

## What's New in Wwise 2010.1.3

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# Chapter 1

## What's New in 2010.1.3?

2010.1.3 is a patch release. The following sections list and describe the changes made to Wwise between version 2010.1.2 and version 2010.1.3.

### 1.1 New Features

- **WG-17920** In the Positioning tab of the Property Editor, a hierarchical menu is now used to select an Attenuation.

### 1.2 Behavior and Performance Changes

- **WG-17986** Added separate source starvation notification for XMA decoder.

### 1.3 Bug Fixes

- **WG-17610** Fixed: Errors about invalid events were displayed when generating banks in cases where there was actually no error.
- **WG-17913** Fixed: PS3 Vorbis decoder crashes on packet header corruption.
- **WG-17952** Fixed: Inoffensive assert "in\_pBranchItem->CanRestoreChainPlayback()".
- **WG-17972** Fixed: Possible memory leak on the Wii when spawning multiple Environmental effects.
- **WG-18069** Fixed: Very rare crash or assert (First() && First()>IsSegment() && First()>SyncTime() == 0) while performing a music transition in a particular scenario.
- **WG-18087** Fixed: Crash when adding a player motion device while playing a 3d Game Defined motion object.
- **WG-18098** Fixed: Rare crash in CAkMusicCtx::OnStopped().
- **WG-18139** Fixed: DirectInput controller that doesn't support rumble could lead to a crash.



## **Chapter 2**

### **What's New in 2010.1.2?**

2010.1.2 is a patch release. The following sections list and describe the changes made to Wwise between version 2010.1.1 and version 2010.1.2.

## 2.1 Behavior and Performance Changes

- **WG-17817** Effect with tails have a different behavior when RTPC is applied on parameters which affect the tail length. Previously the tail was reset every time these parameters was changed (busses could thus never stop if the game keeps posting parameter changes) while now the maximum tail length is always used and the tail simply continues when new parameters are encountered.

## 2.2 Bug Fixes

- **WG-16984** Fixed: pausing a sound in the exact same frame that it is resumes can cause the sound to stop when there is no transition time.
- **WG-17651** Fixed: AkManualEvent.h on the mac platform -- improved synchronization mechanism to prevent deadlocks.
- **WG-17666** Fixed: occasional volume spikes with 3D user-defined sounds.
- **WG-17669** Fixed: crash when playing an inaudible sample-accurate container containing children with both 'kill voice' and 'from elapsed time' under-threshold behavior.
- **WG-17709** Fixed: memory corruption & crash with Motion Generator in "initially under threshold" case.
- **WG-17813** Fixed: deadlock possibility when the message queue gets overcrowded.
- **WG-17834** Fixed: possible error in computation of the busses volumes when multiple busses are processing effects on the same voice.
- **WG-17841** Fixed: sounds and segments do not go back to full volume after pausing and resuming with fade-in (by 0.4 dB).
- **WG-17845** Fixed: in rare situations where there is much more IO memory requirements than there is memory available, the IO thread may keep on spinning for a while. This is mostly noticeable on the Wii where it can hang the whole system.
- **WG-17865** Fixed: suboptimal behavior with transition reversals in interactive music.
- **WG-17867** Fixed: bypass of effects in the actor-mixer hierarchy would sometimes be ignored in the Release build.



## **Chapter 3**

### **What's New in 2010.1.1?**

2010.1.1 is a patch release. Audiokinetic decided to go with full installers instead of zip files to reduce frequent manipulation errors. The following sections list and describe the changes made to Wwise between version 2010.1 and version 2010.1.1.

### 3.1 Platform SDK updates

- **WG-17601** Upgrade to PS3 SDK 330.001

### 3.2 Bug Fixes

- **WG-17451** Fixed: Generated soundbanks can be different every time when objects have multiple RTPCs
- **WG-17464** Fixed: Generated soundbanks can be different every time when using Interactive Music playlists
- **WG-17483** Fixed: UnloadBank Async would sometimes not call the completion callback.
- **WG-17487** Fixed: Attenuation of children not working when parent actor-mixer is not included in soundbank
- **WG-17516** Fixed: Stream profile data not displayed properly in the Streaming tab of the Wwise profiler when using more than one I/O device.
- **WG-17523** Fixed: Seek on segment commands are not properly released when terminating the sound engine.
- **WG-17527** Fixed: ASSERT and crash when posting an event with two separate play actions on music object, with the AK\_EnableGetMusicPlayPosition flag.
- **WG-17583** Fixed: Fixed a possible glitch that can occur at the end of the lifespan of a RoomVerb effect (environmental or else)
- **WG-17584** Fixed: Fixed a possible glitch that can occur notably when a RoomVerb effect on an effect chain on a mix bus (or master mix bus) where there is an effect with a tail following. Most often encountered when pausing some sounds making effects enter their FX tail state on mixing busses.
- **WG-17585** Fixed: Performance drop using RoomVerb on PS3 and Xbox360
- **WG-17590** Fixed: All mixing session objects (including Actor-Mixer and Busses) are now loaded correctly and send modifications to remote games.
- **WG-17612** Fixed: Wave file with unknown meta data chunk greater than 64 KB fails to play as "original" in the authoring tool.

## **Chapter 4**

### **What's New in 2010.1?**

- [New Features](#)
- [Important Migration Notes](#)
- [Requirements and Other Important Information](#)
- [Known Issues and Limitations](#)
- [Complete Changelist](#)
- [Need Help?](#)

## 4.1 New Features

### Wwise 2010.1 New Features

Wwise 2010.1 is a major release packed with many new exciting features. The following list highlights the major improvements that have been made for this version.

#### 4.1.1 Mixing Desk

- The mixing desk is a new view that display your audio objects in mixer strip style, giving you access, while mixing at runtime, to all practical properties.
- Volume, pitch, LPF, states, effects, attenuations and motion parameters are all available...

#### 4.1.2 Conversion Settings ShareSets

- Now, conversion settings are contained within ShareSets and applied anywhere in the hierarchy which will allow all child objects to automatically inherit the settings of their parent.
- This modification eliminates the frustration (and potential damage) of forgetting to set conversion settings to newly added objects.
- After migrating to 2010.1, you will notice that, at authoring time, your Wwise project should take about:
  - 50% less disk space (for work unit files),
  - 50% less memory,
  - 50% less time to load.

Be sure to take a look at the [video tutorial](#).

#### 4.1.3 External Source

- This new source plug-in bypasses the Wwise SoundBanks generation and allow the game to dynamically associate audio files to Sound objects.
- On top of simplifying the development process for developers, it will also greatly reduce the memory footprint needed for dialogue intensive games.
- The External Source plug-in will also open up several workarounds for game developers including user-generated content.

#### 4.1.4 New Seek event action

- You can now seek anywhere in actor-mixer audio objects or music segment objects.
- Seek time can be randomized and is set either in absolute time or in percentage of the file duration.
- Seek can snap to markers and music cues.

#### 4.1.5 Multiple level of sub-mixing

- Wwise can now have an unlimited number of sub-mix levels in the Master-Mixer hierarchy which virtually allow for an unlimited number of effects processed in series.

## 4.2 Important Migration Notes

- **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.

## 4.3 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.

### 4.3.1 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.

### 4.3.2 Wwise Game Simulator

**The debug version of the Game Simulator can only run on systems with Visual Studio installed.** The debug version requires certain .dll files, which are included with Microsoft® Visual Studio.

**Requirements for X64 version of Game Simulator.** The X64 version of the Game Simulator can only run on a native 64 bit operating system (i.e. Vista 64 bit).

### 4.3.3 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® October 2006 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.

### 4.3.4 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.

### 4.3.5 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.

### 4.3.6 SoundBanks

**SoundBanks version has been updated.** The version of the SoundBanks has been updated since 2009.2.1 to account for the new Probability/Weighting options in the Dialogue Event. This means that you will need to regenerate all your SoundBanks so that they are compatible with the current version of Wwise.

## 4.4 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.

### 4.4.1 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 is 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
  - Changing the properties for a delay effect assigned to a sound while playing that sound in an audio bus is not persisted when you play the sound again.
  - 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.
  - The Wwise Reverb and Wwise Reverb Lite effect plugins are deprecated in this version of Wwise and may become obsolete. If you are currently using either of these plug-ins in your project, it is recommended that you replace them with either the Wwise Matrix Reverb or the Wwise RoomVerb plug-ins.
- 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.
- 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.

#### 4.4.2 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’.
- **WG-15899:** When converting an LFE only sound (0.1) to XMA, it is converted to a mono (1.0) file instead, in error.
- 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.
  - **WG-15706:** When installing Wwise on Vista or Windows 7 with UAC enabled, the Wwise project and work unit files (.wproj/.wwu) do not get associated with the Wwise application.
- 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-11166**: User cue and Grid callbacks are not available in the SDK.
  - **WG-12325**: Wwise may assert if grid information for a particular segment cannot be found.
  - **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.
  
- Mac
  - **WG-15638**: Although the ‘Enable Effect on Voices Control Bus’ option is selected by default in the Integration Demo, it is not initialized properly on startup. To workaround this issue, simply clear the option and then select it again. This issue only applies to the Integration Demo on the Mac platform.
  
- 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 workaround 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.
  
- Streaming/IO
  - **WG-15365:** Streamed ADPCM sounds that have been paused may not play back when they are resumed and returning from the virtual voice.
  
- 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.

## 4.5 Complete Changelist

The following sections list and describe the changes made to Wwise between version 2009.3 and version 2010.1

### 4.5.1 SDK Folder Structure Changes

- **WG-16874:** Xbox360 version now only supports VC9 (Visual Studio 2008), VC8 was deprecated in the last version of the Microsoft XDK. The libraries in `\SDK\XBox360\` are not distributed anymore. You must now be using `\SDK\XBox360_vc90\`.

## 4.5.2 Platform SDK updates

- **WG-16339:** (Wii) Sound engine now compiled using Wii Revolution SDK 3.3.
- **WG-16874:** (Xbox360) Sound engine now compiled using Microsoft XDK February 2010 (11164).
- **WG-16878:** (PS3) Sound engine now compiled using SDK 320.( Also in 2009.3 patch 4 )

## 4.5.3 API Changes

- **WG-11112:** Two new functions/notifications now required to be implemented in the Sound Frame IClient: `AK::SoundFrame::IClient::OnDialogueEventNotif()` and `AK::SoundFrame::IClient::OnArgumentsNotif()`.
- **WG-15264:** The source control plug-in interface slightly changed in 2010.1.
- **WG-16163:** `AK::SoundEngine::PostEvent` now has new optional parameters to support the new "External Source" feature.
- **WG-16671:** `FNVHash::Compute` now generates an incremental hash if the same instance of the class is reused across `Compute` calls.
- **WG-16678:** Changed Low-Level I/O structure `AkTransferInfo`. `AkTransferInfo::uRequestedSize` used to represent the buffer size and did not take the end of files into account. This was causing confusion. Henceforth, a new field, `AkTransferInfo::uBufferSize`, represents the buffer size, and `AkTransferInfo::uRequestedSize` now represents the exact amount of requested bytes for this transfer. This may have an impact on your implementation of the low-level I/O hook.
- **WG-16706:** Multiple changes regarding the Wwise plug-in interfaces. Some of these changes are for future support of large data section which are not completely exposed to the Plug-in SDK yet. Some functions will have to be added to your project with a void implementation for the moment to compile properly.
  - All existing plug-ins for Wwise should be recompiled with the latest Wwise SDK prior using them in Wwise 2010.1.
  - The new function `AK::Wwise::IAudioPlugin::SetPluginObjectMedia (...)` should be implemented to void by any plug-in that doesn't use the plug-in large media system.
  - Any plug-in implementing the `AK::Wwise::IAudioPlugin` interface must implement the function `AK::Wwise::IAudioPlugin::GetPluginMediaConverterInterface (...)`. Simply return `NULL`, this is not accessible from plug-ins at the moments.
- **WG-16721:** API changed to allow External Sources to work with dynamic sequence objects.

## 4.5.4 New Features

- **WG-16321:** New Mixing Desk view in Wwise authoring application (Ctrl+Shift+M in Wwise application, See help for more info.).

- **WG-16465:** Conversion Settings can be stored in ShareSet objects and re-used across the Project. Conversion Settings now also leverage the override mechanism, so Conversion Settings can be set to high-level objects in Wwise to generalize the usage. Be sure to take a look at the [video tutorial](#).
- **WG-15821:** External Sources.
- **WG-14502:** Now allowing Sub-mixing Master-Mixer hierarchy allowing pipelining multiple layers of effects in the busses.
- **WG-11833:** New SoundBank Setting Options: List the maximum radius of any attenuation that plays on an event.
- **WG-15264:** The File Manager has now the ability to move and rename audio source files using the Source Control plug-ins. The Source Control plug-in interface has changed.
- **WG-16221:** New sample code to playback microphone output on the XBox360 in the sample "IntegrationDemo".
- **WG-14442:** Now possible to copy custom states from 1 state to another by using the "Sync Custom States" functionality.
- **WG-9505:** Wwise does now support copy/pasting RTPC curves across objects in Wwise.
- **WG-11112:** Dialogue events now supported in the Sound Frame. 2 new notifications to be implemented in the Sound Frame IClient: OnDialogueEventNotif() and OnArgumentsNotif().
- **WG-10870:** New feature: Seek actions, allow you to seek within a playing sound, or to start a sound at a specific (or random) offset.
- **WG-17183:** Added "Number Of Active Events" to performance counters in Wwise Profiler.
- **WG-15048:** Now possible to use user specific location for imported /.cache directory.
- **WG-2830:** New keyboard shortcut (Alt + Up Arrow) and menu item (Edit > Navigate to Parent) to edit the parent of the object that is currently being edited.

#### 4.5.5 Behavior and Performance Changes

- **WG-17071:** Streamed playback instances have smaller memory footprint, less code and are generally more efficient.
- **WG-16894:** Minor performance optimizations to resampling/pitch and low pass filtering in the pipeline on the XBox360.
- **WG-15880:** Improved performance of RTPC changes when many game parameters are present.
- **WG-17092:** Streamed XMA virtual voices FromElapsedTime now consume less CPU.



- **WG-16141:** Fixed: Streamed audio sources in music tracks require that they have streamed their first buffer in before their memory can be released after having stopped.
- **WG-16347:** I/O usage improvement: Streamed sources were tweaked so that they don't start playing immediately after reading the first streaming buffer, but instead wait until their "target buffering" is met. This allows you to use smaller IO buffering values (`AkDeviceSettings::fTargetBufferLength`), thus resulting in smaller IO pool usage, because you will be less likely to run the risk of provoking source starvations at the beginning of sounds. This is especially true with small streaming granularities (`AkDeviceSettings::uGranularity`). Before this improvement, streamed sources were more likely to starve during the first buffer.
- **WG-15951:** Insert effects in the actor-mixer hierarchy now 'stay alive' for the duration of the sample-accurate stitching. This means that the tail is not part of the sample-accurate stitch, so that it actually sounds like what you would want when you put a tail effect on it.
- **WG-16271:** "Don't play stinger again for X seconds" property of stingers is now exclusive. This means that when set to 0 (default), the same stinger will never be scheduled at exactly the same time as another stinger (from same Trigger).
- **WG-16272:** "Don't play stinger again for X seconds" property of stingers is now relative to the trigger's synchronization point, instead of the time when the Trigger is posted. The former behavior was misleading and hard to control.
- **WG-16963:** (Wii only) Changed: Vorbis voices used to fail playing when their "under volume threshold" behavior was set to "Continue To Play" and they had no seek table. Now, they are able to play. However, if their voice gets kicked by the hardware (because the maximum voice count reaches 96 or DSP usage reaches 100%), they will fail restarting when the hardware re-assigns them a voice.
- **WG-16927:** Default gain when using Audio Input plug-in with the function `CreateAudioInputSource` is now 0db, instead of -12 dB.
- **WG-16707:** Fixed: global RTPC values are pushed to game when connecting with Wwise.

#### 4.5.6 Bug Fixes and Miscellaneous Changes

- **WG-17410:** Fixed: Sometimes, game objects are not displayed in the Game Object column of the Capture Log of the Wwise profiler. When this happens, and if the Wwise Object Column drop menu is set to "Wwise Object Name", the Wwise object name is not displayed either.
- **WG-17140:** Fixed: Vorbis decoder state not properly reset after seeking in a Vorbis source after it had already started playing. The difference was usually inaudible.
- **WG-16998:** Fixed: Multichannel (more than 2.0) PCM and ADPCM can have their channels swapped after having been virtual `FromElapsedTime`.
- **WG-16765:** Fixed: Off-by-one error in sample count within loop regions. Very benign on all platforms, except on the Wii where it can have unexpected behavior when seeking (using `SeekOn-Event()`) exactly on a loop end boundary.
- **WG-16362:** Crash in multichannel PCM file sources occurring with a very specific combination of file length and streaming granularity.

- **WG-16854:** Fixed: Markers are inconsistent after streamed PCM and ADPCM sources have been virtual FromElapsedTime.
- **WG-16853:** Fixed: Streamed ADPCM push inconsistent marker notifications after being virtual (PS3 only).
- **WG-16749:** Fixed: possible glitch and false source starvation notification after seeking a streamed Vorbis sound on the Wii.
- **WG-16750:** Fixed: ASSERT in AkSrcFilePCMEx when seeking exactly on loop end boundary. Can happen in the authoring tool only.
- **WG-16753:** Fixed: (Wii only) Streamed PCM and ADPCM that have a looping region may starve immediately after seeking after the loop end.
- **WG-16500:** Actual prefetch length in zero-latency Vorbis streams is now much closer to the requested duration.
- **WG-17052:** Fixed: (Wii only) Vorbis "From Elapsed Time" virtual mode does not count time properly when virtual if the sound has a sample rate different than 32 KHz or a pitch different than 0.
- **WG-16189:** Fixed: AKPLATFORM::SafeStrCpy and SafeStrCat are not safe.
- **WG-16507:** Fixed: AK::IAkStreamMgr::CreateStd/CreateAuto() could set a value to the returned out\_pStream pointer if the function did not return AK\_Success (caused by insufficient memory). This resulted in an inoffensive assert in the sound engine.
- **WG-14182:** The Perforce client now supports Perforce servers in Unicode mode.
- **WG-15925:** Fixed: Attenuation curve editing while connected is not always applied in game.
- **WG-14197:** Wwise and WwiseCLI can now support relative paths to Wwise projects.
- **WG-17215:** Fixed: Conversion fails on some files when "Insert Filename Marker" is enabled.
- **WG-17162:** Fixed a rare crash that can occur when Shutting down the Communication engine at the same time Wwise application is trying to connect on the game remotely.
- **WG-17085:** Fixed playback of original WAV files created in WaveLab 6.0
- **WG-17075:** Stability issue fixed when playing Sequence Container containing 1 item.
- **WG-17068:** Fixed an issue where multi channel sounds down mixed to stereo using the Stereo\_drop conversion would possibly add a glitch at the end of the sound.
- **WG-17033:** Fixed: Bad markers notified from PCM and ADPCM streamed sources after having been virtual FromBeginning.
- **WG-17006:** Minor audio inconsistencies between Xbox360 and other platforms for SoundSeed Air and McDSP FutzBox plug-ins.

- **WG-16931:** Fixed issues when launching Wwise with a project path that contains relative elements. Perforce integration was not working correctly.
- **WG-16929:** Fixed: source starvation with high-bitrate vorbis in-bank media on PS3
- **WG-16871:** Fixed: Blocking AK::IAkAutoStream::GetBuffer() may return before I/O is actually completed. This has no incidence on the sound engine or on your title unless you explicitly use blocking AK::IAkAutoStream::GetBuffer().
- **WG-16828:** Background Music Bus property is now correctly shown for the PS3 platform in the Master-Mixer Console and Multi Editor.
- **WG-16768:** Possible crash fixed when opening Music Segments after switching from Wwise 32bit to Wwise 64bit (or vice versa). akpk files were containing 32/64 bit dependent information.
- **WG-16719:** The switch ordering in the Music Switch Container association editor is now the same as the one found in the normal Switch Container.
- **WG-16628:** Fixed: MP3 file with multiple ID3V2 tags fails to play.
- **WG-16624:** Wwise does not allow anymore Music Segments to select themselves as stingers.
- **WG-16443:** Fixed a problem when adding watched from the Game Object Explorer's game object tab.
- **WG-16386:** Fixed: Streamed files using prefetch are not included in SoundBanksInfo.xml when the Original source file is absent.
- **WG-16104:** Fixed: live editing of bus ducking did not work in all cases.
- **WG-15813:** Fixed: SoundBank inclusion is sometimes wrongly excluding media from sounds that are duplicated then excluded in one of the path.
- **WG-17289:** Fixed: Custom multichannel (> stereo) plugins crash on the Wii. They now fail gracefully.
- **WG-17017:** The following factory queries were removed for the new projects and are not supported anymore for existing projects: Audio Source - Sample Rate = 48000 Audio Source - Converted Channels = Mono Audio Source - Converted Channels = Stereo Audio Source - Converted Channels = More than Stereo Audio Source - Converted has LFE
- **WG-16713:** Added a "Data Size" column in soundbanks' TXT file for the "In Memory Audio" section (size is in bytes) + Now listing every instance of source plug-ins under the "Source plug-ins" section.
- **WG-16898:** In soundbanks' TXT files, under the Source plug-ins sections, the columns are now: ID, Name, Plug-in type, [empty], Path to the Sound, Notes.
- **WG-17091:** Fixed: AkVorbisDecoder.lib symbols clash with standard vorbis distribution

- **WG-16275:** The version of subversion was updated from 1.5.2 to 1.6.6.
- **WG-16891:** (PS3)Fixed: Not all SPURS jobs are compiled with the flags -mspurs-job.
- **WG-15597:** Fixed: Can't load a project from the command line if the path is relative.
- **WG-16224:** Fixed: Possible PlayingID Conflict when calling AK::SoundEngine::PostEvent() from two different threads.
- **WG-17351:** Fixed: Working with switch containers with large number of children can slow down the Wwise application.
- **WG-16741:** Fixed: File Manager work-unit tab shows missing wav files - Perforce.
- **WG-16737:** Fixed: Crash in Profiler statistics view in very specific situation.
- **WG-16848:** Fixed: Crash when xbox conversion plugins are not installed an editing Xbox360 conversion settings.
- **WG-16236:** Fixed: Undo is not working when deleting a column in the dynamic dialogue editor.
- **WG-16810:** Multi-edit now support setting values smaller than 0.1.
- **WG-16611:** Fixed: Wwise Crashes when browsing for a collapsing list in Event Editor
- **WG-17330:** Fixed: Stability issue fixed in Integrity Report with folders under audio objects.
- **WG-17376:** Misc change: McDSP Company ID changed from 66 to 256 to conform to existing Wwise plugin standards.

Introduced in 2009.3 Patch 4:

Platform SDK Update:

- **WG-17335:** All PS3 binaries were built with PS3 SDK 320.001 and included in this package.

Authoring:

- **WG-16939:** Fixed: False "Media not found in any SoundBank" error while generating soundbanks in some cases.
- **WG-17353:** Fixed: Generated .bnk files were not always identical even with the exact same project and authoring application (Note: Soundbanks generated with a 32-bit application may still be different from those generated with a 64-bit application - that's a different issue)

Sound Engine:

- **WG-16865:** Fixed an issue where absolute SetVolume, SetPitch, SetLFE, SetLPF actions triggered on an object while the object was already performing a similar transition while the base value was not 0 would cause the transition to be computed as relative.

- **WG-17049:** Fixed: Performance drop on 360 for voice with LPF and pitch shifting.
- **WG-17077:** Fixed: Audio source playback from music engine may not be sample-accurate if played from a music switch container in a specific situation.
- **WG-17082:** Fixed: Cone attenuation was randomly applied under special circumstances.
- **WG-17088:** Possible crash with source plug-ins when initialization failure occurs.
- **WG-17091:** Fixed: AkVorbisDecoder.lib symbols clash with standard vorbis distribution.
- **WG-17126:** Fixed: Roomverb audio output could be inconsistent on PS3 for specific presets.
- **WG-17186:** Fixed: Crash in CAkSegmentCtx::ProcessSourcesPlaybackStart() when unloading a bank while a music segment is playing, and this segment contains a track which doesn't have audio content for the whole duration of the segment. (Note that since Wwise 2009.3, unloading a bank does not stop interactive music. However, you might stop hearing it because some parts of the hierarchy are unloaded).
- **WG-17219:** Fixed: In a playlist container, audio clips of segments that are scheduled to play later may not start playing if they are supposed to start within one audio frame of the synchronization point of the current segment. This is most likely to occur with in-memory XMA.
- **WG-17220:** Fixed: (Wii only) Sporadic click at the beginning of sound playback whenever the sound has a sample rate different than 32 KHz or a pitch different than 0.
- **WG-17240:** Fixed: Crash in CAkBus::ExecuteAction() when executing a StopAll/StopAllExcept action when music is playing after the bank that references it was unloaded.

#### Misc:

- **WG-17151:** Updated documentation after 2009.3 patch 2 fix for WG-16576 - Error in sample code leading to incorrect registration of McDSP plug-ins.

#### Introduced in 2009.3 Patch 3:

##### Sound Engine:

- **WG-16067:** - Fixed: Unexpected result with Volume RTPC on effect busses
- **WG-16505:** - Refixed: GCC incompatibility with #pragma warning in AkObject.h
- **WG-16659:** - Fixed: Memory leak in AkRSIterator.cpp. May happen after a Music Playlist was stopped because the bank that references it was unloaded.
- **WG-16766:** - Fixed: Rare crash in AK::CAkBusCtx::IsEnvironmental()
- **WG-16862:** - Fixed: Crash when breaking loop of an in-memory XMA sound that is virtual (using the Break action)

- **WG-16863**: - Fixed: Break actions CRASH when In-Memory ADPCM and PCM voices are virtual on the Wii

Authoring Application:

- **WG-16861**: - Fixed: Loss of parent-child relationship when there are folders under Actor-Mixers. This bug will occur if the Actor-Mixer is included in a bank that was already loaded

Introduced in 2009.3 Patch 2:

Sound Engine:

- **WG-16505**: - Fixed: GCC incompatibility with #pragma warning in AkObject.h
- **WG-16612**: - Fixed: Rumble doesn't activate the large motor on the PS3
- **WG-16675**: - Fixed: Rare crash when using SoundSeed Air on PS3
- **WG-15539**: - Fixed: Sample accurate containers with different number of channels may pass garbage in the pipeline
- **WG-16576**: - Fixed: Link conflicts when registering McDSP effects

Introduced in 2009.3 Patch 1:

Sound Engine:

- **WG-16332**: - Fixed: Music switch transitions may not be sample-accurate when playback starts with no look-ahead (generally, using in-memory tracks with transitions without playing any pre-entry).
- **WG-16309**: - Fixed: "Continue to play" flag on switch containers can sometime cause a second playback to fail
- **WG-16402**: - Fixed: Crash while loading a bank that has a large chunk of metadata (greater than 32 KB), because the IO buffer was not aligned on 32 bytes (Wii only).
- **WG-16404**: - Fixed: handling of loss of current audio playback device on Windows
- **WG-16441**: - Fixed: Assert in AkMatrixSequencer.cpp: AKASSERT( m\_cmdPlay.uPlaybackDisableCount > 0 );. May occur when a music transition is reverted after a rapid switch change. This is a regression introduced in 2009.3.
- **WG-16448**: - Fixed: ASSERT in AkSegmentChain.cpp: ( out\_iRequiredLookAhead == pFirstBucket>EarliestActionTime() ), in some cases when using positive fade in offset values in music switch transition rules.
- **WG-16463**: - Fixed: (Wii only) Assert in AkPipelineBufferBase::SetRequestSize(), when using Vorbis sources with virtual voices, or simply if a hardware voice was kicked by the OS.
- **WG-16519**: - Fixed: Possible compiler error when building multiple .vcproj in parallel

- **WG-16538:** - Fixed: AkFileSystemFlags::bIsAutomaticStream flag was missing from 2009.3 (but present in 2009.2.1)
- **WG-16542:** - Fixed: Rare memory corruption leading to a crash when using the RoomVerb plug-in on PS3
- **WG-16543:** - Fixed: The sound engine was failing to build when using the AK\_MEMDEBUG define

Authoring Application:

- **WG-15920:** - Fixed: Recurrent Object ID conflicts at project load
- **WG-16336:** - Fixed: Notes are not being saved in the SoundBank editor Caution: If you save a project with notes on a soundbank with 2009.3 Patch 1, you will not be able to open that project in a non-patched 2009.3 Wwise authoring application, so if you plan on using notes on soundbanks, make sure the patch is installed on every computer running Wwise, including build or test machines.

File Packager:

- **WG-16548:** - File Packager: Stream column in Default File Assignment is not working correctly
- **WG-16315:** - File Packager: SFX & Interactive Music Streamed files located in a Mixed SoundBank are not automatically assigned to a package

## 4.6 Need Help?

### 4.6.1 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**.

### 4.6.2 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](mailto:support@audiokinetic.com).

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

### 4.6.3 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](#).