second Alpha Router connects video and key sources to the keyers. Router tie lines are available for passing video from the main router to the alpha router.

The table below lists some of the wide range of supported file wrappers and codecs for playback:

STANDARD	CODECS	WRAPPERS
SD	DVCPRO25, DVCPRO50 & DVCAM DV IMX 30, 40, 50	MOV, MXFOPAtom, MXFOP1a, GXF, LXF MOV, GXF, LXF MXFOP1a MOV, MXFOP1a, GXF, MPG
HD	XDCAM HD, XDCAM EX, XDCAM 422 DVCPRO HD AVC-Intra DNxHD XAVC ProRes	MXFOP1a MOV, MXFOP1a, MXFOPAtom, GXF, LXF MXFOP1a, LXF MOV, MXFOP1a, MXFOPAtom MXF MOV

Video Conformer

The configurable Video Conformer mode provides Aspect Ratio and Up/Down conversion. Operations can be applied to both live and clip-based video. The video conformer will up or down convert video if the resolution of the input video does not match that configured for its output. For example, the Aspect Ratio Convertor included with the Video Player ensures that the output video resolution will always match that of the channel. Additional conformers can be positioned anywhere in the pipeline – for example to generate down-converted video for a simulcast output.

The Video Conformer is configurable for each received Active Format Descriptor (AFD) code and will aspect ratio convert video depending upon the AFD code present on its input video. This code, once inserted into the Conformer output video, will change with aspect ratio conversion. If the video into the conformer does not have an AFD value, Pebble will apply a default AFD and ARC. **Pebble Playout in a Box** complies with SMPTE-2016.

AFD Inserter

This overwrites the AFD data on incoming video with a value from the Automation playlist, otherwise AFD will pass through unchanged. When positioned upstream of the Conformer, the AFD values in the playlist can change the aspect ratio of the output video.

The table below lists some of the wide range of supported file wrappers and codecs for encoding:

STANDARD	CODECS	WRAPPERS
SD	DVCPRO25, DVCPRO50, DVCAM DV IMX 30, 40, 50	MOV, MXFOP1a, MXFOPAtom MOV MXFOP1a
HD	XDCAM HD, XDCAM EX, XDCAM 422 DVCPRO HD AVC-Intra DNxHD H264/AVC (proxy) XAVC ProRes	MXFOP1a MOV, MXFOP1a, MXFOPAtom MXFOP1a, MXFOPAtom MXFOP1a, MXFOPAtom MP4, MOV MXF MOV

pebble

User Rights Management

Playout in a Box is delivered with a pre-set user account configuration, designed to separate Engineering, Operator and View Only privileges. These are simple to reconfigure, and include:

· The control of encoders and decoders
· The ability to access and transfer media to and from near line storage
· Control and editing privileges for the playlist
· Customisation of the user interface.

Options

· Additional Client Licences (1 supplied as standard)
· Hardware Control Panel
· High Resolution Media Player
· Additional Storage
· Dolby E® encoding and decoding
· Scheduled Record
· Redundancy.

Physical

· 2U 19" rack mount form factor
· Offers 4TB of usable storage, can be optionally expanded to 8TB
· Dual redundant 900W auto ranging hot swappable power supplies: 110 - 240V AC
· Customers can supply their own client machines if preferred. These should meet the following minimum specification:
  - Intel i7 Multi Core Processor
  - 16GB DDR3 RAM - 250GB HDD space
  - Gb Ethernet
  - Windows7 – 64-bit OS
  - Must use a graphics card with dedicated memory
  - Card should be dual-headed where possible.

Purchasing Info

Each customer is issued with a configuration form, enabling the system to be pre-configured with appropriate user privileges prior to delivery. Test video and graphics files are also requested to enable pre-loading and testing.

pebble

Unit 1, First Quarter, Blenheim Road
Epsom, KT19 9QN United Kingdom
Tel: +44 1932 333 790 | Email: info@pebble.tv

www.pebble.tv

Dolby Audio