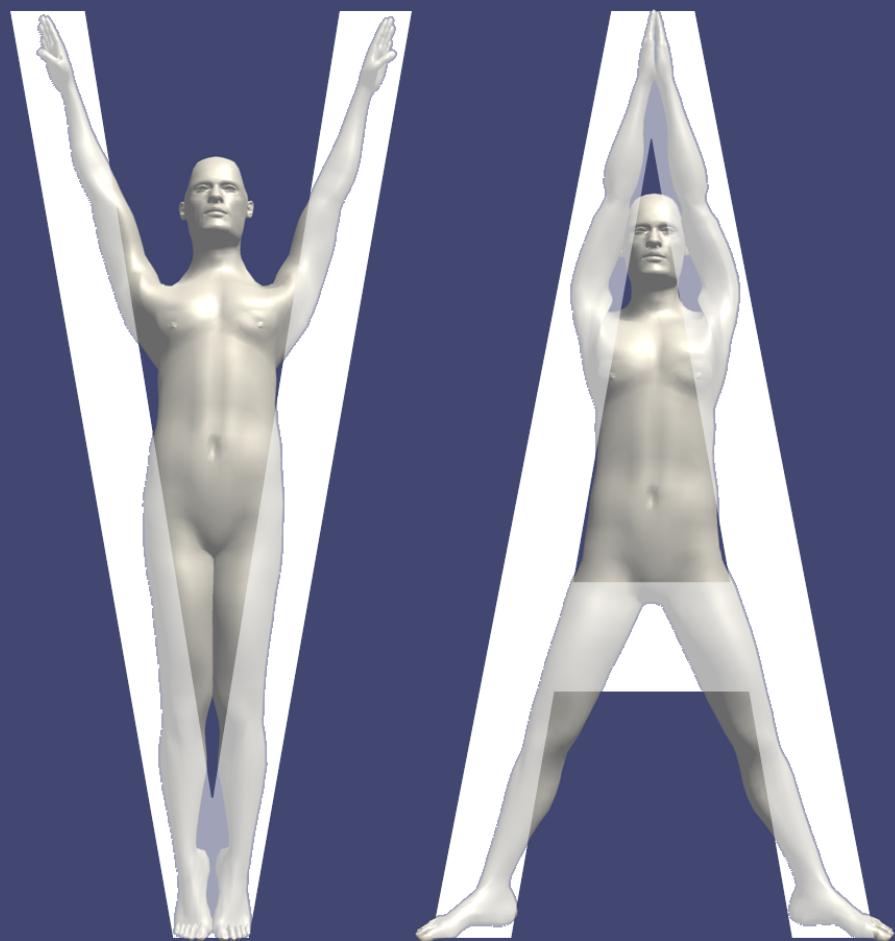


Very Animation



Version 1.2.1

Introduction

Thank you for purchasing "Very Animation".

This asset is an editor extension for editing animation.

It is characterized by direct editing of animation of Mecanim Humanoid which is usually difficult to edit with Unity.

It corresponds to the operation of GameObject with Animator or Animation component.

That is, it corresponds to 'Union's Animation Type' Humanoid '' Generic 'and' Legacy '.

In order to directly edit animation data, knowledge of Unity's Animation is necessary.

We especially recommend you check the documentation of Unity's Animation Window curve and key frame operation.

Table of contents

<u>Very Animation</u>	1
<u>Introduction</u>	2
<u>Table of contents</u>	3
<u>Quick Start</u>	4
Automatic translation of video subtitles.....	5
Create a new animation.....	6
Editing animations created with Unity or other assets.....	7
Edit external source animation.....	8
Save data.....	9
<u>Window</u>	10
Main Window.....	10
Control Window.....	11
Editor Window.....	13
<u>Basic operation</u>	15
Scene.....	15
Animation Window.....	16
<u>Humanoid</u>	17
Animation Curve.....	17
Mecanim.....	17
Virtual Bone.....	18
Animator IK.....	19
Original IK.....	20
Root Motion (Operation when a Motion curve is not created).....	21
Root Motion (Operation when creating a Motion curve).....	22
Translation DoF.....	23
Foot IK.....	24
<u>Generic and Legacy</u>	25
Animation Curve.....	25
Original IK.....	25
Root Motion (When creating a Motion curve).....	26
Root Motion (when there is a Root Node specified in Avatar such as Model).....	27
Root Motion (No avatar or Root Node not specified).....	29
<u>Original IK</u>	31
Basic.....	31
Limb.....	31
<u>Mirror</u>	32
Generic.....	32
BlendShape.....	34
<u>Tools</u>	35
Copy.....	35
Trim.....	35
Add.....	35
Combine.....	36
Create New Clip.....	36
Create New Keyframe.....	36
Bake IK.....	37
Animation Rigging.....	37
Humanoid IK.....	38
Root Motion.....	38
Paramater Related Curves.....	39
Rotation Curve Interpolation.....	40
Ensure Quaternion Continuity.....	40
Cleanup.....	41
Fix Errors.....	41
Export.....	42
<u>Edit while paused</u>	43
<u>Edit in Timeline</u>	44
Notes on Timeline.....	45
<u>Animation Rigging [Preview]</u>	47
Note.....	47
<u>Tips</u>	48
Use the latest Unity.....	48
Close the windows that you do not need.....	48
Hide Inspector.....	48
Confirm QualitySettings.....	49
Change Animation Window to Dopesheet display.....	50
Reduce keyframes.....	51
<u>Tools Window</u>	52
Reset Pose.....	52
Template Pose.....	52
Remove Save Settings.....	53
Replace Reference.....	53
<u>Support</u>	54

Quick Start

Import the asset from the asset store.

Open the Main window from Window/Very Animation/Main.

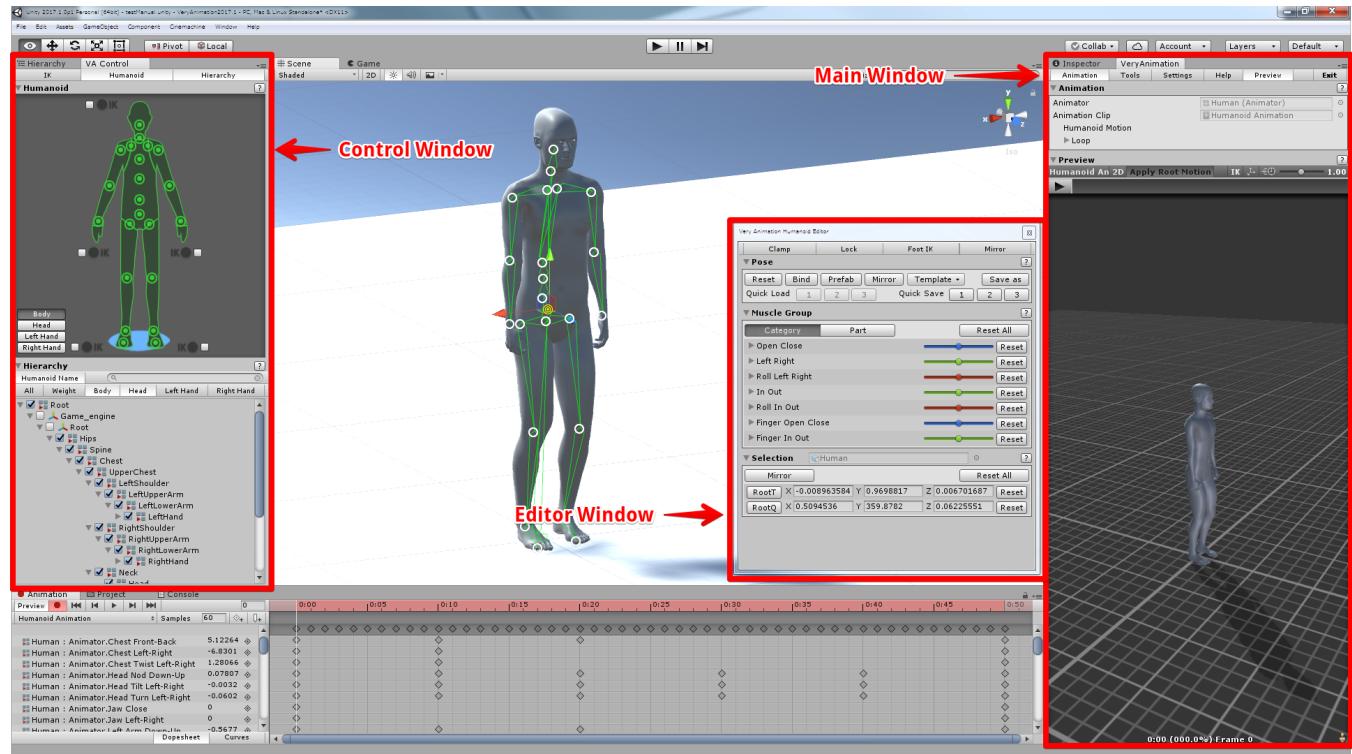
It is necessary to open the Animation Window of Unity.

Select the GameObject that contains the Animator component you want to edit.

Animation currently selected in the Animation Window will be edited.

Select 'Edit Animation' to start edit mode.

When entering edit mode, two windows of Control window and Editor window are added in addition to the first Main window.



Edit animation by operating three windows and Unity's Animation Window.

Video

Quick Start

Automatic translation of video subtitles



Japanese subtitles are set for the video.

Please translate to English etc. with the function of automatic translation.

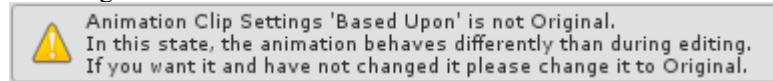
Create a new animation

Create Animation and register it in Animation Controller.

Select the added Animation in the Animation Window and start editing.

Caution

Please pay attention to this warning.



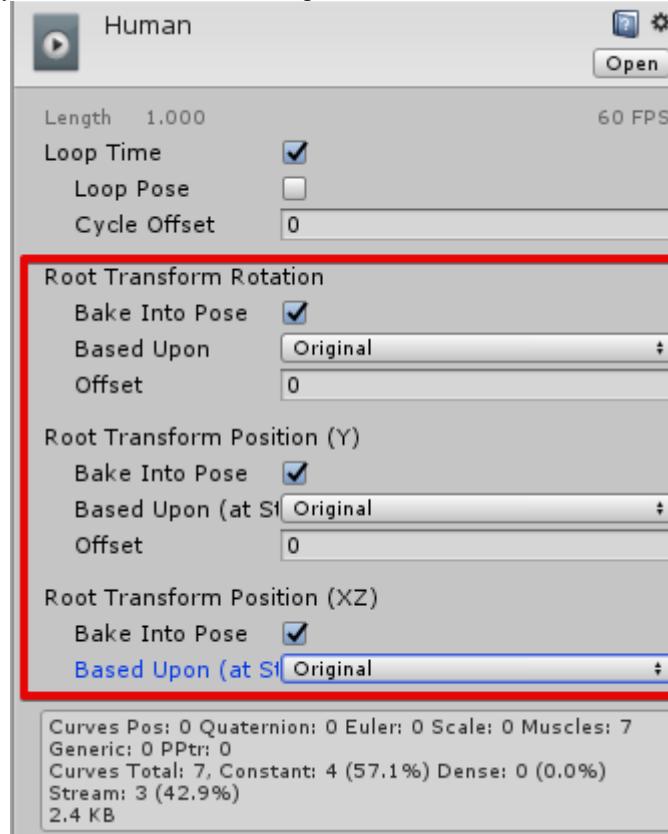
If you actually use the created AnimationClip and the position and rotation are different, please check the following settings.

Because the default Base Upon setting is not Original, it may be the cause.

Also, if you do not use RootMotion, enable Bake Into Pose.

As an example, this setting is the same as when editing the image below.

Since this setting is not displayed unless the AnimationClip has Root information, it will be set after animation editing.



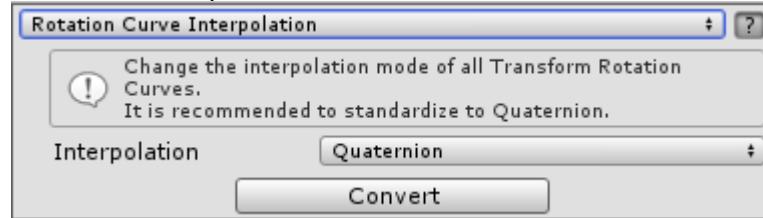
Video

[Quick Start](#)

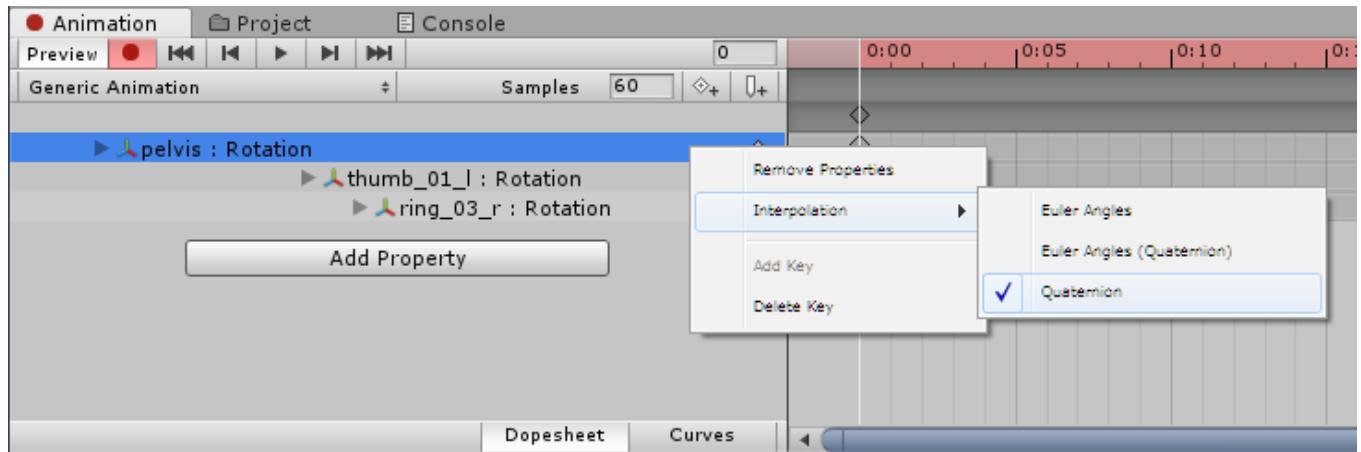
[Animation Clip Settings](#)

Editing animations created with Unity or other assets

We recommend that you unify the rotation interpolation first only once before starting editing.
This is done from Tools/Rotation Curve Interpolation.



Change the interpolation method of Transform Rotation Curve all at once.



This is the setting above.

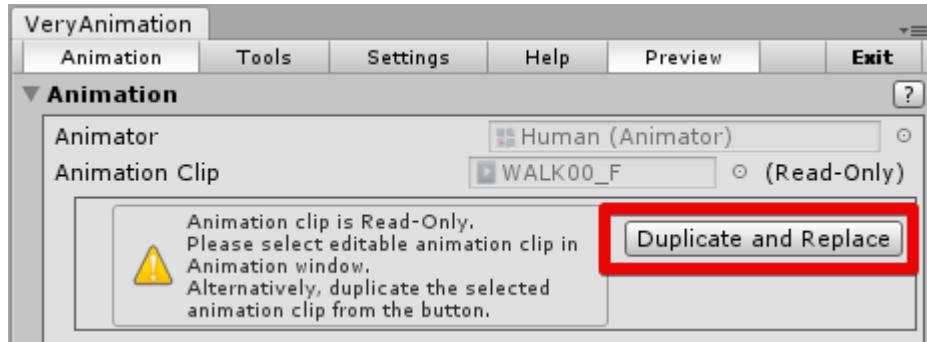
Since animation created with other assets or Unity may be other than Quaternion, we recommend that you run once and unify it to Quaternion.

Video

[Edit created animation](#)

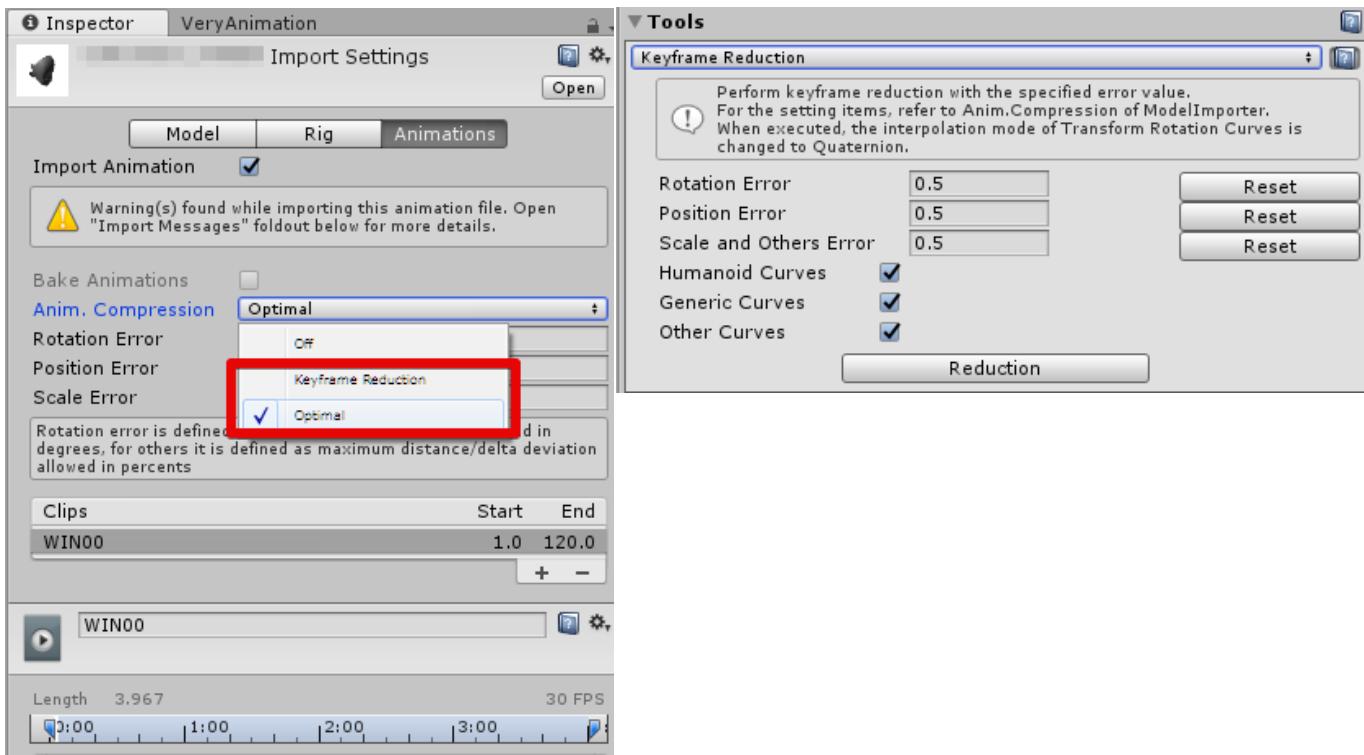
Edit external source animation

Since animation included in FBX etc. is read only, duplicate it and edit it as another animation.



A warning will appear when you start editing. Replace duplicates and references from buttons.

This process also unnecessary deletion of curves and unification of rotation interpolation are performed.



It is recommended to reduce keyframes before editing with ModelImporter before duplication or Tools / Keyframe Reduction after duplication.

This is because fewer keyframes are faster and easier to edit

Video

[Edit external source animation](#)

[Root Correction](#)

Save data



When you finish editing, the VeryAnimationSaveSettings component is added to the GameObject with Animator. This is the saved data of the setting being edited.

If you do not need it you can disable it from Settings. However, the setting is reset each time.

You can also delete all VeryAnimationSaveSettings in the project in the Tools Window.

Information does not almost remain in the build.

Window

Main Window

Switch the displayed content with the above tool bar.



Animation

Information currently being edited is displayed.

Tools

Run the editing tool. Details are described below.

Settings

It is operation setting.

Help

Help for shortcut keys and so on.

Preview

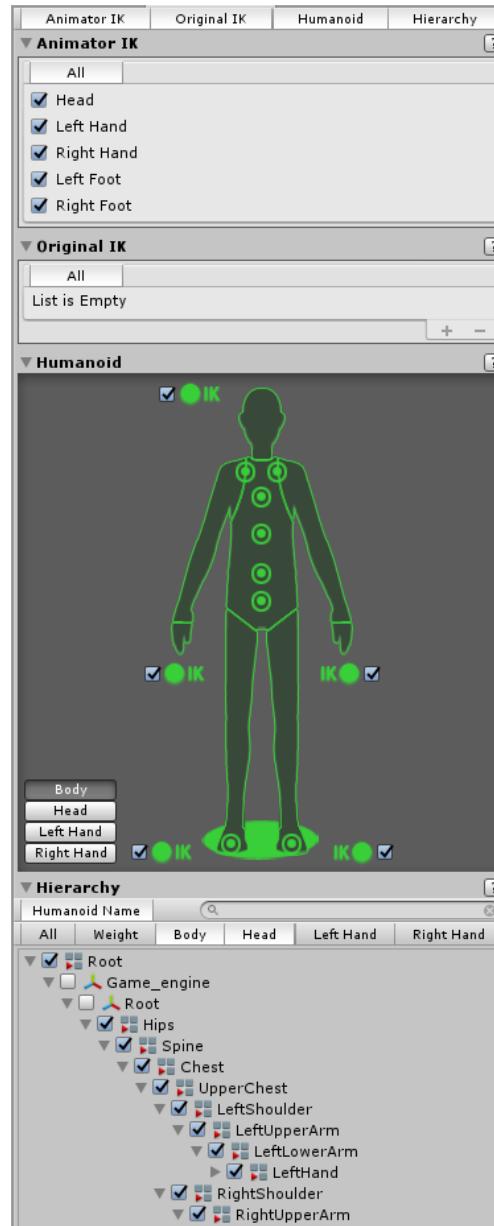
A preview of the current animation will be displayed.

Exit

Exit editing.

Control Window

Switch the displayed content with the above tool bar.



Animator IK (Only Humanoid)

Animator IK switching and setting.

Original IK

Original IK switching and setting.

Humanoid (Only Humanoid)

Select Bone or switch IK.

Selection

You can save the selected state of the bone with a name.

Change lists such as addition and deletion Switch Popup according to the purpose only to use and list.

Hierarchy

Display hierarchical structure.

You can switch the display of each bone.

Editor Window



Options

Clamp (Only Humanoid)	We limit the value of Muscle to the range set by Avatar. This prevents the joint from turning to an incompetent angle as the human body.
Foot IK (Only Humanoid)	Updates the Foot IK information at the same time when the key frame is changed. It is mainly used for editing in Timeline.
Mirror	When changing, update the information on the opposite side at the same time.
Collision	Make a collision decision between the mesh vertex being edited and the mesh triangle of the environment. It is a very heavy process and should only be enabled if necessary. It is recommended to use in .NET 4.x environment to enable acceleration of parallel processing.

Video

[Collision](#)

Root Collection (Only Humanoid)

Disable	No correction is made.
Single	It corrects only the changed frame.
Full	Corrects all frames that are affected before and after the change.

Video

[Root Correction](#)

Pose

Reset	Reset to various poses.
Mirror	Changes the current pose to the left and right reversed state.
Template	Change to the saved pose.
Save as	Save the current pose to a file.
Quick Load / Save	It is used to save and load temporary poses. This information will be deleted when you finish editing.

Blend Pose

Blend and apply the saved two poses.

By applying only a part, it is possible to reuse only the shape of the face and fingers.

[Blend Pose](#)

Muscle Group (Only Humanoid)

We will change Muscle collectively.

Blend Shape (Only when there is Blend Shape information)

Operate Blend Shape.

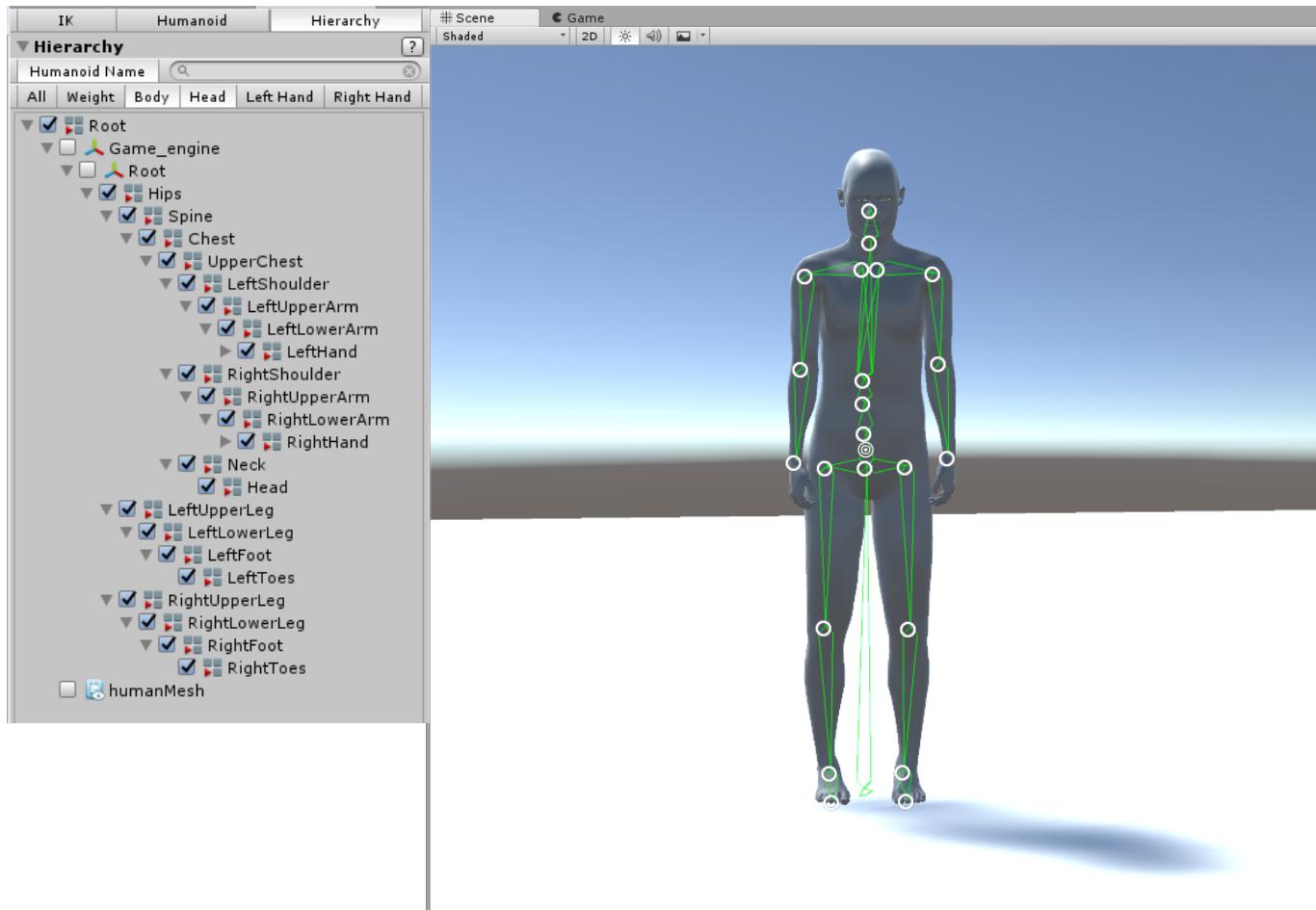
[Blend Shape](#)

Selection

The selected information is displayed.

Basic operation

Scene



Scene shows only bones that are checked by Hierarchy.

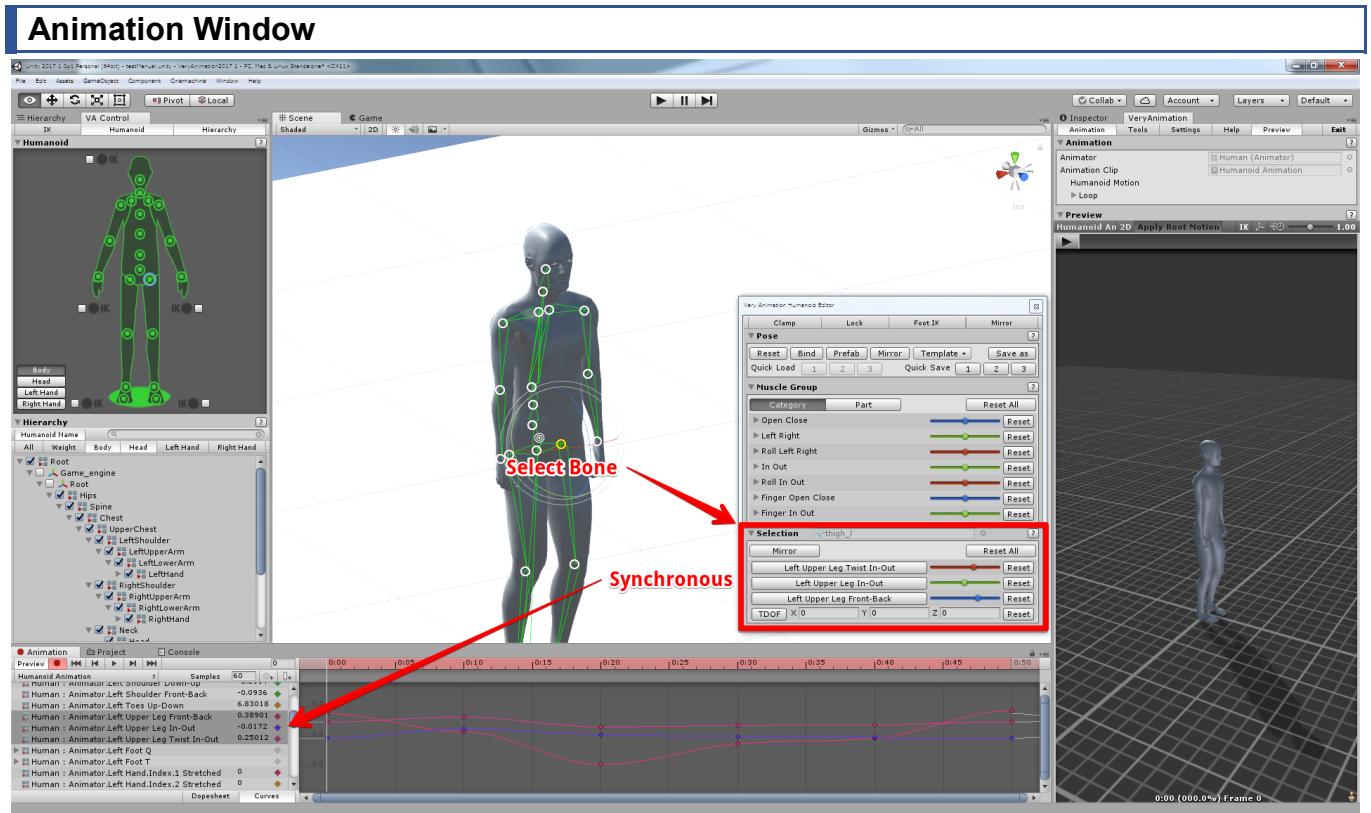
You can select by pressing each button.

By clicking the mesh, a suitable bone is selected from the weight and distance of the clicked polygon.

As a common action in Very Animation, select all descendants by holding down the Alt key and selecting.

Video

- [Basic Operation 1](#)
- [Basic Operation 2](#)
- [Basic Operation 3](#)



Animation Curve according to the selected bone and the current tool is selected in the Animation Window.
By pressing each button in Editor's Selection, you can change to display only that Animation Curve.

Humanoid

Animation Curve

Humanoid manipulates Animation Curve of Animator's data.

The following explanation is personal guess, there is a possibility of error.

Animation Curve	Description
RootT, RootQ	Mass center position, rotation Root motion position, rotation
Muscle	It corresponds to the rotation of each Bone
TDOF	It exists only in part Bone. Equivalent position It is used only when 'Translation DoF' is enabled in Configure Avatar
Hand IK, Foot IK	Hand IK is unclear where to use, Foot IK is used to counter shake of the foot when AnimationState.iKOnFeet is enabled
MotionT, MotionQ	Position of root motion, rotation specification If it exists, it takes precedence over RootT, RootQ information
<i>A free name that does not conflict with the above</i>	Used in Parameter related curve

A Bone (such as a hair) not set as Avatar as a humanoid manipulates the Transform in the same way as Generic.

Mecanim

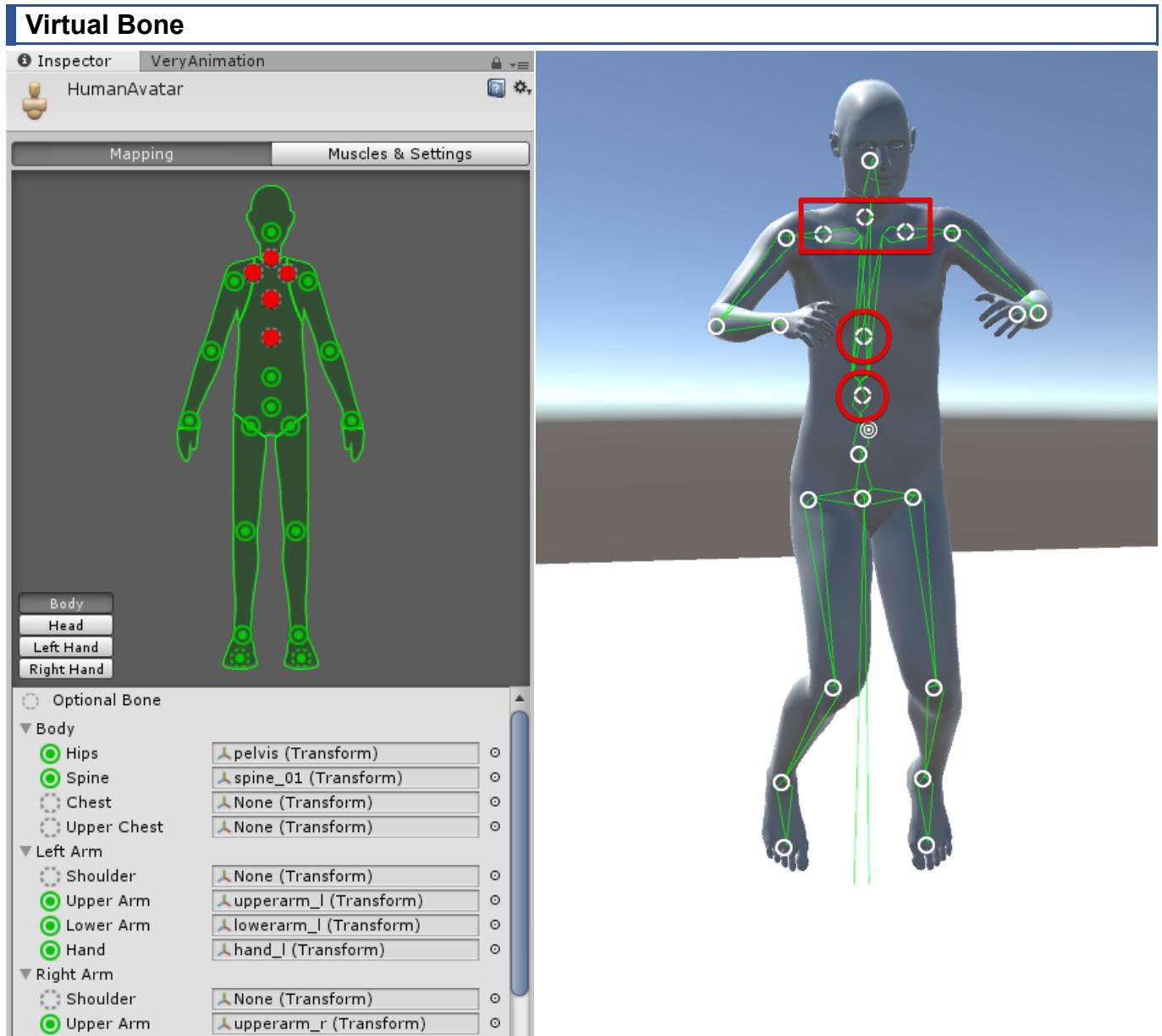
In Humanoid, animation of Animator parameters of Root and Muscle is mainly created, and Animator updates Transform with that parameter.

In Very Animation, it is possible to operate like ordinary animation FK, but when animation editing, it is necessary to be conscious that each part of Humanoid has mass.

For example, moving only arms and legs means that the center position of the mass changes.

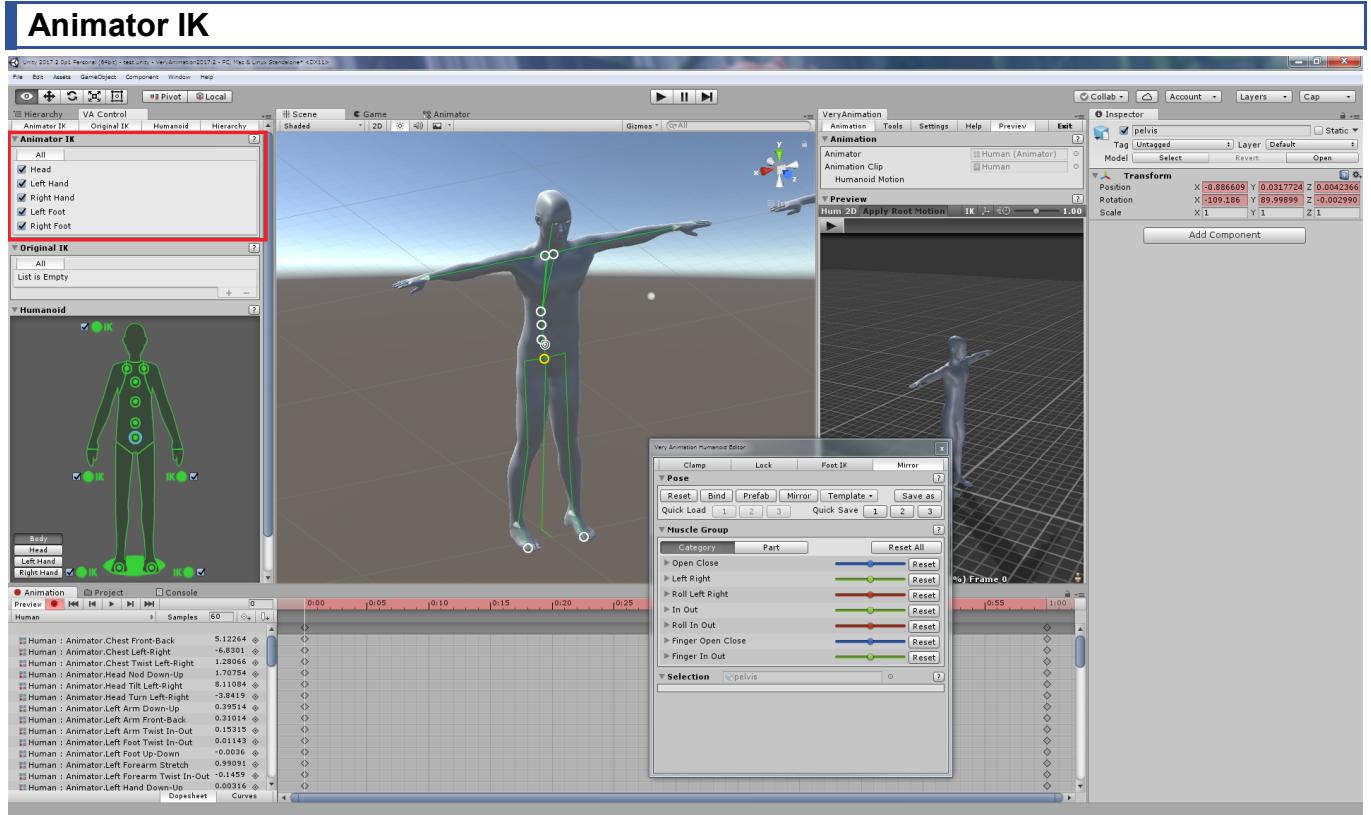
Reference data

[Unity Blog 'Mecanim Humanoids'](#)



Some Optional Bones not set in Avatar are displayed as Virtual Bones.

You can operate in the same way as normal bone, but there are some restrictions, such as local rotation operation only.

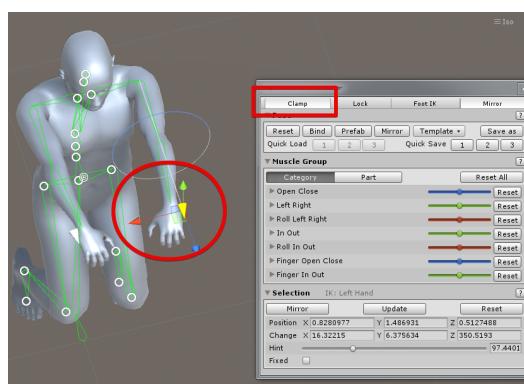


In Humanoid you can use IK using the function of Animator.

Select Control Window or Bone and switch with I key.

IK in VeryAnimation is a function to assist editing.

The information to be saved is the same information as FK, and IK key frame information etc. are not saved.



When Clamp is enabled, depending on the model, it may not be possible to extend the hand straight. In that case, cancel Clamp and set it.

Video

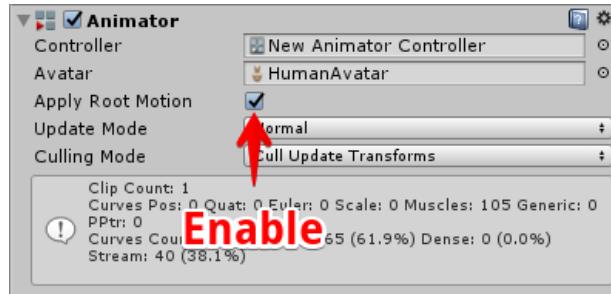
[Animator IK](#)

Original IK

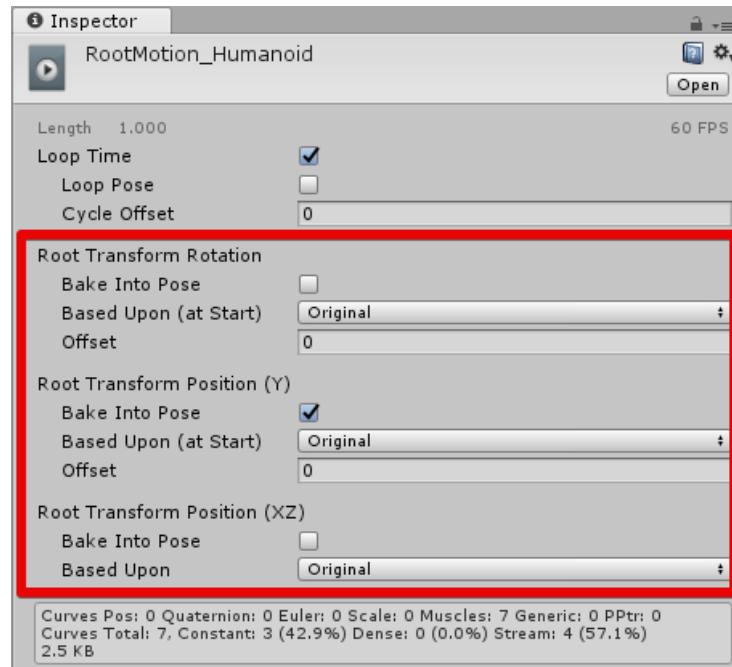
Very Animation We will set up our own IK.
For details, refer to the 'Original IK' chapter.

Root Motion (Operation when a Motion curve is not created)

Enable 'Apply Root Motion'.



If no motion curve has been created, the root motion will operate with the information of the root curve (RootT, RootQ) AnimationClip display is as follows, and the part where 'Bake Into Pose' is not enabled works.

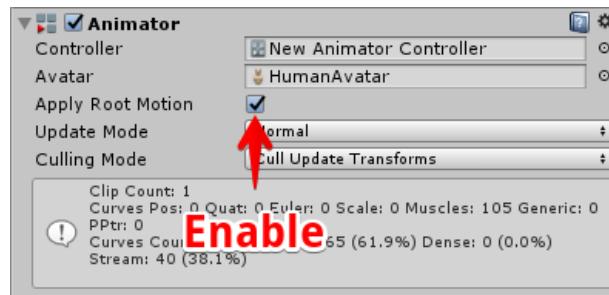


Demo

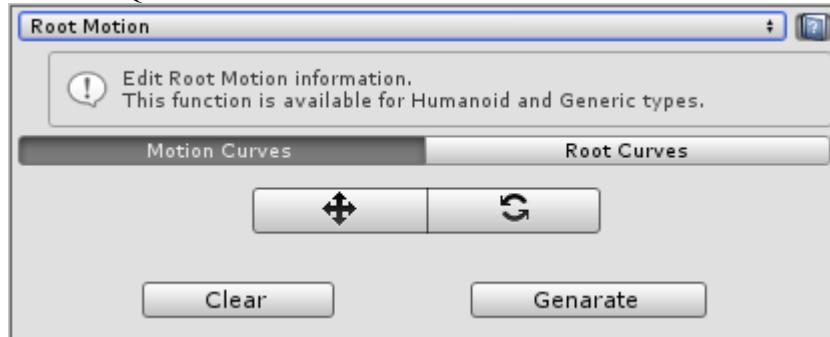
VeryAnimation\Demo\RootMotion

Root Motion (Operation when creating a Motion curve)

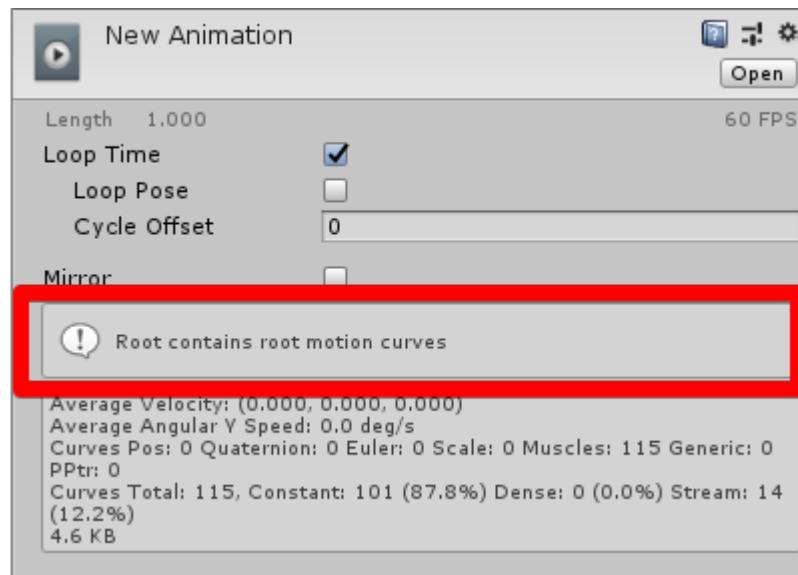
Enable 'Apply Root Motion'.



You can edit MotionT and MotionQ curves from Tools / Root Motion.



If a Motion curve exists, the root motion will operate with this information preferentially.
AnimationClip display is as follows.



Demo

VeryAnimation\Demo\RootMotion

Translation DoF

The screenshot shows the Very Animation Humanoid Editor interface. On the left is the "Configure Avatar" window, which includes a "Muscle Group Preview" tab where "Translation DoF" is checked. A red arrow points to this checkbox with the word "Enable" above it. To the right is a 3D preview of a humanoid figure with orange circular markers indicating active muscle groups. Below the preview is a message: "Only Unity 2017.3 or later". On the far right is the "Humanoid Editor" window, specifically the "Pose" tab, showing various muscle group settings and a "TDOF" section at the bottom.

Only Unity 2017.3 or later

Very Animation Humanoid Editor

Pose

Muscle Group

Category	Part	Reset
Open Close		Reset
Left Right		Reset
Roll Left Right		Reset
In Out		Reset
Roll In Out		Reset
Finger Open Close		Reset
Finger In Out		Reset

Selection

TDOF

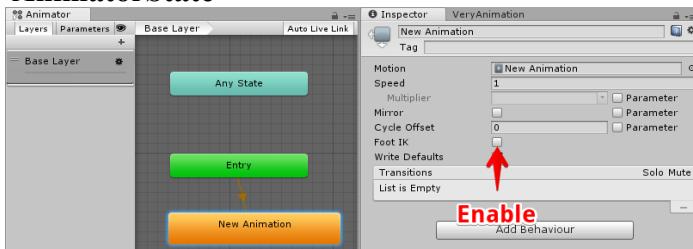
X 1.250775e-07 Y 1.219838e-07 Z 0.449241

Only when you enable 'Translation DoF' in Configure Avatar, position change will be effective with some bones.

Foot IK

Humanoid animation is the same animation in models with different proportions, but there are problems such as shaking feet. It is information to correct this problem correctly and correct it to the original position correctly. For reasons such as not using Root Motion, this information is unnecessary unless you use this function. It is used in the following places.

AnimatorState



AnimationState.iKOnFeet

Preview



Timeline



It is enabled by default in Timeline.

Very Animation usually edits the animation with Foot IK invalid state, and finishes editing and finally creates an animation curve with Tools / Humanoid IK. Then activate Foot IK and check the operation. Since it is always used in Timeline, EditorWindow / Foot IK is enabled and constantly updated.

Demo

VeryAnimation\Demo\FootIK

Video

[Foot IK](#)

Reference data

[Unity Blog 'Mecanim Humanoids'](#)

Generic and Legacy

Animation Curve

Generic and Legacy mainly manipulates Transform's Animation Curve.

Animation Curve	Description
Position	Position
Rotation	Rotation
Scale	Scale

We will also manipulate some Animator's Animation Curve.

The following explanation is personal guess, there is a possibility of error.

Animation Curve	Description
RootT,RootQ	Root motion position, rotation
MotionT,MotionQ	Position of root motion, rotation specification If it exists, it takes precedence over RootT, RootQ information
<i>A free name that does not conflict with the above</i>	Used in Parameter related curve

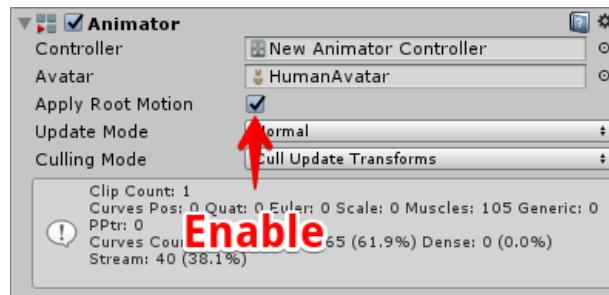
Original IK

Very Animation We will set up our own IK.

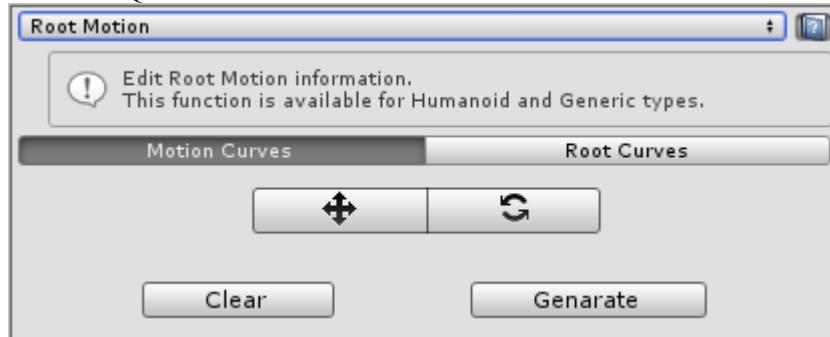
For details, refer to the 'Original IK' chapter.

Root Motion (When creating a Motion curve)

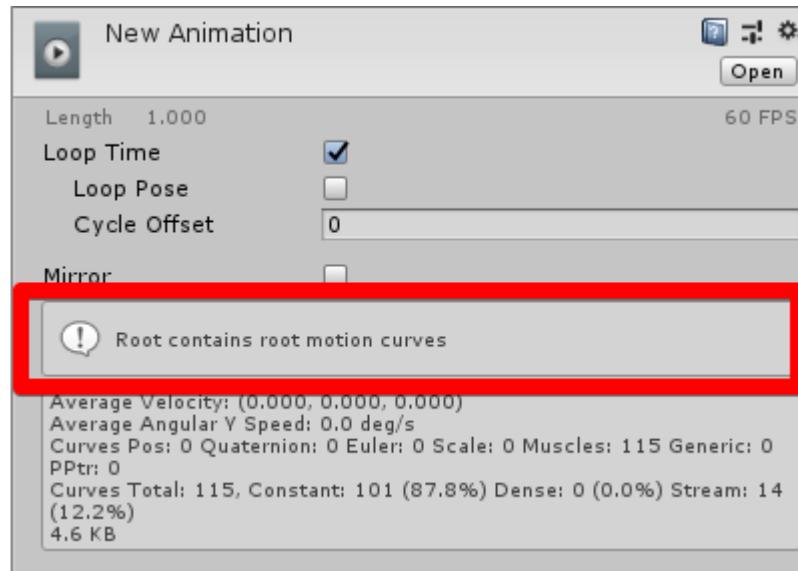
Enable 'Apply Root Motion'.



You can edit MotionT and MotionQ curves from Tools / Root Motion.



If a Motion curve exists, the root motion will operate with this information preferentially.
AnimationClip display is as follows.

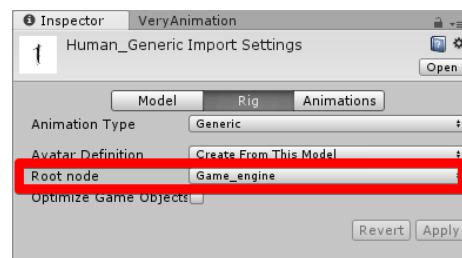


This method is recommended.

Demo

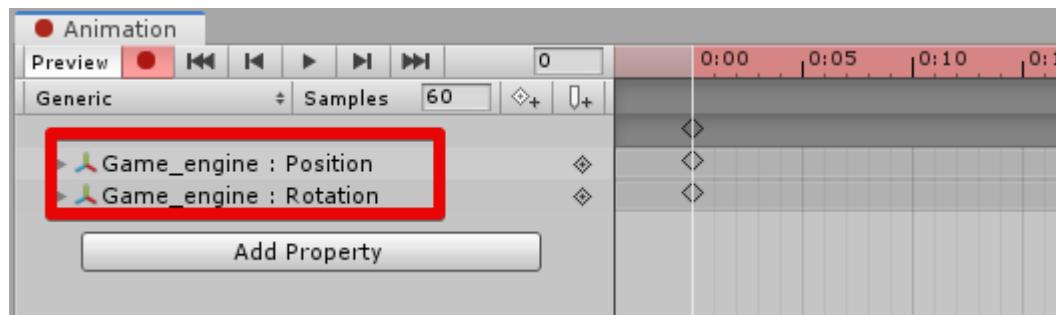
VeryAnimation\Demo\RootMotion

Root Motion (when there is a Root Node specified in Avatar such as Model)

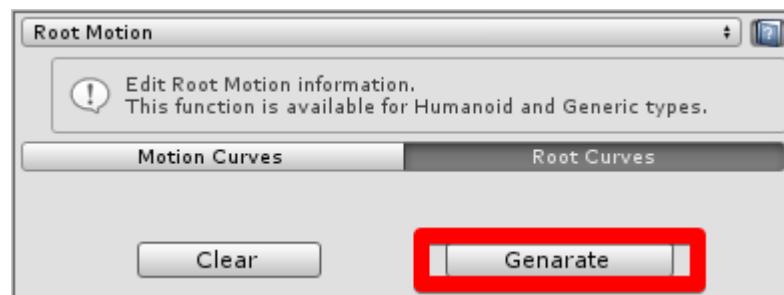


You need to set Root Node in Model Importer.

Usually the children of the object where the Animator component is located selects the object at the root of the branch.



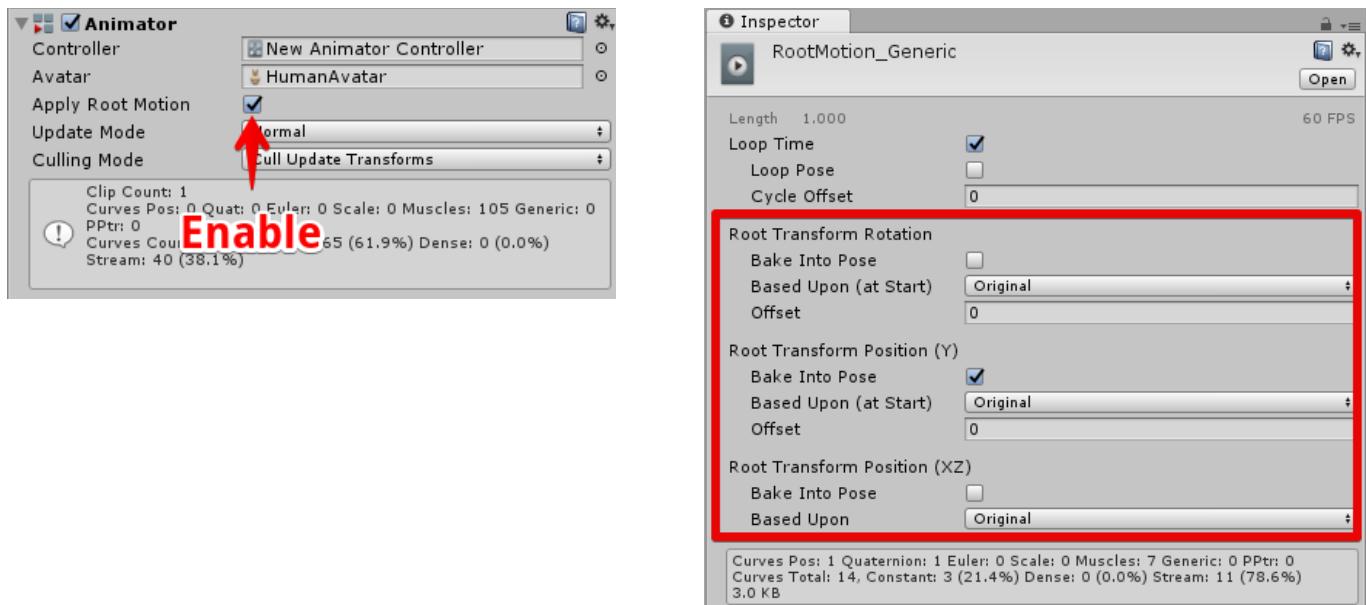
Manipulates the bone specified in Root Node and creates an animation.



Press the Generate button from Tools / Generic Root Motion after creating the animation.

This will create an animation curve for RootT and RootQ.

Very Animation



Generic root motion works with the above Animator and each Animation Clip setting.

Please check the Unity documentation for details.

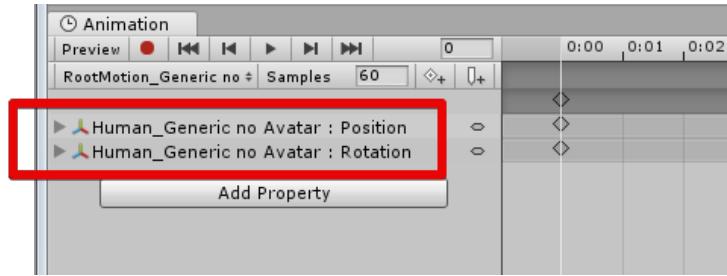
Demo

VeryAnimation\Demo\RootMotion

Video

[Generic Root Motion](#)

Root Motion (No avatar or Root Node not specified)

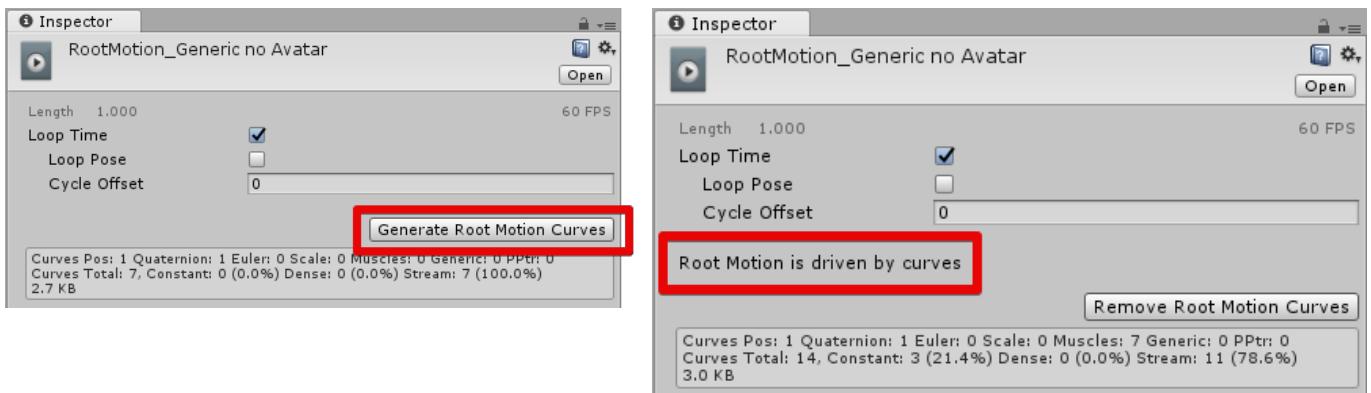


Create Animation Curve in Root.

Steps before Unity 2018.2

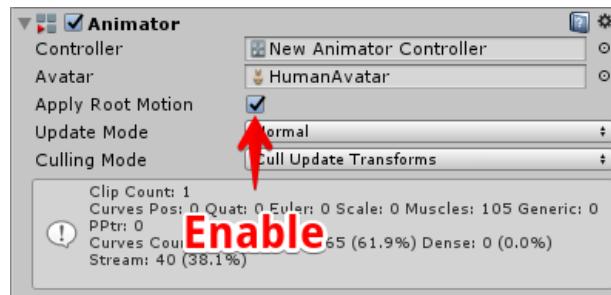
The button of 'Generate Root Motion Curves' is displayed in the setting of Animation Clip.

By pressing this to activate, Root Motion will work at runtime.



Unity 2018.3 or later

In Unity 2018.3, 'Generate Root Motion Curves' is obsolete and this step is no longer required.



Generic root motion works with the above Animator and each Animation Clip setting.
Please check the Unity documentation for details.

However, in this method, when you enter editing at runtime, the position will be restored.
Also, the Exporter does not output Root Motion information.
These operations can not be supported and are therefore specifications.

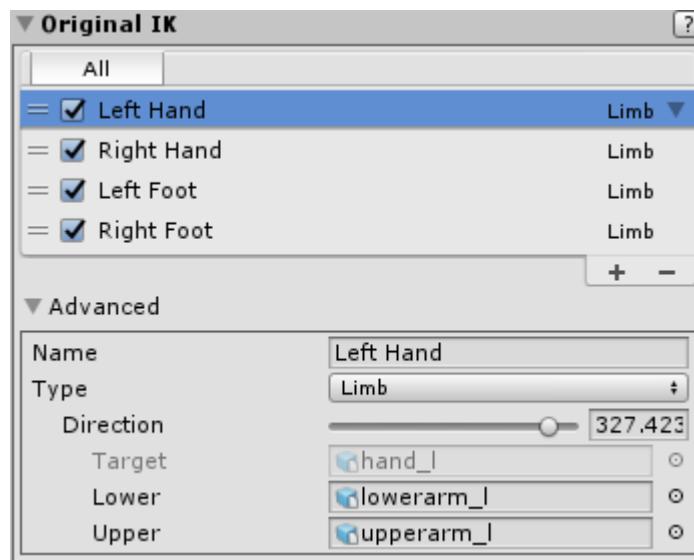
Demo

VeryAnimation\Demo\RootMotion

Video

[Generic Root Motion](#)

Original IK



It is original IK of Very Animation.

It is added by selecting the bone which becomes the tip and pressing the add button, or pressing the I key.

If it already exists in the list, the valid state changes with the I key.

Select from multiple operation types.

IK in VeryAnimation is a function to assist editing.

The information to be saved is the same information as FK, and IK key frame information etc. are not saved.

Basic

It is the most basic CCD-IK.

It can be used for things that rotate freely, such as hair.

You can change the hierarchy with Press Ctrl and + - key during selection.

Video

[Original IK](#)

Limb

Use it for limbs.

While selecting, you can change the direction of turning with Press Ctrl and + - key.

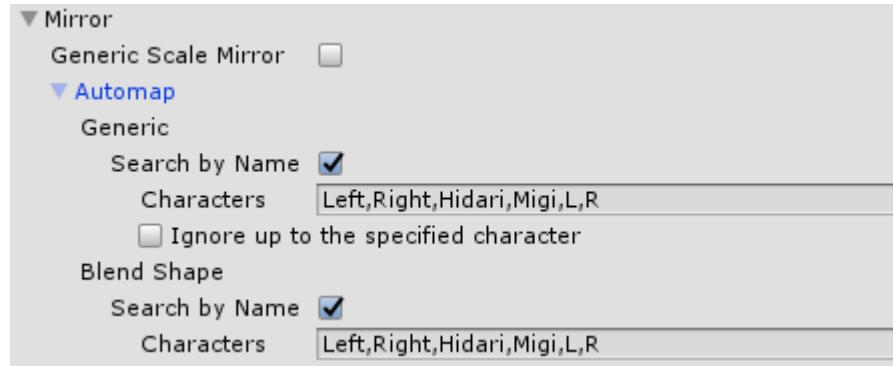
Video

[Original IK 2](#)

Mirror

The mirror of the Humanoid part selects the target from the information of Avatar, but the mirror of Generic and BlendShape guesses the target from the name and operates with Automap.

This can be changed in Settings.

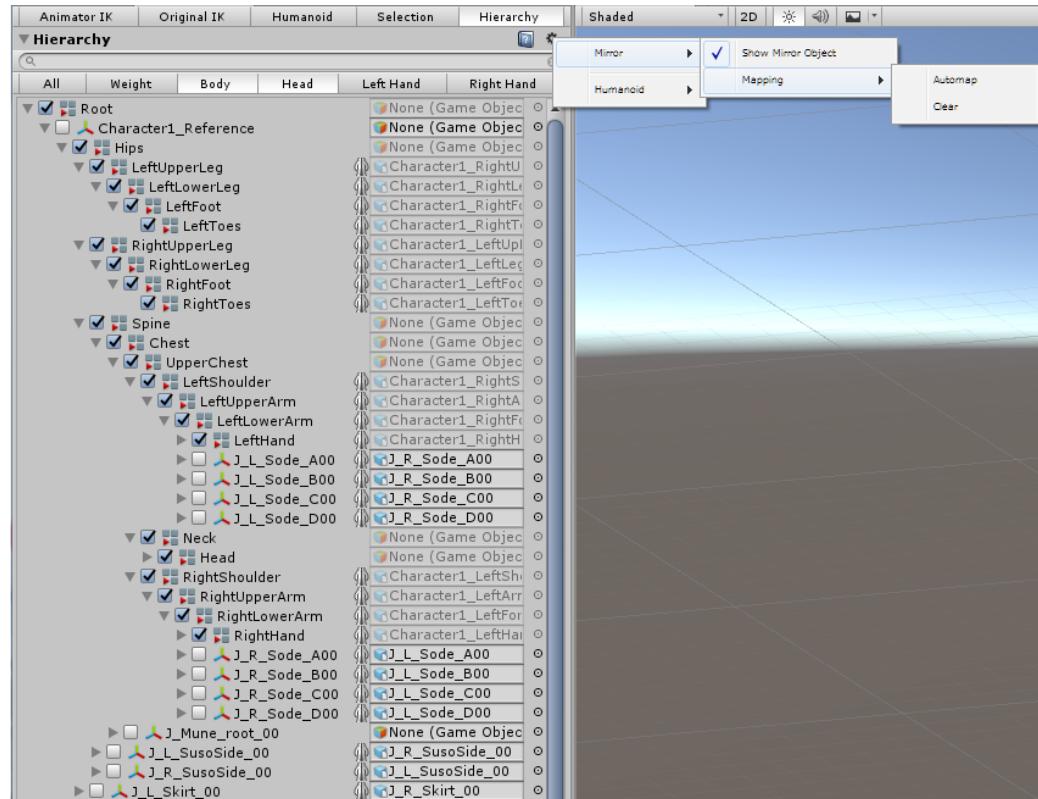


Generic

By default the name is valid only if the full path from Root is only the difference between 'Left', 'Right', 'Hidari', 'Migi', 'L', 'R'.

To add a condition, please add it to the beginning.

If it is not successfully set, Mirror's function will not work properly.



If you do not set it correctly with Automap, change it manually or change the setting and redo the Automap from Hierarchy setting.

Mirror Scale

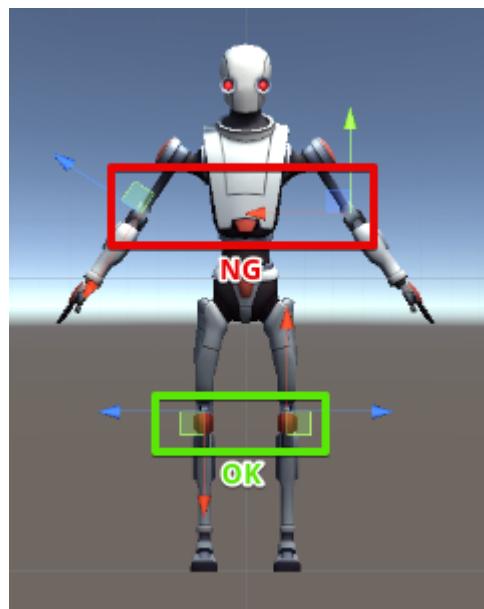
Scale mirrors are not enabled by default.

If you enable "Generic Scale Mirror", Scale will work with Mirror's behavior.

In order for Mirror to work properly with Scale, it is necessary that the axis of the corresponding Bone is symmetrical as shown in the image below.

There is no problem with the difference in the direction of the axis or the axes of X and Z are exchanged.

If the axis is misaligned as in the example of NG, it will not work properly when Scale is applied with Mirror.

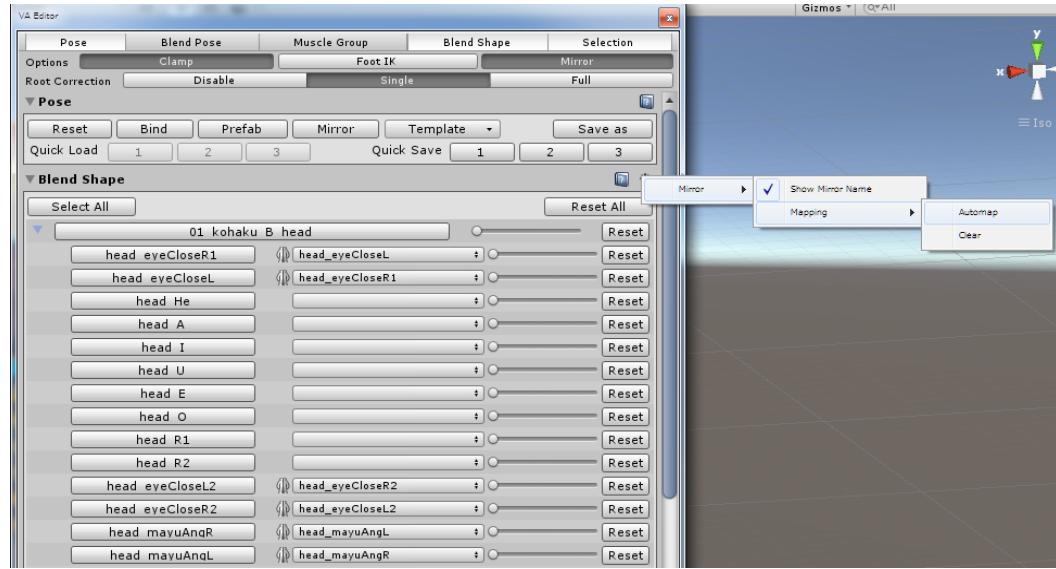


BlendShape

By default, the name is valid only if the difference is 'Left', 'Right', 'Hidari', 'Migi', 'L', 'R'.

To add a condition, please add it to the beginning.

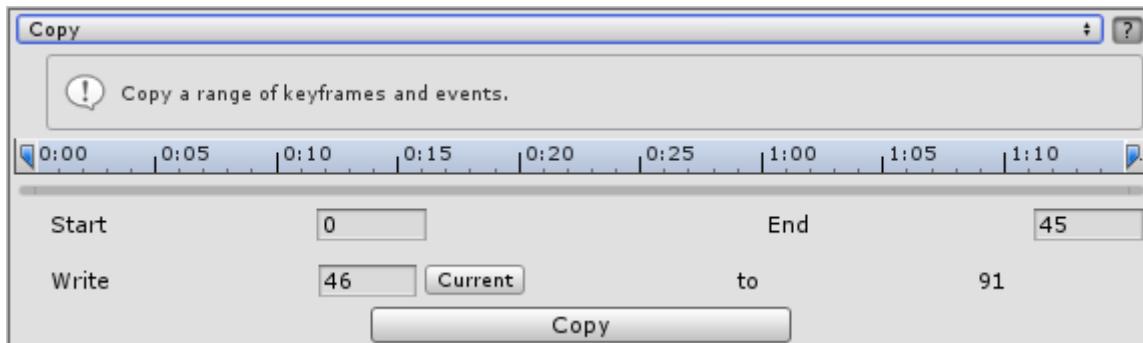
If it is not successfully set, Mirror's function will not work properly.



If you do not set it correctly with Automap, change it manually or change the setting and redo the Automap from the setting icon of BlendShape.

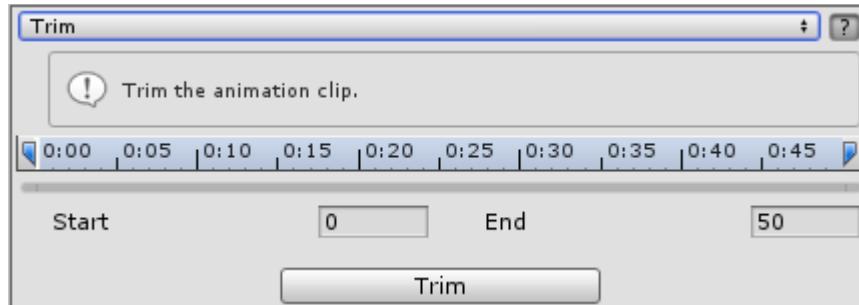
Tools

Copy



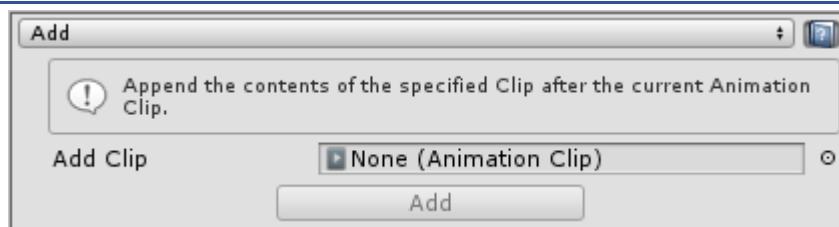
Copy the keyframe.

Trim



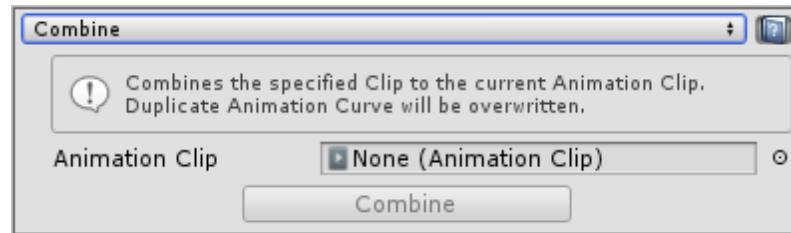
Trim animation clip.

Add



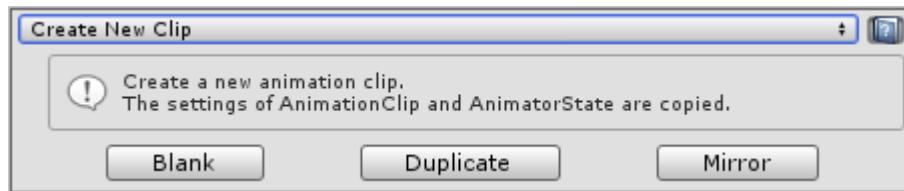
Add an animation clip to the back.

Combine



Combine the animation clips.

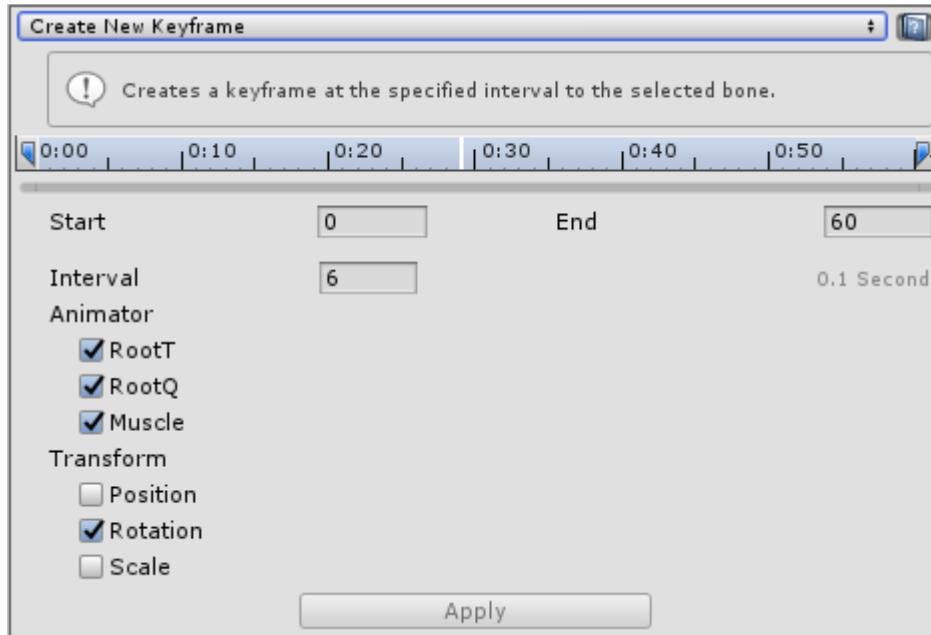
Create New Clip



Create a new Clip.

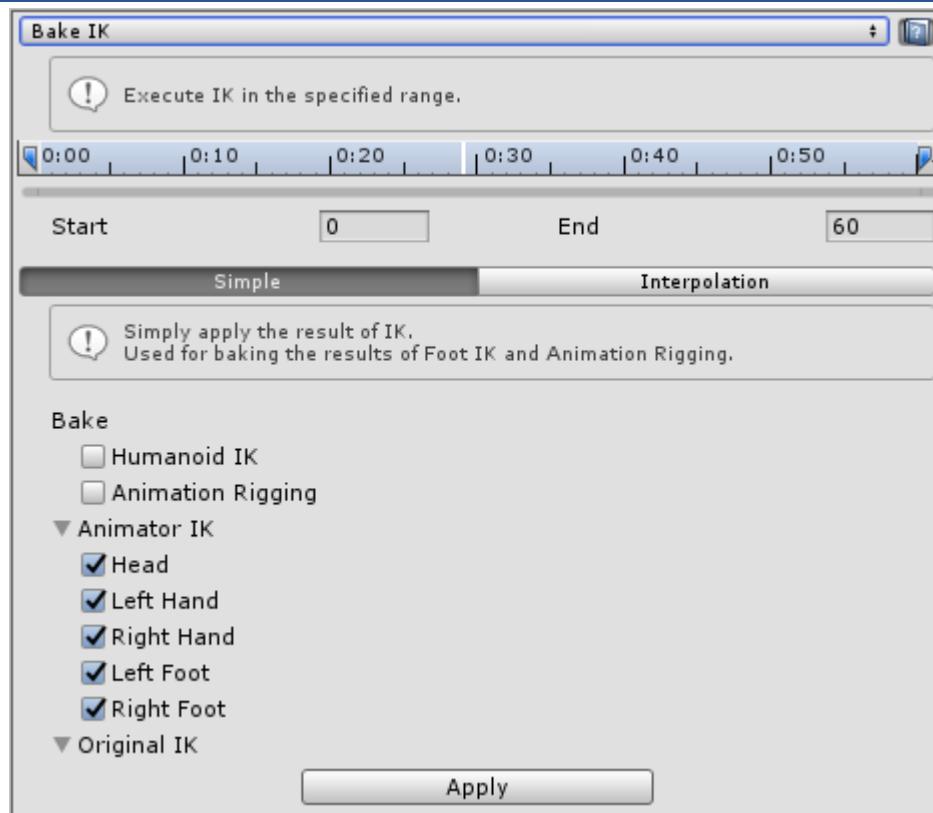
It inherits the settings of the AnimationClip being edited and creates it.

Create New Keyframe



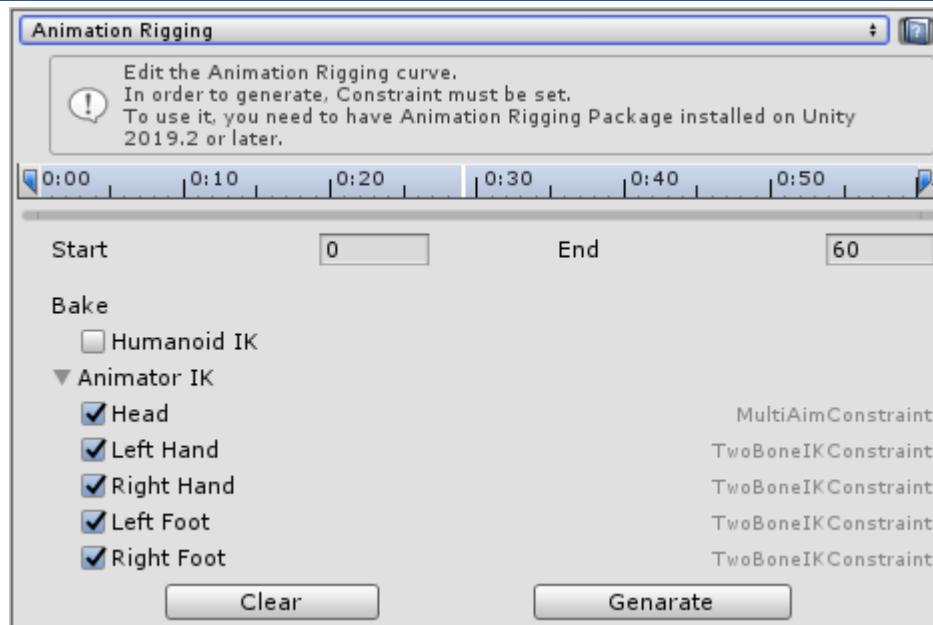
Creates new keyframes on selected bones at regular intervals.

Bake IK



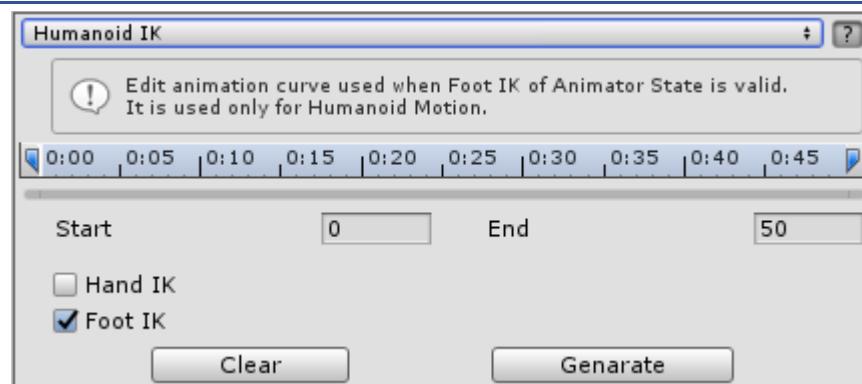
IK is executed within the specified range.

Animation Rigging



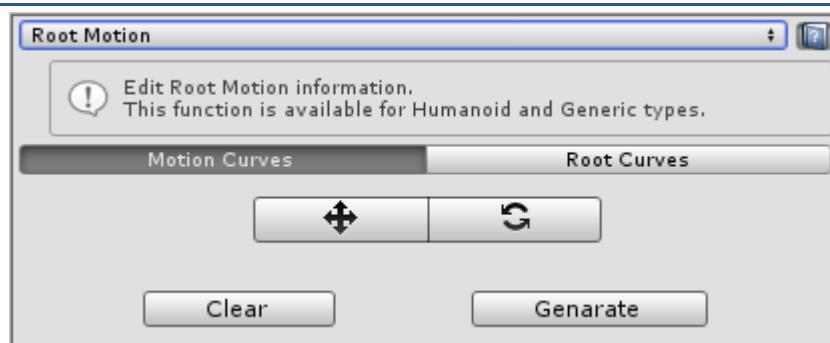
Edit the Animation Rigging curve.

Humanoid IK



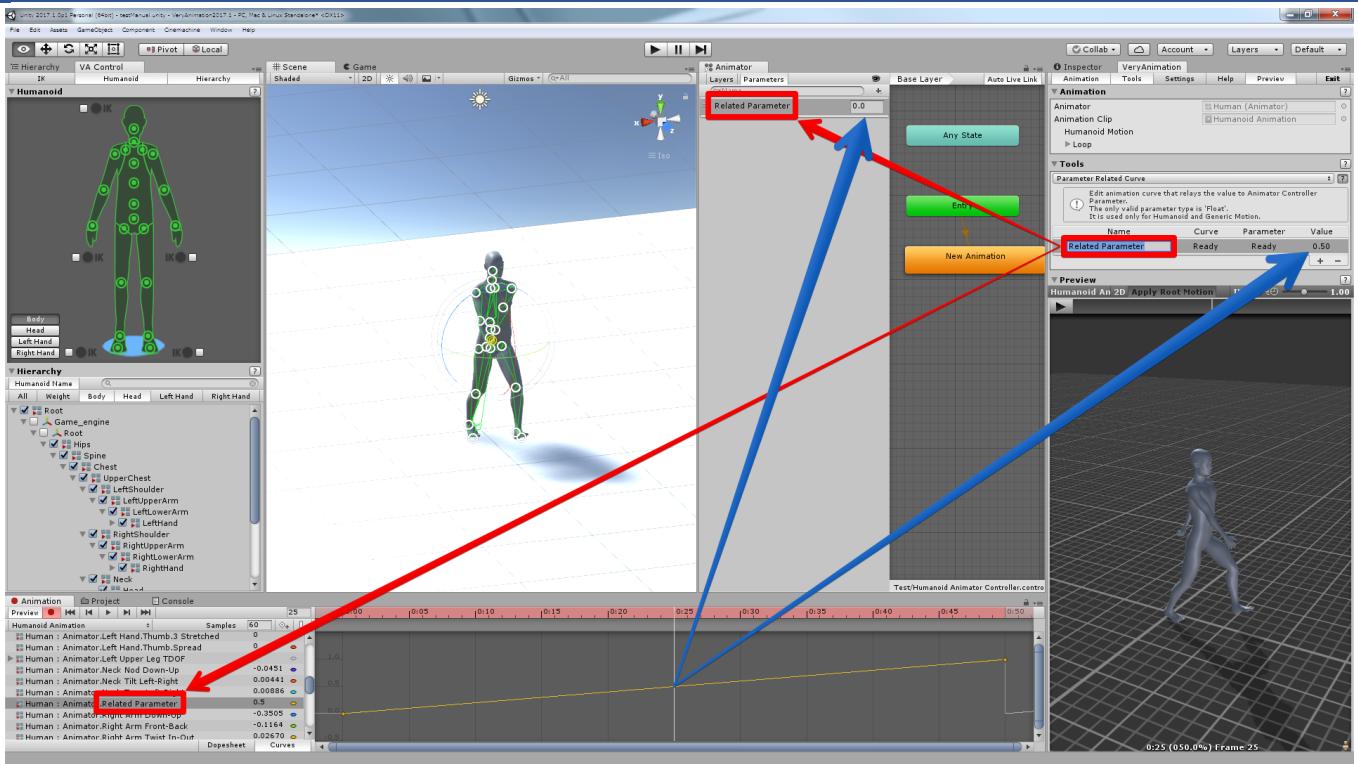
See Humanoid / Foot IK.

Root Motion



Edit the animation curve for Root Motion.

Parameter Related Curves



Animator Parameter manages information for using the Animator's mechanism where the value of Animation Curve is set. If you prepare Parameter and Curve with the same name, you can receive the information of Animation Curve as Float's Parameter at runtime.

Normally it corresponds to the information set in 'Animations / Curves' of Unity's Model Importer. Refer to the following Unity documentation for a detailed explanation.

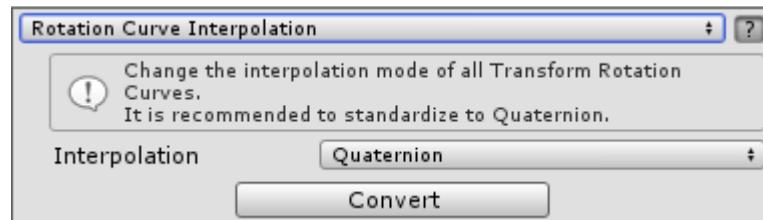
Reference data

[Animation Curves on Imported Clips](#)

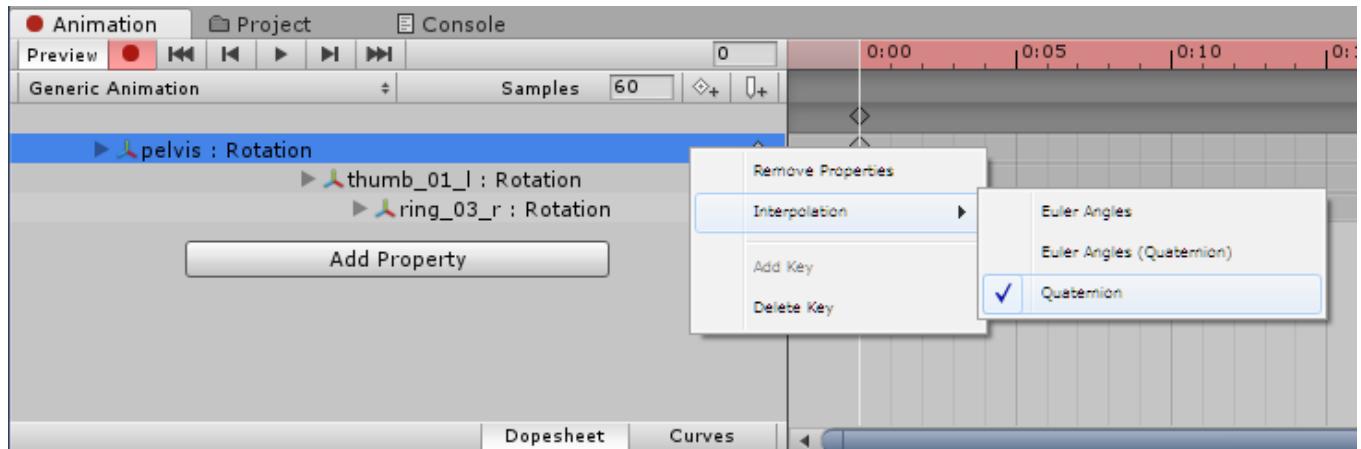
Demo

VeryAnimation\Demo\ParameterRelatedCurves

Rotation Curve Interpolation



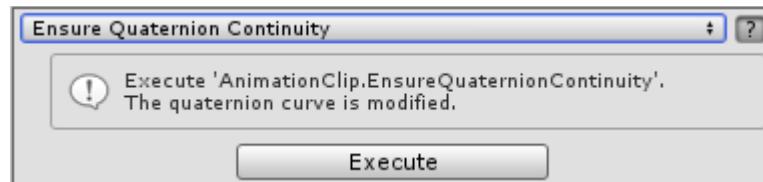
Change the interpolation method of Transform Rotation Curve all at once.



This is the setting above.

Since animation created with other assets or Unity may be other than Quaternion, we recommend that you run once and unify it to Quaternion.

Ensure Quaternion Continuity



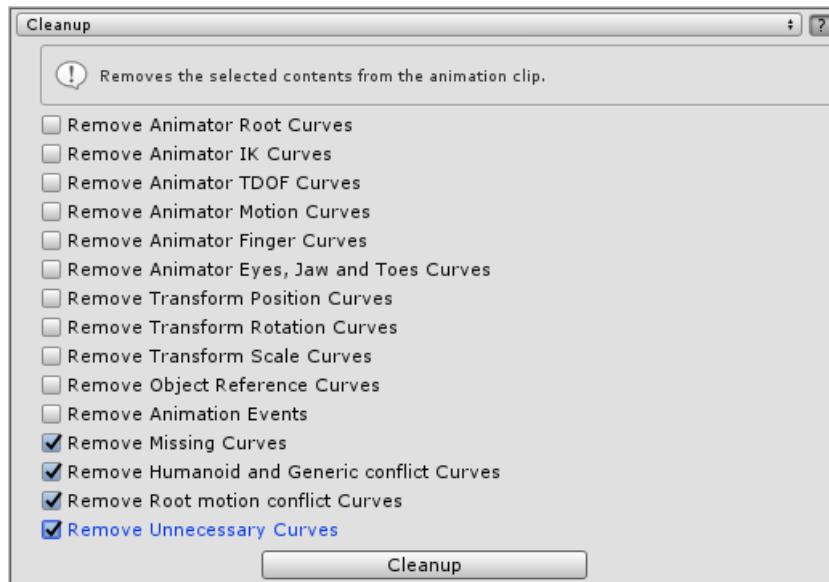
Call [AnimationClip.EnsureQuaternionContinuity](#).

It is recommended that you call it after changing the animation curve.

However, there may be a slight change in the curve, so Very Animation calls it arbitrarily here.

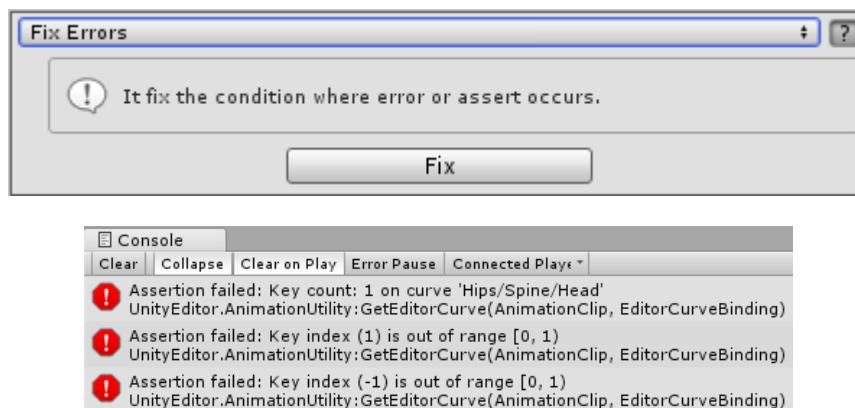
Cleanup

Delete unnecessary curves and so on.



Fix Errors

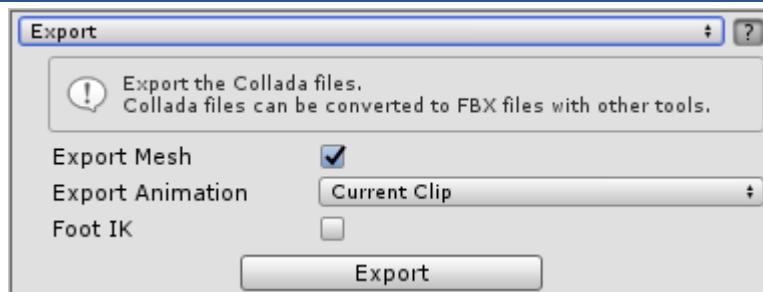
Correct the error or warning status.



Normally you do not need to run it.

When editing, you can modify data that got warning like the above.

Export



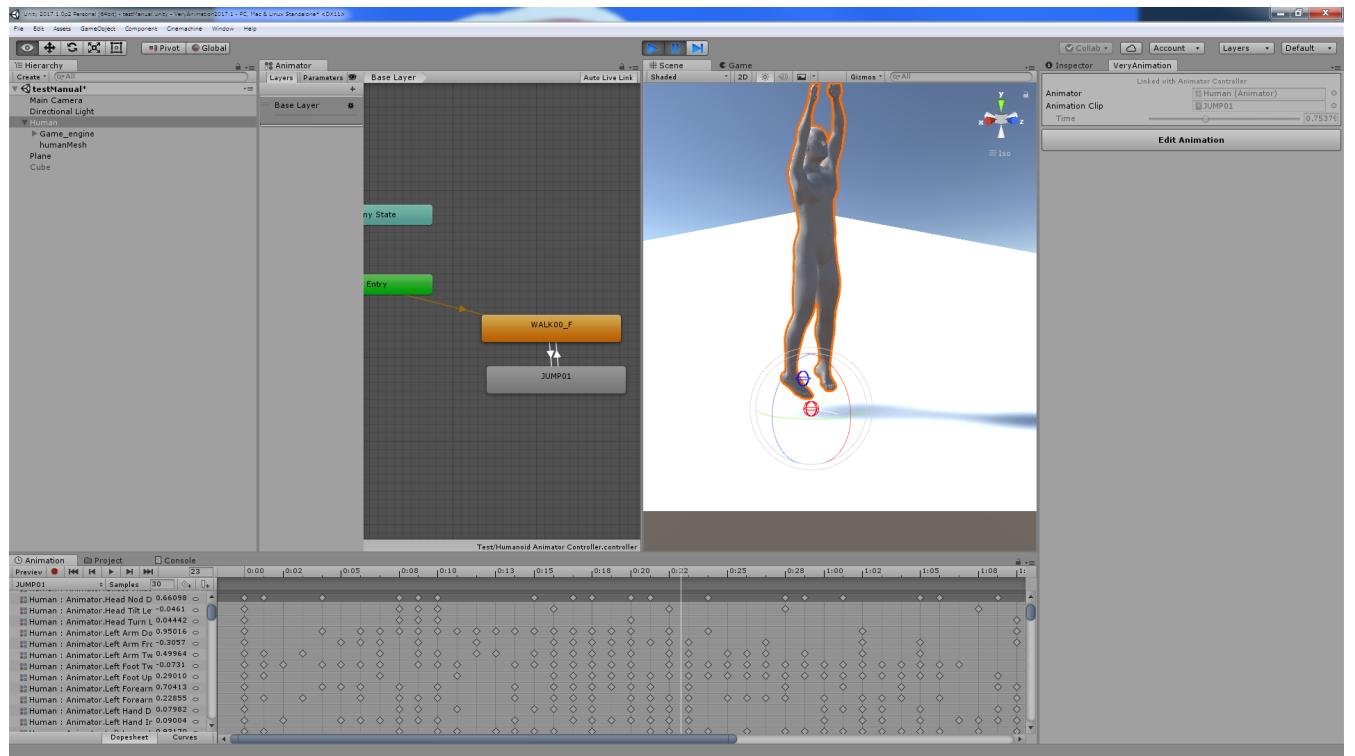
Collada (DAE) file is output.

The output mesh is reference information for animation confirmation.

To be displayed correctly, it will be changed to a hierarchy that can be output to Collada.

Therefore, there is a possibility that it changes from the hierarchy in Unity.

Edit while paused



When pausing while editor is running and entering editing of Very Animation, editing starts from animation and time when stopped.

The target is Layer 0 information of Animator.

Demo

VeryAnimation\Demo>Edit while paused

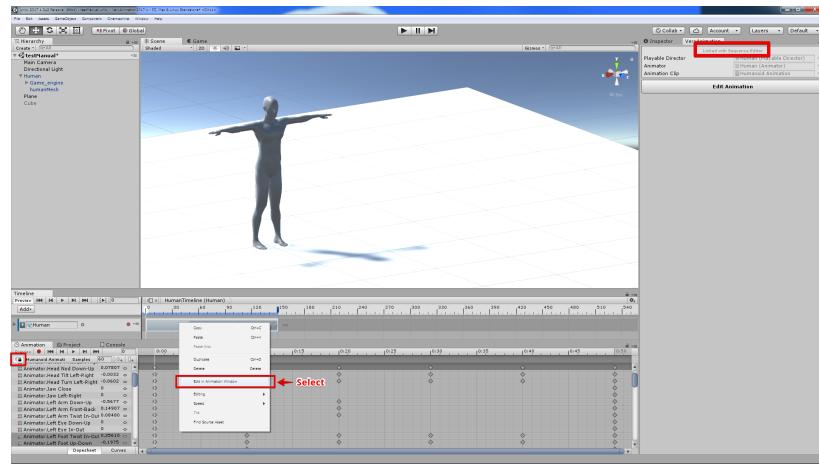
Video

[Edit while paused](#)

Edit in Timeline

We recommend using Unity 2018.3 or later. This is because many Timeline issues have been fixed in Unity 2018.3.

It works with earlier versions, but it cannot be fully supported. This is a specification.



Link the Timeline animation to the Animation Window and start editing.

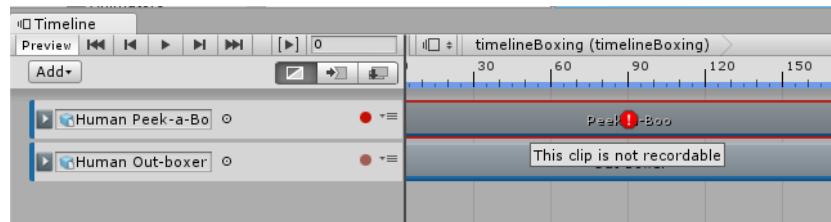
In Timeline, various types such as Foot IK and animation blend are displayed, and the Skeleton is displayed as it is in the Animation Clip.

Video

[Timeline tutorial](#)

Notes on Timeline

- About warning in Unity 2018.1 or later



Such a warning is displayed in Unity 2018.1 or later, but it has no effect.

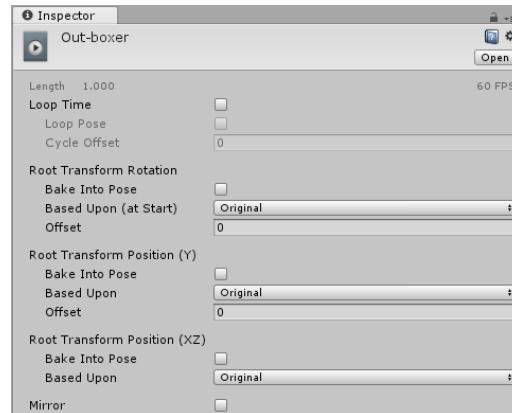
Since AnimationClip is updated with VA, it is possible to edit it like the previous version.

- Confirmation of Root Motion setting of Animation Clip

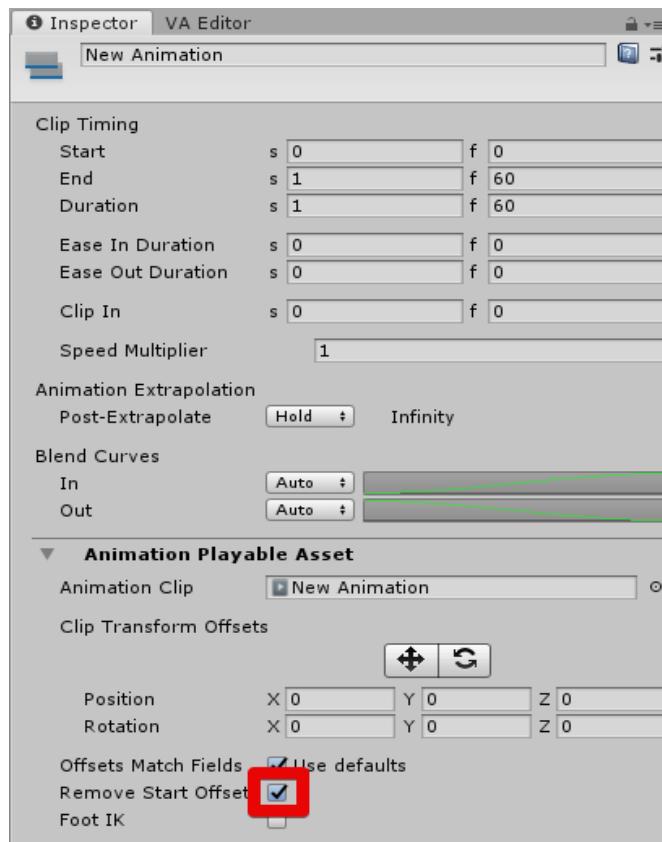
If you do not operate as intended by moving Root, check the setting of Animation Clip.

The default when you create a new Animation Clip contains the Based Upon setting and so on.

Please make sure it is plain like the setting below.



• Animation Playable Asset setting, Remove Start Offset



The Remove Start Offset flag makes the Root transform relative to the information of the first frame.

If enabled, there is a problem that the position of the Skeleton will shift, so it is recommended to disable it.

Animation Rigging [Preview]

It can be used by installing from Package Manager in Unity2019.2 or later.

The current operation check version is [0.2.5 preview].

Since Animation Rigging is still a preview function, this function is also a preview version.

Please see the video for how it works.

Video

[Animation Rigging](#)

Note

There seems to be a problem that does not work properly with Humanoid that does not specify an optional bone such as UpperChest in Avatar Configure. Use a Humanoid with all optional bones specified.

There seems to be a problem that does not work properly in the model that contains a value whose Scale is not 1. Use a model where all Scales are 1.

This feature is difficult to use for animations that run on Humanoid Root Motion. The reason is that Root Motion changes the amount of movement depending on the value of Animator.humanScale, so the difference affects the value of Constraint that is a child of Root. For this reason, animation creation and animation models can be used if they are the same.

When using Foot Constraint, enabling Foot IK reflects the result of Foot IK, so you need to disable Foot IK.

Tips

Very Animation aims to operate at high speed.

However, there are many situations where the behavior of the editor becomes heavier when editing animation.

Therefore, we will introduce measures to make it operate as fast as possible during editing.

Use the latest Unity

It is because it can be expected that performance improvement is included as new as new.

Close the windows that you do not need

It becomes slow with unnecessary processing.

Hide Inspector

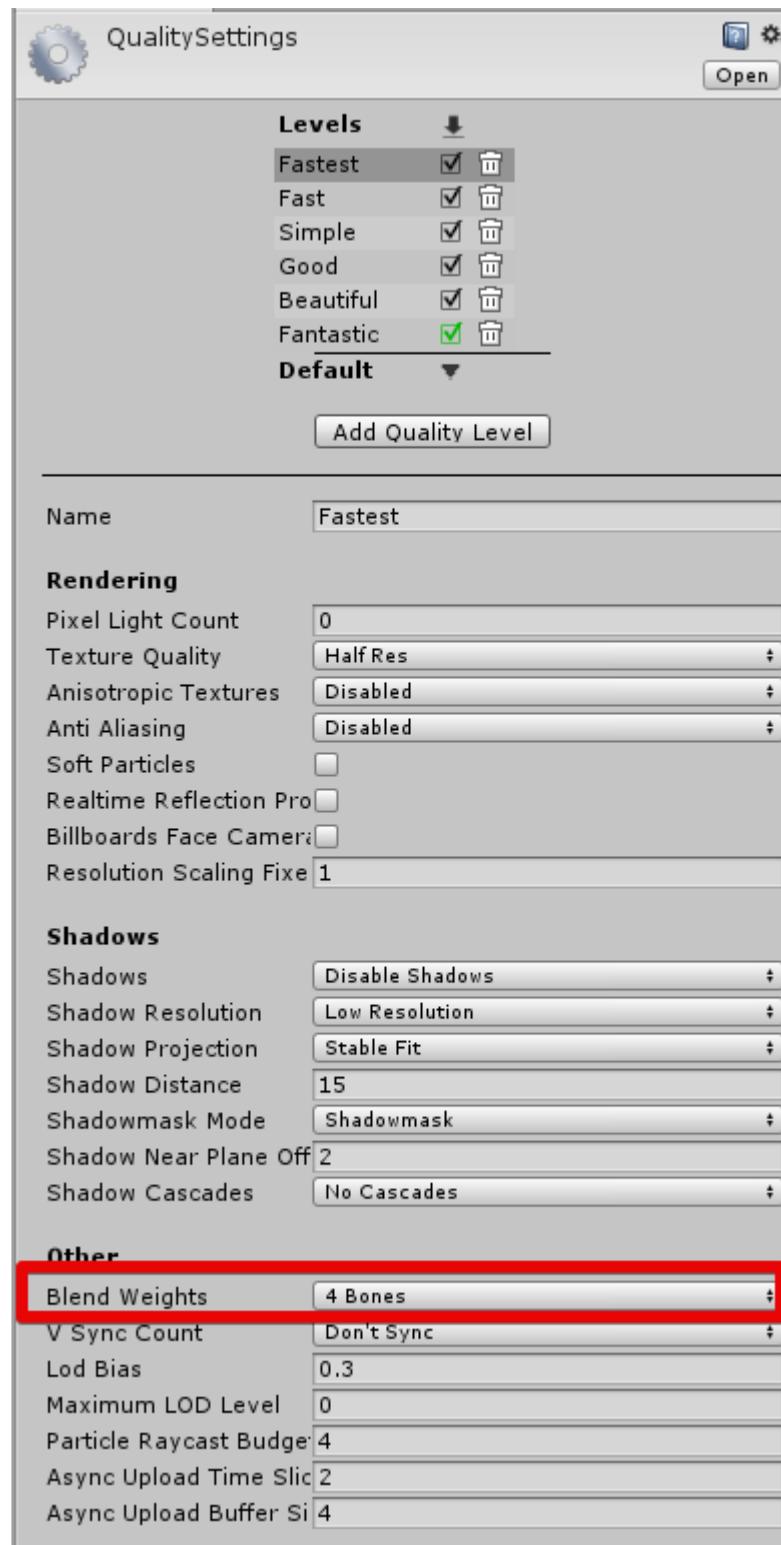


When Inspector is displayed, Repaint is done every time when editing, but it is slightly heavy, so it is suppressed by leaving it undisplayed.

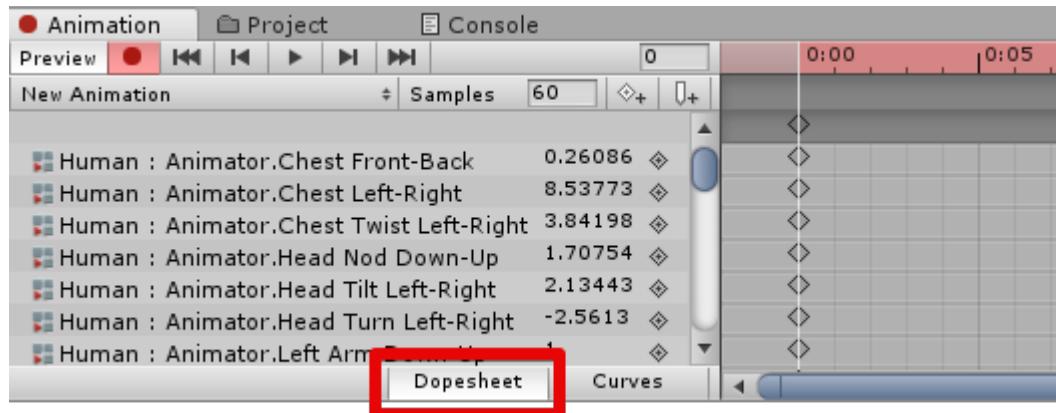
Confirm QualitySettings

In a poor environment, the editing speed of the editor is greatly affected, so change the setting if it is heavy.

However, in order to edit the animation, we recommend that you change Blend Weights to '4 Bones' even if you make it fast.



Change Animation Window to Dopesheet display



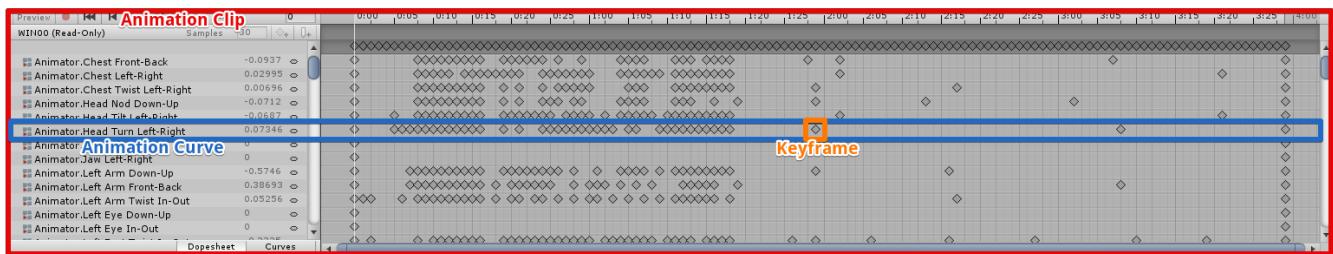
Updating the Animation Window when changing keyframes is a particularly heavy process.

In the case of updating only the value of the key, in the case of Curves the display of the curve must be updated, but in the case of Dopesheet there is almost no change in the appearance so it is refraining from updating.

Due to this redrawing difference, there is a difference in speed with complicated animation.

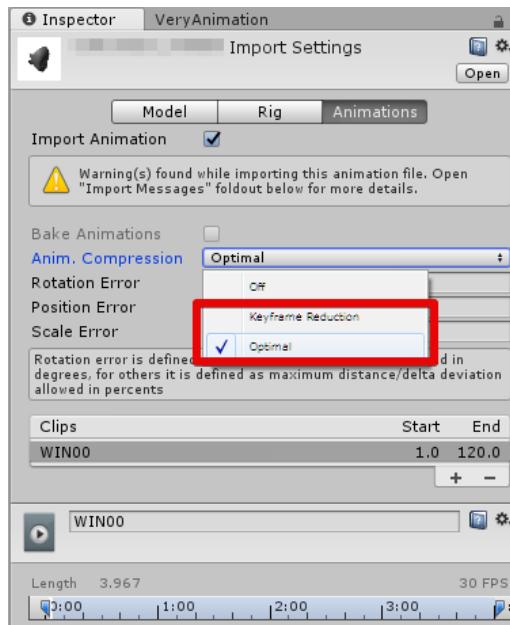
For this reason, Dopesheet display is better whenever there is no need to check the curve.

Reduce keyframes



When changing the key frame value, it is updated in units of Animation Curve.

Therefore, the update time increases as the number of key frames increases.

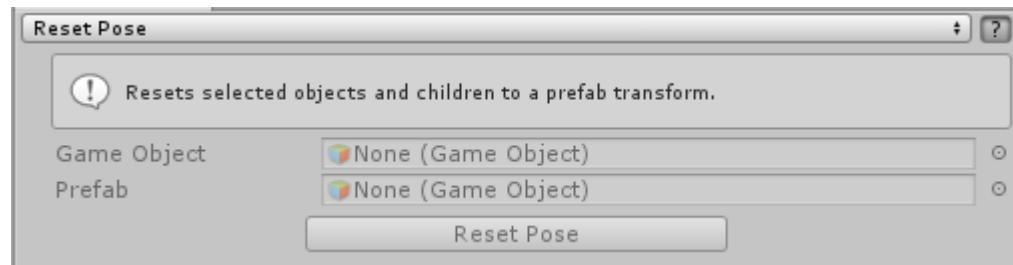


When fewer key frames are used, it is faster, so when editing an existing animation, it is recommended to first edit the model Importer's Anim. Compression other than Off to reduce keyframes before duplicating and editing.

Tools Window

Very Animation Executes an animation related tool to be executed if it is not being activated.

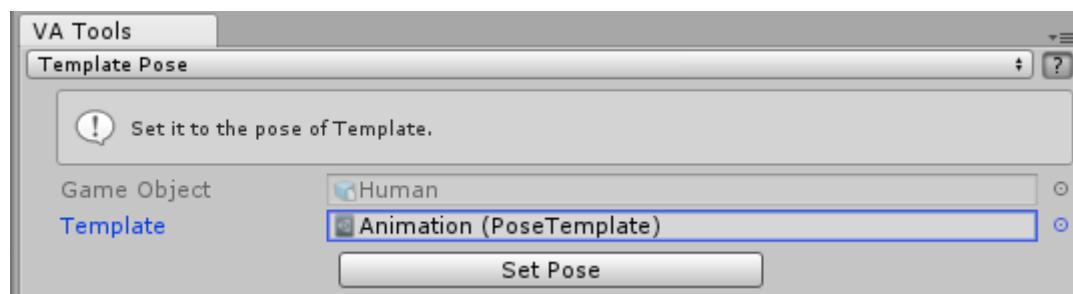
Reset Pose



Resets the selected object and its descendants to the prefabricated pose.

Transform only changes.

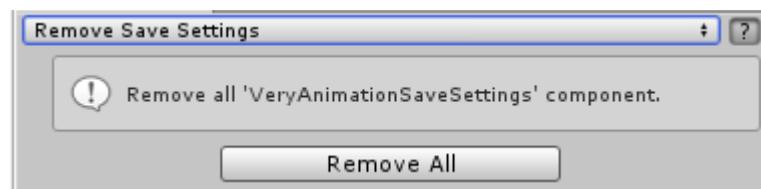
Template Pose



Resets the selected object to the pose of Template.

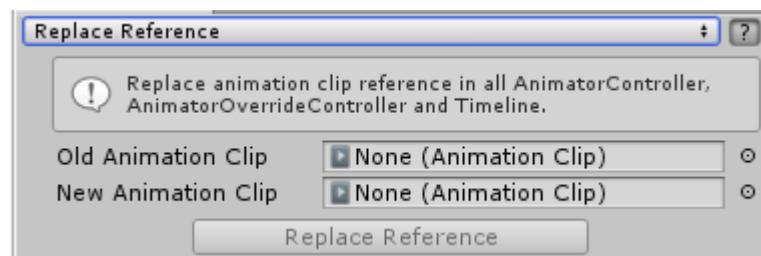
Transform only changes.

Remove Save Settings



Delete all VeryAnimationSaveSettings from the project.

Replace Reference



Replace reference of Animation Clip.

Support

Twitter

<https://twitter.com/AISoSupport>

Mail

support@alonesoft.sakura.ne.jp

FAQ

<http://alonesoft.sakura.ne.jp/VeryAnimation/support.html>