

Wwise 2010.2

Release Notes

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1 New Features

1.1 Convolution Reverb

The convolution reverb effect plug-in is a testament to Audiokinetic's commitment to innovation and high-quality audio processing. Like visual artists seeking for photo realistic rendering, Audiokinetic's convolution reverb is a technology that authentically recreates acoustical spaces.

In essence, it creates reverberation based on samples of real spaces. This means that any physical space, from a plane cockpit to the Taj Mahal, can be reproduced as long as you have a sample (an impulse response) of the room.

Convolution Reverb Specifications:

- Runs on all platforms (render mode only for the Wii)
- 20 impulse responses and 55 factory effect ShareSets are packaged with the reverb
- Supports all channel configurations up to 5.1
- Impulse responses can be imported. Supported formats:
 - PCM
 - Mono and stereo
 - 16 and 24 bit
 - Any sample rate up to 96kHz

1.2 Side-Chaining

Side-chaining can now easily be achieved in Wwise by using the Wwise Meter effect and RTPC curves. The new "Wwise Meter" effect monitors the input signal of a bus and sends the calculated levels (using smoothing parameters such as Attack, Release and Hold) to a game parameter. A Volume RTPC curve linked to this game parameter can then be created on another bus resulting in the volume being affected by the level of the bus with the Meter effect inserted.

Read or watch the Side-Chaining tutorial for more details on how to set up side-chaining in your project.

1.3 New Effects

- Wwise Flanger
 - The full-featured Wwise Flanger effect allows sound designers to create a large scope of effects, including vibrato, chorus, comb filtering and, of course, flanging.
- Wwise Guitar Distortion
 - Four distortion models are available (overdrive, metal, fuzz, and clip) along with pre and post filters to create mock-ups for a wide range of classic guitar distortions.
- Wwise Tremolo
 - The Wwise Tremolo creates trembling effects by modifying the amplitude of the signal up and down over time.
- Wwise Meter

- The Wwise Meter effect measures the level of a signal without modifying it, and optionally outputs this level as a Game Parameter. The dynamics as well as the range of the output value can be adjusted. It is most useful for achieving side-chaining, where the measured level of a bus drives the volume of another bus through an RTPC.

1.4 Performce Enhancements

- Performce icons now appear over work units icons in the Project Explorer, the Property Editor and several other views.
- Information such as Status and Owners are now available in the title bar of the object views.
- New Status column in File Manager's commit dialog.
- Prevent checking out files that are not the latest.

1.5 New Integration Demo

A new integration demo is now available for developers:

- Code and user interface are now fully cross-platform.
- New examples have been added.

1.6 New Columns in Voice profiling (Volume - LPF)

The Voices tab of the Advanced Profiler now shows volume and LPF attenuations pre and post positioning.

1.7 Support for xWMA on the Xbox 360

xWMA uses the WMA professional compression bit-stream format and provides a greater compression ratio than XMA. xWMA is very useful for dialogue and long duration files. A quality setting allows sound designers to vary the bit rate of the compressed sound.

2 Important Migration Notes

Please refer to the Installation and Migration Guide for general advice about migrating projects to a new version of Wwise.

See also [Important Migration Notes](#) for 2010.1 if upgrading from Wwise 2009.3 or earlier.

3 Important Migration Notes (2010.1)

- **New Work Units:** Starting with 2010.1, Conversion Settings can now be stored into sharesets in their own work unit files. When migrating a project created in a previous version, similar conversion settings are regrouped together into sharesets. This is done once, the first time you open a project to be migrated. After the project migration, if your project is under source control, you must add the following folders and their workunit files (found under the project's folder) to the source control:

- Conversion Settings
 - Mixing Sessions
 - * As always, make sure only one person in your workgroup take care of the migration. This person should validate the migrated project, add new files to the source control and commit the migrated project in the source control.
- **Low-Level I/O Hooks API Change:** If you upgrade your title from an earlier version of the Wwise SDK, your low-level I/O hook will compile properly with the old API. However, the meaning of `AkTransferInfo::uRequestedSize` has changed. If you used the Low-Level I/O samples of the SDK as-is, ensure that you replace your Low-Level I/O files with the new ones. This is even more important on the Wii, where earlier versions of the sample I/O hooks will crash in the Revolution SDK's I/O system. On the other hand, if you use your own custom implementations of the I/O hooks, you should not have to change anything: `AkTransferInfo::uRequestedSize` is the correct amount of data that should be pulled from your file manager.
 - **External Sources and Low-level I/O File Location Resolver:** If you plan to use the new External Sources feature, you will have to handle them in your implementation of the File Location Resolver interface of the Low-Level I/O subsystem. The default implementation provided as a sample of the SDK searches for external wave files in the same location as normal streamed files. The sample was slightly modified in order to support this. Thus, ensure that you merge these changes into your game.

4 Requirements and Other Important Information

We have compiled a list of specific requirements and other important information that you should know before working with Wwise.

4.1 Audio File Management

Loops shorter than sample boundaries removed during conversion. During the audio conversion process, loop regions that are shorter than the sample boundaries are removed.

Sample rate conversion values should match native platform rate. The audio pipeline uses real-time sample rate conversion nodes when playing sounds that differ from the platform's native sample rate (48 kHz for Windows, Xbox 360 and PLAYSTATION 3). As an optimization, and also to prevent possible conversion rate aliasing artefacts, content that does not require pitch-shifting such as music should be converted to match that of the native platform. For Windows, it is also possible to have a native format of 24 kHz using the audio quality option that is available from the SDK.

XMA sample accuracy in Wwise is limited to codec capabilities. Because the hardware for XMA limits looping at 128 sample boundaries, keep in mind the following when using these sources for music objects:

- Minor artefacts may result when the Wwise loop fixing algorithm specified in the XMA conversion settings is applied to the XMA sources. These artefacts, which result from slight time-stretching or pitch-shifting in the algorithm, are less noticeable for sources with a long duration.
- Looping XMA source music clips may lose timing accuracy each time the loop point is crossed. However, the Play and Stop position in the segment are always sample accurate.
- Due to phase shifts that may occur in the XMA encoding/decoding mechanism, it is not recommended to try to align the last and the first samples of two contiguous XMA-converted clips.

4.2 General

External components required for installation. The following external components are required to run Wwise:

- Microsoft® .Net Framework Version 2.0, which is included in the installation package.
- XMLLite for Windows XP Service Pack 2. To download a copy of XMLLite, visit the Microsoft web site.

Note: XMLLite is automatically installed with Windows XP Service Pack 3 and Windows Vista.

DirectX® February 2010 or later, which is required to run the Game Object 3D Viewer in Wwise and the Xbox 360 controller on Windows. To update your version of DirectX, visit the Microsoft web site (<http://www.microsoft.com/directx>).

Note: If you have an older version of DirectX, Wwise will run normally, but the Game Object 3D Viewer will not be available and you will not be able to test motion in Wwise.

Visual Studio DLL Dependencies. The following versions of Microsoft Visual Studio are used to build the Wwise libraries:

- VC 2005 version: 8.0.50727.867
- VC 2008 version: 9.0.30729.1 In both cases, the Wwise libraries have a dependency on a specific version of the CRT DLL. If you are using a different version of Visual Studio, or if you do not want your game to depend on that version of the CRT DLL, you can link to the libraries from the Debug (StaticCRT), Profile (StaticCRT) and Release (StaticCRT) folders instead. For more information on the Visual Studio DLL dependencies, refer to the “Platform Requirements” section of the SDK documentation.

4.3 Motion Devices

Connect game controllers to high power USB ports. Motion devices need to be connected to a high power USB port. If the USB port does not have sufficient power to run the motion device, the system will unmount the device to protect both the operating system and the device itself. The USB ports in the front of a computer are generally not powerful enough to run a motion device, so you should connect them to the USB ports at the back of the computer.

4.4 Project Migration

Wwise 2010.1 Installation and Migration Guide. When you are ready to upgrade to a newer version of Wwise, you need to follow a coordinated protocol to ensure that your projects created in the previous version are migrated smoothly to the newer version. For more information, it is strongly recommended that you refer to the Wwise Installation and Migration Guide, before you upgrade.

4.5 SoundBanks

SoundBanks version has been updated. The version of the SoundBanks has been updated since 2010.1. This means that you will need to regenerate all your SoundBanks so that they are compatible with the current version of Wwise.

5 Known Issues and Limitations

Audiokinetic is constantly working to provide you with the highest quality software; however, you should be aware of the limitations and issues in this version of Wwise.

5.1 Wwise Known Limitations

The following table describes the limitations in this version of Wwise.

Section Description

- Audio Busses
 - If you are ducking a bus that is playing a series of short sounds within a looped sequence container set to Continuous, you may experience a loss in ducking between the short sounds or at the loop point of the container. To avoid this behavior, you can either add sample accurate transitions between the sounds within the container, or set the ducking recovery time to anything but zero.
- Audio File Management
 - Markers in the loop region for files in Vorbis audio format may be skipped.
 - The Vorbis encoder library may result in poor audio quality for sounds using sample rates below 16 kHz. The Vorbis codec was specifically tuned for higher sample rates and performs very well above 16kHz. Audio quality below the 16kHz sampling rate, however, can vary considerably depending on the encoding settings used and the audio asset itself.
- Containers
 - Even though a Sample Accurate transition can be applied to a Switch container that is the child of a Random or Sequence container, this option will have no effect in this case as the switch order more than one sound to be played simultaneously.
 - The maximum number of supported child objects in any type of container is 65535. Although Wwise allows you to create more than 65535 in the authoring application, no parent-child link can be made between the parent and the child above the 65535 limit. Without the link, these child objects cannot receive any notification updates during playback, including changes to volume, positioning, and so on.
 - There are several restrictions and limitations that currently exist when using the crossfade, sample accurate, and trigger rate transitions with random and sequence containers. For a complete list, refer to the [Wwise Knowledge Base](#).
 - If the playback instance limit is reached for a random or sequence container using Trigger Rate as the transition type, the currently playing sound as well as the container itself will be killed.
 - Even though a sample accurate transition can be applied to a container with source plug-ins on the Wii platform, this option will have no effect.
- Effects
 - Since you cannot apply a crossfade when bypassing or un-bypassing an effect, you may experience clicking when using the Enable/Disable Bypass event action.
- Events

- When you have an event that contains the actions Play, Stop, and Play, the second play action will not trigger the sounds to play as expected.
- Interactive Music
 - Transition segments with a length of zero, with Play transition post exit enabled, will not play when a “same time as playing segment”, “immediate” transition occurs.
 - The Break event action does not work as expected for music objects.
 - The empty space on a track before a clip will be used as the clip’s pre-entry.
 - The Wwise conversion method makes sounds longer by approximately 12 samples per minute causing some inconsistencies for music objects. Sources that are in the following frequency are affected:
 - * 44100Hz on Xbox 360, Windows, and PLAYSTATION 3
 - * 22050Hz on Windows and PLAYSTATION 3
 - * 11025Hz on Windows and PLAYSTATION 3
 - The wave data displayed in the Music Segment Editor for a converted file represents the original file and not the converted file.
 - The total duration of “continuous” musical content that plays over “nothing” is limited to 12.4 hours. This includes the individual length of a segment or the cumulative length of stingers played all within the same switch. If a change in switch occurs, the cumulative time counter is reset to zero.
 - On single CPU machines without hyper-threading, you may experience a slow down in music tempo when moving the 2D Panner in Wwise. To avoid this problem, you can increase the Output Buffer Latency setting in the User Preferences dialog box.
- Interface
 - Some views in Wwise are cropped on Japanese systems and potentially other languages as well. This can also occur if you modify the font DPI in Windows. To fix this issue, you can download new registry files from the [Wwise Knowledge Base](#) or revert the font size to the standard Windows setting.
- PLAYSTATION3 platform
 - In order for streamed Vorbis files to play correctly on the PLAYSTATION3, the granularity of the I/O must be a multiple of 16 bytes.
- Positioning
 - The time base used in Wwise to record changes in positioning is independent of the time base used by your computer’s sound card. As a result, the changes in positioning may not be synchronized to the sound that is played.
 - If you add or remove a point along the path during playback, the sound will continue to play, but there will be no propagation. The next time you play back the sound, the changes that you made will be applied.
 - Wwise uses an “equal power” schema to ensure that no audio source exceeds 0dB in any speaker. As a result, all stereo sounds set to 2D positioning will be played 3dB quieter by Wwise. To maintain the same mixing reference, boost the 2D sounds by 3dB.
- Projects

- When a project is saved to a mapped network drive, performance may be seriously affected. If you decide to save your projects to a mapped network drive, Audiokinetic will not support these projects.
 - When “User Account Control” (UAC) is enabled on Windows Vista more recent versions, Wwise sample projects installed under “Program Files” or “Program Files (x86)” can’t be opened with the 64-bit version of the Wwise authoring application because of permission issues. While these projects can be opened with the 32-bit version of the Wwise authoring application even when UAC is enabled, we strongly advise against it as the cache, Originals, and GeneratedSoundBanks folders will be “virtualized”, and will thus be using the wrong folders. To workaroud this issue, do one of the following:
 - * Move the project to a location where you have full read/write permissions. Note that the IntegrationDemo executable will search for SoundBanks in the relative path where they would normally be generated, so you should also move the IntegrationDemo executable, if you plan to use it. (This option is recommended).
 - * Disable UAC. Since UAC is a security feature introduced in Windows Vista, we do not suggest disabling it as it may render your computer vulnerable to malicious software and other forms of attacks.
- Remote Connections
 - If the IP address of a computer changes while the Remote Connections dialog box is open, the computer will be displayed in the Available list using the LAN IP address instead of the usual “Local Host” IP address. If you connect to this computer, this computer will be added to the History list using the LAN IP address even if the same computer is already in the list using the “Local Host” IP address. Wwise doesn’t recognize that these two entries are the same remote computer. The next time you use Wwise, both entries will remain in the History list. Despite the duplication, you can connect to the computer using either entry.
 - Refer to this Wwise Knowledge Base article for information on troubleshooting the remote connection: <http://kb.gowwise.com/questions/137>
 - SDK
 - The Wwise SDK contains four sample effect and source plug-ins: Delay, Sine, Audio Input, and Tone Generator. The C++ projects that create the DLLs to be used in Wwise offer three configurations: Debug, Profile, and Release. Right now, only the Profile and Release versions of the DLLs will work with these plugins in Wwise. The Debug version crashes when you try to use these sample plug-ins.
 - SoundBanks
 - If a sound exists in more than one SoundBank, a transition will not be applied between the two instances of the sound when one SoundBank is unloaded and another one is loaded. In this case, the first instance of the sound will stop and the second instance will start from the beginning.
 - Note: Using the PrepareEvent mechanism will prevent this sort of problem from happening.
 - Streaming
 - If the hard disk on the Xbox 360 and the PLAYSTATION3 have not been read for a while, you may experience longer read times than normal. When this occurs during critical streaming situations, notifications of voice starvation and source starvation will be sent to the Wwise error log.

- Wii platform
 - The value returned by `AK::IAkLowLevelIO::GetBlockSize()` must be a multiple of 32 (bytes) in order to play back ADPCM files.
 - On the Wii platform, streamed audio files with file and loop lengths of less than 20ms will not play as expected.

5.2 Wwise Known Issues

The following table describes the relevant outstanding issues that could not be resolved in this version of Wwise.

- Audio Files
 - **WG-11260:** Audio from file with too many markers fails to play. If the marker data chunk in the file header is larger than the granularity of the file streaming, the code fails to read the header.
 - **WG-14380:** Padding of XMA files inside the header and at the end of the file makes them larger in size than necessary.
 - **WG-15767:** Markers are handled incorrectly when used with virtual voice option 'FromElapsedTime'.
- Blend Containers
 - **WG-15390:** A sound within a blend container may not be triggered if it follows a sound that failed to play.
- Command Line
 - **WG-15554:** When using Windows Vista, `WwiseCLI.exe` can't be used with the Task Scheduler when no user is logged in.
- Contents Editor
 - **WG-14785:** Objects displayed in the Contents Editor are not sorted alphabetically, which can make it difficult to find objects quickly.
- Effects
 - **WG-10527:** Real-time effect is layered on top of rendered effect when connected to a game.
 - **WG-14931:** Rendered effects are not listed in the Edit tab of the SoundBank Editor.
 - **WG-15310:** If the Bypass option is selected for an effect that is used as an environmental effect, the environmental effects will be bypassed when connected to a game.
- Events
 - **WG-14402:** In very rare circumstances, Wwise may crash when renaming a newly created event.
- Game Object 3D Viewer
 - **WG-15054:** Game objects with multiple positions are not shown in the Game Object 3D viewer.

- **WG-16246:** The Game Sync Monitor doesn't update as expected until you add or remove a watch from the Watches list.
- Game Simulator
 - **WG-16071:** Game Simulator is not detecting game pad inputs on Vista 64 bit.
- General
 - **WG-15941:** When using certain UI schemes in Vista, the property sliders may not react as expected.
- Integrity Report
 - **WG-15569:** The integrity report message "Streamed XMA files do not support region loops" may be displayed even when the audio file doesn't contain a region loop.
- Interactive Music
 - **WG-6432:** "Use Transition Segment" option starts the next cue at the beginning in error when "Play from elapsed time" is selected.
 - **WG-14711:** When music loops, the music timer callback sends 2 'bar' or 'beat' notifications instead of 1, as expected.
 - **WG-15367:** If a change in switch occurs while the music is paused, it may not transition to the new switch when the music is resumed.
 - **WG-15728:** When a transition segment is added to the Any to Any transition and then removed, the music segment and corresponding media file is still included in the SoundBank, in error.
 - **WG-16261:** If a double switch reversal occurs during the playback of a music switch container, the wrong music segment is played.
 - **WG-16269:** Glitches may be heard due to the hard trimming of effect tails for music segments and tracks.
- Looping Sounds
 - **WG-14878:** Looping sounds get kicked in error due to instance limiting.
- Master-Mixer Hierarchy
 - **WG-15481:** SetVolume action that is applied to a bus may be applied twice when the bus also contains an effect.
- Motion
 - **WG-15383:** Pragma warning line for the D-Box relates only to the PC, and should not be included for the other platforms. **WG-14852:** Motion FX objects do not work as expected within a Dialogue Event.
- Multi-Channel Creator
 - **WG-16302:** Sample loop markers within a source file are not kept in the multi-channel files generated by the Multi-Channel Creator.
- Obstruction/Occlusion

- **WG-15678:** When updating the Obstruction/Occlusion curves in Wwise while connected to a game, the curve information is not propagated to the game, as expected.
- Playback Limit
 - **WG-15124:** Playback limit may continue to be applied even though it is greyed out in the Wwise application.
- Profiler
 - **WG-11746:** Unhelpful message is displayed in the Capture Log when using PostEvent on a non-registered game object.
 - **WG-14176:** The RR and RL columns on the Listeners tab of the Advanced Profiler are inverted.
 - **WG-15476:** Error message missing in the profiler when Wwise detects two similar media files that don't have the same size.
 - **WG-15617:** When an error occurs in the profiler, Wwise displays the event ID, but not the event name.
- Projects
 - **WG-9819:** Wwise may crash while saving a project if it detects invalid work unit XML.
 - **WG-14579:** Projects may become corrupted when migrating a project that contains a missing plug-in.
- Random/Sequence Containers
 - **WG-15057:** Random/Sequence containers (AkRanSeqCtr) take up more memory than required in the sound engine.
 - **WG-15729:** Wwise may crash when playing a sequence container that contains a continuous switch container as a child.
 - **WG-16227:** The Weighting option for objects within Random/Sequence containers does not work as expected in certain situations.
- RTPCs
 - **WG-14506:** Audio glitches may occur when using a Peak Limiter as well as a Parametric EQ that has an output level driven by an RTPC.
- SDK/Sound Engine
 - **WG-15451:** Wwise libraries may not be compatible with some compilers as a result of certain libraries using the Whole Program Optimization.
 - **WG-15501:** Memory address may be reused by switch container after a game object is unregistered causing Wwise to play a different sound than is expected.
 - **WG-15537:** Race condition may exist that causes the sound engine to crash when connected remotely to your game.
 - **WG-15805:** The casing of the file AkAssert.h is used inconsistently in the SDK; either AKAssert.h or AkAssert.h.
 - **WG-16185:** Speaker volume matrix callback is not called for 2D sounds in IsInitiallyUnderThreshold.

- SoundBanks
 - **WG-12087**: Game parameters used by control busses are not included in the Initialization bank.
 - **WG-13305**: SoundBank output text files become inconsistent when a project contains two switches/states with the same name in two different groups.
 - **WG-14186**: When SoundBanks are generated, Wwise loses registered game objects registered by the SoundFrame preventing sounds from playing.

- Source Plug-ins
 - **WG-15671**: Can't enter a new line in the Notes field of the Source Plug-in Editor. Pressing Enter doesn't introduce a new line of characters, but rather loses the field's focus. To workaroud this issue, create the note as you want it to appear in an external editor and copy and paste it into the notes field in Wwise.
 - **WG-16232**: Clipping may occur when using the Pink or Red noise color setting within the SoundSeed Air - Woosh source plug-in.

- Wii
 - **WG-10869**: Possible loss of DSP control may cause audio corruption for streamed audio files.
 - **WG-15250**: Glitches may occur when pausing music segments on the Wii platform due to inconsistencies between the music and lower engines.
 - **WG-17439**: Breaking a looping and streaming sound on the wii can in very rare situations cause the sound to stop with the error: "File or loop region is too small to be played properly".

- Workgroups
 - **WG-15634**: When using the Perforce plug-in, Wwise may hang if the P4 server does not respond.
 - **WG-15557**: When using the Perforce plug-in, the following message "login not necessary, no password set for this user" may be displayed unnecessarily.
 - **WG-15558**: When using the Perforce plug-in, the file history scrolls unnecessarily as the information is received.
 - **WG-15559**: When using the Perforce plug-in, the history returned by P4 truncates the description removing useful information.
 - **WG-16257**: Wwise may crash when loading a work unit that includes an audio source with a space at the beginning of its filename.

6 Complete Changelist

The following sections list and describe the changes made to Wwise between version 2010.1.3 and version 2010.2.

6.1 SDK Folder Structure Changes

- **WG-18143** PS3: SPU .elf files are now included in the SDK for debugging purposes.

6.2 Platform SDK updates

- Wwise Authoring: updated to DirectX February 2010.
- PlayStation 3: updated to SDK 340.
- Xbox 360: updated to XDK 11775.4 (July 2010).

6.3 API Changes

- **WG-16578** The Reverb and Reverb Lite effects have been removed; they had been tagged as deprecated in recent versions of Wwise. Use the Matrix Reverb, RoomVerb or the Convolution Reverb instead. If you have warnings regarding these effects in your projects, make sure to replace them and re-save your project.
- **WG-16876** 8-bit data is not supported anymore as input for the Wwise sound engine.
- **WG-11166** New music callbacks are available:
 - AK_MusicSyncGrid enables notifications on music grid.
 - AK_MusicSyncUserCue enables notifications on music user cue.
 - AK_MusicSyncPoint enables notifications on music synchronisation point.
- **WG-14789** Grid and Grid Offset are now returned with every music callback notification.
- **WG-16870** LockParams() and UnlockParams() have been removed from AK::IAkPluginParam. Locking of the parameters is not necessary anymore as they are always accessed from the same thread.
- **WG-17060, WG-17080** The following functions now take an optional transition time (fade-in/fade-out) and fade curve type:
 - AK::SoundEngine::DynamicSequence::Play
 - AK::SoundEngine::DynamicSequence::Stop
 - AK::SoundEngine::DynamicSequence::Pause
 - AK::SoundEngine::DynamicSequence::Resume
 - AK::SoundEngine::StopPlayingID
- **WG-17087** Added an optional AkPlayingID argument to AK::SoundEngine::DynamicDialogue::ResolveDialogueEvent; when passing the AkPlayingID, the Capture Log will associate the resolved notifications with the dynamic sequence actions.
- **WG-17235** SoundFrame: Added a function GetDialogueEventOriginalFileList to obtain the list of Original source files for Dialogue Events into SoundFrame API. Also renamed GetOriginalFileList to GetEventOriginalFileList.
- **WG-17325** Added a function AK::SoundEngine::SetEffect to add or remove effect ShareSets on audio nodes at runtime.

- **WG-17481** The instance of XAudio2 used by the Sound Engine on the Xbox 360 can now be managed by the game by passing `AkPlatformInitSettings::pXAudio2` at initialization time.
- **WG-17484** `AK::SoundEngine::Query::GetRTPCValue` has a modified signature, making it more flexible.
- **WG-17501** Specialization of effect processing interfaces to support out-of-place processing (see `AK::IAkOutOfPlaceEffectPlugin`) additionally to in-place processing (see `AK::IAkInPlaceEffectPlugin`). Out-of-place effects can be used (outside of Master-Mixer hierarchy) to implement effects that need to produce and consume data at different rates.
- **WG-17596** Effect plug-ins can update their internal state when processing virtual voices 'from elapsed time' (see `AK::IAkInPlaceEffectPlugin` and `AK::IAkOutOfPlaceEffectPlugin`).
- **WG-17741** Added new `AkCommSettings::threadProperties` initialization parameter to change the default priority of the communication thread.
- **WG-17788** Stream manager interface now available for use within effect plug-ins. This provides the ability to stream data to or from an effect plug-in by reading or writing data on a specific device (see `AK::IAkEffectPluginContext`).
- **WG-17850** `AK::SoundEngine::StartOutputCapture()`, which opens wave files for writing, now passes `AkFileSystemFlags::uCodecID = AKCODECID_PCM` to the Low-Level IO (`AK::StreamMgr::IAkFileLocationResolver::Open()`) instead of the former value `AKCODECID_BANK`. In order to save this file into the "base path" instead of into the streamed files path, the `CAkFileLocationBase` SDK sample now accepts the file open mode (`AkOpenMode`) (see functions `GetFullFilePath()` in file `SDK/samples/SoundEngine/Common/AkFileLocationBase.h`). Platform-specific default Low-Level I/O implementations were modified accordingly.
- **WG-17868** Extrapolation of position returned by `AK::SoundEngine::GetSourcePlayPosition` and `AK::MusicEngine::GetPlayingSegmentInfo` based on elapsed time since last update by sound engine is now optional.
- **WG-17887** Removed the `AkEnvironmentValue::fUserData` structure member.
- **WG-17888** Reduced usage of `AK_OPTIMIZED` define in SDK headers.
- **WG-17946** Mac: added new parameter `AkPlatformInitSettings::uSampleRate` to specify the sound engine sample rate.

6.4 New Features

- New effect plug-ins:
 - Convolution Reverb.
 - Guitar Distortion.
 - Flanger.
 - Tremolo.
 - Meter.

- New codec plug-in:
 - xWMA (only on Xbox 360).
- Source control integration improvements:
 - **WG-16936** Tree conflicts are now shown in the status column when using the Subversion plug-in.
 - **WG-17506** The source control (Perforce and subversion) overlay icons of workunits are now shown in the title bar of the views. The standard context menu is also now available in the title bar area of the views.
 - **WG-17508** Perforce integration now shows outdated files with a yellow triangle.
 - **WG-17509** Workgroup operations (source control) are now accessible from the standard context menu in Wwise.
- **WG-3254, WG-17152** Advanced Profiler: Voice Tab now displays Base Volume, Final Volume, Base LPF and Final LPF for each voice.
- **WG-12128** Wwise custom pre and post soundbank generation steps now have 2 new macros: \$SoundBankList and \$LanguageList. The value of those macro contains the SoundBanks and Languages passed at the Wwise command line OR the selected banks and languages in the SoundBank Manager.
- **WG-16762** File Packager and CopyStreamedFiles now accept lists of SoundBanks and Languages: use -banks and -languages with a quoted-space-separated list.
- **WG-16208** Capture Log: shift-clicking on an item in the Capture Log now moves the game profiler time cursor to the item's time so that other views (such as Performance Monitor and Advanced Profiler) are synced to the same time.
- **WG-16361** The source control Commit/Submit dialog now show the status of the files. Also, when saving non-checked-out files under Perforce, the list of the files to check-out is now shown with the associated status of the files.
- **WG-16449** Wwise now lists the files to be migrated when loading a project created in an earlier version.
- **WG-16679** The Integration Demo has been completely rewritten; it now contains new and better examples of sound engine usage, and is better organized.
- **WG-16718** New "Plug-in Media" section in SoundBank Content Files listing plug-in media included in the bank. Convolution Reverb is currently the only plug-in with associated media.
- **WG-17525** Ports used for Wwise communication are now configurable. Dynamic/ephemeral ports are used by default where applicable. For more information refer to initialization_comm_ports in the Wwise SDK documentation and "Specifying Network Ports" in the Wwise Help.
- **WG-17674** Command-line support for External Sources has been modified and extended. For more information refer to Integrating External Sources in the Wwise SDK documentation.

6.5 Behavior and Performance Changes

- **WG-17341, WG-17377** General performance improvements to the Wwise Authoring user interface.
- **WG-17394, WG-17910** Optimized memory usage of Events and Structures in the Default memory pool of the Sound Engine.
- **WG-17939** Major performance improvements when inspecting and playing large sound structures from the Wwise Transport.
- **WG-18138** Improved performance when modifying RTPC values affecting large hierarchies of structures.

6.6 Miscellaneous Changes

- **WG-16832** The Soundbank Manager now support multiple selection.
- **WG-16872** Object context menu is now available by right-clicking in the background of most views.
- **WG-17386** New option "Edit source of override" in areas of the Property Editor where the object inherits from a parent.
- **WG-17617** Effect ShareSets and custom effects now appear in the Edit tab of the SoundBank Editor.
- **WG-17414** Audio Input plug-in now plays back input from microphone inside of Wwise Authoring.
- **WG-17430** External Sources are now allowed to have identical names in the same Wwise project.
- **WG-17457** Effect assignment and ShareSet selection can now be modified during playback or while connected to the game.
- **WG-17465** It is now possible to enter up to 6 decimals in the Game Parameter minimum, maximum and default values.
- **WG-17530** "Volume below minimum threshold" notification now specifies which sound was killed.
- **WG-17556** Now possible to copy and paste RTPC curves on Positioning objects (2D Panner, 3D User-Defined).

6.7 Bug Fixes

- **WG-16764** Inactive references are no longer shown in the Reference view. Inactive references can be references to Conversion Settings or Attenuations for which the owner is not the source of override.
- **WG-16875** Fixed a situation where playing blend containers using the dynamic sequence mechanism would play sounds that are meant to play simultaneously one after the other.
- **WG-17056** Fixed a situation where an assert could pop when shutting down the Sound engine while using dialogue system.

- **WG-17424** Missing Events from the SoundBank Definition importation now cause the Wwise-CLL.exe to return the proper return code.
- **WG-17446** Fixed: Crash after creating 2 streaming devices, destroying the first one, and then profiling.
- **WG-17449** Unused Transition Segments are not packaged in SoundBanks anymore.
- **WG-17474** Fixed: Soundbank generation took a long time to finish after clicking Stop while generating a bank with lots of rendered effects.
- **WG-17477** Fixed: QueryAudioObjectIDs asserts uselessly in case where an audio node is not found.
- **WG-17528** Fixed: Setting environment values with multiple environment values, some of them invalid, was causing the subsequent valid environments settings to be ignored.
- **WG-17558** Fixed a situation where editing the Random Container weight in the Wwise application was not applying it right away.
- **WG-17562** Fixed: Possible lost of profiling data when connecting to a game.
- **WG-17659** Fixed a situation where the sound engine initialization on PC could cause a crash if DirectSound is not supported.
- **WG-17687** Fixed: AkFNVHash.h was resetting compiler warning 4127 to default (now using pragma warning push/pop).
- **WG-17734** Fixed: Music Switch Container editor sort is lost during drag & drop operation.
- **WG-17799** Fixed: Crash when multi-editing an audio object that doesn't have a BusRouting element, or a GUID_NULL BusRouting element.
- **WG-17827** Fixed: "IO error" notification not reported when an error is reported by the low-level IO (deferred device only).
- **WG-17844** Fixed: Profiler stays empty after connection to a game in low memory scenario.
- **WG-17877** Fixed: On Windows XP (Japanese), UI doesn't display properly in some areas such as the lower part of Property Editor's Effects tab.
- **WG-17926** Fixed: Some sounds fail to play when audio clips have been resized in the segment editor.
- **WG-17984** Fixed: External sources specified by "file name" (AkExternalSourceInfo::szFile) pass AKCOMPANYID_AUDIOKINETIC to file system instead of AKCOMPANYID_-AUDIOKINETIC_EXTERNAL.
- **WG-18019** Fixed: Marker cues not notified in the capture log with converted XMA files played from within the authoring tool.

- **WG-18062** Fixed: Vorbis decoder does not emit an error notification when processing corrupted packet headers.
- **WG-18076** Fixed: Possible crash when undoing creation of groups inside the Music Playlist Editor.
- **WG-18088** Fixed: game object ID '0' was behaving differently in Release config. Note that this game object is reserved for the Wwise Transport and should not be used by the game.
- **WG-18093** Fixed: Possible crash when running Integrity Report on Interactive Music.
- **WG-18148** Fixed: import of multi-channel WAV files generated with Pro-Tools.
- **WG-18159** Fixed: Performance Monitor: "Save All Counters to File" does not saves all counters/-columns.

7 Need Help?

7.1 Using Help

Wwise Help contains detailed information on each interface element in Wwise.

To open Help from within Wwise, do one of the following:

- Click the Help icon in the title bar of any of the views or dialog boxes.
- From the menu bar, click **Help > Wwise Help**.
- Press **F1**.

7.2 Contacting Support

Audiokinetic has established a complete [online support center](#) for our maintenance and evaluation customers. The following resources are available:

- A [feedback form](#) to submit details about bugs, crashes, and/or to suggest a feature, or make any general inquiries.
- Access to all the latest product [downloads](#).
- The [Wwise Knowledge Base](#) with knowledge base articles, tips, and tricks.
- [Video tutorials](#).

You can also contact us directly at: support@audiokinetic.com.

Note: Email support is only available for maintenance and registered evaluation customers.

7.3 Got Comments?

We'd appreciate any comments or suggestions you may have about these release notes or any other piece of our documentation. Just send them to [documentation](#).