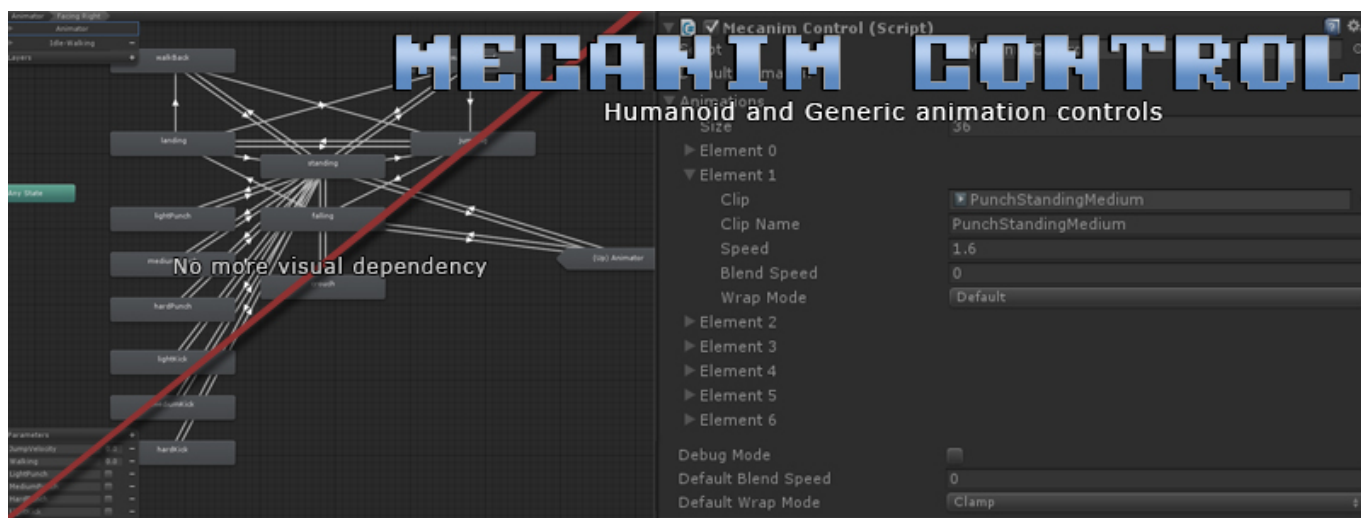


Mecanim Control

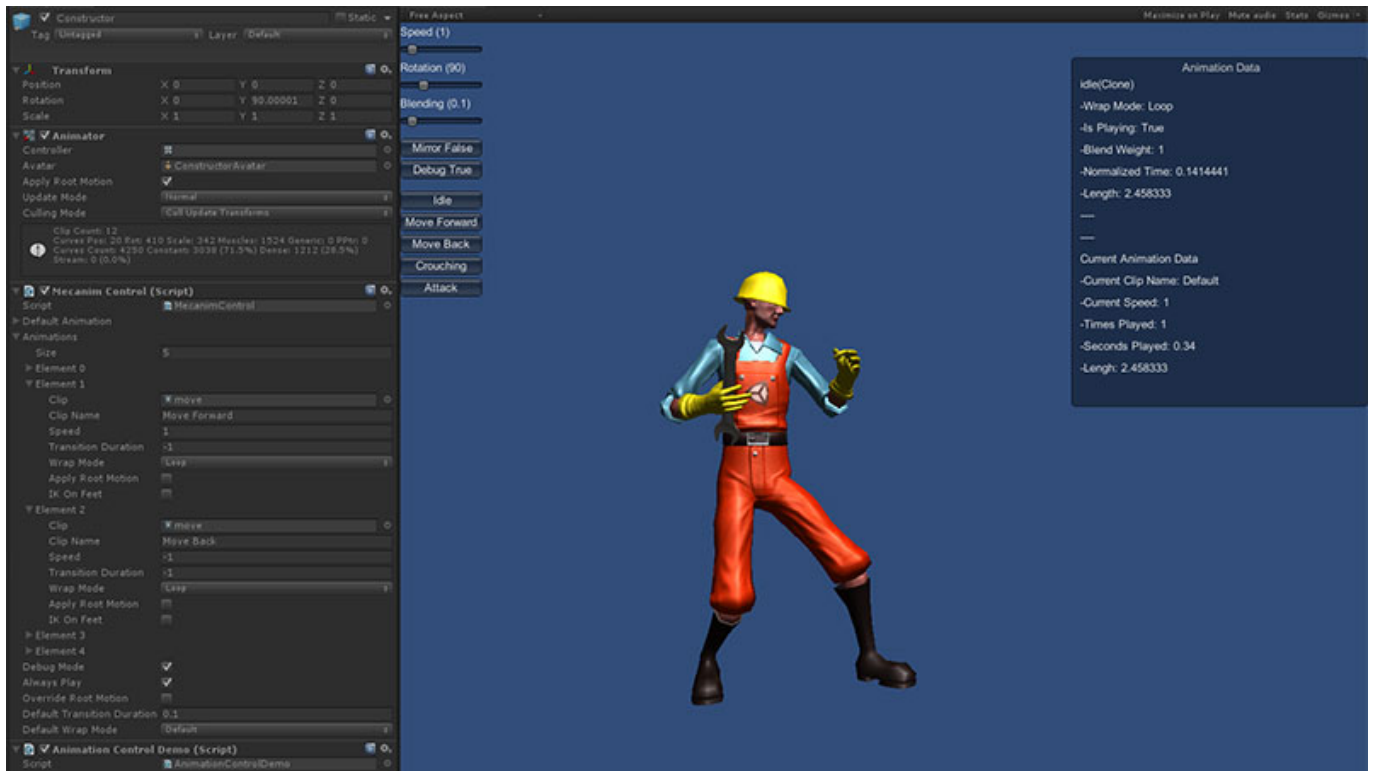
Your ultimate solution for Mecanim based games!



Mecanim Control is a coding tool made that allow for a wider variety of common methods used by the [Animation component](#) with Mecanim (Humanoid/Generic) animations. It allows you to not only dynamically load any animation clip during runtime, but also tap into several methods currently missing in this magnificent system.

[Mecanim Control](#) is a sub-tool of [Universal Fighting Engine](#). It's source code is available entirely free in the **Source** version of UFE.

Overview



You can use MecanimControl much like you would use the animation component.

To play a simple animation use *MecanimControl.Play*

To cross-fade between animations use *MecanimControl.CrossFade* -or- one of the *MecanimControl.Play* alternatives.

To change how animations wrap (Loop, Once, PingPong) change the WrapMode of the respective *AnimationClip* in their import settings, or use *MecanimControl.SetWrapMode* to change it at runtime. *AnimationData* can be used to modify the clip, playback speed, and direct control over blending.

MecanimControl also supports enumerators so you can loop through all AnimationData like this:

```
using UnityEngine;
using System.Collections;

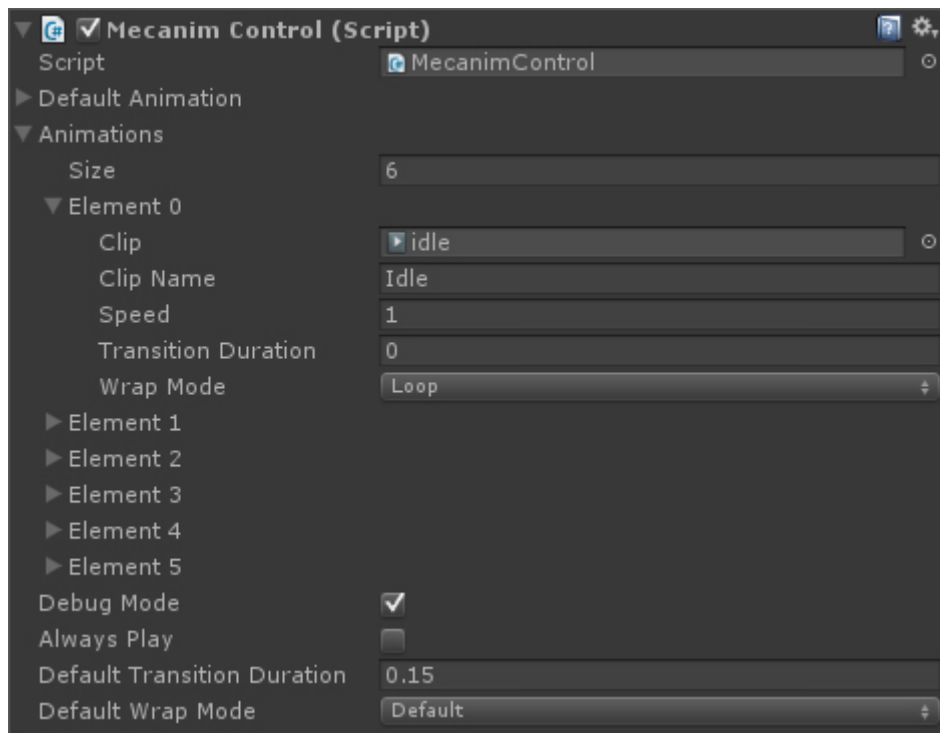
public class AnimationControlDemo : MonoBehaviour {

    private MecanimControl mecanimControl;

    void Start () {
        mecanimControl = gameObject.GetComponent<MecanimControl>();
    }

    void OnGUI(){
        foreach(AnimationData animationData in mecanimControl.animations){
            if (GUILayout.Button(animationData.clipName)){
                mecanimControl.Play(animationData, mirror);
            }
        }
    }
}
```

Public Variables



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[defaultanimation](#) **Default Animation**

AnimationData *defaultAnimation*;

By default, if no order is given, the animator will play the animation stored in this AnimationData.

```
void Start () {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.defaultAnimationData.speed = .5f;  
}
```

[animations](#) **Animations**

AnimationData[] *animations*;

The array containing all the AnimationData stored by either the UI or by using AddClip.

```
void Start () {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    foreach(AnimationData animationData in mecanimControl.animations) {  
        animationData.speed = .5f;  
    }  
}
```

debugmode Debug Mode

bool *debugMode*;

Toggles a GUI box containing all the information about the current clip playing as well as its blending weight.

```
void Start () {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.debugMode = true;  
}
```

alwaysplay Always Play

bool *alwaysPlay*;

If an animation is set to *WrapMode.Once* and *alwaysPlay* is toggled on, after the clip ends it will immediately play the *default animation*.

```
void Start () {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.alwaysPlay = true;  
}
```

defaulttransitionduration Default Transition Duration

float *defaultTransitionDuration*;

If an animation has its blending speed set to 0, it will use this value instead.

```
void Start () {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.defaultTransitionDuration = .2f;  
}
```

defaultwrapmode Default Wrap Mode

float *defaultWrapMode*;

If an animation has its *wrapmode* set to *default*, it will use this value instead.

```
void Start () {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.defaultWrapMode = WrapMode.Once;  
}
```

```
}
```

Public Functions

```
void OnGUI() {  
    if (GUILayout.Button("Invert Speed")) mecanimControl.SetSpeed(-mecanimControl.GetSpeed());  
    if (GUILayout.Button("Mirror "+ mirror)) {  
        mirror = !mirror;  
        mecanimControl.SetMirror(mirror);  
    }  
  
    GUILayout.Space(10);  
  
    foreach(AnimationData animationData in mecanimControl.animations){  
        if (GUILayout.Button(animationData.clipName)){  
            mecanimControl.Play(animationData, mirror);  
        }  
    }  
}
```

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[addclip](#) **AddClip**

void AddClip(AnimationClip clip, string name);

void AddClip(AnimationClip clip, string name, float speed, WrapMode wrapMode);

Parameters

clip - The AnimationClip file.
name - Animation name.
speed - Animation speed.
wrapMode - The animation's default [WrapMode](#).

Description: Adds a clip to *animations* with the name *newName*.

```
using UnityEngine;
using System.Collections;

public class Example : MonoBehaviour {
    public AnimationClip walkClip;
    void Start () {
        mecanimControl = gameObject.GetComponent<MecanimControl>();
        mecanimControl.AddClip(walkClip, "walk");
    }
}
```

[crossfade](#) **CrossFade**

void CrossFade(string clipName, float blendingTime);
void CrossFade(string clipName, float blendingTime, float normalizedTime, bool mirror);
void CrossFade(AnimationData animationData, float blendingTime, float normalizedTime, bool mirror);

Parameters

clipName - Animation name.
animationData - The correspondent animation data.
blendingTime - The blending duration between the 2 animations.
normalizedTime - The timeline's position of the animation to be played (0-1)
mirror - Should the animation be mirrored?

Description: Fades the animation with name *clipName* in over a period of *blendingTime* seconds as it fades other animations out.

You can also set *normalizedTime* to set where, in its timeline, you want the animation to start (0-1) as well as toggle [mirror](#).

```
using UnityEngine;
using System.Collections;

public class Example : MonoBehaviour {
    public AnimationClip walkClip;
    void Start () {
        mecanimControl = gameObject.GetComponent<MecanimControl>();
        mecanimControl.CrossFade("walk", .2f);
    }
}
```

[getanimationdata](#) **GetAnimationData**

AnimationData GetAnimationData(AnimationClip clip);
AnimationData GetAnimationData(string clipName);

Parameters

clip - Animation clip.
clipName - Clip name.

Description: Returns the AnimationData related to that animation name or clip.

```
using UnityEngine;
using System.Collections;

public class Example : MonoBehaviour {
    public AnimationClip walkClip;
    void Start () {
        mecanimControl = gameObject.GetComponent<MecanimControl>();
        mecanimControl.AddClip(walkClip, "walk");
        Debug("Animation Name:" +
mecanimControl.GetAnimationData(walkClip).clipName);
    }
}
```

[getcurrentanimationdata](#) GetCurrentAnimationData

AnimationData GetCurrentAnimationData();

Description: Get the AnimationData currently running.

```
using UnityEngine;
using System.Collections;

public class Example : MonoBehaviour {
    public AnimationClip walkClip;
    void Start () {
        mecanimControl = gameObject.GetComponent<MecanimControl>();
        Debug("Animation Name:" +
mecanimControl.GetCurrentAnimationData().clipName);
    }
}
```

[getcurrentclipname](#) GetCurrentClipName

string GetCurrentClipName();

Description: Get the name of the current running clip.

```
using UnityEngine;
using System.Collections;
```

```
public class Example : MonoBehaviour {
    void Start () {
        mecanimControl = gameObject.GetComponent<MecanimControl>();
        Debug("Animation Name:" + mecanimControl.GetCurrentClipName());
    }
}
```

getcurrentclipposition **GetCurrentClipPosition**

float *GetCurrentClipPosition()*;

Description: Get the *normalized time* of the current running clip. (0-1)

```
void CheckProgress() {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    Debug("Animation Progress (%):" + mecanimControl.GetCurrentClipPosition()
* 100);
}
```

getcurrentclipplaycount **GetCurrentClipPlayCount**

int *GetCurrentClipPlayCount()*;

Description: Get the number of times the current clip has played. Only works if the animation's WrapMode is set to either *WrapMode.Loop* or *WrapMode.PingPong*

```
void CheckProgress() {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    Debug("Times Played:" + mecanimControl.GetCurrentClipPlayCount());
}
```

getmirror **GetMirror**

bool *GetMirror()*;

Description: Get the current *mirror* state of the *emulated runtime animator*.

```
void FaceLeft () {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    if (!mecanimControl.GetMirror()) mecanimControl.setMirror(true);
}
```

getspeed **GetSpeed**

float *GetSpeed()*;

float *GetSpeed(AnimationClip clip)*;

float *GetSpeed(string clipName)*;

Parameters

clip - Animation clip.

clipName - Clip name.

Description: Get the speed value set for *animationClip/clipName*.

no parameters - Get the speed the animator is running based on the current running animation.

```
void SlowDown() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    if (mecanimControl.GetSpeed() > 1) mecanimControl.SetSpeed(1);  
}
```

isplaying IsPlaying

bool *IsPlaying*(string clipName);

bool *IsPlaying*(AnimationClip clip);

bool *IsPlaying*(AnimationData animationData);

Description: Returns true if *clipName*, *clip* or *animationData* is playing.

```
void Example() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    if (mecanimControl.IsPlaying("walk")) Debug.Log("Walk is playing");  
}
```

pause Pause

void *Pause*();

Description: Pauses the animator component.

```
void Example() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.Pause();  
}
```

play Play

void *Play*();

void *Play*(string clipName);

void *Play*(AnimationClip clip);

void *Play*(AnimationData animationData);

void *Play*(string clipName, bool mirror);

void *Play*(AnimationClip clip, bool mirror);

void *Play*(AnimationData animationData, bool mirror);

void *Play*(string clipName, float blendingTime, float normalizedTime, bool mirror);

void *Play*(AnimationClip clip, float blendingTime, float normalizedTime, bool mirror);

Parameters

clip - Animation clip.

clipName - Animation name.

animationData - The correspondent animation data.

blendingTime - The blending duration between the 2 animations.

normalizedTime - The timeline's position of the animation to be played (0-1)

mirror - Should the animation be mirrored?

Description: Plays animation. *Play* can be used in several ways, including blending. If no blending is set, *Play* will try using the default blending value. If blending is set to -1, the animation will be played abruptly without any blending.

If the animation is not set to be looping and *alwaysPlay* is toggled off it will be stopped after playing.

If no parameters are used, *Play* can be used as a follow up to *Pause*. It restores the speed of the Animator to the current animation speed value.

Normalized Time lets you start the animation from a predefined position in the animation timeline (0-1).

```
void Example() {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    mecanimControl.Play();
}
```

```
void Example() {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    mecanimControl.Play("walk", .2f, 0, true);
}
```

[removeclip](#) RemoveClip

void RemoveClip(string clipName);

void RemoveClip(AnimationClip clip);

Description: Removes the *AnimationData* from *animations* related to *clipName/clip*.

```
void RemoveAnimation(string animation) {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    mecanimControl.RemoveClip(animation);
}
```

[restorespeed](#) RestoreSpeed

void RestoreSpeed();

Description: Restores the speed of the animator component to the original value from the current animation being played.

```
using UnityEngine;
```

```
using System.Collections;

public class Example : MonoBehaviour {

    private MecanimControl mecanimControl;

    void SlowMo(string animation) {
        mecanimControl.SetSpeed(.01f);
        Invoke("Restore", 2);
    }

    void Restore() {
        mecanimControl.RestoreSpeed();
    }
}
```

rewind **Rewind**

`void Rewind();`

Description: Inverts the speed of the animator component.

```
void Example() {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    mecanimControl.Rewind();
}
```

setcurrentclipposition **SetCurrentClipPosition**

`void SetCurrentClipPosition(float normalizedTime);`

`void SetCurrentClipPosition(float normalizedTime, bool pause);`

Description: Set the position in the timeline of the current playing clip (0-1). If pause is toggled on, the animation will be paused afterwards.

```
void Example() {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    mecanimControl.SetCurrentClipPosition(.3f, true);
}
```

setdefaultclip **SetDefaultClip**

`void SetDefaultClip(AnimationClip clip, string name, float speed, WrapMode wrapMode);`

Description: Sets the *defaultclip* through code (instead of the UI).

```
using UnityEngine;
using System.Collections;
```

```
public class Example : MonoBehaviour {  
  
    private MecanimControl mecanimControl;  
    private AnimationClip idle;  
  
    void Start() {  
        mecanimControl.SetDefaultClip(idle, "Idle", 1, WrapMode.Loop);  
    }  
}
```

setmirror **SetMirror**

```
void SetMirror(bool mirror);  
void SetMirror(bool mirror, float blendingTime);  
void SetMirror(bool mirror, float blendingTime, bool forceMirror);
```

Description: When toggled on, every animation will be played with the [mirror](#) tag toggled on.

```
void FaceLeft () {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    if (!mecanimControl.GetMirror()) mecanimControl.setMirror(true);  
}
```

setspeed **SetSpeed**

```
void SetSpeed(float speed);  
void SetSpeed(string clipName, float speed);  
void SetSpeed(AnimationClip clip, float speed);
```

Description: Change the speed value of the Animator component or AnimationData based on *clipName/clip*.

If no parameters are used, SetSpeed will change the global speed from the Animator component.

```
void SlowDown() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    if (mecanimControl.GetSpeed() > 1) mecanimControl.SetSpeed(1);  
}
```

setwrapmode **SetWrapMode**

```
void SetWrapMode(WrapMode wrapMode);  
void SetWrapMode(AnimationData animationData, WrapMode wrapMode);  
void SetWrapMode(AnimationClip clip, WrapMode wrapMode);  
void SetWrapMode(string clipName, WrapMode wrapMode);
```

Description: Sets the Wrap Mode of an AnimationData based on *clipName/clip*.

If no parameters are used, SetWrapMode will change *defaultWrapMode*.

```
void ClampCurrentClip() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.SetWrapMode(mecanimControl.GetCurrentAnimationData,  
WrapMode.Clamp);  
}
```

stop Stop

void Stop();

Description: Stops any animation from playing and starts playing the default animation.

```
void PlayDefaultAnimation() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.Stop();  
}
```

Public Events

```
Animation Data  
Current Clip Name: Default  
Wrap Mode: Loop  
Normalized Time: 0.1442214  
Blend Weight: 1  
Current Speed: 1  
Times Played: 1
```

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- [OnAnimationBegin](#)
- [OnAnimationEnd](#)
- [OnAnimationLoop](#)

onanimationbegin OnAnimationBegin

void AnimEvent(AnimationData animationData);

Description: Fires when an animation begins.

```
void OnAnimationBegin(AnimationData animData) {  
    if (animData.clipName == "walk") Debug.Log("character is walking");  
}
```

onanimationend OnAnimationEnd

`void AnimEvent(AnimationData animationData);`

Description: Fires when an animation ends.

```
void OnAnimationEnd(AnimationData animData) {  
    if (animData.clipName == "walk") Debug.Log("character has stopped  
walking");  
}
```

onanimationloop OnAnimationLoop

`void AnimEvent(AnimationData animationData);`

Description: Fires when an animation loops. This is only triggered if the animation WrapMode is set to either *WrapMode.Loop* or *WrapMode.PingPong*

```
void OnAnimationLoop(AnimationData animData) {  
    if (animData.clipName == "walk")  
        Debug.Log("walking animation has looped "+ animData.timesPlayed + "  
times.");  
}
```

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