Unity Engine Utilities Reference

PiRho Soft

AngleDisplayAttribute

PiRhoSoft.UtilityEngine.AngleDisplayAttribute : PropertyAttribute

Description

Attribute applied to Quaternion fields to control how the rotation is displayed in the editor. By default, Unity displays quaternions as a class with a foldout and 4 separate properties. Applying this attribute allows the rotation to be specified as a set of euler angles, a rotation about an axis, a look at and up vector, or as the 4 raw components.
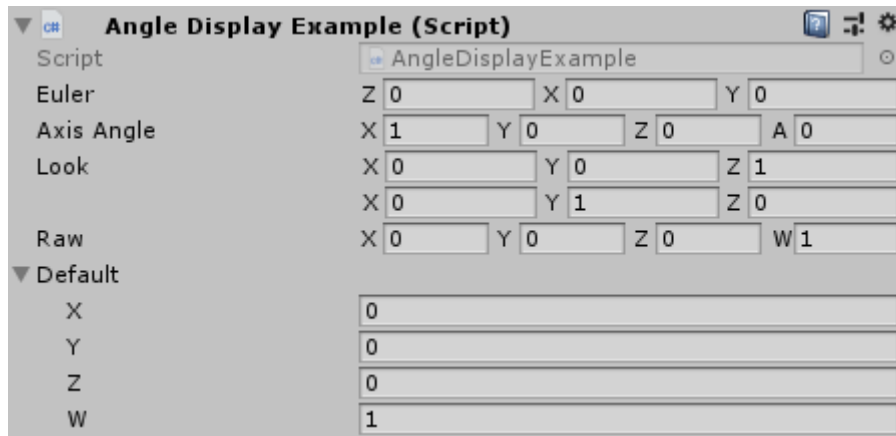

```
using PiRhoSoft.UtilityEngine;
using UnityEngine;

namespace PiRhoSoft.UtilityExample
{
    [AddComponentMenu("PiRho Soft/Examples/Angle Display")]
    public class AngleDisplayExample : MonoBehaviour
    {
        [AngleDisplay] public Quaternion Euler = Quaternion.identity;
        [AngleDisplay(Type = AngleDisplayType.AxisAngle)] public Quaternion AxisAngle
= Quaternion.identity;
        [AngleDisplay(Type = AngleDisplayType.Look)] public Quaternion Look =
Quaternion.identity;
        [AngleDisplay(Type = AngleDisplayType.Raw)] public Quaternion Raw =
Quaternion.identity;

        public Quaternion Default = Quaternion.identity;
    }
}
```

> ⚠ Specifying the vectors for AxisAngle and Look display types can be finicky because of the translation back and forth from the underlying quaternion value (specifically due to the automatic normalization of the vectors). For AxisAngle, it is necessary to set the angle to something other than 0 in order to change the axis.

Public Fields

AngleDisplayType *Type*

By default this attribute will display the Quaternion as a set of euler angles. Set this field to use one of the other display types.

AngleDisplayType

PiRhoSoft.UtilityEngine.AngleDisplayType

Controls how to display a Quaternion in the inspector using the AngleDisplayAttribute.

Description

Values

AngleDisplayType *Euler*

Shows the Quaternion as a set of euler angles. Angles are specified in degrees.

> **ⓘ** The angles are shown in the order they are applied: rotation about the z axis as applied first, followed by the rotation about x, and finally the rotation about y.

AngleDisplayType *AxisAngle*

Shows the Quaternion as an axis and the rotation about that axis in degrees.

AngleDisplayType *Look*

Shows the Quaternion as a look at vector and up vector.

AngleDisplayType *Raw*

Shows the 4 raw components of the Quaternion in a single row.

ApplicationHelper

PiRhoSoft.UtilityEngine.ApplicationHelper

Description

Static Properties

bool *IsPlaying (read only)*

    <<<

AssetDisplayAttribute

PiRhoSoft.UtilityEngine.AssetDisplayAttribute : [PropertyAttribute](#)

Description

Constructors

AssetDisplayAttribute()

    # Public Fields

bool *ShowNoneOption*
bool *ShowEditButton*
AssetDisplaySaveLocation *SaveLocation*
string *DefaultName*

    <<<

AssetDisplaySaveLocation

PiRhoSoft.UtilityEngine.AssetDisplaySaveLocation

Description

Values

AssetDisplaySaveLocation *None*
AssetDisplaySaveLocation *AssetRoot*
AssetDisplaySaveLocation *Selectable*

    <<<

AssetNameAttribute

PiRhoSoft.UtilityEngine.AssetNameAttribute : [PropertyScopeAttribute](#)

Description

Static Fields

int *DefaultOrder*

Constructors

AssetNameAttribute()

<<<

ButtonState

PiRhoSoft.UtilityEngine.ButtonState : ValueType

Description

Constructors

ButtonState(bool *pressed*, **bool** *held*, **bool** *released*)
ButtonState(string *button*)
ButtonState(KeyCode *key*)

Public Fields

bool *Pressed*
bool *Held*
bool *Released*

<<<

ClassDisplayAttribute

PiRhoSoft.UtilityEngine.ClassDisplayAttribute : PropertyAttribute

Description

Constructors

ClassDisplayAttribute()

Public Fields

ClassDisplayType *Type*

<<<

ClassDisplayType

PiRhoSoft.UtilityEngine.ClassDisplayType

Description

Values

ClassDisplayType *Indented*
ClassDisplayType *Inline*
ClassDisplayType *Contained*

    <<<

ClassPool

PiRhoSoft.UtilityEngine.ClassPool<*T, T*> : IClassPool<T>

Description

Constructors

ClassPool()
   # Public Methods

void Grow() *(virtual)*
T Reserve() *(virtual)*
void Release(T *value***)** *(virtual)*

    <<<

ComponentHelper

PiRhoSoft.UtilityEngine.ComponentHelper

Description

Static Methods

T GetComponentInScene<T>(int *sceneIndex*, **bool** *includeDisabled***)**
void GetComponentsInScene<T>(int *sceneIndex*, **List**<**T**> *components*, **bool** *includeDisabled***)**
GameObject FindObject(string *name*, **int** *sceneIndex***)**
bool HasType(Object *unityObject*, **Type** *type***)**
Object GetAsBaseObject(Object *unityObject***)**
T GetAsObject<T>(Object *unityObject***)**

GameObject GetAsGameObject(Object *unityObject***)**

T GetAsComponent<T>(Object *unityObject***)**

Component GetAsComponent(Object *unityObject***, string** *componentName***)**

    <<<

ConditionalDisplayAttribute

PiRhoSoft.UtilityEngine.ConditionalDisplayAttribute : PropertyScopeAttribute

Description

Static Fields

int *DefaultOrder*

    # Public Fields

string *StringValue*

int *EnumValue*

int *IntValue*

float *FloatValue*

bool *Invert*

    # Public Properties

string *Property (read only)*

    # Protected Constructors

ConditionalDisplayAttribute()

    <<<

ConditionalDisplayOtherAttribute

PiRhoSoft.UtilityEngine.ConditionalDisplayOtherAttribute : ConditionalDisplayAttribute

Description

Constructors

ConditionalDisplayOtherAttribute(string *property***)**

    <<<

ConditionalDisplaySelfAttribute

PiRhoSoft.UtilityEngine.ConditionalDisplaySelfAttribute : ConditionalDisplayAttribute

Description

Constructors

ConditionalDisplaySelfAttribute(string *property***)**

    <<<

DictionaryDisplayAttribute

PiRhoSoft.UtilityEngine.DictionaryDisplayAttribute : [PropertyAttribute](#)

Description

Constructors

DictionaryDisplayAttribute()

    # Public Fields

bool *AllowAdd*
bool *AllowRemove*
bool *AllowCollapse*
[**ListItemDisplayType**](#) *ItemDisplay*
string *AddLabel*
string *EmptyText*
string *AddMethod*
string *RemoveMethod*

    <<<

DisableInInspectorAttribute

PiRhoSoft.UtilityEngine.DisableInInspectorAttribute : [PropertyScopeAttribute](#)

Description

Static Fields

int *DefaultOrder*

    # Constructors

DisableInInspectorAttribute()

    <<<

DropTable

PiRhoSoft.UtilityEngine.DropTable<*T*>

Description

Constructors

DropTable()
> # Public Properties

int *Count (read only)*

int *TotalWeight (read only)*

List<**int**> *Weights (read only)*

List<**T**> *Values (read only)*
> # Public Methods

void Add(int *weight*, **T** *value*)

bool Remove(int *index*)

void Clear()

int GetWeight(int *index*)

float GetPercentageWeight(int *index*)

T GetValue(int *index*)

bool ChangeWeight(int *index*, **int** *weight*)

bool ChangeValue(int *index*, **T** *value*)

T PickValue()
> <<<

EnumDisplayAttribute

PiRhoSoft.UtilityEngine.EnumDisplayAttribute : PropertyAttribute

Description

Static Fields

float *DefaultMinimumWidth*
> # Constructors

EnumDisplayAttribute()
> # Public Fields

EnumDisplayType *Type*

bool *ForceFlags*

float *MinimumWidth*

    <<<

EnumDisplayType

PiRhoSoft.UtilityEngine.EnumDisplayType

Description

Values

EnumDisplayType *Buttons*

EnumDisplayType *Popup*

    <<<

FloatDisplayAttribute

PiRhoSoft.UtilityEngine.FloatDisplayAttribute : PropertyAttribute

Description

Constructors

FloatDisplayAttribute(string[] *names***, float[]** *values***)**

FloatDisplayAttribute(float *minimum***, float** *maximum***, float** *snap***)**

FloatDisplayAttribute(string *maximumProperty***, float** *minimum***, float** *maximum***, float** *snap***)**

   # Public Properties

FloatDisplayType *Type (read only)*

string[] *Names (read only)*

float[] *Values (read only)*

    <<<

FloatDisplayType

PiRhoSoft.UtilityEngine.FloatDisplayType

Description

Values

FloatDisplayType *Popup*
FloatDisplayType *Slider*
FloatDisplayType *MinMaxSlider*

<<<

GlobalBehaviour

PiRhoSoft.UtilityEngine.GlobalBehaviour<*T*> : MonoBehaviour

Description

Static Properties

bool *Exists (read only)*
T *Instance (read only)*

Protected Constructors

GlobalBehaviour()

<<<

IClassPool

PiRhoSoft.UtilityEngine.IClassPool<*T*>

Description

Public Methods

void Grow() *(abstract)*
T Reserve() *(abstract)*
void Release(T *value***)** *(abstract)*

<<<

IEditableDictionary

PiRhoSoft.UtilityEngine.IEditableDictionary : ICollection, IDictionary, IEnumerable

Description

Public Methods

void PrepareForEdit() *(abstract)*

void ApplyEdits() *(abstract)*

    <<<

InputHelper

PiRhoSoft.UtilityEngine.InputHelper

Description

Static Methods

void LateUpdate()

void SetButton(string *button*, **bool** *down*)

void RemoveButton(string *button*)

void SetAxis(string *axis*, **float** *value*)

void RemoveAxis(string *axis*)

bool IsButtonAvailable(string *button*)

ButtonState GetButtonState(KeyCode *key*, **string** *button*)

bool GetButtonDown(KeyCode *key*, **string** *button*)

bool GetWasButtonPressed(KeyCode *key*, **string** *button*)

bool GetWasButtonReleased(KeyCode *key*, **string** *button*)

float GetAxis(string *axis*)

ButtonState GetAxisState(string *axis*, **float** *magnitude*)

bool GetAxisDown(string *axis*, **float** *magnitude*)

bool GetWasAxisPressed(string *axis*, **float** *magnitude*)

bool GetWasAxisReleased(string *axis*, **float** *magnitude*)

    <<<

IntDisplayAttribute

PiRhoSoft.UtilityEngine.IntDisplayAttribute : PropertyAttribute

Description

Constructors

IntDisplayAttribute(string[] *names*, **int[]** *values*)

IntDisplayAttribute(int *minimum*, **int** *maximum*, **int** *snap*)

IntDisplayAttribute(string *maximumProperty*, **int** *minimum*, **int** *maximum*, **int** *snap*)

    # Public Properties

IntDisplayType *Type (read only)*
string[] *Names (read only)*
int[] *Values (read only)*

    <<<

IntDisplayType

PiRhoSoft.UtilityEngine.IntDisplayType

Description

Values

IntDisplayType *Popup*
IntDisplayType *Slider*
IntDisplayType *MinMaxSlider*

    <<<

InternalHelper

PiRhoSoft.UtilityEngine.InternalHelper

Description

Static Methods

DelegateType CreateDelegate<DelegateType>(MethodInfo *method***)**
DelegateType CreateDelegate<DelegateType>(Type *type***, string** *methodName***)**
Func<PropertyType> CreateGetDelegate<PropertyType>(Type *type***, string** *propertyName***)**
Action<PropertyType> CreateSetDelegate<PropertyType>(Type *type***, string** *propertyName***)**
Func<FieldType> CreateGetField<FieldType>(Type *type***, string** *fieldName***)**
Action<FieldType> CreateSetField<FieldType>(Type *type***, string** *fieldName***)**
Func<FieldType> CreateGetField<FieldType>(Type *type***, string** *fieldName***, Object** *obj***)**
Action<FieldType> CreateSetField<FieldType>(Type *type***, string** *fieldName***, Object** *obj***)**

    <<<

IPoolable

PiRhoSoft.UtilityEngine.IPoolable

Description

Public Methods

void Reset() *(abstract)*

    <<<

IPoolInfo

PiRhoSoft.UtilityEngine.IPoolInfo

Description

Public Properties

int *Size (read only) (abstract)*
int *Growth (read only) (abstract)*

    <<<

IReloadable

PiRhoSoft.UtilityEngine.IReloadable

Description

Public Methods

void OnEnable() *(abstract)*
void OnDisable() *(abstract)*

    <<<

ListDisplayAttribute

PiRhoSoft.UtilityEngine.ListDisplayAttribute : PropertyAttribute

Description

Constructors

ListDisplayAttribute()

    # Public Fields

bool *AllowAdd*

bool *AllowRemove*

bool *AllowReorder*

bool *AllowCollapse*

[ListItemDisplayType](#) *ItemDisplay*

string *EmptyText*

string *AddMethod*

string *RemoveMethod*

string *ReorderCallback*

<<<

ListItemDisplayType

PiRhoSoft.UtilityEngine.ListItemDisplayType

Description

Values

[ListItemDisplayType](#) *Normal*

[ListItemDisplayType](#) *Inline*

[ListItemDisplayType](#) *Foldout*

<<<

MathHelper

PiRhoSoft.UtilityEngine.MathHelper

Description

Static Methods

int IntExponent(int *value***, int** *exponent***)**

int Snap(int *value***, int** *snap***)**

float Snap(float *value***, float** *snap***)**

int Wrap(int *value***, int** *size***)**

float Wrap(float *value***, float** *length***)**

<<<

MaximumAttribute

PiRhoSoft.UtilityEngine.MaximumAttribute : [PropertyScopeAttribute](#)

Description

Static Fields

int *DefaultOrder*

    # Constructors

MaximumAttribute(float *maximum***)**
MaximumAttribute(int *maximum***)**

    # Public Properties

float *MaximumValue (read only)*

       <<<

MinimumAttribute

PiRhoSoft.UtilityEngine.MinimumAttribute : PropertyScopeAttribute

Description

Static Fields

int *DefaultOrder*

    # Constructors

MinimumAttribute(float *minimum***)**
MinimumAttribute(int *minimum***)**

    # Public Properties

float *MinimumValue (read only)*

       <<<

PoolInfo_10_5

PiRhoSoft.UtilityEngine.PoolInfo_10_5 : IPoolInfo

Description

Constructors

PoolInfo_10_5()

    # Public Properties

int *Size (read only) (virtual)*
int *Growth (read only) (virtual)*

PoolInfo_100_10

PiRhoSoft.UtilityEngine.PoolInfo_100_10 : IPoolInfo

Description

Constructors

PoolInfo_100_10()

   # Public Properties

int *Size (read only) (virtual)*

int *Growth (read only) (virtual)*

   <<<

PoolInfo_2_1

PiRhoSoft.UtilityEngine.PoolInfo_2_1 : IPoolInfo

Description

Constructors

PoolInfo_2_1()

   # Public Properties

int *Size (read only) (virtual)*

int *Growth (read only) (virtual)*

   <<<

PoolInfo_25_5

PiRhoSoft.UtilityEngine.PoolInfo_25_5 : IPoolInfo

Description

Constructors

PoolInfo_25_5()

   # Public Properties

int *Size (read only) (virtual)*

int *Growth (read only) (virtual)*

PoolInfo_50_10

PiRhoSoft.UtilityEngine.PoolInfo_50_10 : IPoolInfo

Description

Constructors

PoolInfo_50_10()

   # Public Properties

int *Size (read only) (virtual)*
int *Growth (read only) (virtual)*

PriorityQueue

PiRhoSoft.UtilityEngine.PriorityQueue<*T*>

Description

Constructors

PriorityQueue(int *maxNodes***)**

   # Public Properties

int *Count (read only)*
int *MaxSize (read only)*
T *First (read only)*

   # Public Methods

void Clear()
bool Contains(T *node***)**
void Enqueue(T *node***, float** *priority***)**
T Dequeue()
void Resize(int *maxNodes***)**
void UpdatePriority(T *node***, float** *priority***)**
void Remove(T *node***)**

PriorityQueueNode

PiRhoSoft.UtilityEngine.PriorityQueueNode

Description

Constructors

PriorityQueueNode()

    # Public Properties

float *Priority (read only)*
int *QueueIndex (read only)*

    <<<

PropertyScopeAttribute

PiRhoSoft.UtilityEngine.PropertyScopeAttribute : PropertyAttribute

Description

Protected Constructors

PropertyScopeAttribute(int *drawOrder***)**

    <<<

ReloadOnChangeAttribute

PiRhoSoft.UtilityEngine.ReloadOnChangeAttribute : PropertyScopeAttribute

Description

Static Fields

int *DefaultOrder*

    # Constructors

ReloadOnChangeAttribute()

    <<<

Resource

PiRhoSoft.UtilityEngine.Resource : ScriptableObject

Description

Static Fields

string *_invalidPathWarning*
    # Public Properties

string *Path (read only)*
    # Protected Constructors

Resource()
    <<<

SceneReference

PiRhoSoft.UtilityEngine.SceneReference

Description

Static Fields

Action<string, string> *SceneMoved*
    # Constructors

SceneReference()
    # Public Fields

string *Path*
    # Public Properties

bool *IsAssigned (read only)*
bool *IsLoaded (read only)*
Scene *Scene (read only)*
int *Index (read only)*
    # Public Methods

void Setup(Object *owner***)**
void Teardown()
    <<<

SerializedArray

PiRhoSoft.UtilityEngine.SerializedArray*<T>* : ICollection, ICloneable, IEnumerable, IList, IStructuralComparable, IStructuralEquatable

Description

Constructors

SerializedArray(int *count***)**

   # Public Properties

T[] *Array (read only)*

int *Length (read only)*

T *Item*

bool *IsSynchronized (read only) (virtual)*

Object *SyncRoot (read only) (virtual)*

bool *IsFixedSize (read only) (virtual)*

bool *IsReadOnly (read only) (virtual)*

   # Public Methods

void CopyTo(Array *array***, int** *index***)** *(virtual)*

Object Clone() *(virtual)*

IEnumerator GetEnumerator() *(virtual)*

   # Protected Fields

T[] *_items*

   <<<

SerializedDictionary

PiRhoSoft.UtilityEngine.SerializedDictionary<*KeyType, KeyType*> : Dictionary<KeyType, KeyType>,
IEditableDictionary

Description

Constructors

SerializedDictionary()

   # Public Methods

void PrepareForEdit() *(virtual)*

void ApplyEdits() *(virtual)*

   # Protected Fields

List<**KeyType**> *_keys*

List<**ValueType**> *_values*

   <<<

SerializedList

PiRhoSoft.UtilityEngine.SerializedList<*T*> : ICollection, IEnumerable<T>, IList<T>, IEnumerable, IReadOnlyCollection<T>, IReadOnlyList<T>, IList, ICollection<T>

Description

Constructors

SerializedList()

   # Public Properties

List<**T**> *List (read only)*

int *Count (read only) (virtual)*

T *Item (virtual)*

   # Public Methods

void Add(T *item***)** *(virtual)*

bool Remove(T *item***)** *(virtual)*

void Clear() *(virtual)*

bool Contains(T *item***)** *(virtual)*

void CopyTo(T[] *array***, int** *arrayIndex***)** *(virtual)*

IEnumerator<**T**> **GetEnumerator()** *(virtual)*

int IndexOf(T *item***)** *(virtual)*

void Insert(int *index***, T** *item***)** *(virtual)*

void RemoveAt(int *index***)** *(virtual)*

   # Protected Fields

List<**T**> *_items*

   <<<

SingletonBehaviour

PiRhoSoft.UtilityEngine.SingletonBehaviour<*T*> : MonoBehaviour

Description

Static Properties

T *Instance (read only)*

   # Constructors

SingletonBehaviour()

   # Protected Methods

void Awake() *(virtual)*

void OnDestroy() *(virtual)*

    <<<

SnapAttribute

PiRhoSoft.UtilityEngine.SnapAttribute : PropertyScopeAttribute

Description

Static Fields

int *DefaultOrder*

    # Constructors

SnapAttribute(int *snapValue***)**

SnapAttribute(float *snapValue***)**

    # Public Properties

float *SnapValue (read only)*

    <<<

StringDisplayAttribute

PiRhoSoft.UtilityEngine.StringDisplayAttribute : PropertyAttribute

Description

Constructors

StringDisplayAttribute(StringDisplayType *type***)**

StringDisplayAttribute(string[] *options***)**

    # Public Fields

bool *WordWrap*

int *MinimumLines*

int *MaximumLines*

    # Public Properties

StringDisplayType *Type (read only)*

string[] *Options (read only)*

    <<<

StringDisplayType

PiRhoSoft.UtilityEngine.StringDisplayType

Description

Values

StringDisplayType *TextBox*
StringDisplayType *TextArea*
StringDisplayType *FoldoutBox*
StringDisplayType *FoldoutArea*
StringDisplayType *Popup*

    <<<

TypeDisplayAttribute

PiRhoSoft.UtilityEngine.TypeDisplayAttribute : PropertyAttribute

Description

Constructors

TypeDisplayAttribute(Type *rootType***)**

    # Public Fields

bool *AllowNone*

    # Public Properties

Type *RootType (read only)*