Pro Pack

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Release Notes

September 2019

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Release September 2019:

This is another stability build with a huge amount of fixes and extensions to the toolsets. We've also moved over to a new compiler and backend license manager setup that hopefully should be a lot more flexible moving forwards. We've done a lot of profiling this release to try and speed up both the boot time for ProPack and some of the internal functions, hopefully you should notice the difference!

For those coding under our API please read the **Codebase_Tracker.xlsx** found in the release distribution folder for more details of code changes, fixes and new features supported in this release. Please be aware there are multiple tabs, one for ProPack and one for StudioPack, both of which are tracked and have had a lot of updates!

Key Release Changes:

- Pro_to_BND: Massive Animation ReTargetting update

- R9Anim : ability to direct load the data
- R9Anim : ability to batch convert data in the browser
- R9Anim : audio path resolving added for mRigs

- Exporter : playblast support added
- Exporter : coloured widgets supported in UI
- Exporter : relative path handling added

- Browser : support for r9anim batching
- Broswer : additional support for Maya file handling
- Browser : Pro_TO_BND import behaviour added
- Browser : Pro_TO_BND HIK preserve contacts added

- RigManager : New datamap support

- Rig DAG menu : locomotion tracking added for games
- Rig DAG menu : cut keys added

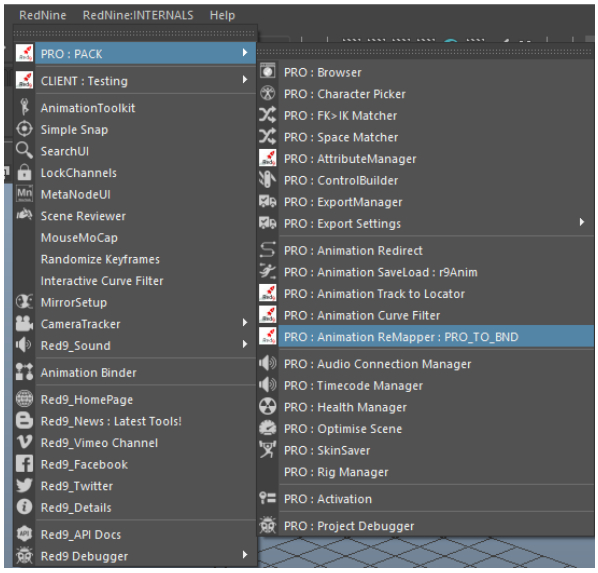
4K Monitor support:

We've done a lot of stability fixes in this release and crucially added in 4K support to both the Red9 StudioPack and ProPack toolsets. If you find any issues with your current monitor setups please let us know. The StudioPack AnimationToolkit was particularly bad under 4k resolutions but hopefully that's now all resolved.

Animation ReTargetting (Pro_to_BND)

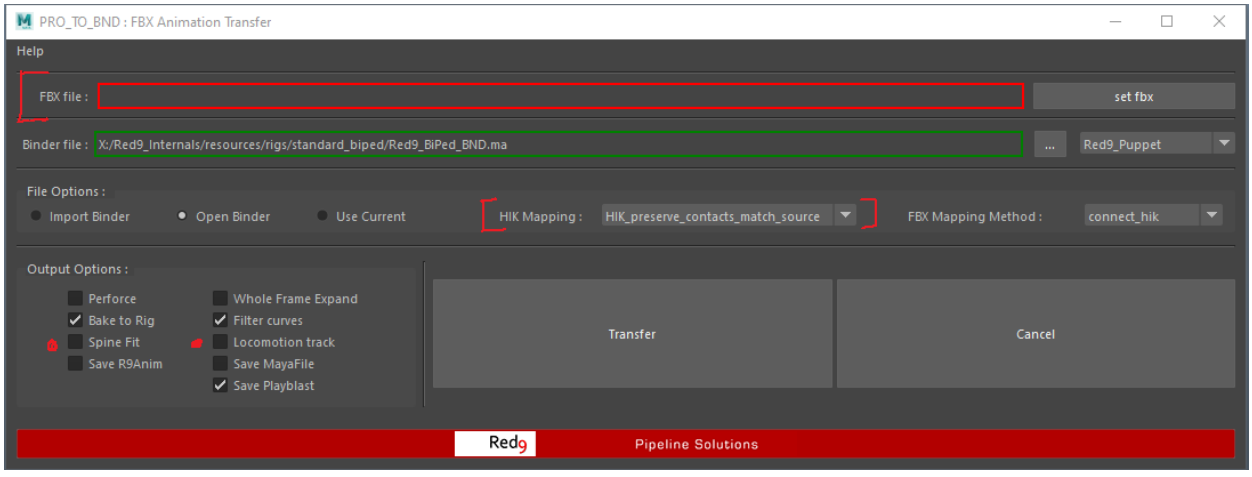
https://vimeo.com/365029310

The PRO_TO_BND system has been in the ProPack since day one, but recently it's had a major upgrade. Until now the system has only been available in the Red9 Browser when RMB clicking on an fbx file or files. In the new release we've exposed it as a tool in its own right under the Red9>ProPack menus. This tool is responsible for all our FBX to Binder handling in ProPack, allowing remappinig of FBX data on mass to a new PuppetRig, or any custom rig with a valid binder file setup.



If opened up from the menus we allow the FBX path to be set directly in the UI, else the fbx path is passed into the UI from the Browser selections.

The new release exposes some key features. We've modified the handling to allow you to now import as well as open up the binder, allowing you to stack the data into the same Maya scene. Previously each Binder run was treated as a separate file in its own right.



The HIK Mapping mode now has a series of presets to allow you to quickly decide how the HIK data is handled. The key ones are the 2 “preserve contacts”, the first one turns on the reach for the wrists, feet and partially on the spine. It also turns on the floor contacts. The second one “match source” also turns on the Match Source flag in the HIK remapper, attempting to match the original incoming fbx animations world co-ordinates.

There are also 2 new complex solve flags added for those running Red9 PuppetRigs, “Spine Fit” and “Locomotion Track”.

Spine Fit runs the IK match code for the rigs spine system. This is an iterative algorithm that tries to do a best fit for the IK Spine over time, and in the process ensures that the upper body, chest and clavicles do not suffer from the traditional spine solve “creep”. This new process locks the chest to the actual chest solve point and counters that by adjusting the mid spine controller. The result is that the data integrity is far, far better, especially if the data is being passed to and from Motion Builder.

Locomotion Track runs the tracker on the locomotion controller in the rig, keying it so that it follows the position and rotation of the COG but projected down to the ground plane. This is aimed at game engine requirements. See more details below.

Finally we’ve also added in support for Playblasting of the data during the process. Because this calls the Red9 Exporter Playblast function all of the options are global, and set through the Playblast settings UI in the menus. (see below in this document for more details). This is ideal when running the process from the Browser in batch mode ass it allows you to generate movies of your raw fbx deliveries, bound to teh rig, and with custom camera tracking, force focusing on the resulting bind and the rig.

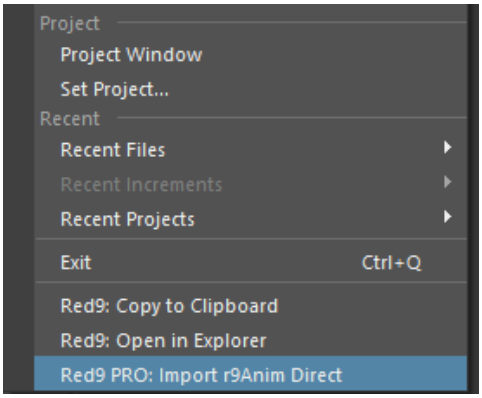
Animation Load / Save: (r9Anim)

The Red9 Animation Format, r9Anim, continues to grow and has had more internal development to expand its integration to the rest of the toolsets, and to Maya itself.

Direct Loading:

The format now supports “Direct Loading”. If you’re running MetaRigs and the rig was referenced when the r9Anim was saved, then this option becomes available. Inside the “info block” of the format we now store the rigs reference path, its namespace and the referenced group info. This allows the loader to restore the rig before dropping the animation data onto it.

This functionality is initially exposed under the Maya “file” menu (see below). Selecting this will prompt for an r9Anim filepath, it will then reload its internal reference data, then drop the animation onto it, rebuilding the reference in-tact.

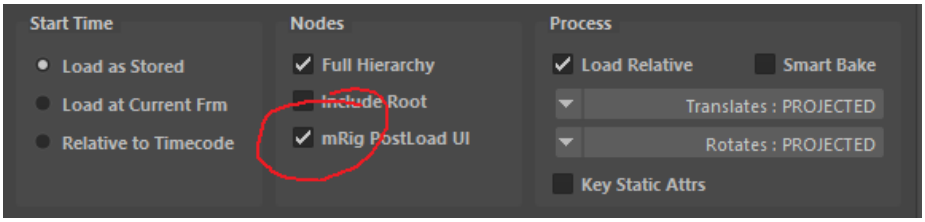


direct Load of r9Anim data in the Maya>File menu

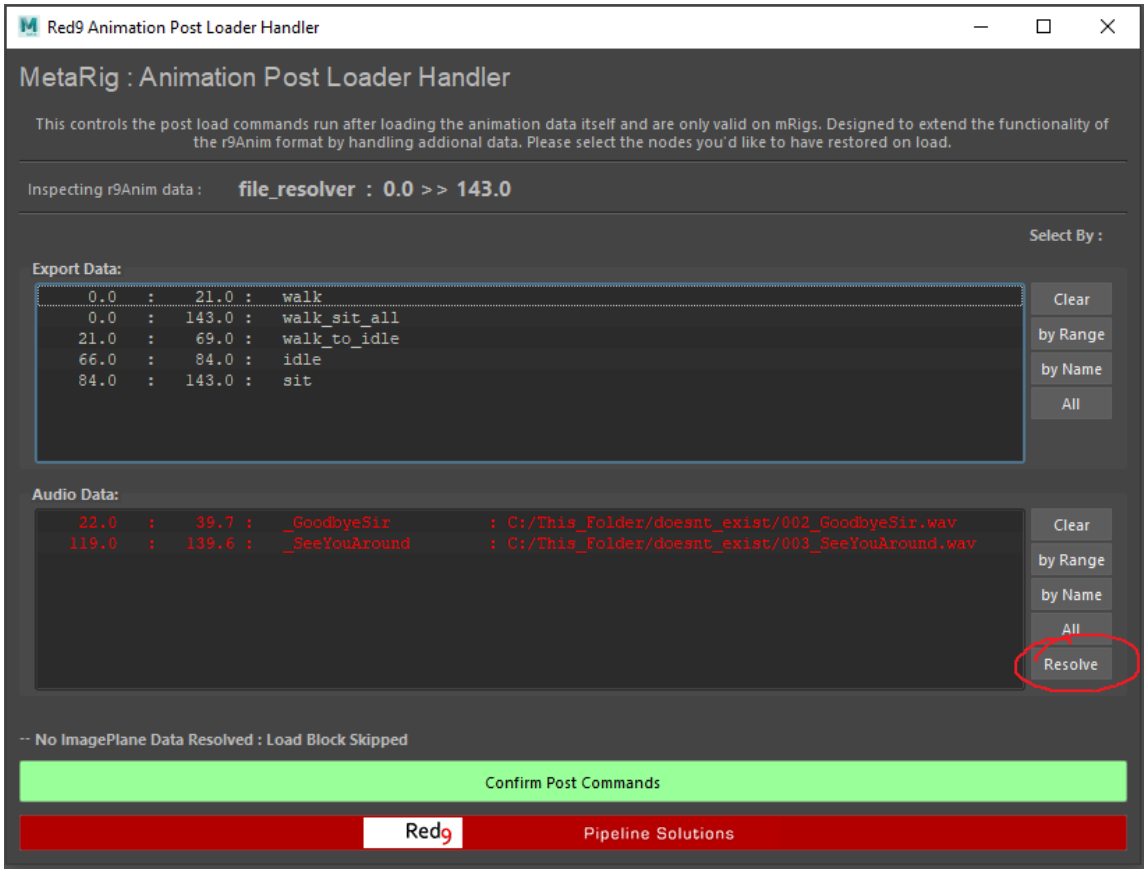
This feature comes into its own when integrated into the Red9 Browser as it now allows us to batch process r9Anim data and bounce it between different file formats, see Browser updates.

Audio Path resolver:

The Animation Post Load Handler has had updates in the way that audio path data is now resolved. The UI opens up when you set the r9Anim path in the main r9Anim UI, but only if the “mRig PostLoad UI” checkbox was ticked. The ability to restore audio is only supported on MetaRig data where the audio has been connected.



Audio is bound to an r9Anim via the “Red9 Audio Connection Manager”, this binds audioNodes to an mRig and that connection is stored in the r9Anim. If on load any of the audio paths were found to no longer be valid on the current filesystem, then we colour them red in the UI.

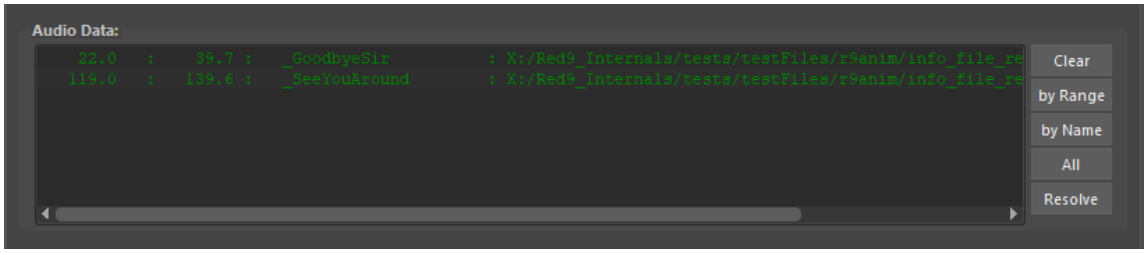


Invalid audio paths found and coloured red

To help in this situation there's now a "Resolve" button. This runs through a function that searches in the following places to try resolve the filepath, widening the search for a matching filename. This is processed in the following order.

1. Inspect the r9Anim location for the missing audio file
2. Inspect the Maya workspace mapping of sounds / audio locations
3. Inspect the current Maya scene file folder

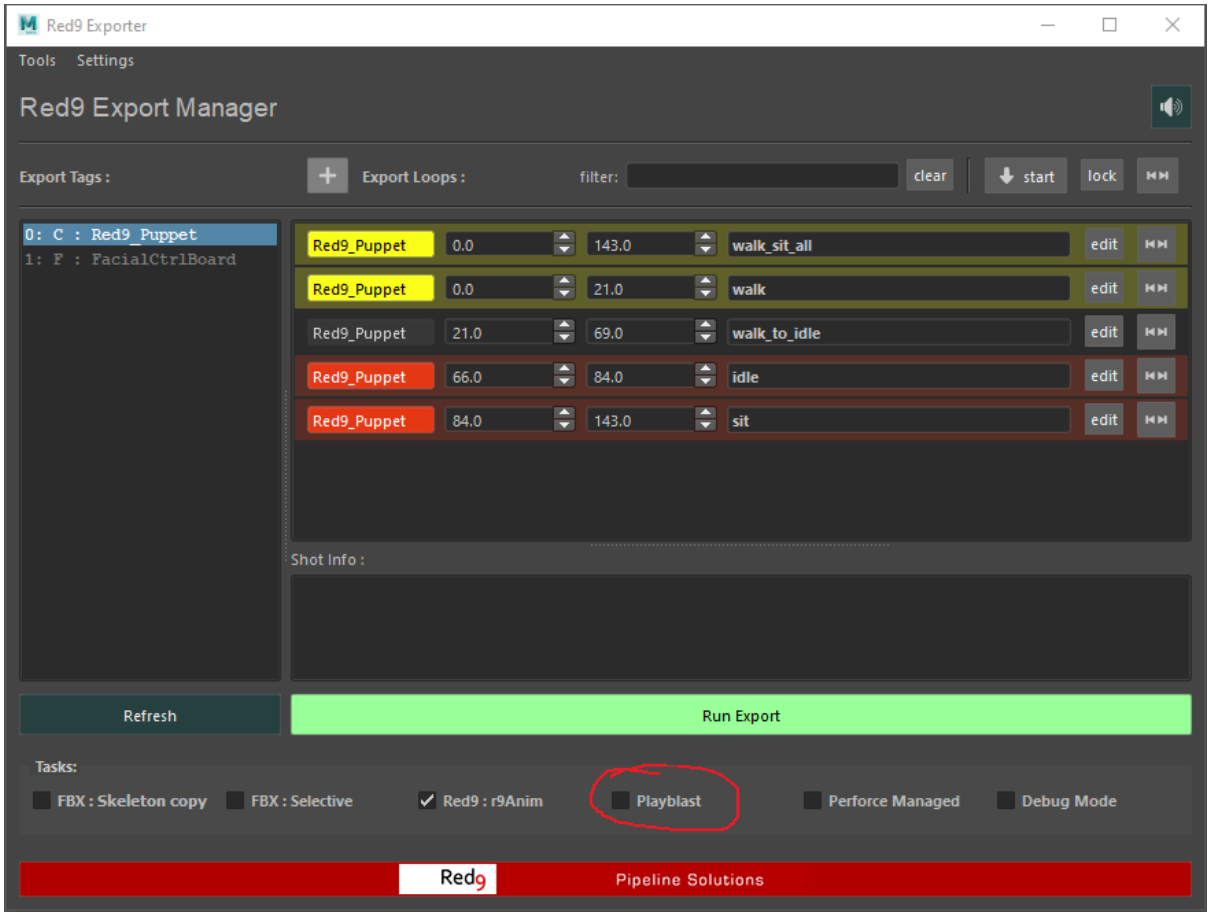
If an audio file with the same name was found in any of the above then the UI will remap that data and turn those file paths green in the UI for you to then select for restoration during the r9Anim load.
Note that this functionality is only available through the UI and does NOT modify the actual r9Anim file in any way.



Invalid audio paths resolved, remapped and turned green

Red9 Exporter:

The Red9 Exporter has had many changes under the hood and more options exposed in the UI and its RMB menus. This continues to be the backbone of those clients running exports to game engine and is fully batchable via the Browser, it's also fully integrated within the r9Anim format.



Coloured Loops in the UI for fast visual reference & new Playblast checkbox

Playblast support:

We've finally added full support for Playblasting from the exporter and this is exposed as a new output format via the checkbox in the UI. All settings used are stored globally via the Playblast Settings UI, (see below). This enables control over the movie format, compression, frame sizes, visual flags and camera behaviour.

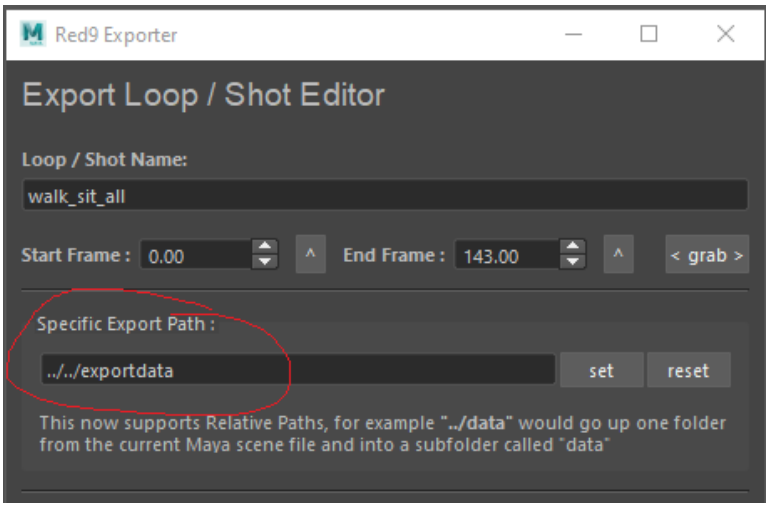
It's important to note that this is an export task, meaning that the playblast system call is looking for an mRig as the root of the setup. When each loop is output with the playblast option set, it will create a movie per loop in the same way the export of fbx creates a file per loop.. This currently isn't aimed at creating complete scene based movies and relies on the exportTag system.

Relative / Custom paths:

The Exporter now supports relative path handling. By default the initial export path used by the systems is the current Maya scene path. The new support allows for folder structure changes to be relative to this starting path, or a complete custom path can be passed in if required.

You can set a relative path at the ExportTag or individual ExportLoop level. If set at the ExportTag level that path would propagate to all child ExportLoops unless those loops themselves had a custom path set on them.

Relative paths would be formatted as below. Here the resolved path would be 2 folders up from the Maya scene location and in a folder “exportdata”. If this folder didn’t exist it would be created on output.



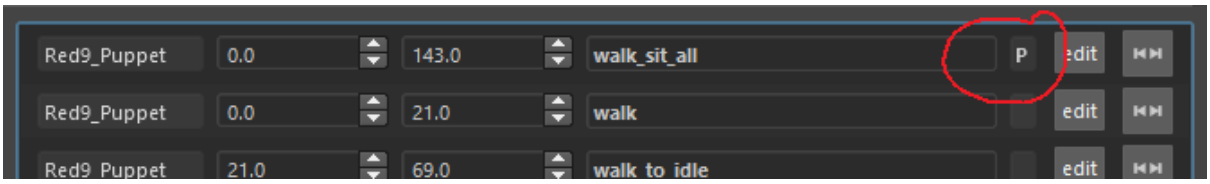
Relative path manually set in the Loop editor

X:/clients/projectA/scenes/animation/sourcefiles/

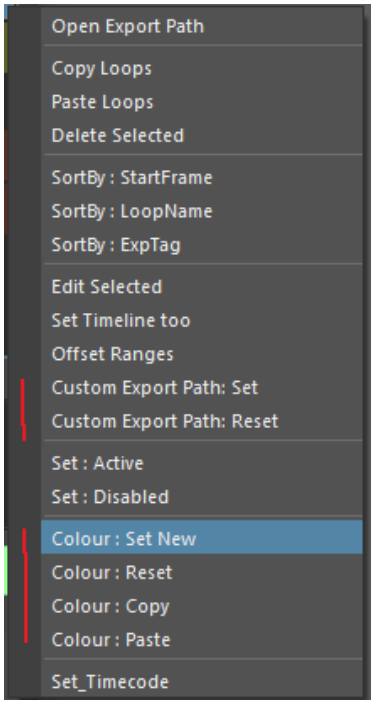
With a relative path set to : **“../../exportdata”** becomes :

X:/clients/projectA/scenes/exportdata/

If a loop has a custom path there’s now a new indicator in the UI, a shaded “P” will appear next to the loop to quickly indicate that the default behaviour has been changed.



New indicator to denote custom paths on given loops



Updated RMB Menus exposed to the main Exporter UI

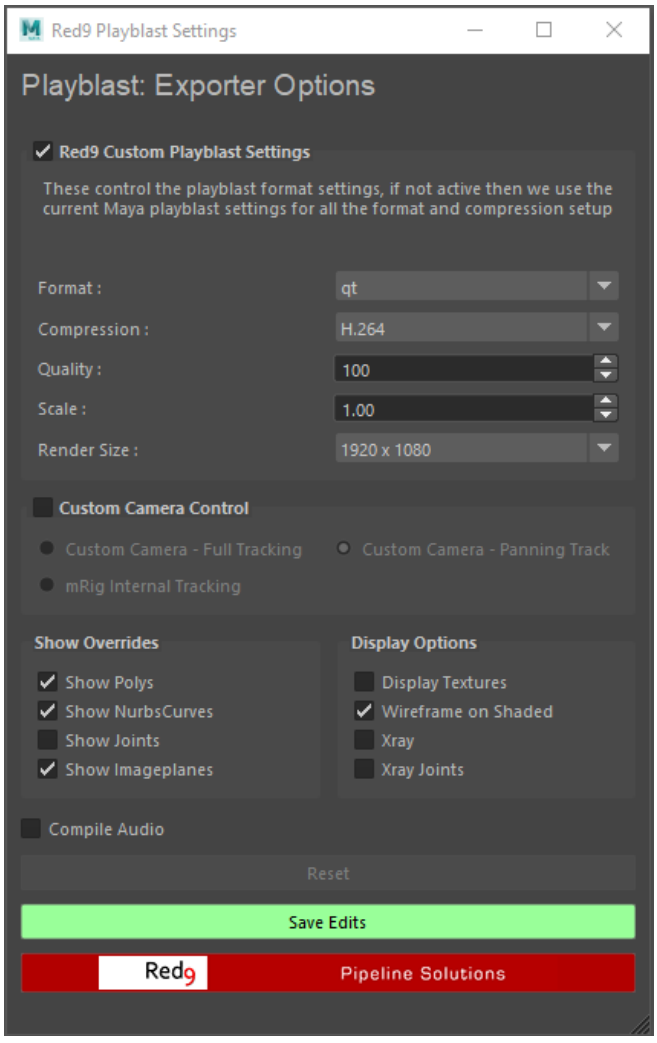
We've also added the ability to colour individual export loops, or copy colours from other loops / characters. This data is preserved in the r9Anim file structure so when export loops are restored from animation data, so are these colours. Both the colour and custom path options are exposed in the RMB menus in the Exporter.

Playblast Settings / Support:

One thing we'd been asked a lot for was to support custom playblasts within the Exporter and directly within the Browser. The new support is exposed from the Settings both in the Red9>ProPack menus and the ExporterUI. These settings propagate to all of our playblast calls regardless them being called from the Exporter or from within the Browser. Like all of the Red9 ProPack settings they're stored in your prefs C:\Users\xxx\Documents\maya\R9_PRO\prefs

The UI is split into 4 main sections, the movie format, camera control setups and the visually state of the scene separated into the overrides and draw options.

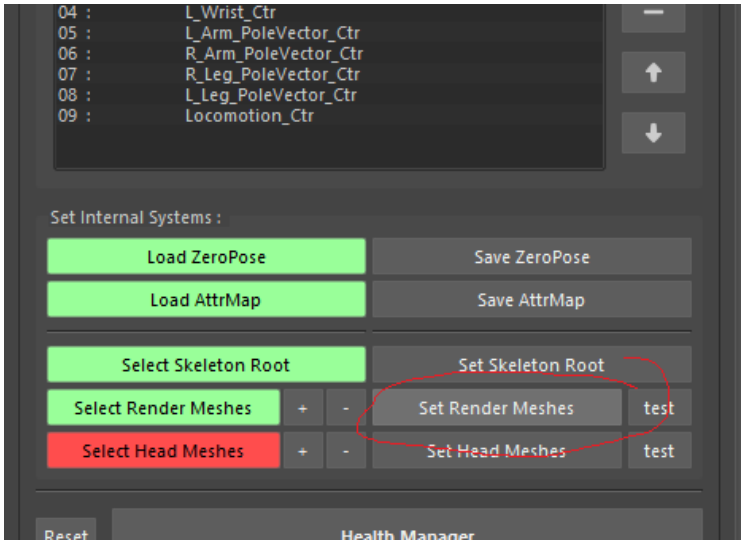
The first thing to note is the top checkbox "Red9 Custom Playblast Settings". If this is ticked then all the settings which control the movie format in the UI come into effect when our playblast function is called. If this checkbox is OFF then we use Maya's current internal playblast settings instead. The camera and visual states are controlled regardless.



New Playblast Settings UI

The movie formats and compression options exposed are pulled directly from your machine and whats available to Maya. The only thing we add are standard frame sizes in the dropdown to make things more consistent.

The Camera management is a key option in our setup, particularly if you're looking to create movies on mass for data that doesn't have cameras setup, such as MoCap data deliveries. The key to the camera management is that we're looking for a MetaRig with the renderMeshes wires set. This is easily done through the RigManager as below.



Pro RigManager > Tab2

Note: RenderMeshes is a generic wire used by all of our MRig systems to denote the meshes required for output on a game, or just the character meshes that a rig is driving.

Custom Camera – Full Tracking : this calls the Red9 StudioPack's camera tracking setup, we force frame the camera on the mRig.renderMeshes objects and track them every frame. This produces a good tracking camera that focuses in on the rigs meshes, ideal for looking at moCap deliveries where the animation may be walking or moving quickly.

Custom Camera – Panning Track : again we call the StudioPack's camera tracking but with a fixed camera that pans to keep all data in shot rather than tracking it.

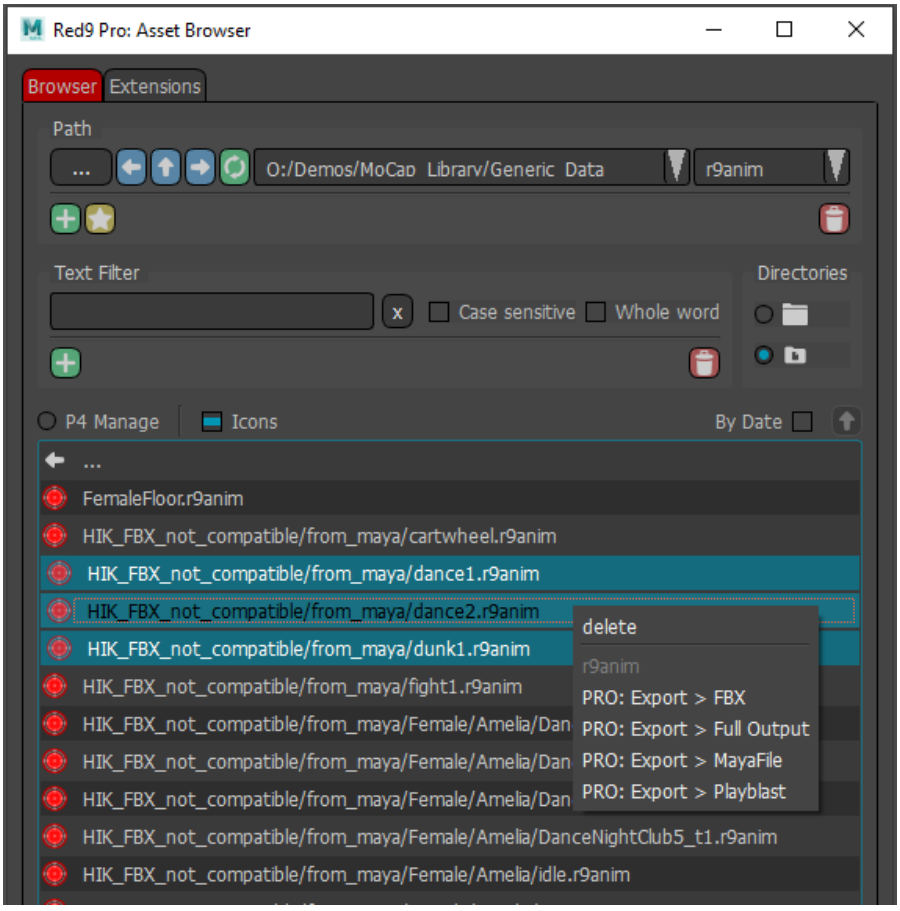
mRig Internal Tracking : our Pro_MetaRig class now has support for custom cameras, initially only exposed to our Facial_MRig class. If we're playblasting the facial rig then this will call the internal camera management in the facial class which in turn will frame and isolate the facial mesh.

Hopefully the Overrides and Display settings are self explanatory, these control what's visible in the movie and what state the display options are for it.

Compile Audio isn't yet supported in the latest build but will be coming soon.

Red9 Browser:

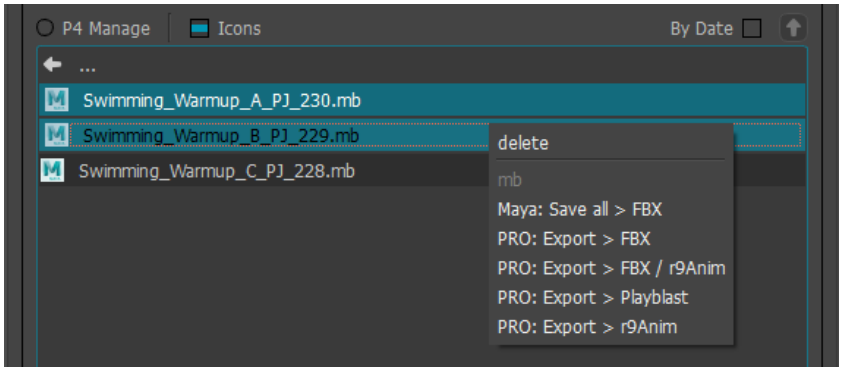
The Browser has had a lot of cleanups in the way we manage the calls and we've expanded upon the file handling for Maya scenes and r9Anims. As mentioned above, r9Anim now supports direct loading, exposing it to the batch functions as a file format in its own right as long as the r9Anim was created by a referenced rig in the first place.



New r9Anim file handling on RMB menu in the Browser

We can now process r9Anims directly into Maya scenes and, if the r9Anim was saved off from a rig with our export tags set, we can even output directly to FBX using the Exporter systems. We can also call the new Playblast handlers directly, producing clean, tracked playblasts of the r9Anim data.
The Full Output for r9Anim calls all 3 of the above, creating a Maya file, an engine ready export and a playblast.

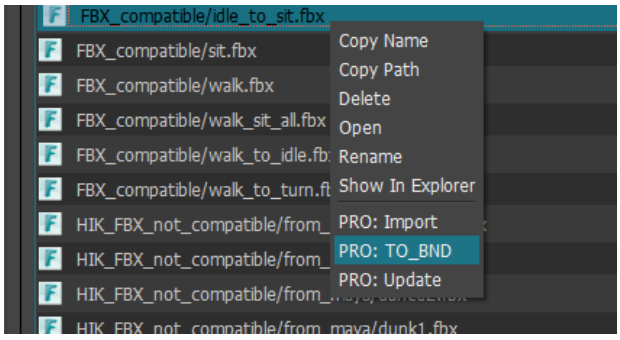
Maya files have also got better integration into the exporter systems, enabling us to call the Exporter and output a variety of different formats from the Maya files on mass. This assumes that the Maya files themselves have been setup with our ExportLoops in the first place else nothing will be generated.



New Maya scene file handling on RMB menu in the Browser

Pro_TO_BND : Animation Transfer updates:

The Red9 animation transfer and remapping functionality, exposed in the Browser as PRO: TO_BND, has been upgraded to finally support both open and import. This means that you can run the binding process in the same Maya scene with as many different fbx files as needed to build that scene up. This is a huge benefit for cinematic animators and one that we'd been keen to get in for a long while!



Browser RMB menu on an fbx file

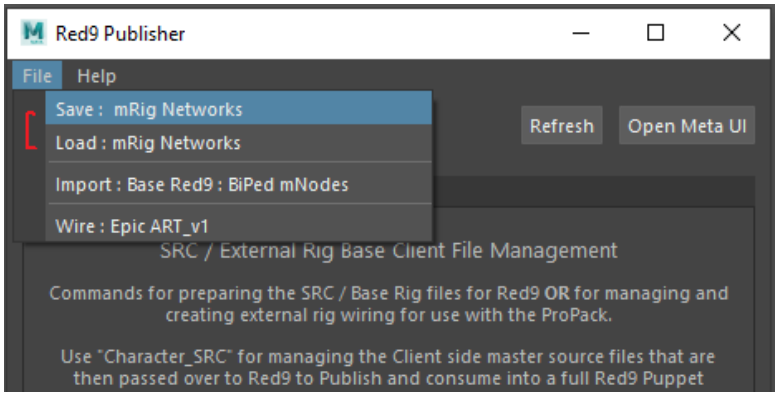
Please see main Animation ReTargetting block above for more details regarding the extensive updates we've rolled out in this release.

Rig Manager / Publisher:

The Rig Manager now has the ability to save and load an entire MetaRig network structure off to disc, and rebuild it from scratch via the new datamap format.

This is super useful if you've manually crafted the rig wires, or carefully added controllers to it, but then need to re-do that structure over to another rig scene. The format saves not just the networks but also the key aspects of the MetaRig node itself via the mRig.gatherInfo() and mRig.consumeInfo() calls. This allows those sub-classing this node to also add their own data to the format if needed.

From the code you can also now compare one datamap against your current rig, checking for consistency in the node wiring structures and attribute names. This has already proved a perfect addition for health checking rig changes!

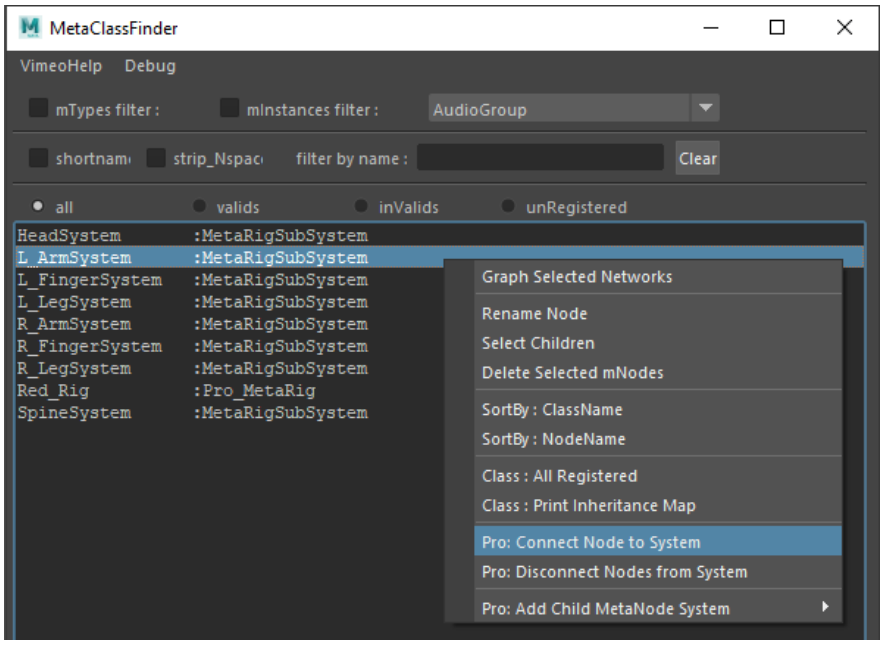


Pro Rig Manager UI

There's also an option to "Import: Base Red9: BiPedal mNodes". This was added for those wanting to replicate our PuppetRig networks more granually. This will import an empty network that contains the Mrig and all our subnodes for arms, legs, spine, head, fingers etc.. ready for you to just add in your controllers as needed. Usually we'd always reccomend you use the connect calls in the publisher to add nodes to a custom system. However if you want to go more granular there is another way.

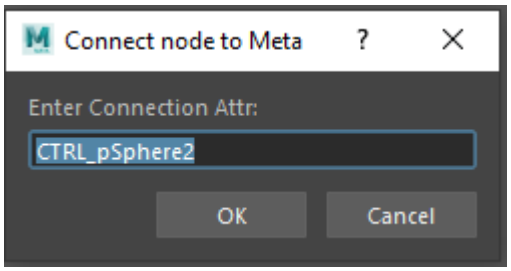
Connecting new controllers to systems via the MetaNodeUI

New rig controllers / nodes can be easily connected to an mNode via the MetaNodeUI in the Red9 menu. This UI shows you all of the available mNodes currently in the scene and is worth getting familiar with!



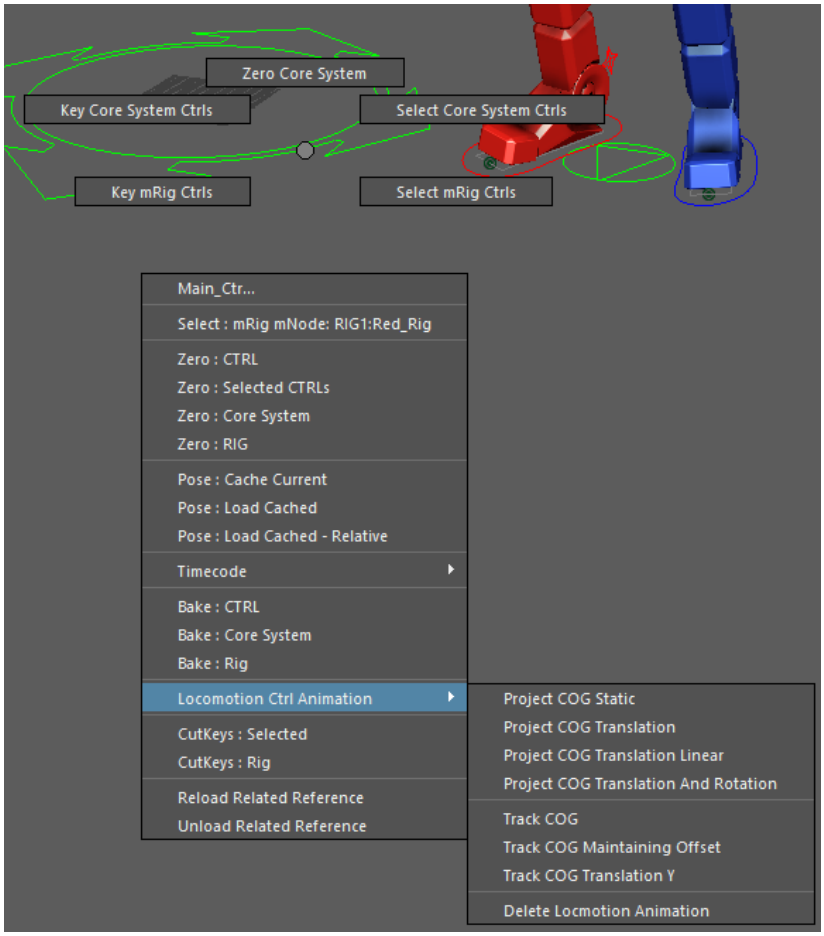
To connect a new node to a system simply select the system you want to connect to in the UI, then select the node / nodes in Maya you want connected. Now RMB click to open the menu and use the option above.

This will bring up a confirm dialog with a crucial bit of info in it, the name in the promptDialog will be the name of the wire connecting the 2 nodes. If you had multiple nodes selected when you clicked the menu option this would read “CTRL_nodename”, please note the “CTRL_”, this is the mNode internal CTRL_Prefix and should always be respected. This denotes that this connection is an animatable controller in a system. If you were to rename this without that prefix the node would still connect, but wouldn’t be treated by the animation systems as a rig controller.



Red9 PuppetRig : DAG menus:

We've added new functions exposed to the RMB Dag menus for all MetaRigs. The biggest addition to the DAG menu's is the "Locomotion Ctrl Animation" call, designed to automate the tracking of your locomotion ctrl for game exporters.



This option is only available if your rig has a Locomotion_ctrl wired (via the RigManager) or is an Red9 PuppetRig. You also have to launch dag menu with your mouse over the locomotion ctrl or the Main_ctrl of your rig as these menus are system sensitive, only showing commands relevant to the current system.

There are 2 sets of options, Project or Track which are similar to the projected or absolute behaviour in the r9Pose and r9Anim systems. Project tracks the locomotion ctrl to the COG's motion but projects that down to the world zero. Track does an absolute track to the COG.

We've also add in a call to "CutKeys" either on the current object or the entire rig.

Many Thanks from the Red9 Team:

It's been another crazy year, but as we approach our 5th year in business we'd like to thank all of our clients, users and supporters for your continued support and belief in our workflows and our Rigging and Facial services! We've worked with some amazing studios and built more facial rigs this year than ever before.

Please let us know if you find any issues or would like some custom support for your workflows added to the codebase.

We're always looking for the next interesting project, be that facial systems, rigging or code so get in touch if you think you're studio needs some help with its technical animation needs.

Thanks

Mark, Franco, Judy and the Red9 Team!