

VRM-1.0

VRM VRM 0.x VRM 1.0

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vrml-1.0

VRM 1.0

VRM 1.0 2018 3D “VRM”

VRM VRM 0.x VRM 1.0

VRM 1.0 2022 9

VRM 0.x humanoid VRMC_vrm_1.0 VRMC_materials_mtoon-1.0 VRMC_springBone-1.0

VRMC_node_constraint-1.0

2020 VRMC_vrm_animation-1.0

VRMC_materials_hdr_emissiveMultiplier-1.0 KHR_materials_emissive_strength



VRM 1.0

SON Schema VRM1.0

<https://github.com/vrm-c/vrm-specification/tree/master/specification>



<https://github.com/vrm-c/vrm-specification/tree/master/samples>

VRM 1.0

VRM  avatar 

[VRM!\[\]\(cbe80b694ebd74fcfe136a095b608235_img.jpg\)1.0!\[\]\(27df6be88af07602ea392719b144fe7f_img.jpg\)](#)



UnityUniVRM

[UniVRM-1.0](#)

API



- [VRM-1.0 !\[\]\(2a133ebb0337313d16cc068f19494aa2_img.jpg\) API!\[\]\(e5831951c2bb646a242d812c288ddabc_img.jpg\)](#)








- [VRM](#)

VRM-1.0

VRM0.X

- glTF: z- forward => z+ forward
- glTF: shared bufferView => divided bufferView
- VRM0: meta => `VRMC_vrm` meta
- VRM0: humanoid => `VRMC_vrm` humanoid
- VRM0: blendshape => `VRMC_vrm` expression
- VRM0: lookat => `VRMC_vrm` lookat
- VRM0: firstperson => `VRMC_vrm` firstperson
- VRM0: springBone => `VRMC_springBone`
-  => `VRMC_materials_hdr_emissiveMultiplier`
- VRM0: mtoon => `VRMC_materials_mtoon`
-  `VRMC_node_constraint`




glTF


 import export  

glTF: z+ forward

 Z 













	VRM0	VRM1
forward	z-	z+
right	x+	x-

“  vrm-0.x  vrm-1.0  Y  180 

```
Vector3 vrm0;  
var vrm1 = new Vector3(-vrm0.x, vrm0.y, -vrm0.z);
```

glTF: divided vertex buffer

 bufferView  primitive

	VRM0	VRM1
bufferView	shared()	divided()
		 glTF 
	 UniVRM  glTF 	 morphTarget 

VRM-0.x VRM-1.0 Y 180

	prim0	prim1
position	100	100
index	0..100	0..100

	prim0	prim1	
position	100	100	<div></div> <div></div>
index	0..100	100..200	

Vrm gltfPrimiti glTF

VRMC_vrm: meta

TODO

[VRM \[REDACTED\]1.0](#)

VRMC_vrm: humanoid

VRMC_vrm: humanoid

name		VRM0	VRM1
neck	neck		
head	head		
hips	hips		
spine	spine		
chest	chest		
left/right UpperArm	left/right UpperArm		
left/right LowerArm	left/right LowerArm		
left/right Hand	left/right Hand		
left/right UpperLeg	left/right UpperLeg		
left/right LowerLeg	left/right LowerLeg		
left/right Foot	left/right Foot		

VRMHumanoidDescription VRMHumanoidDescription

- armStretch
- legStretch
- upperArmTwist
- lowerArmTwist
- upperLegTwist
- lowerLegTwist
- feetSpacing
- hasTranslationDoF

VRMC_vrm: expression

VRM BlendShape Expression

BlendShape
BlendShape Unity MorphTarget BlenderShape

Preset

	VRM0	VRM1
	joyjoy fun	happy
	angry	angry
	sorrow	sad
	funjoy fun	relaxed
	()	surprised
	a	aa
	i	ih
	u	ou
	e	ee
	o	oh

- `overrideMouse()``overrideLipSync()` `overrideBlink()`
- `VRM0` `materialBind()` `MaterialColorBind()` `TextureTransformBind()`

lookat & firstperson

VRMC_vrm-0.x firstperson lookat

VRMC_vrm: lookat

degreeMap.curve

VRMC_vrm: firstperson

firstPersonBone Head

firstPersonBoneOffset lookAt.offsetFromHeadBone

VRMC_vrm-0.x VR look At firstPersonBone + firstPersonBoneOffset
VRMC_vrm-1.0 lookAt.offsetFromHeadBone look At
VRMC_vrm-1.0 VR lookAt.offsetFromHeadBone VR

VRMC_springBone

	VRM0	VRM1
名称	VRMC_springBone	VRMC_springBone
子对象	children[0]	children 名称
位置	位置 7cm 位置	位置

- VRMC_springBone 子对象
- Collider 名称 Capsule(子对象)
- Unity 名称

VRMC_springBone_extended_collider

https://github.com/vrm-c/vrm-specification/tree/master/specification/VRMC_springBone_extended_collider-1.0

VRMC_springBone_extended_collider

VRMC_springBone_extended_collider VRMC_springBone

Collider

VRMC_springBone

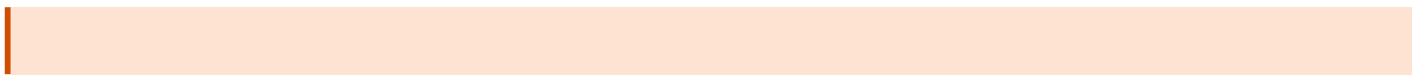
Collider

Collider



Fall Back

VRMC_springBone_extended_collider VRMC_springBone VRMC_springBone_extended_collider VRMC_springBone

UniVRM VRMC_springBone_extended_collider VRMC_springBone VRMC_springBone_extended_collider





VRMC_springBone_extended_collider                   

 VRMC_springBone_extended_collider 

- [UniVRM](#)
- [@pixiv/three-vrm](#)

emission□□□□

□ KHR_materials_emissive_strength□

[emission\(□□\) □ glow\(□\)glTF□□□□□](#)

□
vrm-1.0 □□ KHR_materials_unlit □□□□□ KHR_materials_emissive_strength□

□
UniVRM □□□ gltf □ vrm-1 □ KHR_materials_emissive_strength □□□

MTOON-0.X
□ vrm-0.x □□□□□ KHR_materials_emissive_strength□□□□ mtoon-0.x □□□□□□□□□□□□

VRMC_materials_mtoon

VRMC_materials_mtoon

https://github.com/vrm-c/vrm-specification/tree/master/specification/VRMC_materials_mtoon-1.0

- `VRMC_materials_mtoon`

“ GLTF MATERIAL ”

```
{
  "materials": [
    {
      "name": "MyUnlitMaterial",
      "pbrMetallicRoughness": {
        "baseColorFactor": [ 0.5, 0.8, 0.0, 1.0 ]
        // texture
      },
      // emission

      "extensions": {
        "VRMC_materials_mtoon": { // 
          "specVersion": "1.0",
          // ...
        }
      }
    }
  ]
}
```

TODO

VRMC_node_constraint

https://github.com/vrm-c/vrm-specification/tree/master/specification/VRMC_node_constraint-1.0