WebGL 渲染引擎 API

（一）Core

Class: WebGLEngine

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Constructors

constructor

• **new WebGLEngine**(`canvas`, `options?`)

Parameters

Name	Type
`canvas`	`HTMLCanvasElement`
`options`	`WebGLContextAttributes`

Defined in

engine/engine.ts:35

Properties

assets

• `Readonly` **assets**: `AssetManager`

Defined in

engine/engine.ts:32

---

scenes

• `Readonly` **scenes**: `SceneManager`

Defined in

engine/engine.ts:33

Methods

release

▸ **release**(): `void`

Returns

`void`

Defined in

engine/engine.ts:56

---

render

▸ **render**(`scene`): `void`

Parameters

Name	Type
`scene`	`JScene`

Returns

`void`

Defined in

engine/engine.ts:50

Class: SceneManager

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Constructors

Properties

Methods

Constructors

constructor

• **new SceneManager**(`context`, `assets`, `options`)

Parameters

Name	Type
`context`	`RenderContext`
`assets`	`AssetManager`
`options`	`WebGLContextAttributes`

Defined in

engine/scenemanager.ts:67

Properties

strategy

• **strategy**: `RenderStrategy` = `RenderStrategy.Performance`

Defined in

engine/scenemanager.ts:57

Methods

create

▸ **create**(`scene`): `void`

Parameters

Name	Type
`scene`	`JScene`

Returns

`void`

Defined in

engine/scenemanager.ts:73

---

delete

▸ **delete**(`scene`): `void`

Parameters

Name	Type
`scene`	`JScene`

Returns

`void`

Defined in

engine/scenemanager.ts:82

---

has

▸ **has**(`scene`): `boolean`

Parameters

Name	Type
`scene`	`JScene`

Returns

`boolean`

Defined in

engine/scenemanager.ts:93

---

list

▸ **list**(): `JScene`[]

Returns

`JScene`[]

Defined in

engine/scenemanager.ts:97

---

releaseUnused

▸ **releaseUnused**(): `void`

Returns

`void`

Defined in

engine/scenemanager.ts:358

---

render

▸ **render**(`scene`): `void`

Parameters

Name	Type
`scene`	`JScene`

Returns

`void`

Defined in

engine/scenemanager.ts:101

Class: Vector<T>

Type parameters

Name	Type
`T`	extends `Float32Array` | `Int32Array`

Hierarchy

- `Variant`<`T`>

  ↳ `Vector`

  ↳ ↳ `Vector2`

  ↳ ↳ `Vector3`

  ↳ ↳ `Vector4`

  ↳ ↳ `iVector2`

  ↳ ↳ `iVector3`

↳ ↳ `iVector4`

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Constructors

constructor

• **new Vector**<`T`>(`data`)

Type parameters

Name	Type
`T`	extends `Int32Array` | `Float32Array`

Parameters

Name	Type
`data`	`T`

Overrides

Variant.constructor

Defined in

variant/vector.ts:25

Properties

m_data

• `Protected` **m_data**: `T`

Inherited from

Variant.m_data

Defined in

variant/variant.ts:43

Accessors

data

• `get` **data**(): `T`

Returns

`T`

Inherited from

Variant.data

Defined in

variant/variant.ts:50

• `set` **data**(`data`): `void`

Parameters

Name	Type
`data`	`T`

Returns

`void`

Inherited from

Variant.data

Defined in

variant/variant.ts:54

---

dim

• `get` **dim**(): `number`

Returns

`number`

Defined in

variant/vector.ts:93

---

w

• `get` **w**(): `number`

Returns

`number`

Defined in

variant/vector.ts:47

• `set` **w**(`v`): `void`

Parameters

Name	Type
`v`	`number`

Returns

`void`

Defined in

variant/vector.ts:63

---

x

• `get` **x**(): `number`

Returns

`number`

Defined in

variant/vector.ts:35

• `set` **x**(`v`): `void`

Parameters

Name	Type
`v`	`number`

Returns

`void`

Defined in

variant/vector.ts:51

---

y

• `get` **y**(): `number`

Returns

`number`

Defined in

variant/vector.ts:39

• `set` **y**(`v`): `void`

Parameters

Name	Type
`v`	`number`

Returns

`void`

Defined in

variant/vector.ts:55

---

z

• `get` **z**(): `number`

Returns

`number`

Defined in

variant/vector.ts:43

• `set` **z**(`v`): `void`

Parameters

Name	Type
`v`	`number`

Returns

`void`

Defined in

variant/vector.ts:59

Methods

add

▸ **add**(`rhs`): `Vector`<`T`>

Parameters

Name	Type
`rhs`	`Vector`<`T`>

Returns

`Vector`<`T`>

Defined in

variant/vector.ts:149

---

at

▸ **at**(`i`): `number`

Parameters

Name	Type
`i`	`number`

Returns

`number`

Defined in

variant/vector.ts:31

---

clone

▸ **clone**(): `Vector<T>`

Returns

`Vector<T>`

Inherited from

Variant.clone

Defined in

variant/variant.ts:65

---

compare

▸ **compare**(`other`): `boolean`

Parameters

Name	Type
`other`	`Vector<T>`

Returns

`boolean`

Inherited from

Variant.compare

Defined in

variant/variant.ts:71

---

copy

▸ **copy**(`other`): `void`

Parameters

Name	Type

Name	Type
`other`	`Vector<T>`

Returns

`void`

Inherited from

Variant.copy

Defined in

variant/variant.ts:61

---

div

▸ **div**(`rhs`): `Vector<T>`

Parameters

Name	Type
`rhs`	`number`

Returns

`Vector<T>`

Defined in

variant/vector.ts:176

---

dot

▸ **dot**(`rhs`): `number`

Parameters

Name	Type
`rhs`	`Vector<T>`

Returns

`number`

Defined in

variant/vector.ts:185

---

fill

▸ **fill**(`v`): `Vector`<`T`>

Parameters

Name	Type
`v`	`number`

Returns

`Vector`<`T`>

Defined in

variant/vector.ts:195

---

isZero

▸ **isZero**(): `boolean`

Returns

`boolean`

Defined in

variant/vector.ts:97

---

length

▸ **length**(): `number`

Returns

`number`

Defined in

variant/vector.ts:124

---

mul

▸ **mul**(`rhs`): `Vector`<`T`>

Parameters

Name	Type
`rhs`	`number`

Returns

`Vector`<`T`>

Defined in

variant/vector.ts:167

---

neg

▸ **neg**(): `Vector`<`T`>

Returns

`Vector`<`T`>

Defined in

variant/vector.ts:140

---

normalize

▸ **normalize**(): `Vector<T>`

Returns

`Vector<T>`

Defined in

variant/vector.ts:129

---

set

▸ **set**(`value`): `void`

Parameters

Name	Type
`value`	`number`

Returns

`void`

Defined in

variant/vector.ts:67

▸ **set**(`other`): `void`

Parameters

Name	Type
`other`	`Vector<T>`

Returns

`void`

Defined in

variant/vector.ts:68

▸ **set**(`array`): `void`

Parameters

Name	Type
array	ArrayLike<number>

Returns

void

Defined in

variant/vector.ts:69

▸ **set**(...values): void

Parameters

Name	Type
...values	(number | ArrayLike<number> | Vector<T>)[]

Returns

void

Defined in

variant/vector.ts:70

---

setLength

▸ **setLength**(len): Vector<T>

Parameters

Name	Type
len	number

Returns

Vector<T>

Defined in

variant/vector.ts:109

---

setZero

▸ **setZero**(): `Vector<T>`

Returns

`Vector<T>`

Defined in

variant/vector.ts:103

---

squaredLength

▸ **squaredLength**(): `number`

Returns

`number`

Defined in

variant/vector.ts:115

---

sub

▸ **sub**(`rhs`): `Vector<T>`

Parameters

Name	Type
`rhs`	`Vector<T>`

Returns

`Vector<T>`

Defined in

variant/vector.ts:158

Class: Matrix

Hierarchy

- `Variant<Float32Array>`
- ↳ `Matrix`
- ↳ ↳ `Matrix2`
- ↳ ↳ `Matrix3`
- ↳ ↳ `Matrix4`

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constructor

• **new Matrix**(`data`, `dim`)

Parameters

Name	Type
`data`	`Float32Array`
`dim`	`number`

Overrides

Variant.constructor

Defined in

variant/matrix.ts:27

Properties

m_data

• `Protected` **m_data**: `Float32Array`

Inherited from

Variant.m_data

Defined in

variant/variant.ts:43

---

m_dim

• `Protected` **m_dim**: `number`

Defined in

variant/matrix.ts:25

Accessors

data

• `get` **data**(): `T`

Returns

`T`

Inherited from

Variant.data

Defined in

variant/variant.ts:50

• `set` **data**(`data`): `void`

Parameters

Name	Type
`data`	`T`

Returns

`void`

Inherited from

Variant.data

Defined in

variant/variant.ts:54

---

dim

• `get` **dim**(): `number`

Returns

`number`

Defined in

variant/matrix.ts:74

Methods

at

▸ `Abstract` **at**(`i`): `Vector`<`Float32Array`>

Parameters

Name	Type
`i`	`number`

Returns

`Vector`<`Float32Array`>

Defined in

variant/matrix.ts:35

---

clone

▸ **clone**(): `Matrix`

Returns

`Matrix`

Inherited from

Variant.clone

Defined in

variant/variant.ts:65

---

compare

▸ **compare**(`other`): `boolean`

Parameters

Name	Type

Name	Type
other	Matrix

Returns

boolean

Inherited from

Variant.compare

Defined in

variant/variant.ts:71

---

copy

▸ **copy**(other): void

Parameters

Name	Type
other	Matrix

Returns

void

Inherited from

Variant.copy

Defined in

variant/variant.ts:61

---

determinant

▸ **determinant**(): number

Returns

number

Defined in

variant/matrix.ts:130

---

isIdentity

▸ **isIdentity**(): `boolean`

Returns

`boolean`

Defined in

variant/matrix.ts:99

---

isZero

▸ **isZero**(): `boolean`

Returns

`boolean`

Defined in

variant/matrix.ts:78

---

set

▸ **set**(`value`): `void`

Parameters

Name	Type
`value`	`number`

Returns

`void`

Defined in

variant/matrix.ts:37

▸ **set**(`other`): `void`

Parameters

Name	Type
`other`	`Matrix`

Returns

`void`

Defined in

variant/matrix.ts:38

▸ **set**(`array`): `void`

Parameters

Name	Type
`array`	`ArrayLike<number>`

Returns

`void`

Defined in

variant/matrix.ts:39

▸ **set**(`...values`): `void`

Parameters

Name	Type
`...values`	(`number` | `ArrayLike<number>` | `Vector<Float32Array>`)[]

Returns

`void`

Defined in

variant/matrix.ts:40

setIdentity

▸ **setIdentity**(): `Matrix`

Returns

`Matrix`

Defined in

variant/matrix.ts:90

setZero

▸ **setZero**(): `Matrix`

Returns

`Matrix`

Defined in

variant/matrix.ts:84

transpose

▸ **transpose**(): `Matrix`

Returns

`Matrix`

Defined in

variant/matrix.ts:117

Class: AssetManager

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constructor

• **new AssetManager**(`context`)

Parameters

Name	Type
`context`	`RenderContext`

Defined in

engine/assetmanager.ts:158

Properties

m_filterConstant

• `Private` **m_filterConstant**: `Object`

Type declaration

Name	Type
`linear`	`number`

Name	Type
`linear_mipmap_linear`	`number`
`linear_mipmap_nearest`	`number`
`nearest`	`number`
`nearest_mipmap_linear`	`number`
`nearest_mipmap_nearest`	`number`

Defined in

engine/assetmanager.ts:80

---

m_imageTargetConstant

• `Private` **m_imageTargetConstant**: `Object`

Type declaration

Name	Type
`neg_x`	`number`
`neg_y`	`number`
`neg_z`	`number`
`pos_x`	`number`
`pos_y`	`number`
`pos_z`	`number`

Defined in

engine/assetmanager.ts:122

---

m_queryTargetConstant

• `Private` **m_queryTargetConstant**: `Object`

Type declaration

Name	Type

Name	Type
any_samples_passed	number
any_samples_passed_conservative	number
transform_feedback_primitives_written	number

Defined in

engine/assetmanager.ts:130

---

m_renderBufferInternalFormatConstant

• Private **m_renderBufferInternalFormatConstant**: Object

Type declaration

Name	Type
depth_component16	number
depth_stencil	number
rgb565	number
rgb5_a1	number
rgba4	number
stencil_index8	number

Defined in

engine/assetmanager.ts:103

---

m_textureFormatConstant

• Private **m_textureFormatConstant**: Object

Type declaration

Name	Type
alpha	number
depth_component	number

Name	Type
depth_stencil	number
luminance	number
luminance_alpha	number
rgb	number
rgba	number

Defined in

engine/assetmanager.ts:93

---

m_textureInternalFormatConstant

• Private **m_textureInternalFormatConstant**: Object

Type declaration

Name	Type
alpha	number
depth_component	number
depth_stencil	number
luminance	number
luminance_alpha	number
rgb	number
rgba	number

Defined in

engine/assetmanager.ts:102

---

m_typeConstant

• Private **m_typeConstant**: Object

Type declaration

Name	Type
byte	number
float	number
short	number
unsigned_byte	number
unsigned_int	number
unsigned_short	number
unsigned_short_4_4_4_4	number
unsigned_short_5_5_5_1	number
unsigned_short_5_6_5	number

Defined in

engine/assetmanager.ts:111

---

m_usageConstant

• `Private` **m_usageConstant**: `Object`

Type declaration

Name	Type
dynamic_draw	number
static_draw	number
stream_draw	number

Defined in

engine/assetmanager.ts:75

---

m_wrapModeConstant

• `Private` **m_wrapModeConstant**: `Object`

Type declaration

Name	Type
`clamp_to_edge`	`number`
`mirrored_repeat`	`number`
`repeat`	`number`

Defined in

engine/assetmanager.ts:88

Methods

free

▸ **free**(`asset`): `void`

Parameters

Name	Type
`asset`	`JAsset`

Returns

`void`

Defined in

engine/assetmanager.ts:167

---

load

▸ **load**(`asset`): `void`

Parameters

Name	Type
`asset`	`JAsset`

Returns

`void`

Defined in

engine/assetmanager.ts:162

update

▸ **update**(`asset`): `void`

Parameters

Name	Type
`asset`	`JAsset`

Returns

`void`

Defined in

engine/assetmanager.ts:172

Class: Color<T>

Type parameters

Name	Type
`T`	extends `Float32Array` | `Uint8Array` = `Float32Array` | `Uint8Array`

Hierarchy

- `Variant`<`T`>

  ↳ `Color`

  ↳ ↳ `Color3`

  ↳ ↳ `Color4`

  ↳ ↳ `Color3ub`

  ↳ ↳ `Color4ub`

Table of contents

Constructors

constructor

• **new Color**<`T`>(`data`)

Type parameters

Name	Type
`T`	extends `Uint8Array` | `Float32Array` = `Uint8Array` | `Float32Array`

Parameters

Name	Type
`data`	`T`

Overrides

Variant.constructor

Defined in

variant/color.ts:24

Properties

m_data

• `Protected` **m_data**: `T`

Inherited from

Variant.m_data

Defined in

variant/variant.ts:43

Accessors

a

• `get` **a**(): `number`

Returns

`number`

Defined in

variant/color.ts:44

• `set` **a**(`v`): `void`

Parameters

Name	Type
`v`	`number`

Returns

`void`

Defined in

variant/color.ts:60

b

• `get` **b**(): `number`

Returns

`number`

Defined in

variant/color.ts:40

• `set` **b**(`v`): `void`

Parameters

Name	Type
`v`	`number`

Returns

`void`

Defined in

variant/color.ts:56

---

data

• `get` **data**(): `T`

Returns

`T`

Inherited from

Variant.data

Defined in

variant/variant.ts:50

• `set` **data**(`data`): `void`

Parameters

Name	Type
`data`	`T`

Returns

`void`

Inherited from

Variant.data

Defined in

variant/variant.ts:54

---

g

• `get` **g**(): `number`

Returns

`number`

Defined in

variant/color.ts:36

• `set` **g**(`v`): `void`

Parameters

Name	Type
`v`	`number`

Returns

`void`

Defined in

variant/color.ts:52

---

r

• `get` **r**(): `number`

Returns

`number`

Defined in

variant/color.ts:32

• `set` **r**(`v`): `void`

Parameters

Name	Type
`v`	`number`

Returns

`void`

Defined in

variant/color.ts:48

Methods

at

▸ **at**(`i`): `number`

Parameters

Name	Type
`i`	`number`

Returns

`number`

Defined in

variant/color.ts:28

---

clone

▸ **clone**(): `Color<T>`

Returns

`Color<T>`

Inherited from

Variant.clone

Defined in

variant/variant.ts:65

---

compare

▸ **compare**(`other`): `boolean`

Parameters

Name	Type
`other`	`Color<T>`

Returns

`boolean`

Inherited from

Variant.compare

Defined in

variant/variant.ts:71

---

copy

▸ **copy**(`other`): `void`

Parameters

Name	Type

Name	Type
`other`	`Color<T>`

Returns

`void`

Inherited from

Variant.copy

Defined in

variant/variant.ts:61

---

fill

▸ **fill**(`v`): `Color<T>`

Parameters

Name	Type
`v`	`number`

Returns

`Color<T>`

Defined in

variant/color.ts:90

---

set

▸ **set**(`value`): `void`

Parameters

Name	Type
`value`	`number`

Returns

`void`

Defined in

variant/color.ts:64

▸ **set**(`other`): `void`

Parameters

Name	Type
`other`	`Color`<`Uint8Array` | `Float32Array`>

Returns

`void`

Defined in

variant/color.ts:65

▸ **set**(`array`): `void`

Parameters

Name	Type
`array`	`ArrayLike`<`number`>

Returns

`void`

Defined in

variant/color.ts:66

▸ **set**(`...values`): `void`

Parameters

Name	Type
`...values`	(`number` | `ArrayLike`<`number`> | `Color`<`Uint8Array` | `Float32Array`>)[]

Returns

`void`

Defined in

variant/color.ts:67

Class: BoundingBox

Hierarchy

- `Box3`

  ↳ `BoundingBox`

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constructor

• **new BoundingBox**()

Overrides

Box3.constructor

Defined in

variant/box.ts:131

Properties

m_data

• `Protected` **m_data**: `Float32Array`

Inherited from

Box3.m_data

Defined in

variant/variant.ts:43

Accessors

data

• `get` **data**(): `T`

Returns

`T`

Inherited from

Box3.data

Defined in

variant/variant.ts:50

• `set` **data**(`data`): `void`

Parameters

Name	Type
`data`	`T`

Returns

`void`

Inherited from

Box3.data

Defined in

variant/variant.ts:54

---

max

• `get` **max**(): `T`

Returns

`T`

Inherited from

Box3.max

Defined in

variant/box.ts:48

• `set` **max**(`v`): `void`

Parameters

Name	Type
`v`	`T`

Returns

`void`

Inherited from

Box3.max

Defined in

variant/box.ts:56

---

min

• `get` **min**(): `T`

Returns

`T`

Inherited from

Box3.min

Defined in

variant/box.ts:33

• `set` **min**(`v`): `void`

Parameters

Name	Type
`v`	`T`

Returns

`void`

Inherited from

Box3.min

Defined in

variant/box.ts:41

Methods

add

▸ **add**(`other`): `void`

Parameters

Name	Type

Name	Type
other	BoundingBox

Returns

void

Defined in

variant/box.ts:187

---

addPoint

▸ **addPoint**(point): void

Parameters

Name	Type
point	Vector3

Returns

void

Defined in

variant/box.ts:147

▸ **addPoint**(x, y, z): void

Parameters

Name	Type
x	number
y	number
z	number

Returns

void

Defined in

variant/box.ts:148

addPoints

▸ **addPoints**(`points`): `void`

Parameters

Name	Type
`points`	`Float32Array` | `Vector3`[]

Returns

`void`

Defined in

variant/box.ts:170

center

▸ **center**(): `Vector3`

Returns

`Vector3`

Inherited from

Box3.center

Defined in

variant/box.ts:84

clone

▸ **clone**(): `BoundingBox`

Returns

`BoundingBox`

Inherited from

Box3.clone

Defined in

variant/variant.ts:65

---

compare

▸ **compare**(`other`): `boolean`

Parameters

Name	Type
`other`	`BoundingBox`

Returns

`boolean`

Inherited from

Box3.compare

Defined in

variant/variant.ts:71

---

copy

▸ **copy**(`other`): `void`

Parameters

Name	Type
`other`	`BoundingBox`

Returns

`void`

Inherited from

Box3.copy

Defined in

variant/variant.ts:61

---

expand

▸ **expand**(`amount`): `void`

Parameters

Name	Type
`amount`	`number`

Returns

`void`

Inherited from

Box3.expand

Defined in

variant/box.ts:92

---

extent

▸ **extent**(): `Vector3`

Returns

`Vector3`

Inherited from

Box3.extent

Defined in

variant/box.ts:88

isValid

▸ **isValid**(): `boolean`

Returns

`boolean`

Defined in

variant/box.ts:137

set

▸ **set**(`other`): `void`

Parameters

Name	Type
`other`	`Box<Vector3>`

Returns

`void`

Inherited from

Box3.set

Defined in

variant/box.ts:63

▸ **set**(`array`): `void`

Parameters

Name	Type
`array`	`ArrayLike<number>`

Returns

`void`

Inherited from

Box3.set

Defined in

variant/box.ts:64

▸ **set**(`min`, `max`): `void`

Parameters

Name	Type
`min`	`Vector3`
`max`	`Vector3`

Returns

`void`

Inherited from

Box3.set

Defined in

variant/box.ts:65

▸ **set**(`...values`): `void`

Parameters

Name	Type
`...values`	`number`[]

Returns

`void`

Inherited from

Box3.set

Defined in

variant/box.ts:66

transform

▸ **transform**(`mat`): `BoundingBox`

Parameters

Name	Type
`mat`	`Matrix4`

Returns

`BoundingBox`

Defined in

variant/box.ts:192

---

unset

▸ **unset**(): `void`

Returns

`void`

Defined in

variant/box.ts:143

Class: Quaternion

Hierarchy

- `Variant<Float32Array>`

  ↳ `Quaternion`

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- data
- w
- x
- y
- z

Methods

- clone
- compare
- conjugate
- copy
- normalize
- set
- setAxisAngle

Constructors

constructor

• **new Quaternion**()

Overrides

Variant.constructor

Defined in

variant/quaternion.ts:25

Properties

m_data

• `Protected` **m_data**: `Float32Array`

Inherited from

Variant.m_data

Defined in

variant/variant.ts:43

Accessors

data

• `get` **data**(): `T`

Returns

`T`

Inherited from

Variant.data

Defined in

variant/variant.ts:50

• `set` **data**(`data`): `void`

Parameters

Name	Type
`data`	`T`

Returns

`void`

Inherited from

Variant.data

Defined in

variant/variant.ts:54

---

w

• `get` **w**(): `number`

Returns

`number`

Defined in

variant/quaternion.ts:41

• `set` **w**(`v`): `void`

Parameters

Name	Type
`v`	`number`

Returns

`void`

Defined in

variant/quaternion.ts:57

x

• `get` **x**(): `number`

Returns

`number`

Defined in

variant/quaternion.ts:29

• `set` **x**(`v`): `void`

Parameters

Name	Type
`v`	`number`

Returns

`void`

Defined in

variant/quaternion.ts:45

y

• `get` **y**(): `number`

Returns

`number`

Defined in

variant/quaternion.ts:33

• `set` **y**(`v`): `void`

Parameters

Name	Type
`v`	`number`

Returns

`void`

Defined in

variant/quaternion.ts:49

z

• `get` **z**(): `number`

Returns

`number`

Defined in

variant/quaternion.ts:37

• `set` **z**(`v`): `void`

Parameters

Name	Type

Name	Type
`v`	`number`

Returns

`void`

Defined in

variant/quaternion.ts:53

Methods

clone

▸ **clone**(): `Quaternion`

Returns

`Quaternion`

Inherited from

Variant.clone

Defined in

variant/variant.ts:65

---

compare

▸ **compare**(`other`): `boolean`

Parameters

Name	Type
`other`	`Quaternion`

Returns

`boolean`

Inherited from

Variant.compare

Defined in

variant/variant.ts:71

---

conjugate

▸ **conjugate**(): `Quaternion`

Returns

`Quaternion`

Defined in

variant/quaternion.ts:111

---

copy

▸ **copy**(`other`): `void`

Parameters

Name	Type
`other`	`Quaternion`

Returns

`void`

Inherited from

Variant.copy

Defined in

variant/variant.ts:61

---

normalize

▸ **normalize**(): `Quaternion`

Returns

`Quaternion`

Defined in

variant/quaternion.ts:83

---

set

▸ **set**(`other`): `void`

Parameters

Name	Type
`other`	`Quaternion`

Returns

`void`

Defined in

variant/quaternion.ts:61

▸ **set**(`array`): `void`

Parameters

Name	Type
`array`	`ArrayLike<number>`

Returns

`void`

Defined in

variant/quaternion.ts:62

▸ **set**(`axis`, `angle`): `void`

Parameters

Name	Type

Name	Type
axis	Vector3
angle	number

Returns

void

Defined in

variant/quaternion.ts:63

▸ **set**(x, y, z, angle): void

Parameters

Name	Type
x	number
y	number
z	number
angle	number

Returns

void

Defined in

variant/quaternion.ts:64

---

setAxisAngle

▸ **setAxisAngle**(axis, angle): Quaternion

Parameters

Name	Type
axis	Vector3
angle	number

Returns

Quaternion

Defined in

variant/quaternion.ts:97

ore.core / Exports / Ray

Class: Ray

Hierarchy

- `Variant<Float32Array>`

  ↳ `Ray`

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Constructors

- constructor

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- m_data

Accessors

- data
- direction
- origin

Methods

- clone
- compare
- copy
- getProjectedPoint
- set
- transform

Constructors

constructor

• **new Ray**()

Overrides

Variant.constructor

Defined in

variant/ray.ts:26

Properties

m_data

• `Protected` **m_data**: `Float32Array`

Inherited from

Variant.m_data

Defined in

variant/variant.ts:43

Accessors

data

• `get` **data**(): `T`

Returns

`T`

Inherited from

Variant.data

Defined in

variant/variant.ts:50

• `set` **data**(`data`): `void`

Parameters

Name	Type
`data`	`T`

Returns

`void`

Inherited from

Variant.data

Defined in

variant/variant.ts:54

---

direction

• `get` **direction**(): `Vector3`

Returns

`Vector3`

Defined in

variant/ray.ts:38

• `set` **direction**(`dir`): `void`

Parameters

Name	Type
`dir`	`Vector3`

Returns

`void`

Defined in

variant/ray.ts:42

---

origin

• `get` **origin**(): `Vector3`

Returns

`Vector3`

Defined in

variant/ray.ts:30

• `set` **origin**(`origin`): `void`

Parameters

Name	Type
`origin`	`Vector3`

Returns

`void`

Defined in

variant/ray.ts:34

Methods

clone

▸ **clone**(): `Ray`

Returns

`Ray`

Inherited from

Variant.clone

Defined in

variant/variant.ts:65

compare

▸ **compare**(`other`): `boolean`

Parameters

Name	Type
`other`	`Ray`

Returns

`boolean`

Inherited from

Variant.compare

Defined in

variant/variant.ts:71

---

copy

▸ **copy**(`other`): `void`

Parameters

Name	Type
`other`	`Ray`

Returns

`void`

Inherited from

Variant.copy

Defined in

variant/variant.ts:61

---

getProjectedPoint

▸ **getProjectedPoint**(`point`): `Vector3`

Parameters

Name	Type
`point`	`Vector3`

Returns

`Vector3`

Defined in

variant/ray.ts:69

---

set

▸ **set**(`other`): `void`

Parameters

Name	Type
`other`	`Ray`

Returns

`void`

Defined in

variant/ray.ts:46

▸ **set**(`origin`, `dir`): `void`

Parameters

Name	Type
`origin`	`Vector3`
`dir`	`Vector3`

Returns

`void`

Defined in

variant/ray.ts:47

---

transform

▸ **transform**(`mat`): `void`

Parameters

Name	Type
`mat`	`Matrix4`

Returns

`void`

Defined in

variant/ray.ts:59

（二）Geometry

ore.geometry / Exports

ore.geometry

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Functions

arrow

▸ **arrow**(`nSlices?`): `JGeometry`

Parameters

Name	Type	Default value
`nSlices`	`number`	`12`

Returns

`JGeometry`

Defined in

arrow.ts:22

---

capsule

▸ **capsule**(`slices?`, `stacks?`, `height?`): `JGeometry`

Parameters

Name	Type	Default value
`slices`	`number`	`12`
`stacks`	`number`	`12`
`height`	`number`	`2`

Returns

`JGeometry`

Defined in

capsule.ts:22

---

cone

▸ **cone**(`slices?`): `JGeometry`

Parameters

Name	Type	Default value
`slices`	`number`	`12`

Returns

`JGeometry`

Defined in

cone.ts:22

---

cube

▸ **cube**(`min?`, `max?`): `JGeometry`

Parameters

Name	Type
`min`	`Vector3`
`max`	`Vector3`

Returns

`JGeometry`

Defined in

cube.ts:22

---

cylinder

▸ **cylinder**(`slices?`): `JGeometry`

Parameters

Name	Type	Default value
`slices`	`number`	`12`

Returns

`JGeometry`

Defined in

cylinder.ts:22

---

disk

▸ **disk**(`slices?`): `JGeometry`

Parameters

Name	Type	Default value
`slices`	`number`	`12`

Returns

`JGeometry`

Defined in

disk.ts:22

pipe

▸ **pipe**(`slices?`): `JGeometry`

Parameters

Name	Type	Default value
`slices`	`number`	`12`

Returns

`JGeometry`

Defined in

pipe.ts:22

platonic

▸ **platonic**(`faces`): `JGeometry`

Parameters

Name	Type
`faces`	`4` | `6` | `8` | `12` | `20`

Returns

`JGeometry`

Defined in

platonic.ts:22

---

quad

▸ **quad**(`v0`, `v1`, `v2`, `v3`): `JGeometry`

Parameters

Name	Type
`v0`	`Vector3`
`v1`	`Vector3`
`v2`	`Vector3`
`v3`	`Vector3`

Returns

`JGeometry`

Defined in

quad.ts:22

---

sphere

▸ **sphere**(`slices?`, `stacks?`, `radius?`): `JGeometry`

Parameters

Name	Type	Default value
`slices`	`number`	`12`
`stacks`	`number`	`12`
`radius`	`number`	`1`

Returns

`JGeometry`

Defined in

sphere.ts:22

---

torus

▸ **torus**(`radius?`, `tubeRadius?`, `sides?`, `rings?`): `JGeometry`

Parameters

Name	Type	Default value
`radius`	`number`	`50`
`tubeRadius`	`number`	`10`
`sides`	`number`	`20`
`rings`	`number`	`30`

Returns

`JGeometry`

Defined in

torus.ts:22

---

triangle

▸ **triangle**(`v0`, `v1`, `v2`): `JGeometry`

Parameters

Name	Type
`v0`	`Vector3`
`v1`	`Vector3`
`v2`	`Vector3`

Returns

`JGeometry`

Defined in

triangle.ts:22

（三）Color

ore.color / Exports

ore.color

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Classes

- ColorGenerator
- ColorScheme
- NamedColor

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- Hsl
- Hsv
- Rgb
- Yuv

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- fromHsl
- fromHsv
- fromRgb
- fromYuv
- scheme2ImageData
- toHex
- toHsl
- toHsv
- toRgb
- toYuv

Functions

fromHex

▸ **fromHex**(`hex`): `Color3`

Parameters

Name	Type
`hex`	`string`

Returns

`Color3`

Defined in

convert/convert.ts:219

---

fromHsl

▸ **fromHsl**(`hsl`): `Color3`

Parameters

Name	Type
`hsl`	`Hsl`

Returns

`Color3`

Defined in

convert/convert.ts:179

---

fromHsv

▸ **fromHsv**(`hsv`): `Color3`

Parameters

Name	Type
`hsv`	`Hsv`

Returns

`Color3`

Defined in

convert/convert.ts:140

fromRgb

▸ **fromRgb**(`rgb`): `Color3`

Parameters

Name	Type
`rgb`	`Rgb`

Returns

`Color3`

Defined in

convert/convert.ts:135

fromYuv

▸ **fromYuv**(`yuv`): `Color3`

Parameters

Name	Type
`yuv`	`Yuv`

Returns

`Color3`

Defined in

convert/convert.ts:211

scheme2ImageData

▸ **scheme2ImageData**(`scheme?`, `nLevels?`): `ImageData`

Parameters

Name	Type	Default value
`scheme`	`ColorScheme`	`ColorScheme.rainbow`
`nLevels`	`number`	`256`

Returns

`ImageData`

Defined in

scheme/scheme.ts:282

---

toHex

▸ **toHex**(`color`): `string`

Parameters

Name	Type
`color`	`Color3` | `Color4`

Returns

`string`

Defined in

convert/convert.ts:125

---

toHsl

▸ **toHsl**(`color`): `Hsl`

Parameters

Name	Type
`color`	`Color3` | `Color4`

Returns

`Hsl`

Defined in

convert/convert.ts:88

---

toHsv

▸ **toHsv**(`color`): `Hsv`

Parameters

Name	Type
`color`	`Color3` | `Color4`

Returns

`Hsv`

Defined in

convert/convert.ts:54

---

toRgb

▸ **toRgb**(`color`): `Rgb`

Parameters

Name	Type
`color`	`Color3` | `Color4`

Returns

`Rgb`

Defined in

convert/convert.ts:46

toYuv

▸ **toYuv**(`color`): `Yuv`

Parameters

Name	Type
`color`	`Color3` | `Color4`

Returns

`Yuv`

Defined in

convert/convert.ts:117