[Beta]Full Body Rig System

Far From Here Studio

Description :

Thanks for buying our tool!

Important Disclaimer [Beta]

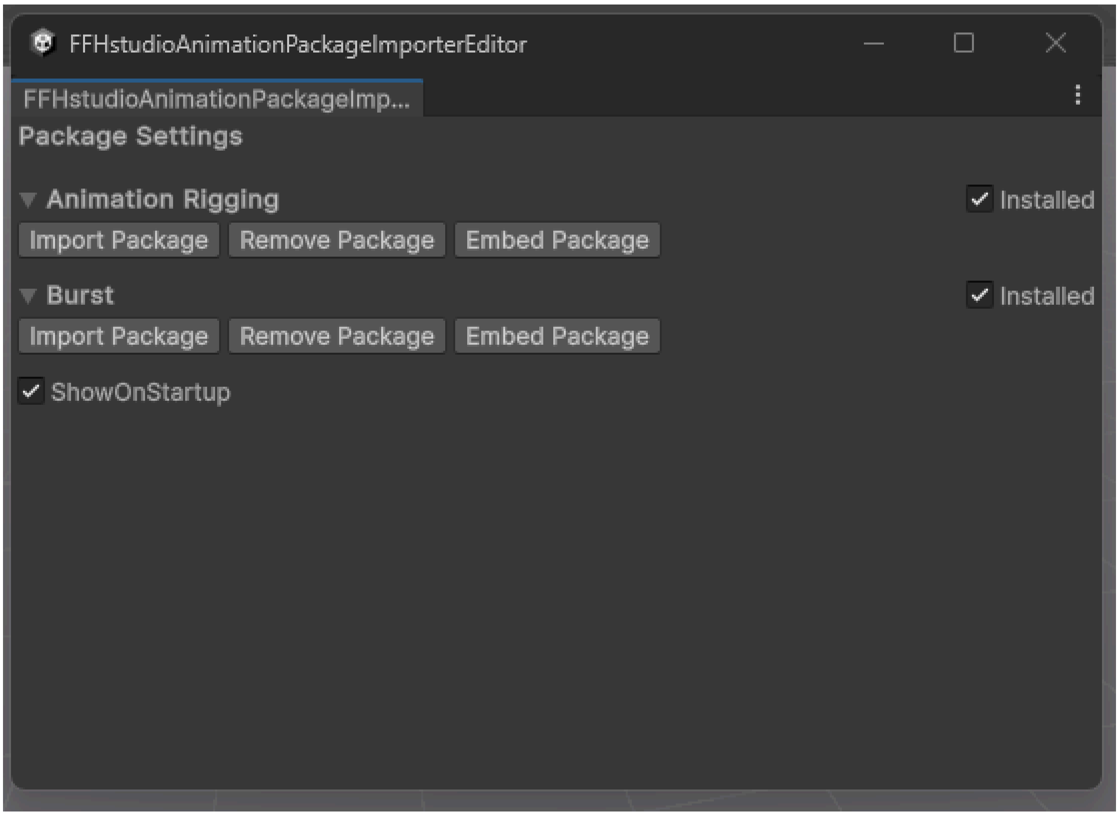
The Tool is not 1.0 and we still have a long way to go to get there, our main focus for next updates is to bring a professional User Experiences, use the community feedback to improve all the UI aspect and a lot of BugFix, and finishing some incomplete features.

The **FullBody Rig System** is a tool created by **Far From Here Studio**, a tool that is widely used in all our projects, saving us valuable time during deployment and providing features that allow us to push the interactivity of your characters and their animation potential further in Unity or to animate in a cinematic context. That's why we believe that this tool can be useful to the entire Unity community already.

The whole purpose of the FullBody Rig System is to create a complete Rig in just a few clicks that will give you rich control over your human or quasi-human characters, providing you with powerful and manageable control over your animation or cinematic sequences.

Using the Animation Rigging package as base, the Full Body Rig System will save you hours of (Rig) setup for character, which is the time needed to create this kind of Rig manually and exploit its potential at runtime or during animation sequences in Editor.

FFH package importer:



Animation Rigging ☑ Installed

Burst ☑ Installed

☑ ShowOnStartup

Is an Editor Window that pop-up at start.
Make sure the following packages are imported, they are needed for the FullBody Rig system to work.
You can disable ShowOnStartup to disable the pop-up behavior once your project is setup.

AutoSetup Process:

The AutoSetup is a powerful feature of the FullBody Rig System.
It allow you to setup a complete rig in a few clicks.
It's made for character that have a "human" type skeleton, with one head, two legs, two arms, compatible with skeletons from all the main DCC (animation) software:

- Autodesk Maya
- Autodesk 3Dsmax
- Mixamo
- Character Creator

Generic Characters AutoSetup:

Steps:

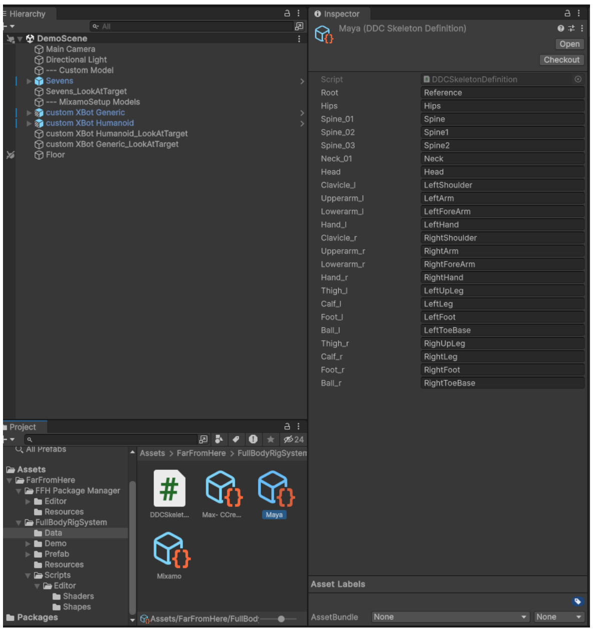
1. Add **Auto Bones Target** component to your character gameObject
2. Add **Rig Builder** component to your Character gameObject
3. **Select** *Mode* on the Auto Bones Target component (cf Mode*)
4. Select your Character GameObject
5. Go to => Animation Rigging > AutoSetup Human Rig (click)

Done.

TO DO : Rig Builder AutoList();

Mode*:
Generics characters cannot rely on an *avatar definition* like the humanoid does to cover all the case and specificities of each DCC's skeleton setup.
That's why we made ScriptableObjects named **DDC Skeleton Definition,** it's in charge to list and wire each bones for the (generic) AutoSetup mode.
It's important to know from which DCC your characters come from for the AutoSetup process, you will have to pick a *Mode* during the autosetup process to target the good one, it allow us to choose from which DCC the skeleton come from so the AutoSetup should be able to identify each bones and setup the rig correctly, even without any avatar definition.

If needed you can craft your own DCC definition:
Assets > Create > FFH > Animation > DCCSkeletonDefinition



Maya (DDC Skeleton Definition)

Script	DDCSkeletonDefinition
Root	Reference
Hips	Hips
Spine_01	Spine
Spine_02	Spine1
Spine_03	Spine2
Neck_01	Neck
Head	Head
Clavicle_l	LeftShoulder
Upperarm_l	LeftArm
Lowerarm_l	LeftForeArm
Hand_l	LeftHand
Clavicle_r	RightShoulder
Upperarm_r	RightArm
Lowerarm_r	RightForeArm
Hand_r	RightHand
Thigh_l	LeftUpLeg
Calf_l	LeftLeg
Foot_l	LeftFoot
Ball_l	LeftToeBase
Thigh_r	RighUpLeg
Calf_r	RightLeg
Foot_r	RightFoot
Ball_r	RightToeBase

AssetBundle None None

Humanoid Character AutoSetup :

Humanoid Character use an Avatar Definition, that’s why the AutoSetup pick the bones of the Avatar accordingly to setup the rig.

Steps:

6. Add **Auto Bones Target** component to your character gameObject
7. Add **Rig Builder** component to your Character gameObject
8. **Human Body Bones** mode on the Auto Bones Target component
9. Select your Character GameObject
10. Go to: Animation Rigging > AutoSetup Human Rig (click)

Done

▶ FFH - FullBody Rig System - AutoSetup

Human Body Bones is a *Mode* that rely on the character’s *avatar definition* to list and wire the bones during the AutoSetup process.

TO DO : Rig Builder AutoList();

The Rig Main Modules:

The "master" Rig created by the FullBody Rig System is composed of several sub-modules:

- UpBody/Hands module
- Foot IK module
- Look At module
- Full Body Radoll module
- Hips Handler module

Each of these modules is actually a Rig located within the "master" Rig, so they are non-destructive in terms of animation. The master Rig is designed so that each module can be activated with each other or completely deactivated, which allows, for example, to use the Ragdoll module at the same time as the Foot IK module or even the UpBody/Hands module, which also allows to inflict impacts and trigger the Ragdoll while keeping the character's feet or hands on their anchor points (IK target) caused by the physics of the Ragdoll.

• Foot IK module

The most common module of the FullBody Rig System allows you to have access to controls on certain parts of your character's body, here the **Legs Hints** and the **Foot IKs**, very useful to align your character's feet on the ground via the IK Target, simple GameObjects they will be easily accessible. In addition, the visual controllers (gizmos) allow you to precisely control the placement of the IK in the context of an animation or sequence (timeline).

• UpBody module

The Upbody is in charge of the controls of the Vertebral rotation
The Hands Iks

• LookAt module

Vertabral LookAt
Vertebral Chain (Work in progress)

- Radgdoll module

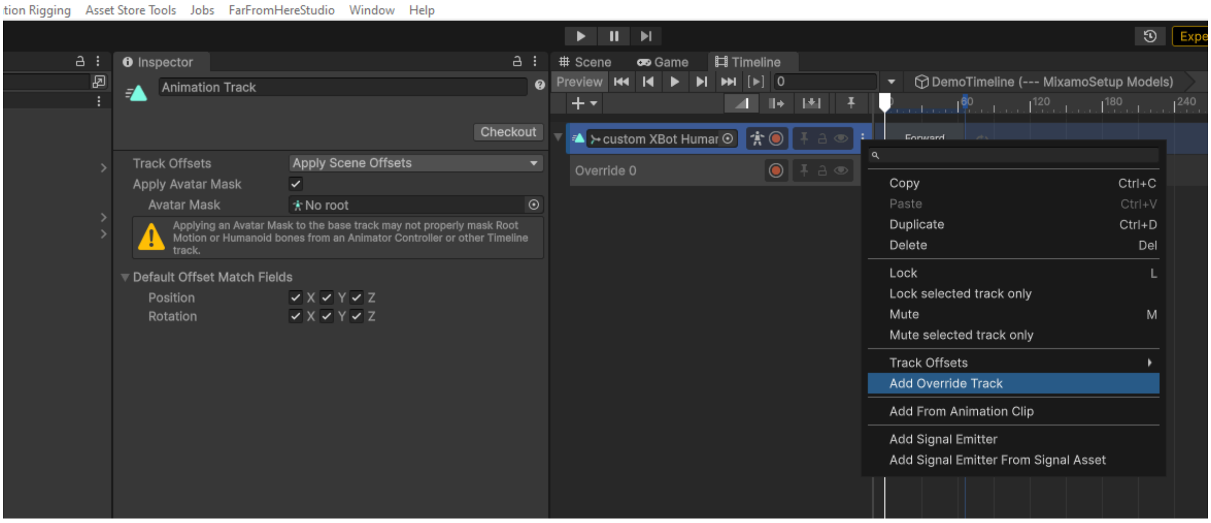
Pre-Setup Ragdoll using physics behavior and allow reversible state
Use RagDoll Rig Script (cf video)
You can acces the Ragdoll rig (public field) and customize the childrens GameObjects that have *Capsule Colliders*, *Character joints* and *Rigidbody* to adjust physics and tension as you need
https://youtu.be/s1XmAMW072w?si=d17OJc0Kk29CmZH2

Use Case :

Working with Timelines animation:

Override Layers setup :

When working on a timeline with your characters, override tracks are a good way to edit or to animate from scratch, humanoids need an animation as base layer, you can use a Tpose animation as a base to animate from scratch. About gameplay, you will need to add corresponding layers to your animator controller to reproduce the same behavior.



Track Offsets: Apply Scene Offsets
Apply Avatar Mask: ✓
Avatar Mask: No root

Applying an Avatar Mask to the base track may not properly mask Root Motion or Humanoid bones from an Animator Controller or other Timeline track.

Default Offset Match Fields
Position ✓ X ✓ Y ✓ Z
Rotation ✓ X ✓ Y ✓ Z

Pin System :

An **Auto Rig Target component** is attached to every controllable bones that allow to be reverse-pinned during the main animation, so it give a lot more ease to animate in timeline or body parts at runtime.
FFH - Full Body Rig System - Runtime handles

Disclaimer (bugs, wip etc)

1. **Ragdoll Rig** physics won't work in the timeline mode in editor, but we are working on it.
2. **Look At Target** won't work as expected in the timeline mode in editor, but we are working on it too
3. **Foots(Humanoid only)**: if *FootIK* option is enable on one of the timeline animation layers, the humanoid Foot IKs will override the behavior of the FullBodyRig's Foot IKs, we are working on a mode to inject the Humanoid Foot IKs position into our FullBodyRig Foot IKs to allow control over this mode (and enable feature such as Foot/Ground alignment) using the animator's IKs (or not) and the FullBody Rig system on top.

Roadmap (2024):

bugs:

- fix the Humanoid FootIKs override mode
- finish Rig Controller (EditorWindow)
- fix the LookAt Behaviors using timeline

addition:

- Add Procedural Motors feature
- Add Curve Driven behavior (basic controller + modules)
- Add Snapper Support (https://github.com/Unity-Technologies/com.unity.demoteam.digital-human) as Extension
- Unity Recorder extension to allow Rig (only) records in editor and to reapply as animated layer easily
- Multiplayer Setup (Netcode) : (Docs in progress)
- Action API (easy modular actions function, like grabbing a door)
- Quadruped support

Contact

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