SECTR Release Notes

SECTR 1.3.3 Release Notes
CORE
 * Compile updates for 5.5.
 * Improved Quick Start Window to auto-display whenever a new version is available.
 * Added SelfOnly bounding box update mode to Member component for faster updates on complex characters.
 * Terrain colliders are properly handled when drawing portals.

AUDIO
 * Optimized loading of AudioWindow for projects with non-standard layouts.
 * Fixed a bug where editor pausing caused sounds to drop out.
 * Fixed serialization bug that caused Audio Parameters to fail in some cases.
 * Fixed application of fade in and params on HDR sounds so that they don't cause sounds to get prematurely culled.
 * Fixed possible distance based drop-out for logrithmic HDR sounds.
 * Added GetInternalAudioSource to CueInstance (for expert users only).

STREAM
 * Fixed a bug in unload logic when unload comes from destruction rather than a regular unload.
 * Optimized Hibernator to use Events rather than FixedUpdate.
 * Updated docs with proper Lightmap baking instructions in Unity 5.x vs 4.x.

VIS
 * Major optimization to culling yields 5x-10x reductions in culling time.
 * Optimized component access in Culling Camera to reduce garbage generation
 * Micro optimizations to frequently accessed code.
* Fixed up a few bugs in how state is copied when proxyCamera is active.

SECTR 1.2.2e Release Notes
CORE

* Fixed bug in distance computations for A* graph utility function.
* Fixed bug that in terrain split logic that was causing normal seams at runtime.
* Compile updates for Unity 4.7 and 5.4.

AUDIO
* Allow AudioSources to be played and stopped from AnimationEvents.
* Triggers support 2D physics callbacks.
* Optimized loading of AudioWindow for projects with non-standard layouts.
* Updated pitch range in 5.x to match Unity defaults.
* Fixed possible case with volume and pitch not resetting.
* Fixed asset reference leak in AudioSource pool.
* Fixed multi-select of clips in the AudioClip section of the AudioWindow.

STREAM
* Updated additive loading calls to match new 5.3 API.
* Fixed bug with code that prevents multiple Sectors from loading in a single frame.
* Implemented workaround for crash when calling UnloadScene from a physics callback.
* Disabled manual call to UnloadUnusedResources in Chunk unload for newer versions of Unity.

VIS
* Optimized occlusion culling logic in scenes with large numbers of objects.
* Last visible time stored in Member component for querying by game systems.
* Fixed bug in terrain culling that affected Unity 5.2 and 5.3.
* Updated demo logic for PiP cam to work with a change in culling behavior for 5.3.

SECTR 1.2.1a Release Notes
CORE
* BREAKING CHANGE - Use native playmaker native types instead of simple floats. Allows more complex Playmaker scripting but may break existing setups. Only extract Playmaker packages after you make a backup.
* Fix a few edge cases in Member update when adding and removing children at runtime.
* Work around Unity AABB bug when auto-grouping particles in Terrain sectorization.

AUDIO
 * Make SplineSource positioning robust even in very, very large splines.
 * Fix bug when Delayed sounds are stopped while still in the delay phase.
 * Ensure AudioSource PlayOnAwake to work properly when disabled and re-enabled.
 * Prevent AudioInstances created from Prefabs from being saved in scene or showing in hierarchy.
 * Fix cases where pressing Enter or Delete in field AudioWindow could prompt for a rename or delete of the Cue.

STREAM
 * Re-enable lightmap streaming in Unity 5.2 and above. Requires use of Bake All Lightmaps button in Stream window.
 * Use Async Scene Loading API for all 5 users, not just Pro.
 * Fix some edge cases when exporting Members that are children of Members for streaming.
 * Ensure Loaders report the correct status even when they have not had Update called at all.
 * Hibernators never fall when going into hibernation regardless of update order.
 * Fix edge case where Region Loader reports wrong results for Loaded when scene is not exported for streaming.

VIS
 * Enable fast-path fulling for terrains in Unity 5.2 and higher now that Unity fixed the relevant crash bug.

SECTR 1.2.0c Release Notes
CORE
 * Brand new Open World demo scene. Try out the Terrain Window splitting on it.
 * Terrain Window has progress bar during splitting.
 * Removed slow, vestigial Legacy Bake code in Member Update in Unity 5 editor.
 * Fixed bug when deleting children from Start update mode Members.

AUDIO
 * Fixed source pool underflow when there are too many propagation sources.
 * Fixed leaking allocation in propagation source.
 * Fixed distance attenuation in propagation source in certain transitions across portals.

STREAM
 * Brand new Open World demo scene with support for streaming.
 * Reworked Chunk loading logic to properly allow rate limited, async loading in Unity 5.
 * Lightmap streaming disabled in Unity 5. Prevents lightmaps from overflowing or flickering until Unity adds proper support.
 * Fixed bug where exports of large scenes could sometimes fail to export a sector or two.
 * Fixed a bug with Terrain Composer support in Unity 5.

VIS
 * Brand new Open World demo scene with support for dynamic occlusion culling.
 * Implemented faster terrain culling for Unity 5, but disabled to due regression in 5.0.1.
 * LOD component can disable sibling components, not just children.
 * LOD component added to Add Component sub-menus.

COMPLETE
 * Brand new Open World demo scene with streaming and occlusion culling.
 * Lowered lightmap resolution to decrease package size.

SECTR 1.1.5b Release Notes
CORE
 * Major optimizations to SECTR_Member. Now generates zero garbage in standalone and spends less CPU computing bounding hierarchy.
 * Terrain Window splits preserve layer settings of original terrain.
 * Cleaned up some old/broken code in Hull.

AUDIO
 * Beta support for Realtime Parameter Control for advanced real time logic!
 * Beta support for custom filters and other custom behaviors with Prefab driven Audio Cues.
 * Multiple buses can be soloed at once.
 * Streamlined Audio Window for Unity 5.
 * Improvements to Revert/Checkout/Duplicate behavior for Clips and Cues.
 * Hierarchy section of Audio Window sorted alphabetically.
 * Fixed Inspector Volume slider for AudioSource subclasses.

* Fixed baking of HDR data in templated Cues.
* Properly handle NULL entries in the Ambience OneShot lists.
* Allow multiple AudioClips to be dragged and dropped into the AudioCue inspector.

STREAM
* Batch unloads to be at most once per frame, not once per chunk unload.
* Workaround for Unity 5 bug 674439. May cause higher CPU load spikes until core bug is resolved.
* Fixed bug where disabling a TriggerLoader would not properly unload the associated Sectors.
* Fixed bug that was failing to filter out some kinds of hidden nodes in scene export.

VIS
* Automatically switch to Simple Culling when camera is in an exterior grid of terrain Sectors. This makes outdoor games faster by default and works reasonably well for hybrid indoor/outdoor games.
* Improve hysteresis logic in LOD system.
* Fix editor bug that could cause wrong LOD to appear initially when playing in Editor.

SECTR 1.1.4f Release Notes
CORE
* Manually smooth terrain splat map mips when splitting terrain. Ensures no visible seams in splat texture.
* Fix a bug in the pooling of SECTR_Member.Child which was generating excess garbage.
* Fix a bug in SECTR_Member.Child that was generating bad child data in standalone builds when the Bounds Update Mode was set to Start.
* Avoid some SECTR_Member.Child init work for users who don't have/use VIS.
* API fixes for Unity 5.0.0.b14.

AUDIO
* Added Delay property to AudioCue. Can now play AudioCue with randomized start delays.
* Added Probability property to AudioCue. Can now have a random chance of an AudioCue not playing. Good for thinning out frequent sounds.
* HDR keyframes can now be edited after baking. Note that this change is not backwards compatible and will require re-baking all of your HDR keyframe data (for users of HDR sounds).
* Added Rename/Duplicate/Delete support to AudioClip pane.
* Fixed Shift+Arrow Keys in AudioClip pane.

* Ignore delete and return hotkeys in Audio Window when editing a text box in the property or audio clip panes. Prevents accidental deletions and renames.
 * Protect against cases where users delete AudioClips that are referenced by AudioCues.
 * Fixed bug in max instances logic that could affect sounds with Max Instances of 1.
 * Fixed bug in instance logic when AudioSource.pause is true (i.e. app is in background).

STREAM
 * Make sure that Chunk Member added in backwards compat code path is marked as Static. Saves CPU for scenes exported under older versions.
 * Additional future compatibility work.

VIS
* Terrain no longer requires special Layer setup to cull by default and will cull correctly in Scene view when Cull in Editor is enabled.
* Simple culling mirrored properly in Scene view when Cull in Editor is enabled.
* Fix culling optimization that could cause some portals to be culled prematurely.
* LOD will try to init to the current LOD in OnEnable rather than always to 0 and then changing again in the first render.

SECTR 1.1.3 Release Notes
CORE
 * Terrain Window now includes option to create geo for terrain portals.
 * Sectors will track child particle systems again, just not include them in the bounds.
 * Future compatibility updates.

AUDIO
 * Fixed drag and drop of AudioClips in the Audio window. Introduced in 1.1.1.
 * Future compatibility updates.

STREAM
 * Added cancel button to Import All and Export All in Stream window.
 * Removed ForceSyncLoad from Loader. Was confusing and unhelpful and also causes lockups in some situations in some versions of Unity.

* Fixed DoorStream demo.
 * Future compatibility updates.

VIS
 * Optimizations to culling, focused on terrains and complex spaces.
 * Particles that are the children of Sectors will auto-cull without requiring their own Member component.
 * Future compatibility updates.

SECTR 1.1.2 Release Notes
CORE
 * Member and Sector now serialize information about their Children, and do not rebuild this data on start unless it's not there (i.e. backwards compatibility).
 * SECTR_Member::Child is now a class, and is also pooled to avoid generating excess garbage.
 * Don't warn about breaking lightmaps during Terrain split if there are no lightmaps in the scene.
 * Some NULL checks in Hull (base class of Occluder) to guard against missing meshes.

VIS
 * Fixed debug frustum material to avoid randomly showing junk textures on the frustum.

STREAM
 * Major hitch reduction. Chunks now create a Member in the exported scene, which the master Sector uses as a proxy. Combined with the serialization in CORE, this essentially removes all SECTR specific CPU overhead from Chunk loads.

SECTR 1.1.1 Release Notes
CORE
 * Fix bug in Depth and Breadth Graph walk routines that could lead to incomplete traversal of complex graphics.
 * Create Sector and Create Portal shortcuts fixed on OSX.

AUDIO
 * User volume on Audio Bus now properly resets going into and out of playback mode, between levels, etc.

STREAM
 * Reworked internal additive scene loading logic to ensure static batching works correctly and static colliders are not rebuilt after additive load.
 * Chunks that will be used by multiple Sectors now require an opt-in by setting the ExportForReuse flag to true.

VIS
 * Fix shadow culling bug introduced in 1.0.11 that could cause point and spot light shadows to pop in and out.
 * Added SimpleCulling mode to Culling Camera, which is designed for 2D, Iso 3D, and other game types where the camera is outside the scene.
 * If CullingCamera has a Member sibling, use the Member's Sector membership instead of calculating it in PreCull. Allows CullingCamera to take advantage of features like Portal Determined membership.

SECTR 1.1.0 Release Notes
CORE
 * Added new Quick Start panel including live information on news, sales, and updates as well as quick links to useful videos, docs, and support.
 * Make sure to never double-add Sectors for Portal Determined Members.
 * Removed legacy Unity 3.5 code, added initial compatibility code for Unity 5.

AUDIO
 * Support Infinite 3D Cues in the Audio Environment Background Loop.
 * Support Infinite 3D Cues played from Audio Sources.

STREAM
 * Add safety checks in Chunk to prevent shutdown/exit errors in Proxy.
 * Rework Import/Export/Revert inspector button logic to avoid modifying the scene during Inspector Update, which apparently Unity dislikes.

VIS
 * Disable culling threads at compile time on Win Phone 8 where the threading API is not supported.

SECTR 1.0.11a Release Notes

STREAM
 * Fix null deref on shutdown bug in SECTR_Chunk.

VIS
 * Always update LODs even if there are no Sectors.
 * Add LOD entry to the SECTR Create menu.

SECTR 1.0.11 Release Notes

CORE
 * Sectors created by the Terrain window are now parented above the Terrain rather than being added to the same object. Fixes issues with certain 3rd party scripts expecting to be on the same object as the terrain.
 * Fixed seams appearing between terrains when using the split feature of the Terrain Window.
 * Guard against null lights in the baked only lights table.
 * Fixed PlayMaker integration compile issues in Unity 4.5.

AUDIO
 * Fix accidental double-attenuation when playing non-HDR sounds from Propagation Source.
 * Fix looping sounds would un-pausing prematurely.
 * Optimized Audio Window asset search for Unity 4.5 and above by using new Asset Database Find API.
 * Fixed typing in Audio Window search boxes causing incremental shifting of splitters.
 * Fix drag-and-drop of Audio Clip into Hierarchy window.
 * Fixed PlayMaker integration compile issues in Unity 4.5.

STREAM
 * Added UnloadBuffer to Region Loader so that there is some hysteresis between load and unload (i.e. less popping when moving small amounts back and forth).
 * Added Import/Export/Revert buttons to Chunk component inspector (for convenience).
 * Added Revert All button to Stream window.
 * Fixed seams when streaming terrain sectors created in Terrain Window.
 * Fixed PlayMaker integration compile issues in Unity 4.5.

VIS
 * Band new LOD system for more efficient rendering in open world games. Just add SECTR_LOD component. See VIS manual for more details.
 * Major optimization pass on occlusion culling. Includes streamlining of core routines as well as support for multi-threaded culling. See VIS manual for more info on threaded culling.
 * Culler component is now deprecated and no longer necessary. To manually control culling behavior, simply use the new attributes on Member and Sector. Previously added Cullers will continue to behave appropriately.
 * Fixed PlayMaker integration compile issues in Unity 4.5.

SECTR 1.0.10 Release Notes

CORE
 * Added documentation about working with Terrain Window to CORE Manual.
 * Fix bug where missing null check in Member could cause crashes on some platforms (like iOS).
 * Fix bug where results from Portal's viewport Sector selection/swap GUI would be erased in play mode when performed on a Portal in a Prefab when the user pressed Play.

AUDIO
 * Fix bug where 2D sounds could disable reverb on 3D sounds if Audio Source pool entry was re-used.
 * Support multi-select of Audio Cue in Audio Window and Inspector.
 * Fix Cmd+Select in Audio Window on OSX.

STREAM
 * Beta implementation of Chunk Proxy, which is a mesh that will be displayed when the Chunk is unloaded. Useful for some open world games. Includes an Inspector Tool that will create custom Proxy meshes out of a selection of Chunk members.
 * Modified Stream Window exporter to center exported chunks at origin and to adjust them on import. This makes it possible for multiple Chunks to reference the same scene file.

SECTR 1.0.9 Release Notes

CORE
 * Terrain window supports automatic Sectorization of Terrain Composer created terrain grids.
 * Fix crash splitting terrains with trees in the Terrain window.

* Sectors no longer include Particle Systems in their bounds computation as they are too dynamic to be reliable. Also fixes issues where sometimes Sector would expand to include the origin due to a particle returning an invalid Bounds.
 * Custom inspector class updated to more perfectly match behavior of default inspector, including support serializable, private, non-hide-in-inspector variables.
 * Updated documentation with more information about advanced bounds logic and the new portal determined membership mode.

AUDIO
 * Fix bug in Trigger Source inspector that was applying but not saving properties.
 * Improved distance calculations in Propagation Source to sound more accurate in complex cases. Propagation distance is now the portal path distance, not the simple linear distance.
 * Propagation Source properly supports one-shot sounds.
 * Fix for some small pops in Propagation Source due to various edge cases when handing off sounds during major path changes.

STREAM
 * Major optimization of Chunk loading, reducing hitches by spreading out CPU heavy work over several frames. Requires a re-export of Chunks to see benefits of optimization.
 * Support for streaming terrains made in Terrain Composer.
 * Add Region Loader to menus and documentation. Ideal for open world streaming.
 * Hibernator component can hide renderers during hibernation.
 * Fixed bug in Stream window import/export where components on the Sector were not copied correctly.
 * Fixed bug in Stream window export for 1x1 special case.

SECTR 1.0.8 Release Notes
STREAM
 * Fix chunk import bug introduced in 1.0.7.
 * Minor improvements in Stream Window UI.

SECTR 1.0.7 Release Notes
CORE

* Added optional PortalDetermined mode to Member. When set to true, Sector membership will only change when the object passes through a Portal (instead of whenever it enters a Sector Bounds). Ideal for games with very complex/concave scenes.

AUDIO
 * Propagation Source now supports all types of occlusion.
 * Added Occlusion Scale to AudioCue, which allows different Cues to respond differently to occlusion.

STREAM
 * RegionLoader now supports Layers, to allow for more fine grained loading.
 * Fixed several bugs in Stream export, including behavior that could unnecessarily break prefabs in exported scene.

SECTR 1.0.6 Release Notes
CORE
 * Fix some issues with multi-selection and custom inspectors.
 * Properly orient portals created by Terrain window.

AUDIO
 * New keyboard shortcuts (Enter to rename, Ctrl/Cmd D to duplicate, Del/Bksp to delete).
 * Ensure horizontal scroll bars don't appear unless absolutely necessary in Audio window property panel.

VIS
 * Properly fix portal traversal culling bug introduced in 1.0.5. Now traversal works for all known portal types and scene configurations.

STREAM
 * Added Revert option to Stream window, for teams using the Stream window as a multi-user workflow tool.

SECTR 1.0.5 Release Notes
CORE
 * Workaround for critical serialization bug that could cause scene file corruption when creating portals in projects with mixed/binary serialization.

VIS
 * Fix bug that could cause infinite loops/hangs in scenes with a lot of pass-through portals (i.e. sectorized terrains).

SECTR 1.0.4 Release Notes
CORE
 * Beta PlayMaker Support.
 * Fix a Unity warning when a Portal is created through the drawing interface.
 * Beta Terrain GUI groups new objects when splitting terrain into pieces.
 * Beta Terrain GUI can include static and/or dynamic objects during sectorization.

AUDIO
 * Beta PlayMaker Support.
 * Multi-select support in Audio Window.
 * Arrow navigation in Audio Window.
 * Press space to audition cue or clip, Esc to stop.
 * UI fixups in Bus and Cue inspectors.
 * Fix subtle bug with distance attenuation sometimes being too large.
 * Fix bug that could cause occluded sounds to not become un-occluded.
 * Optimizations for redundant pitch and volume changes.

STREAM
 * Beta PlayMaker Support.
 * Gracefully handle invalid lightmap indices when exporting a Sector for streaming.
 * Properly handle deactivated hierarchies during streaming export and import.
 * Fix some missing null checks in Trigger Loader.
 * Allow Imports in Stream Window even if scene is not checked out.

VIS
 * Beta PlayMaker Support