

Audio Tools

by

Two tools are used in ImAc to support an object-based audio (OBA) production workflow. The OBA editor Eddie for creating OBA scenes and the cloud renderer which merges audio productions with Audio Description (AD) objects and renders them into various output formats.

Main features

Eddie

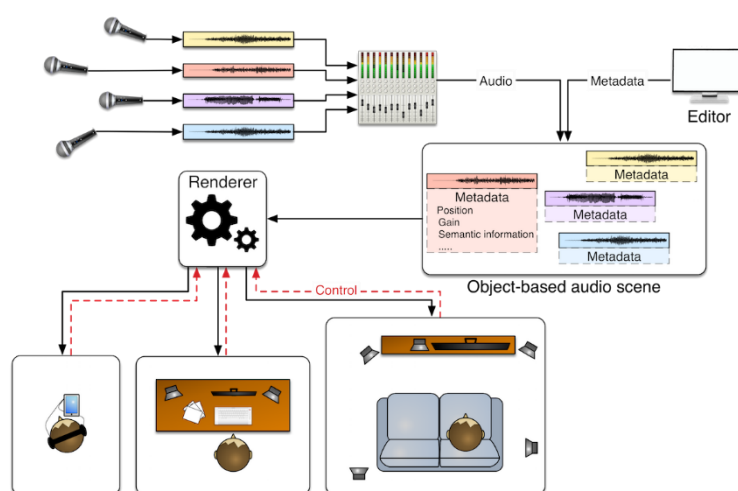
- Create and author OBA scenes
- Modify metadata of any audio object separately, like for instance 3D position or gain of an AD track
- Synchronization with digital audio workstation (DAW) via MTC (Midi Time Code) or MMC (Midi Machine Control)
- Graphical user interface with live preview of the 3D scene
- Export scene as Audio Definition Model (ADM) file
- Control external renderer instances via TCP/IP

Cloud Renderer

- On-demand cloud service with specific AD features
- Adds AD objects to channel-based or object-based audio productions
- Dips the main audio when AD is active – the level of dipping can be controlled via the API
- Automatically creates a range of mixing variations for personalized AD volume in the mix
- Renders into various channel-based output formats; currently stereo, binaural audio and First Order Ambisonics are supported.

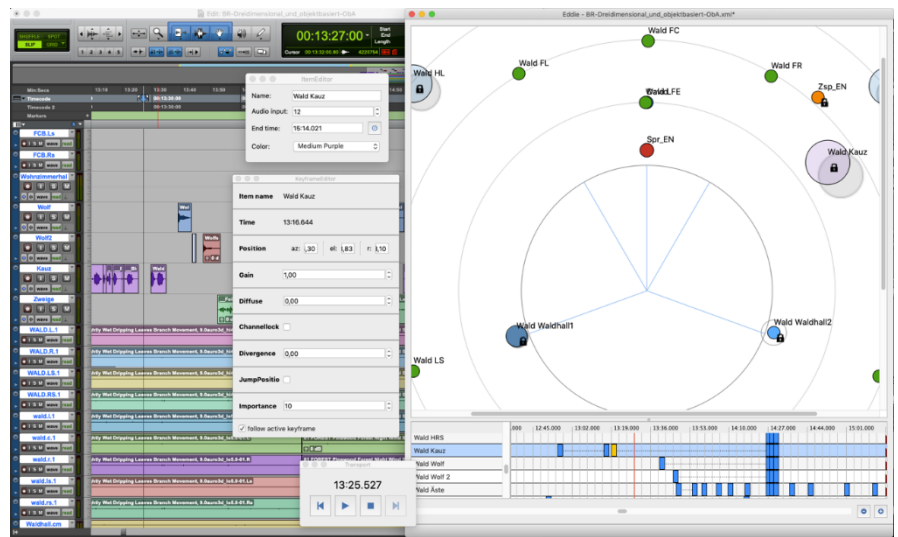
Object-based audio production

- To create and use OBA productions, a complete object-based workflow with a metadata model like the Audio Definition Model (ADM) is necessary.
- The product of an OBA production process is an audio scene that is composed of several audio objects.
- The metadata associated with each object includes the target position of the audio signal, its target loudness and a description of its actual content.
- For playback, the object-based content needs to be 'rendered' to the reproduction layout, such as a multi-channel loudspeaker set-up.
- An object-based approach can serve end-users more effectively, by optimizing the experience to best suit their access requirements, the characteristics of their playback platform and the playback environment or personal preferences of the listener.



Eddie

- Eddie is an OBA editor with a graphical user interface.
- It allows users to create and author OBA scenes, control the object positions as well as other metadata, such as gain.
- It connects to any digital audio workstation (DAW) and controls the scene rendering by sending metadata and control commands via TCP/IP to a renderer instance.
- When audio description is kept as a separate audio object, it can be freely positioned in the scene and its parameters can easily be changed, for instance the AD gain.



Cloud Renderer

Features

- The cloud renderer is a web service hosted on AWS (Amazon Web Services) in a serverless architecture.
- It merges audio productions – no matter if channel-based or object-based – with AD objects, based on the required settings of all the AD segments, including positions (in the 3D space) and gain levels of the AD (controllable via an API).
- The interface between the Web AD editor and the cloud renderer is accessible via an HTTP request.
- It renders the production into various output formats, such as stereo, binaural audio and First Order Ambisonics .

Parameters

The cloud renderer addresses three interactive parameters which are relevant for an immersive AD experience:

- The “position” parameter defines where within the 3D space the different AD tracks will be placed. In ImAc three different positions have been defined, two of which are fixed (“classic” and “static”) whereas one position is meant to be set dynamically by the AD compositor (“dynamic”).
- The “gain” parameter defines the audio level of the AD object. The value ranges from 0 to 1, where 0 means silence and 1 means full gain.
- The Ducking parameter defines the attenuation of all active audio objects relative to the AD object.

More information

OBA website: <https://lab.irt.de/demos/object-based-audio/>

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Video ImAc ObA Workflow:

