



Chyron.

VSAR 2.1.0

API Guide

Contents

Contents	2
INTRODUCTION	4
Help and Support	4
CONNECTION	5
ACTOR CLASS COMMANDS	6
Actor(InActorID, index)	6
GetName()	6
Move(x, y, z)	6
Rotate(pitch, yaw, roll)	7
Scale(x, y, z)	7
Show()	7
Hide()	7
SetVisibility(bIsVisible)	7
CallBlueprintFunction(InFunctionName, Parameters ...)	8
SetVar(InVarName, InValue)	8
GetVar(InVarName, InValue)	9
COMPONENT COMMANDS	10
TypeOfComponent()	10
GetComponentByName(strNameOfComponentType)	10
PropertyTools.CallFunction(component.ObjectPtr, strNameOfFunction)	11
PropertyTools.CallFunction(component.ObjectPtr, strNameOfFunction, strPar1)	11
PropertyTools.CallFunction(component.ObjectPtr, strNameOfFunction, strPar1, strPar2)	11
LEVEL SEQUENCE CLASS COMMANDS	12
LevelSequence(InActorID)	12
Play()	12
Pause()	12
PlayReverse()	12
PlayToSeconds(seconds)	12
ScrubToSeconds(seconds)	12
PlayRate(playRate)	13
TimeRange(startTime, duration)	13
AB SWITCH CLASS COMMANDS	13
MtABSwitch(InActorID)	13
SetEffectDuration (InDuration)	13
SetEffect(InEffectName)	14
StartTransition([InName], [InDuration])	14

Player commands:	14
OpenFile(InFilePath)	14
OpenVidigolInputStream(InStreamID)	15
OpenUrl(InUrl)	15
Play()	15
Pause()	15
Rewind()	15
SetLooping(blsLooping)	16
IsLooping()	16
IsPlaying()	16
SetRate(InRate)	16
CESIUM CAMERA CLASS COMMANDS	16
CesiumCamera(InActorID, index)	16
AddActorToForeground(InActorName, index)	16
RemoveActorFromForeground(InActorName, index)	17
AddActorToMatte(InActorName, index)	17
RemoveActorFromMatte(InActorName, index)	17
DATA ENGINE COMMANDS	17
DataEngine.WriteToKey(Bucket, Key, Value)	17
LEVELS COMMANDS	18
LevelShow(SubLevelName)	18
LevelHide(SubLevelName)	18
OpenLevel(levelName)	18
OpenLevelFast(levelName)	18
LOGGING COMMANDS	18
PrintLog(Str)	18
PrintLog_Warning(Str)	19
PrintLog_Error(Str)	19
CONVERSION COMMANDS	19
ToFString(str)	19
ToFVector(x, y, z)	19
ToFVector2D(x, y)	19
ToFRotator(pitch, yaw, roll)	20
ToFLinearColor(r, g, b, a)	20
FromFString(str)	20
FromFVector(Vec)	20
FromFRotator(Rot)	20

INTRODUCTION

This document explains the API to remote control VSAR – Unreal Engine 5.

Help and Support

For contact information or our online helpdesk, please visit our support page at chyronhego.com/support/overview.

Disclaimer: Our products are subject to continual development and improvement. Therefore, while the information in this document was complete and accurate when it was written, additions or modifications to the products may cause changes to the technical and functional specifications. No rights can be derived from this document.

CONNECTION

Each VSAR server is connected to a Data Engine instance. PRIME VSAR is listening to bucket: “ue4” and key: “lua_in”

Note: “ue4” name is retained from ue4 due to backward compatibility

ACTOR CLASS COMMANDS

Actor(InActorID, index)

The constructor tries to match the unique ActorID first, if it's unsuccessful it fallbacks to ActorName (label)

If the index is set to true or not set it will search for the first occurrence of the ActorName.

If an index is set to a number and there are multiple occurrences it will act like an index.

For example:

There are 4 actors named "Chair" in the level (ChairStuff, Chair_2, ChairStuff_16, ChairStuff)

Actor("Chair_2") will contain the Chair_2

Actor("Chair", true) will contain the first occurrence found of Chair

Actor("Chair", 2) will contain the third occurrence found of chair

Actor("Chair") will contain the first occurrence found of Chair

"Chair_2" has ID "StaticMeshActor_2"

Actor("StaticMeshActor_2") will contain the Chair_2

In the other classes/functions when there is a parameter named InActorID with another parameter Index it refers to this behavior.

GetName()

Returns the name of the actor (as a FString)

Example:

`PrintLog(Actor("Cube1").GetName())` -- prints the name of the found actor

Move(x, y, z)

Move an actor by actor ID.

Example

```
Actor("Cube1").Move(960, 540, 0)
```

Rotate(pitch, yaw, roll)

Rotate an actor by actor ID

Example

```
Actor("Cube1").Rotate(360, 0, 0)
```

Scale(x, y, z)

Scale an actor by actor ID.

Example

```
Actor("Cube1").Scale(1, 10, 1)
```

Show()

Show an actor by actor ID.

Example

```
Actor("Cube1").Show()
```

Hide()

Hide an actor by actor ID.

Example

```
Actor("Cube1").Hide()
```

SetVisibility(bIsVisible)

Sets the visibility of the actor by ID.

Example

```
Actor("Cube1").SetVisibility(true)
```

CallBlueprintFunction(InFunctionName, Parameters ...)

Calls the actors blueprint function by name

Examples

Calling a function without parameter

```
Actor("TestLua").CallBlueprintFunction( "FuncNoParam" )
```

Calling a function with a string parameter

```
Actor("TestLua").CallBlueprintFunction( "FuncStrParam", "Test" )
```

Calling a function with a number parameter

```
Actor("TestLua").CallBlueprintFunction( "FuncNumberParam", 42 )
```

Calling a function with a vector parameter

```
Actor("TestLua").CallBlueprintFunction( "FuncVectorParam", "( X=1.0 , Y=2.0 ,Z=3.0 )" )
```

\Calling a function with two parameters: LinearColor and bool

```
Actor("TestLua").CallBlueprintFunction( "FuncTwoParams", "( R=1.0, G=0.0, B=0.5, A=1.0 )",  
false )
```

SetVar(InVarName, InValue)

Set an actor variable by actor name and variable path/name.

Examples

Set a float value

```
Actor("TestLua", true).SetVar("FloatVar", 10.0)
```

Set a bool value

```
Actor("TestLua", true).SetVar("BoolVar", true)
```

Set X value in a Vector

```
Actor("TestLua", true).SetVar("VectorVar.X", 42)
```

We can also set a vector

```
Actor("TestLua", true).SetVar("VectorVar", ToFVector( 10, 20, 30 ))
```

We can set a FLinearColor

```
Actor("TestLua", true).SetVar("LinearColorVar", ToFLinearColor(1, 0, 0, 1))
```

Or just the R value

```
Actor("TestLua", true).SetVar("LinearColorVar.G", 1.0)
```

GetVar(InVarName, InValue)

When using GetVar it returns a json string, containing the type, the name and the value of the var

Examples

Get the json string of the var "FloatVar"

```
local float.Json = Actor("TestLua", true).GetVar("FloatVar")
```

Decode the string

```
local floatDecoded = JSON:decode( FromFString( floatJson ) )
```

Print the value of FloatVar

```
PrintLog( floatDecoded.Name .. "=" .. floatDecoded.Value )
```

This also works for structs:

Get the json string of "VectorVar"

```
local vectorJson = Actor("TestLua", true).GetVar("VectorVar")
```

Decode the string

```
local vectorDecoded = JSON:decode( FromFString( vectorJson ) )
```

iterate and print each properties

```
for i,v in pairs( vectorDecoded.Properties ) do
```

```
PrintLog( v.Name .. "=" .. v.Value )
```

```
end
```

COMPONENT COMMANDS

TypeOfComponent()

GetComponentByName(strNameOfComponentType)

Get reference to component in Actor defined by his name of type.

```
local actor1 = Actor("TestActor1");  
PrintLog(actor1.GetName());  
local component = actor1.GetComponentByName("MtCamio2DText");  
PrintLog(component.GetName());
```

PropertyTools.CallFunction(component.ObjectPtr, strNameOfFunction)

Call function without parameter defined for component.

```
local actor1 = Actor("TestActor1");  
PrintLog(actor1.GetName());  
local component = actor1.GetComponentByName("MtCamio2DText");  
PrintLog(component.GetName());  
PropertyTools.CallFunction(component.ObjectPtr, "Play" );
```

PropertyTools.CallFunction(component.ObjectPtr, strNameOfFunction, strPar1)

Call function with one parameter defined for component.

```
local actor1 = Actor("TestActor1");  
PrintLog(actor1.GetName());  
local component = actor1.GetComponentByName("MtCamio2DText");  
PrintLog(component.GetName());  
PropertyTools.CallFunction(component.ObjectPtr, "SetXScale", "1.0");
```

PropertyTools.CallFunction(component.ObjectPtr, "SetYScale", "1.0");

PropertyTools.CallFunction(component.ObjectPtr, strNameOfFunction, strPar1, strPar2)

Call function with two parameters defined for component.

LEVEL SEQUENCE CLASS COMMANDS

LevelSequence(InActorID)

Play()

Play a sequence in a level by actor name.

Example

```
LevelSequence("MySequence").Play()
```

Pause()

Pause a sequence in a level by actor name.

Example

```
LevelSequence("MySequence").Pause()
```

PlayReverse()

Play a sequence reversed in a level by actor name.

Example

```
LevelSequence("MySequence").PlayReverse()
```

PlayToSeconds(seconds)

Play a sequence until the outpoint in a level by actor name and value.

Example

```
LevelSequence("MySequence").PlayToSeconds(5.0)
```

ScrubToSeconds(seconds)

Seek a sequence in a level by actor name and value in seconds.

Example

```
LevelSequence("MySequence").ScrubToSeconds(1.0)
```

PlayRate(playRate)

Set the play speed of the sequence. The play rate is 1.0 based. 1.0 is default speed, 2.0 is 2 times the speed, 0.5 half of the speed.

Example

```
LevelSequence("MySequence").PlayRate(1.0)
```

TimeRange(startTime, duration)

Set the sequence time from and time end values to play a smaller sequence by sequence name in seconds.

Example

```
LevelSequence("Sequence").TimeRange(1.0, 5.0)
```

AB SWITCH CLASS COMMANDS

MtABSwitch(InActorID)

There are general commands and per player commands

Parameters between “[]” are optional.

General Commands

SetEffectDuration (InDuration)

Example

```
MtABSwitch("CH_ABSwitch_1").SetEffectDuration(5.0)
```

SetEffect(InEffectName)

Example

```
MtABSwitch("CH_ABSwitch_1").SetEffect("PushLeft")
```

StartTransition([InName], [InDuration])

Example

```
MtABSwitch("CH_ABSwitch_1").StartTransition()
```

```
MtABSwitch("CH_ABSwitch_1").StartTransition("WipeLeft")
```

```
MtABSwitch("CH_ABSwitch_1").StartTransition("Fade", 10)
```

Player commands:

There are 2 players: Program and Preview

OpenFile(InFilePath)

Example

```
MtABSwitch("CH_ABSwitch_1").Program.OpenFile("D:/content/testclip.mpg");
```

```
MtABSwitch("CH_ABSwitch_1").Preview.OpenFile("D:/content/testimage.png");
```

OpenVidigoInputStream(InStreamID)

Example

```
MtABSwitch("CH_ABSwitch_1").Program.OpenVidigoInputStream("inputA");
```

```
MtABSwitch("CH_ABSwitch_1").Preview.OpenVidigoInputStream("inputB");
```

OpenUrl(InUrl)

Example

```
MtABSwitch("CH_ABSwitch_1").Program.OpenUrl("DaveShm://InputA");
```

```
MtABSwitch("CH_ABSwitch_1").Preview.OpenUrl("File://D:/content/testclip.mpg");
```

Play()

Example

```
MtABSwitch("CH_ABSwitch_1").Program.Play();
```

```
MtABSwitch("CH_ABSwitch_1").Preview.Play();
```


Pause()

Example

```
MtABSwitch("CH_ABSwitch_1").Program.Pause();
```

```
MtABSwitch("CH_ABSwitch_1").Preview.Pause();
```

Rewind()

Example

```
MtABSwitch("CH_ABSwitch_1").Program.Rewind();
```

```
MtABSwitch("CH_ABSwitch_1").Preview.Rewind();
```

SetLooping(blsLooping)

Example

```
MtABSwitch("CH_ABSwitch_1").Program.SetLooping(true);
```

```
MtABSwitch("CH_ABSwitch_1").Preview.SetLooping(false);
```

IsLooping()

Example

```
local isProgramLooping = MtABSwitch("CH_ABSwitch_1").Program.IsLooping();
```

```
local isPreviewLooping = MtABSwitch("CH_ABSwitch_1").Preview.IsLooping();
```

IsPlaying()

Example

```
local isProgramPlaying = MtABSwitch("CH_ABSwitch_1").Program.IsPlaying("");
```

```
local isPreviewPlaying = MtABSwitch("CH_ABSwitch_1").Preview.IsPlaying("");
```

SetRate(InRate)

Example

```
MtABSwitch("CH_ABSwitch_1").Program.SetRate(2.0);
```

```
MtABSwitch("CH_ABSwitch_1").Preview.SetRate(0.5);
```

CESIUM CAMERA CLASS COMMANDS

CesiumCamera(InActorID, index)

AddActorToForeground(InActorName, index)

Adds the actor to the cameras key channel

Example

```
CesiumCamera("CesiumCamera", true).AddActorToForeground("Chair", true)
```

RemoveActorFromForeground(InActorName, index)

Removes the actor from the cameras key channel

Example

```
CesiumCamera("CesiumCamera", true).RemoveActorFromForeground("Chair", true)
```

AddActorToMatte(InActorName, index)

Adds the actor to che key channel but hiddes it from the fill channel

Example

```
CesiumCamera("CesiumCamera", true).AddActorToMatte("Chair", true)
```

RemoveActorFromMatte(InActorName, index)

Removes the actor from the key channel and put's it again in the fill channel

Example

```
CesiumCamera("CesiumCamera", true).RemoveActorFromMatte("Chair", true)
```

TransitionToTracklessSnapshot(Duration, Show, Snapshot)

Transitions the Cesium Camera to snapshot created in Mercury/Trackless

Example

```
CesiumCamera("CH_CesiumCamera_3").TransitionToTracklessSnapshot(5,"Show5", "snapshot2")
```

TransitionToTracked (Duration, CameraIndex)

Transitions the Cesium Camera to tracking location with specified index

Example

```
CesiumCamera("CH_CesiumCamera_3").TransitionToTracked(5,0)
```

DATA ENGINE COMMANDS

DataEngine.WriteToKey(Bucket, Key, Value)

Write the value to the Bucket/Key of the engines currently connected Data Engine

Example

```
DataEngine.WriteToKey("TestBucket", "TestKey", ToFString( "TestString !" ) )
```

LEVELS COMMANDS

Only works for sublevels while in PIE

LevelShow(SubLevelName)

Shows the sublevel (needs to be loaded)

Example

```
LevelShow("MySubLevel")
```

LevelHide(SubLevelName)

Hides the sublevel (needs to be loaded)

Example

```
LevelHide("MySubLevel")
```

OpenLevel(levelName)

Permanently opens a level by it's name

Example

```
OpenLevel("NewLevel")
```

OpenLevelFast(levelName)

Temporarily opens a level by it's name, Works only in PIE, Can be Faster then OpenLevel

Example

```
OpenLevelFast("NewLevel")
```

EDITOR COMMANDS

StartPIE()

Starts the Play in editor (PIE)

StopPIE()

Stops the Play in editor (PIE)

OpenProject (projectPath)

Opens project if the provided path is valid. VSAR needs to be already running.

Example

```
OpenProject("C:\\VSAR\\Temp\\MyProject5\\MyProject5.uproject")
```

IO COMMANDS

Output(OutputName)

SetResolutionScaler(InResolutionScaler)

Sets the resolution scaler for upscaling or downscaling output resolution

Example

```
Output("Hal_0_0").SetResolutionScaler(1.5)
```

SetHorizontalGenlockPhase(InSetHorizontalGenlockPhase)

Sets the horizontal genlock phase

Example

```
Output("Hal_0_0").SetHorizontalGenlockPhase(3)
```

SetVerticalGenlockPhase(InVerticalGenlockPhase)

Sets the vertical genlock phase

Example

```
Output("Hal_0_0").SetVerticalGenlockPhase(3)
```

SetFrameDelay(InFrameDelay)

Sets the frame delay for "use as sync" output

Example

```
Output("Hal_0_0").SetFrameDelay(6)
```


LOGGING COMMANDS

PrintLog(Str)

Prints the string as a “Log” verbosity (grey)

Example

```
PrintLog(42)
```

```
PrintLog( Actor(“Chair”, true ) )
```

PrintLog_Warning(Str)

Prints the string as a “Warning” verbosity (yellow)

Example

```
PrintLog_Warning(42)
```

```
PrintLog_Warning( Actor(“Chair”, true ) )
```

PrintLog_Error(Str)

Prints the string as a “Error” verbosity (red)

Example

```
PrintLog_Error(42)
```

```
PrintLog_Error( Actor(“Chair”, true ) )
```

CONVERSION COMMANDS

ToFString(str)

Converts a string to FString

ToFVector(x, y, z)

Converts x, y, z to FVector

ToFVector2D(x, y)

Converts x, y to FVector2D

ToFRotator(pitch, yaw, roll)

Converts pitch, yaw, roll to FRotator

ToFLinearColor(r, g, b, a)

Converts r, g, b, a to FLinearColor

FromFString(str)

Converts back FString to Lua

FromFVector(Vec)

Converts back FVector to Lua

FromFRotator(Rot)

Converts back FRotator to Lua