



unity

**ART PIPELINE**



MAYA



SUBSTANCE  
PAINTER



SUBSTANCE  
DESIGNER



ZBRUSH



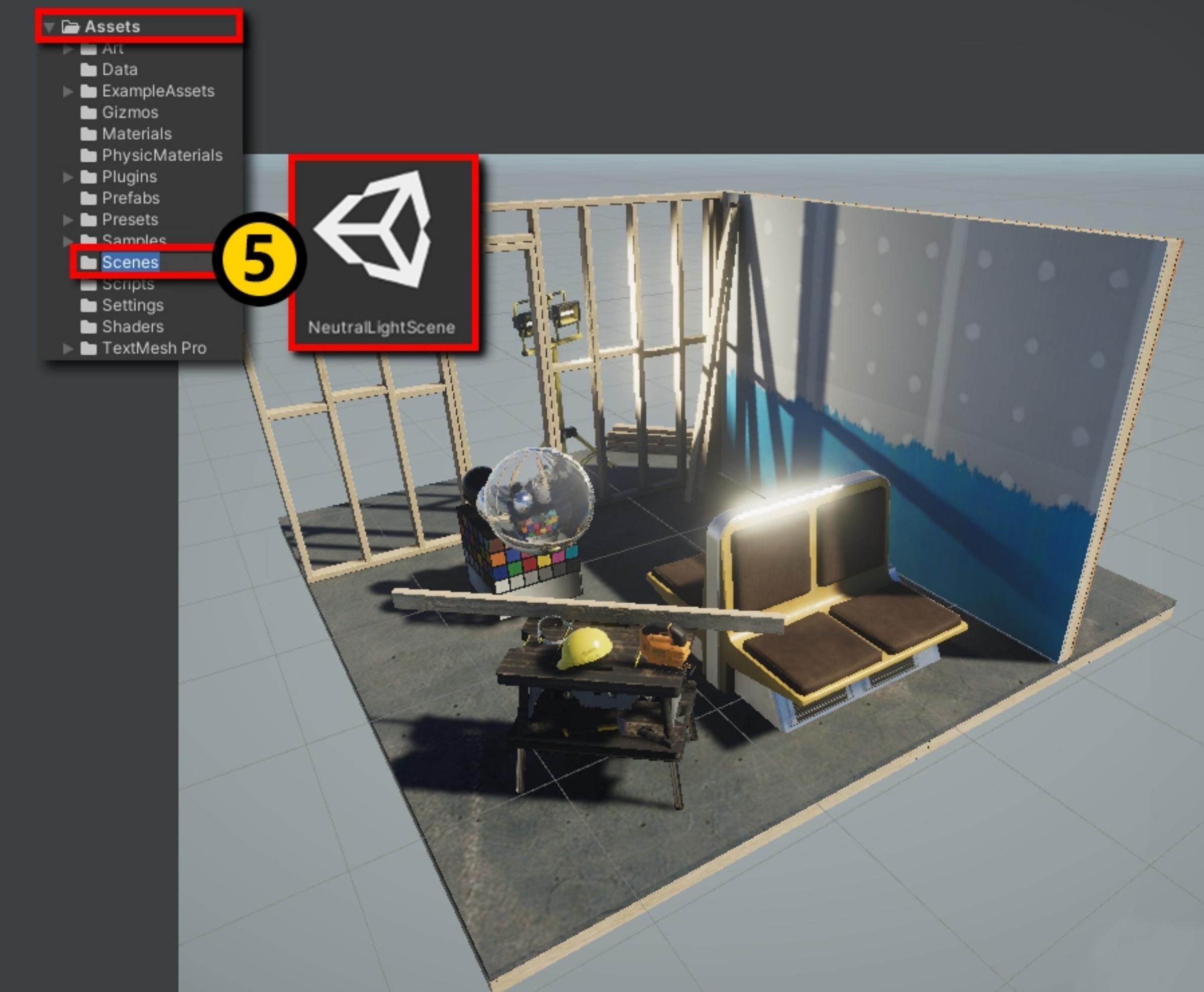
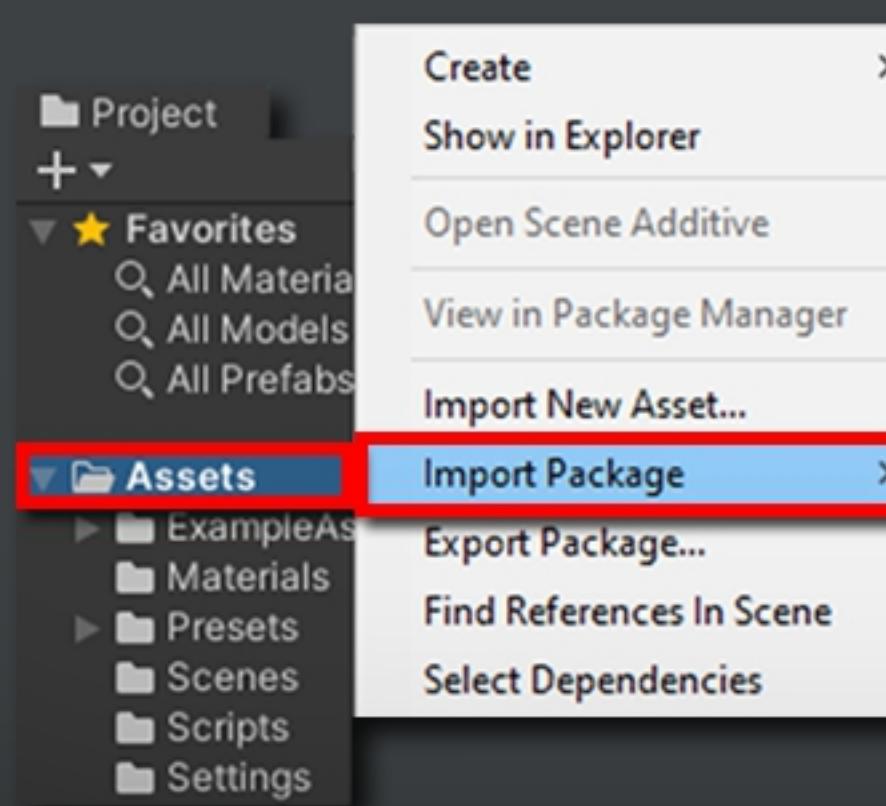
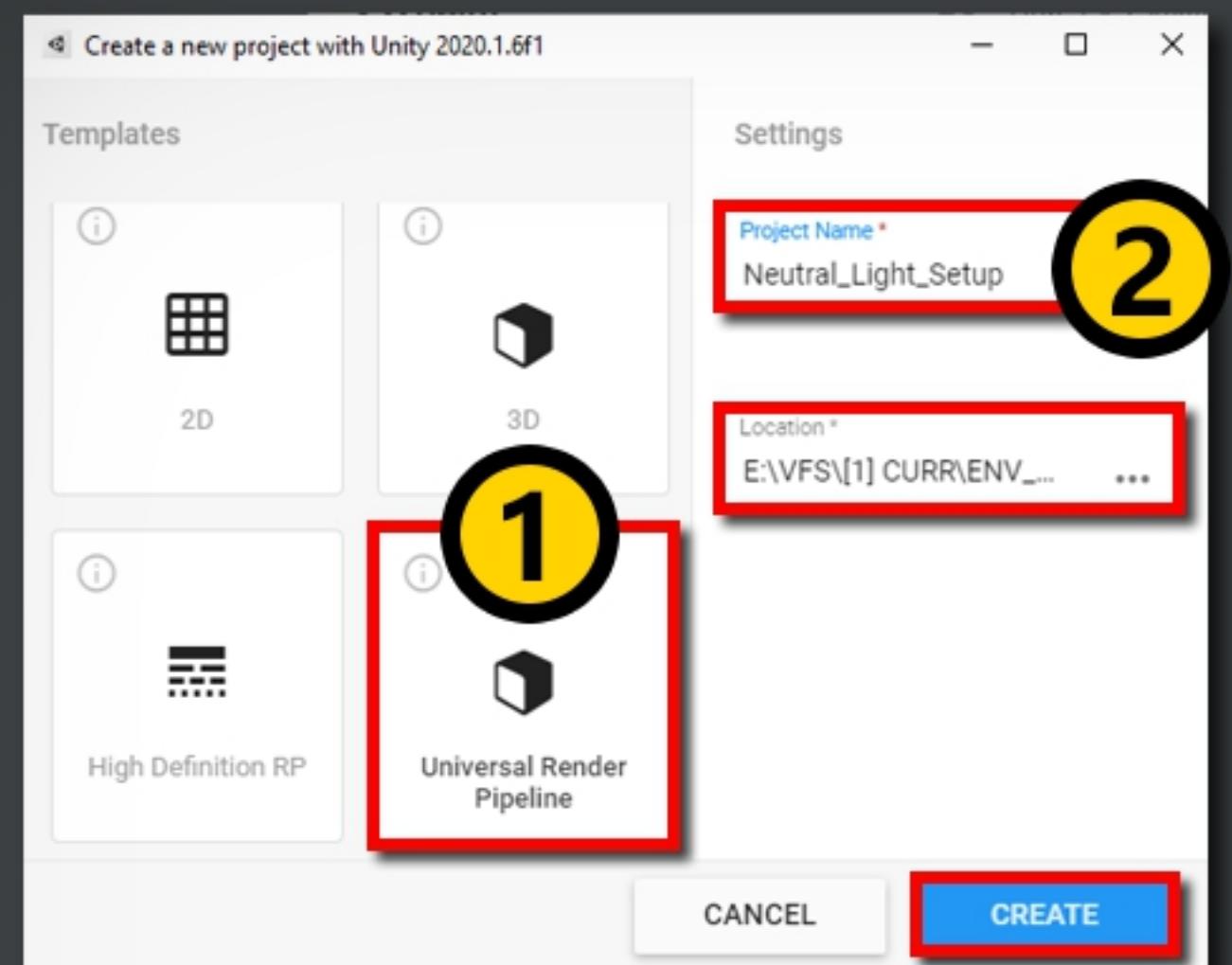
unity

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***ENGINE PIPELINE***

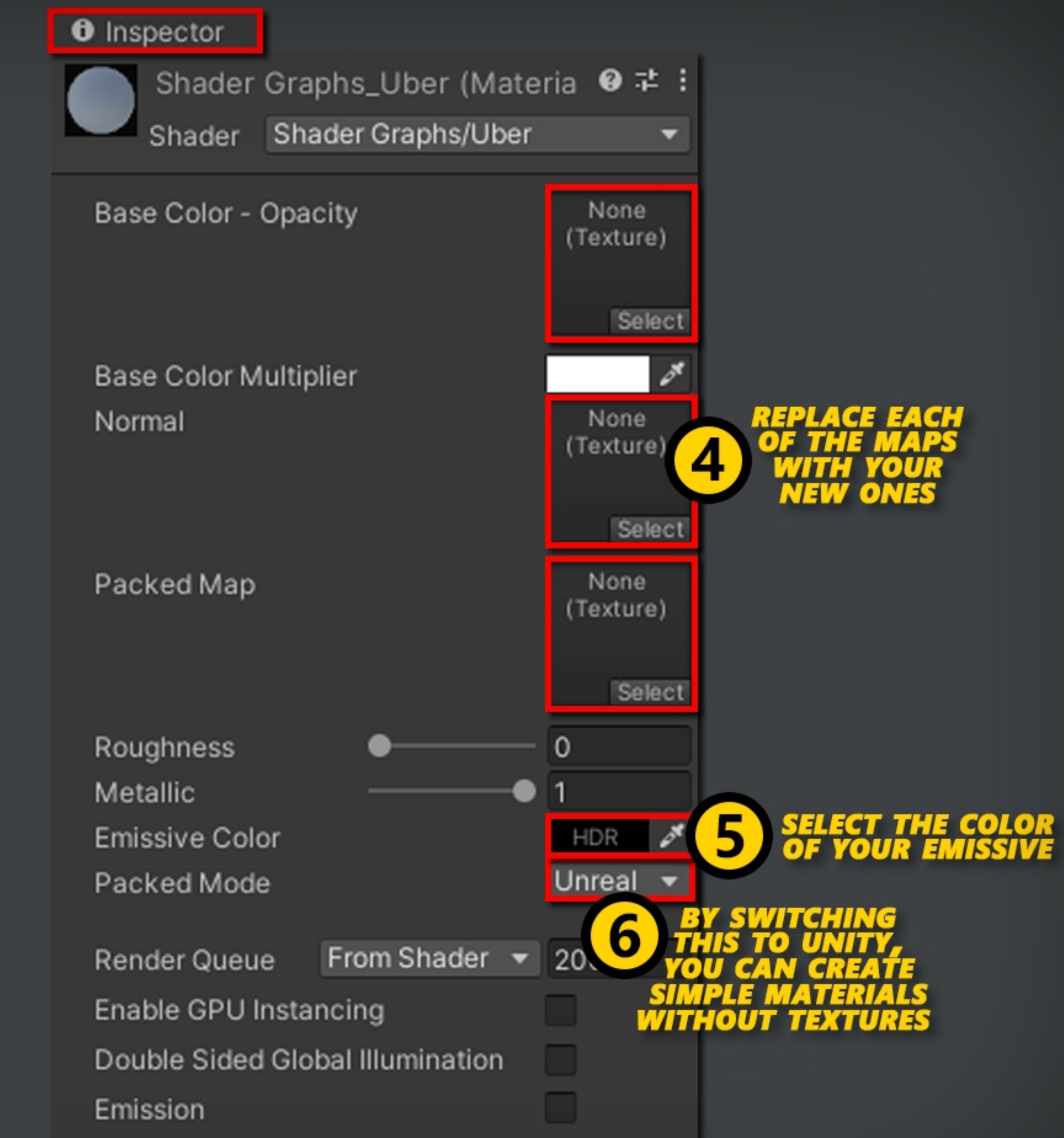
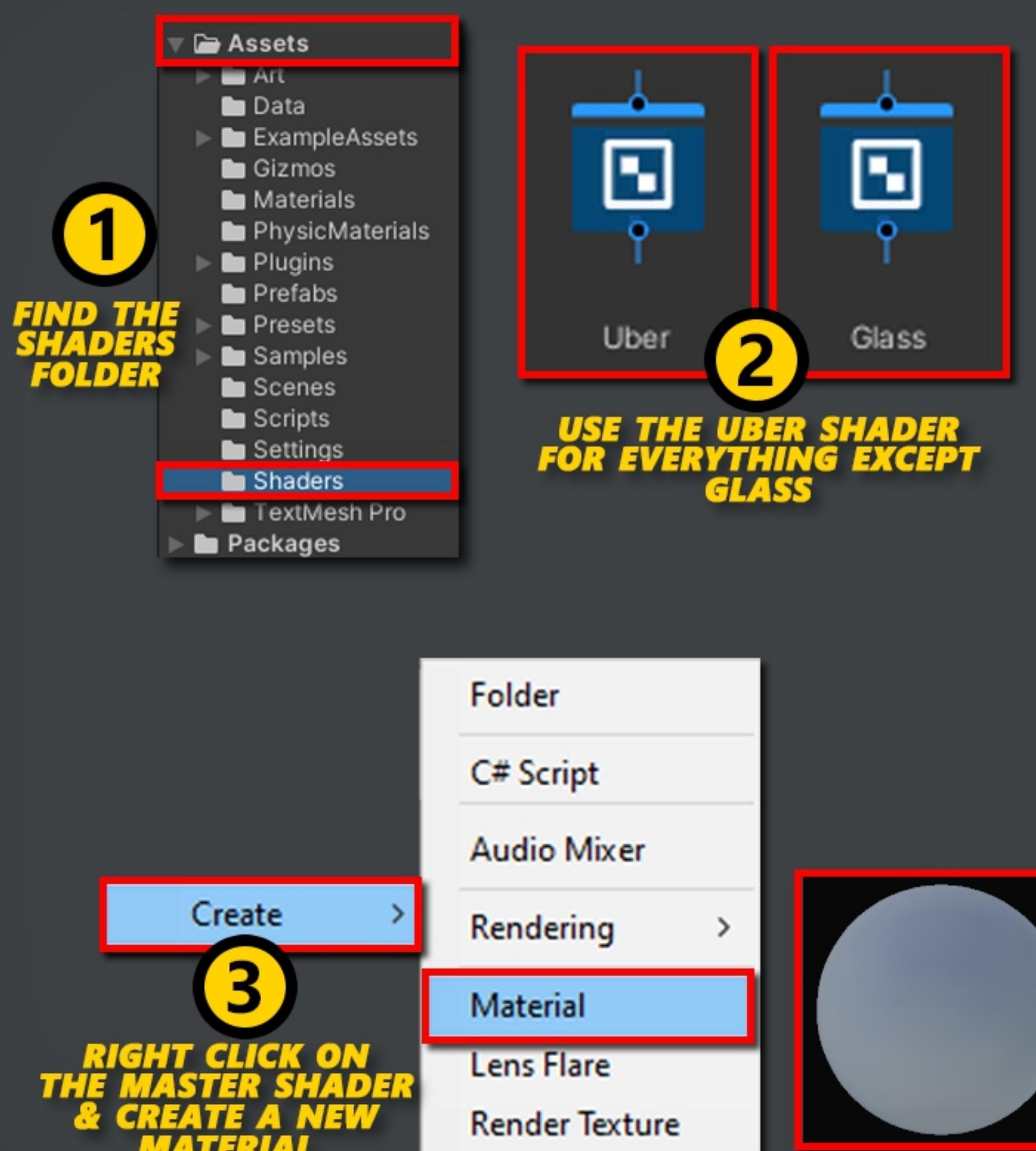
---

# NEUTRAL LIGHT SETUP



USE THIS PROJECT AS A STARTING POINT FOR YOUR PROJECT & TO TEST YOUR ASSETS

# MASTER SHADER USAGE

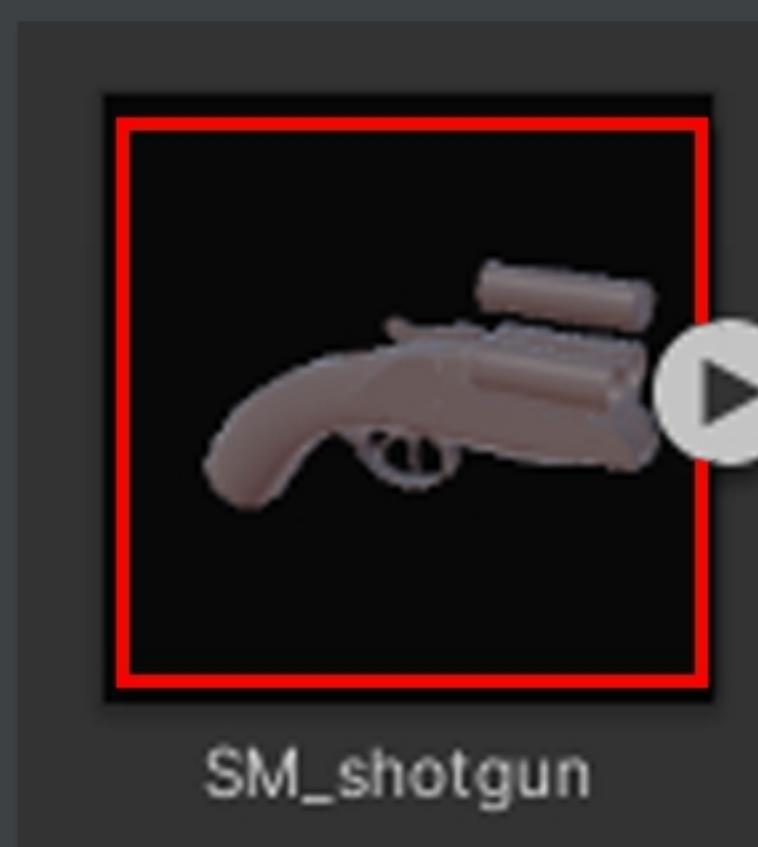


# GEOMETRY IMPORT

1

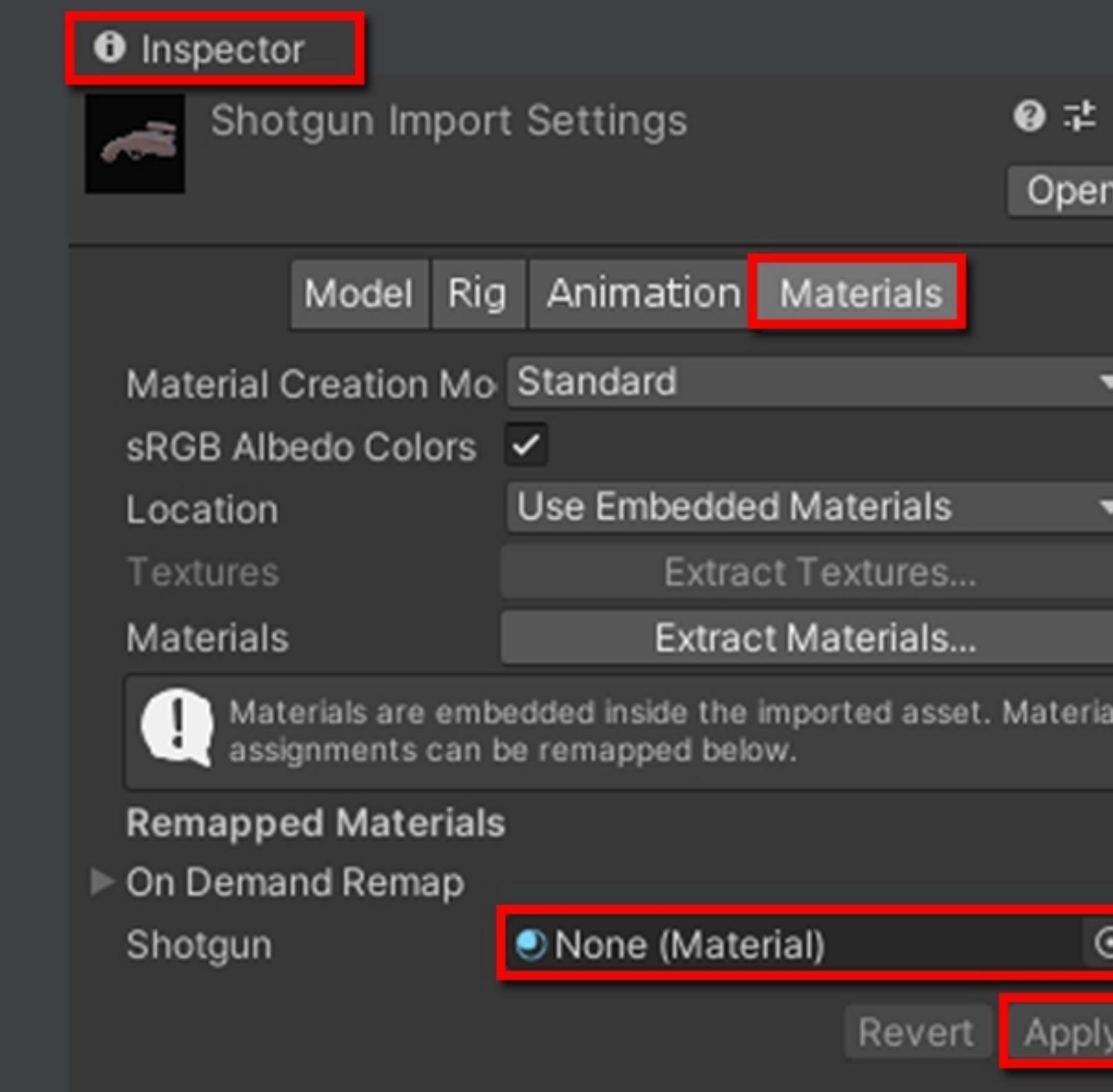
**KEEP CONSISTANT NAMING  
CONVENTIONS & USE THE PREFIX  
SM FOR SEARCHING IN EDITOR**

SM\_shotgun.fbx



2

**SELECT YOUR  
STATIC MESH**



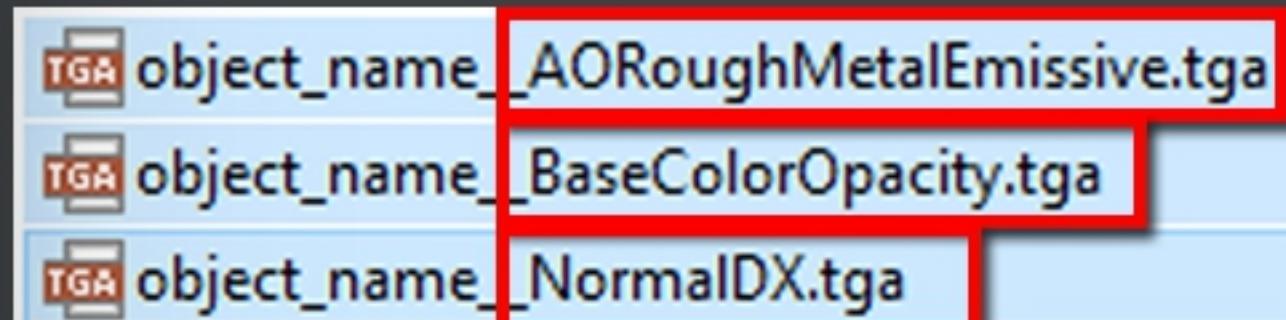
3

**THIS IS WHERE YOU  
CAN DRAG & DROP  
YOUR MATERIAL ONCE  
YOU HAVE SET IT UP**

# TEXTURE IMPORT

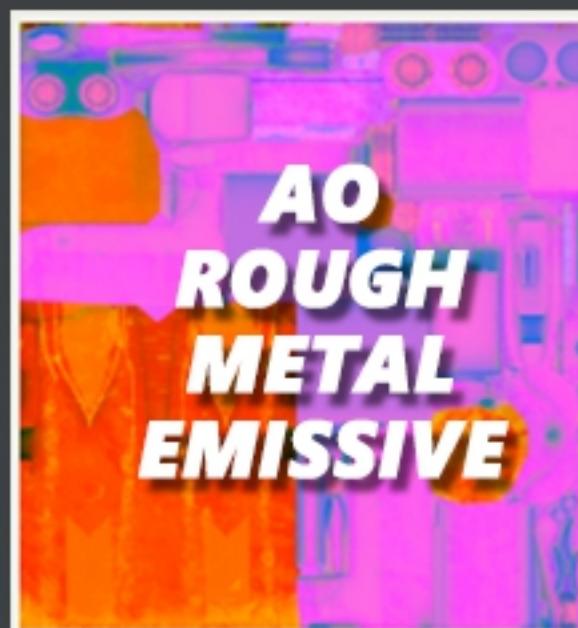
1 KEEP CONSISTENT NAMING CONVENTIONS

2 REMOVE THE OPACITY OR EMISSIVE SECTIONS IF YOUR ASSETS DO NOT USE THESE CHANNELS

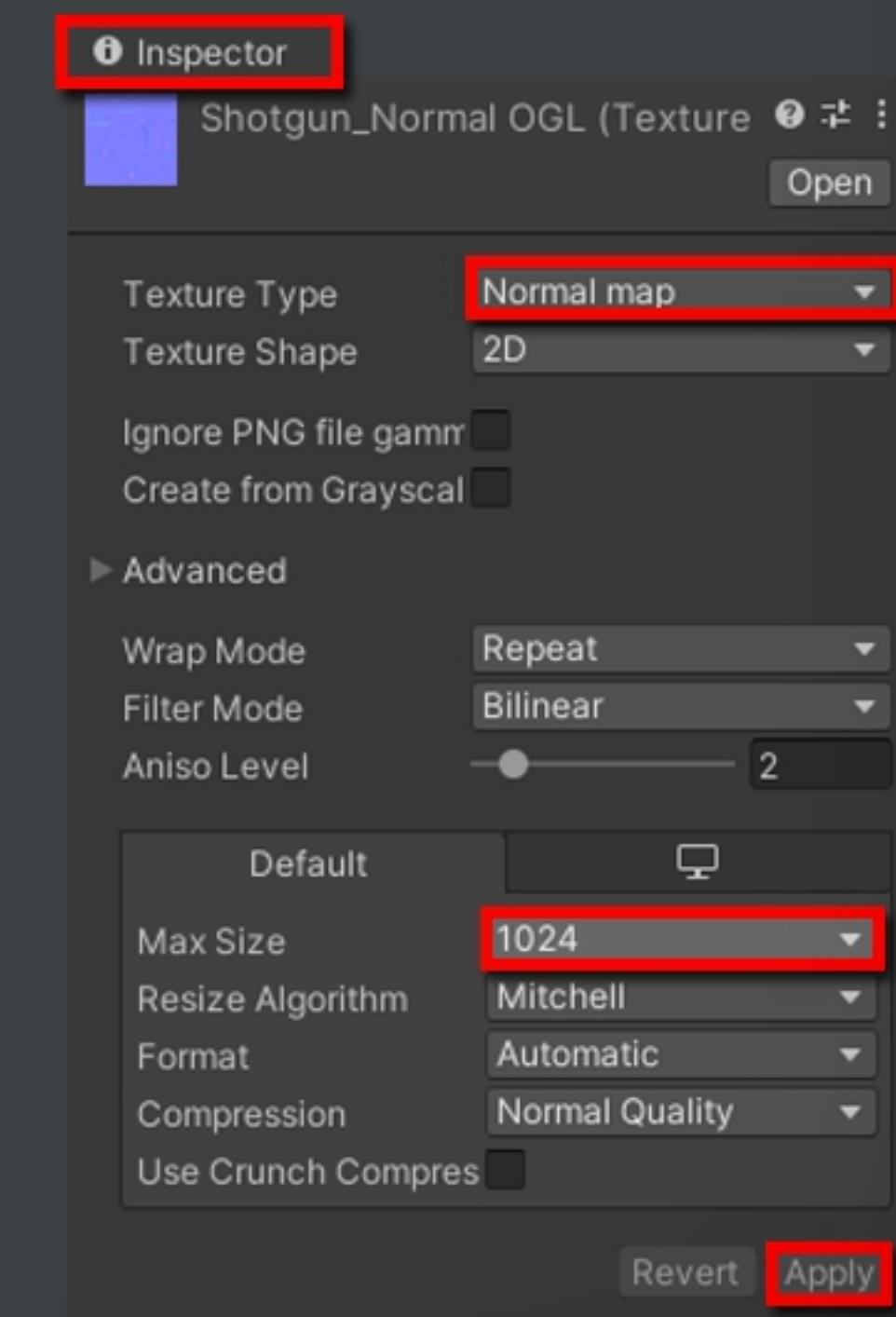
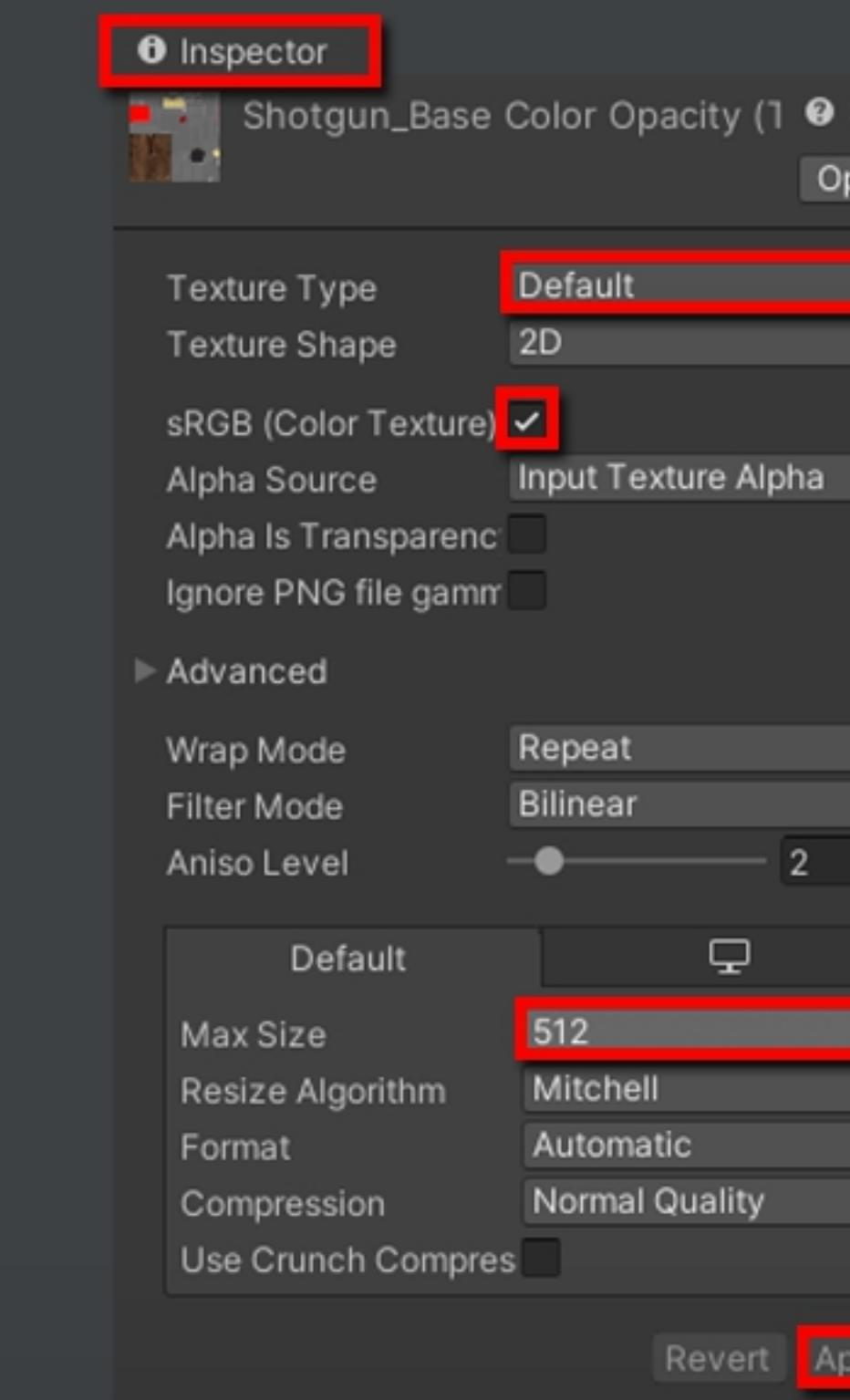
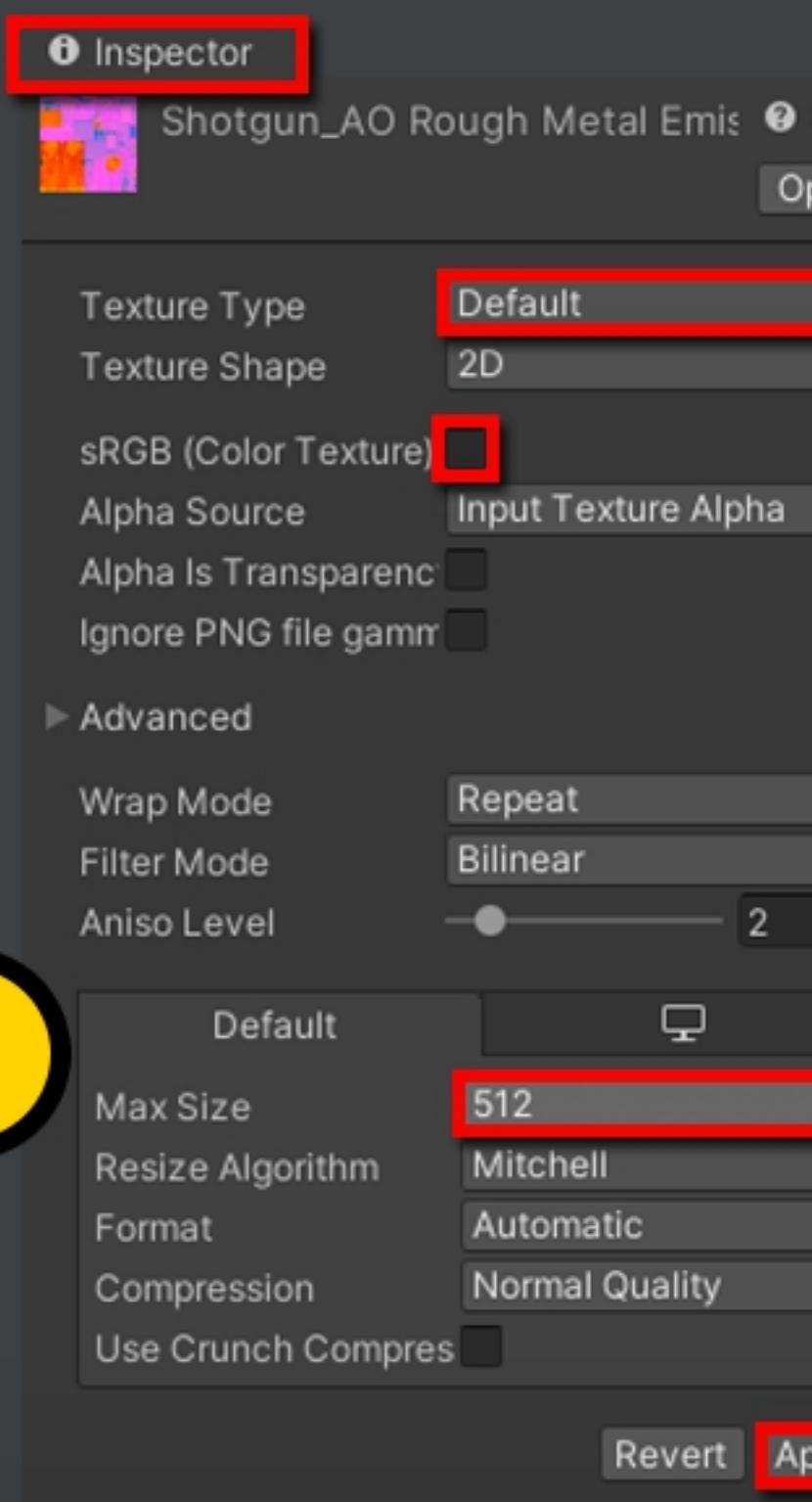


THESE SETTINGS ARE CRUCIAL IF YOU WANT YOUR SHADERS & LIGHTING TO WORK PROPERLY

3 EACH TEXTURE WAS IMPORTED RAW AT 2048X2048, THEN IN ENGINE WAS REDUCED FOR RUN-TIME OPTIMIZATIONS



4 THE NORMAL MAP IS USUALLY 4 TIMES LARGER THAN THE OTHER TEXTURES



5

# ANIMATION IMPORT

1 DRAG YOUR .FBX INTO THE PROJECT SECTION

EXPAND YOUR FBX CONTAINER

4



5  
THIS IS THE .FBX CONTAINER

6  
THIS IS THE SKELETON

7  
THIS IS THE SKINNED MESH

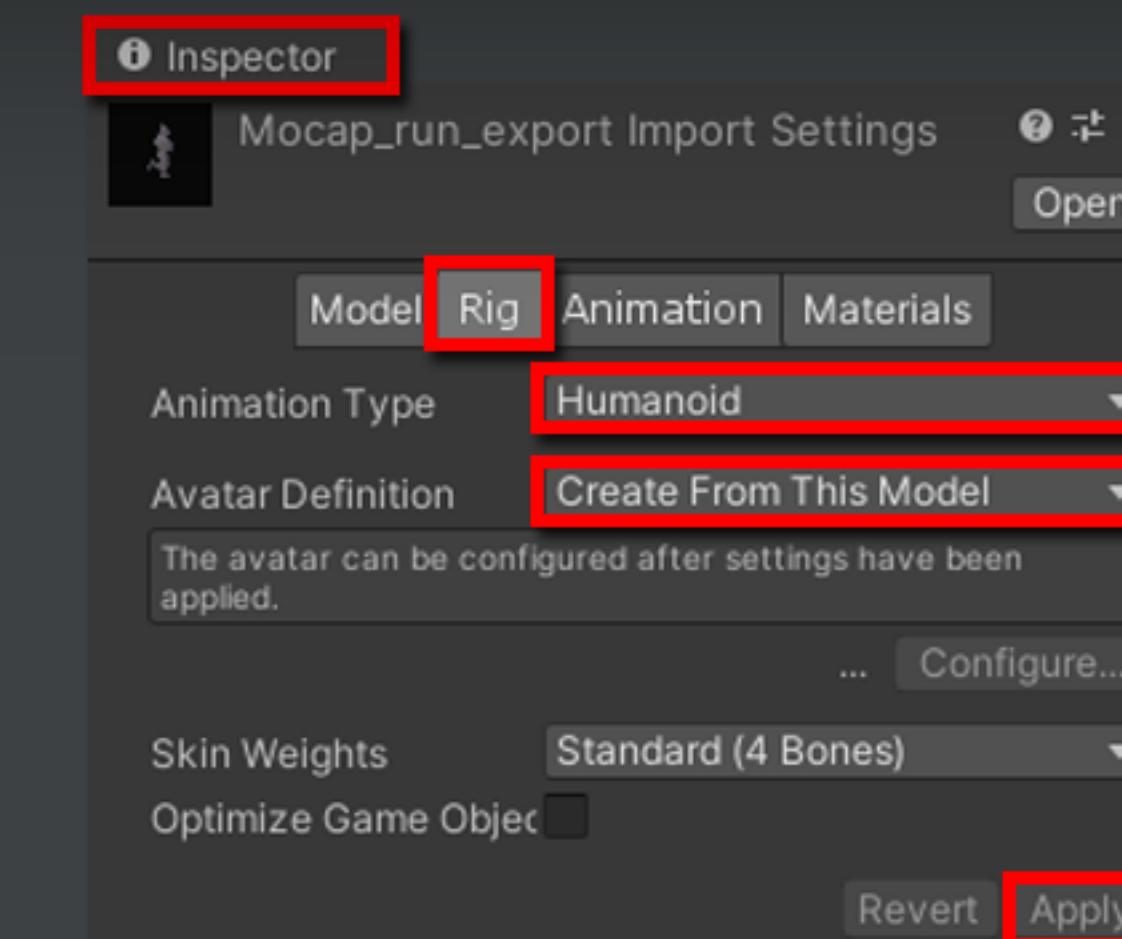
8  
THIS IS THE MATERIAL THAT WAS ASSIGNED IN MAYA

9  
THIS IS THE MESH

10  
THIS IS THE ANIMATION CLIP

11  
THIS IS THE AVATAR

USE THIS AVATAR FOR ALL THE ANIMATION CLIPS FOR THIS CHARACTER



2  
SELECT HUMANOID FOR A HUMAN OR LEAVE IT ON GENERIC FOR EVERYTHING ELSE

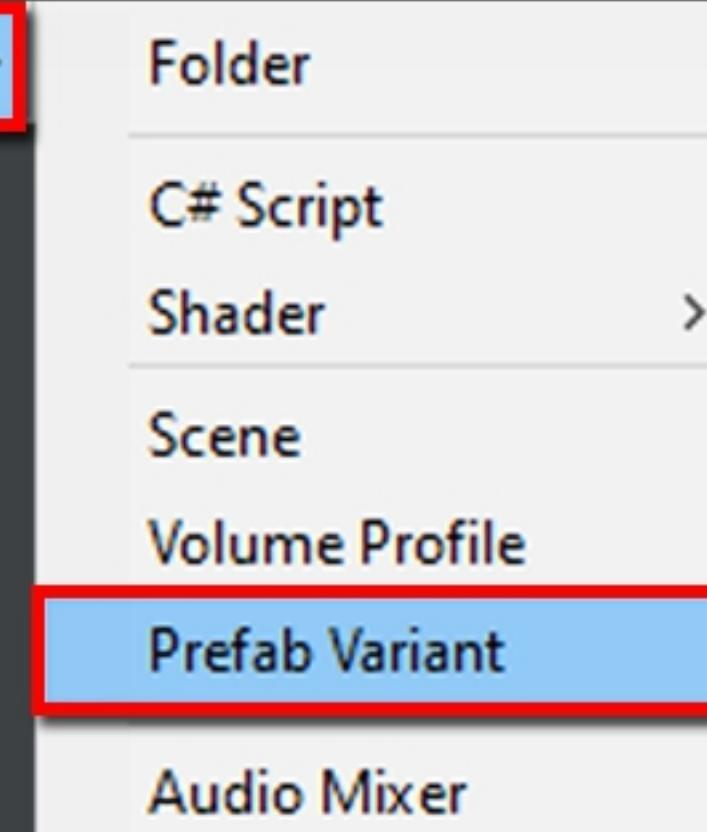
3  
HIT APPLY

# ANIMATION IMPORT [PART 2]

1

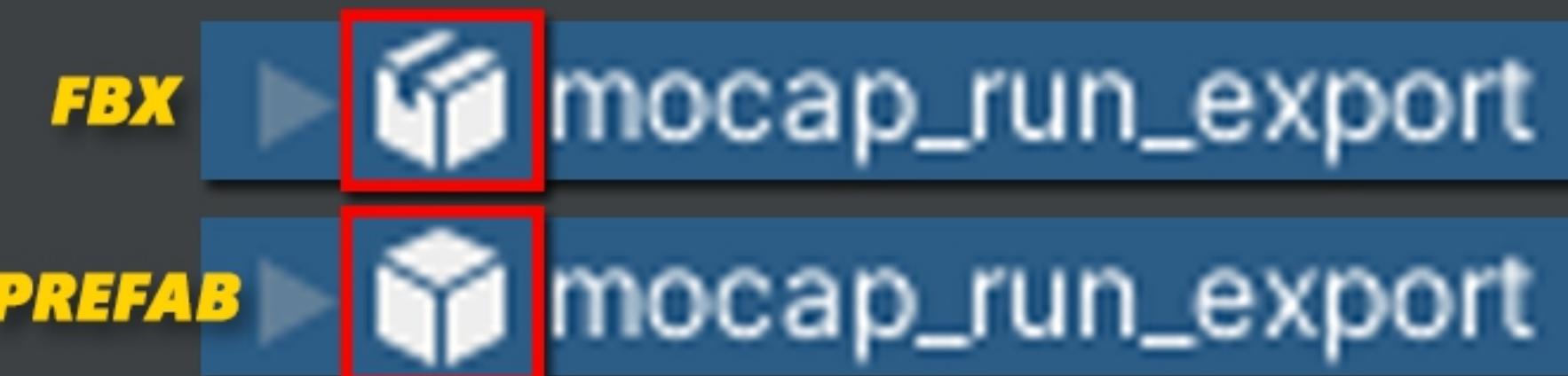
Create >

**RIGHT CLICK ON THE FBX CONTAINER & CREATE A PREFAB VARIANT**



2

**NOTE THE DIFFERENCE BETWEEN THE ICONS IN THE HIERARCHY**



3

**ONLY PREFABS CAN HAVE CODE ASSOCIATED AT RUNTIME & WE NEED THIS TO PLAY ANIMATION**

Inspector

Mocap\_run\_export Import Settings

Open

Model Rig Animation Materials

Take 001

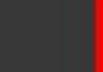
Length 0.667

30 FPS

[ , , , |33984:2 , |33985:0 , |33985:0 , |33985:1]

Start 1019

Loop Time



Loop Pose

Cycle Offset 0

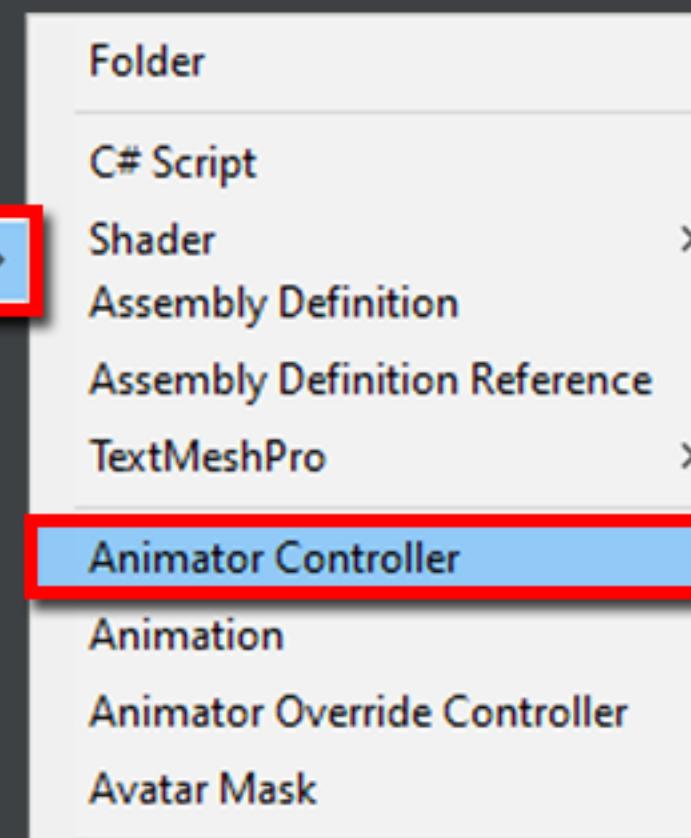
Root Transform Rotation

4

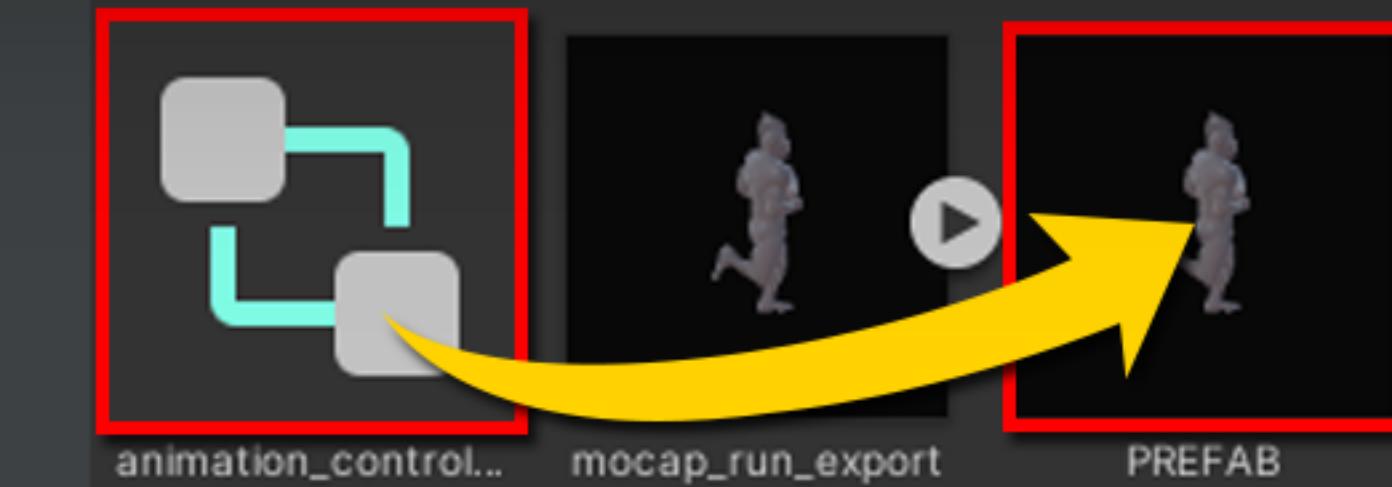
**IN THE FBX FILE, TURN ON LOOP TIME**

# ANIMATION IMPORT [PART 3]

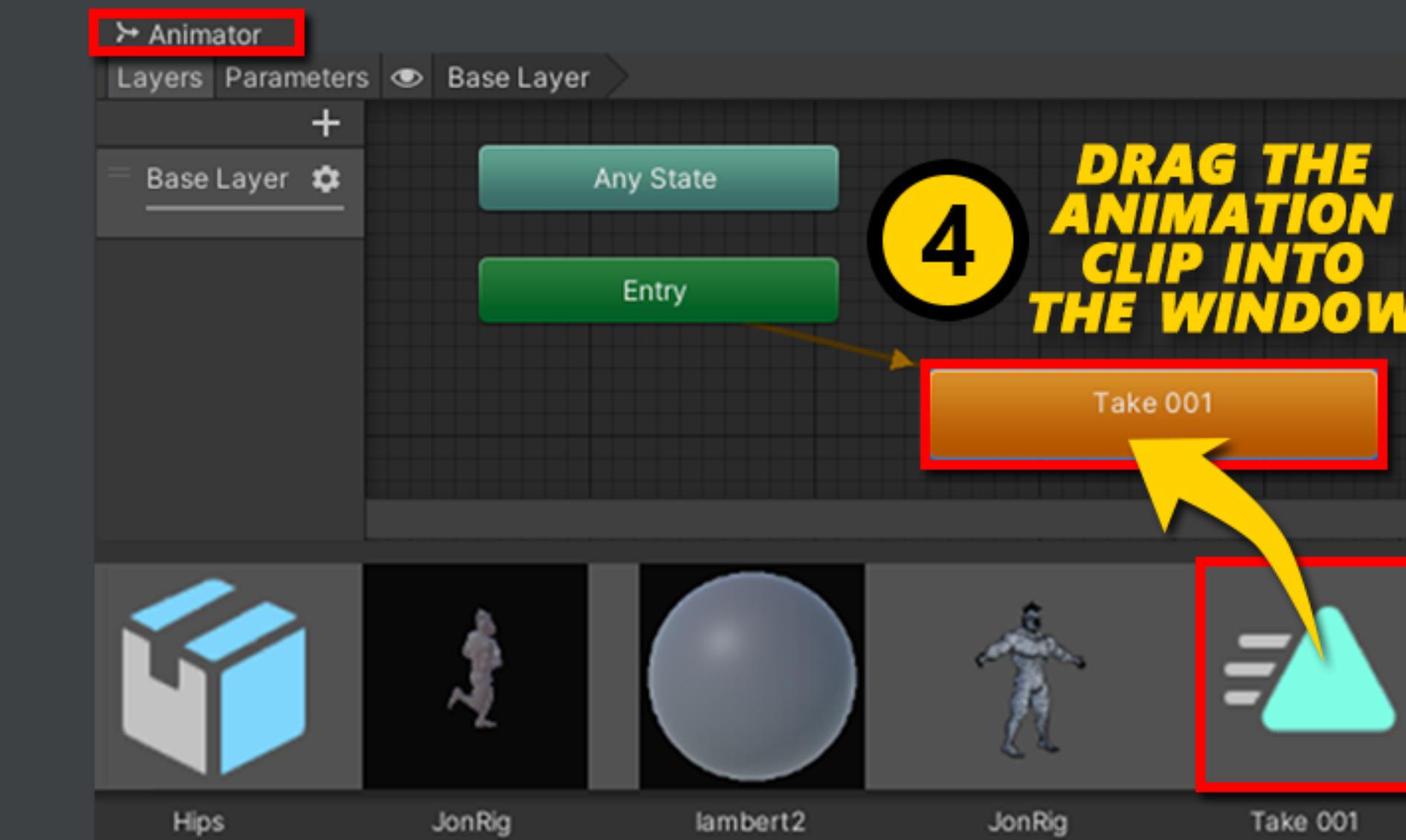
**1**  
RIGHT CLICK  
IN THE PROJECT  
SECTION & CREATE  
AN ANIMATION  
CONTROLLER



**2**  
OPEN THE  
ANIMATION  
CONTROLLER



**3**  
DRAG THE  
ANIMATION  
CONTROLLER ON  
TO YOUR PREFAB

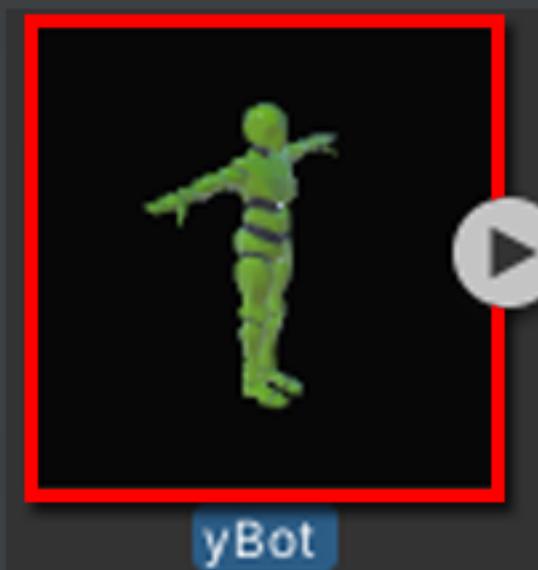


**5**  
YOUR ANIMATION  
SHOULD PLAY  
IN GAME NOW!

# ANIMATION IMPORT [ PART 4 ]

1

LETS LOOK AT THE  
SETTINGS FOR A  
RIGGED CHARACTER



Inspector



Y Bot Import Settings

Open

Model Rig Animation Materials

**TURN THIS  
VERY IMPORTANT  
SETTING ON**

2

Skin Weights  
Optimize Game Objects

▼ Extra Transforms to Expose

Use | Node Name  
mixamorig:Hips  
Alpha\_Surface  
Alpha\_Joints

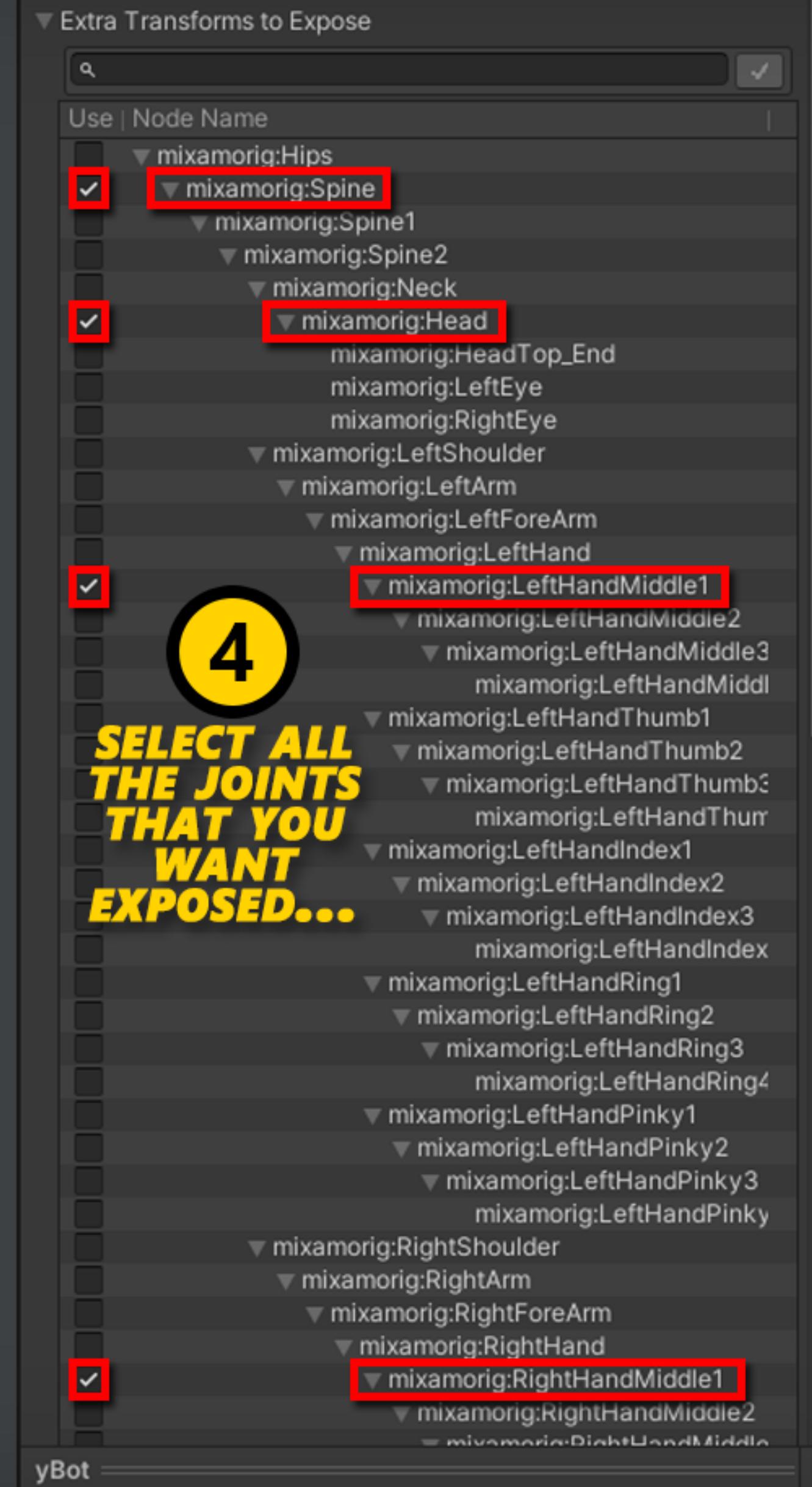
Toggle All

Collapse All

Expand All

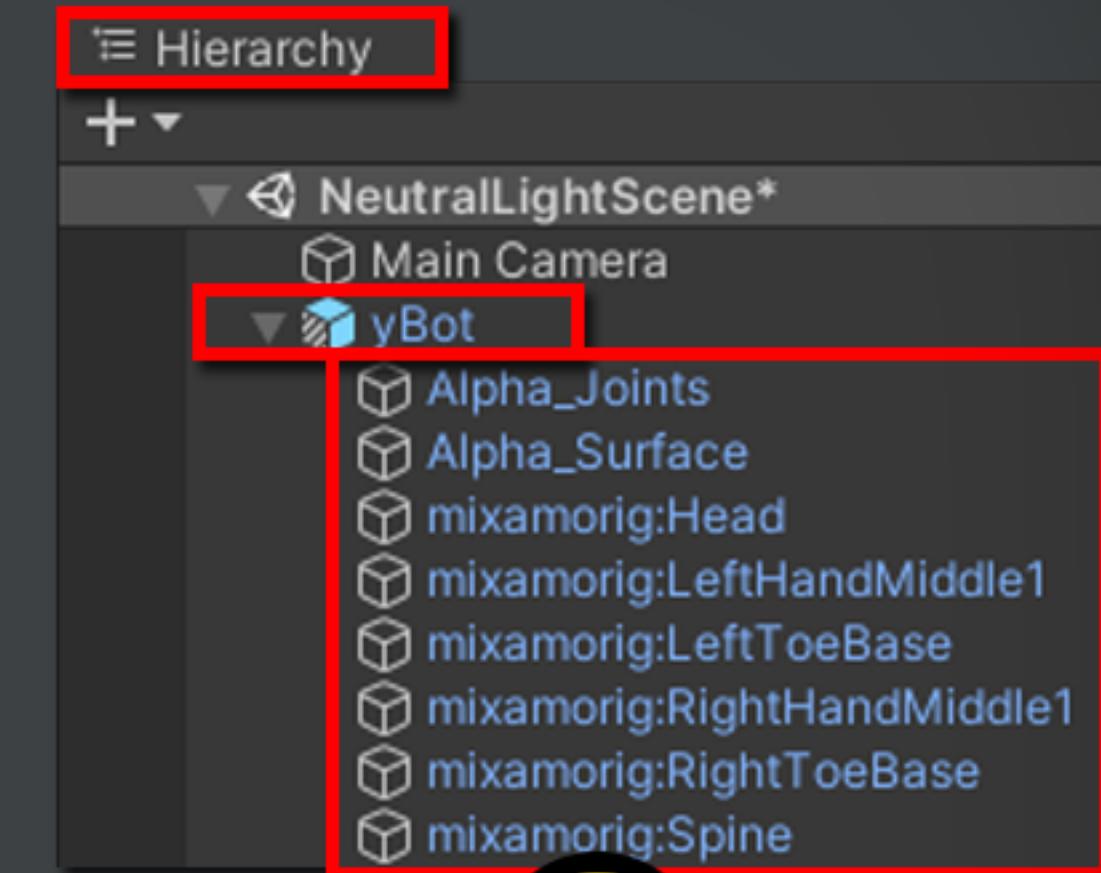
3

EXPAND ALL...



4

**SELECT ALL  
THE JOINTS  
THAT YOU  
WANT  
EXPOSED...**



5

**NOW WHEN YOU  
OPEN THE HIERARCHY  
FOR THE CHARACTER  
YOU ONLY SEE THE  
EXPOSED JOINTS**

**THIS IS ALSO A  
WAY TO GAIN  
PERFORMANCE  
WITH LESS  
TO CALCULATE**



**AUTHORING PIPELINES**



MAYA

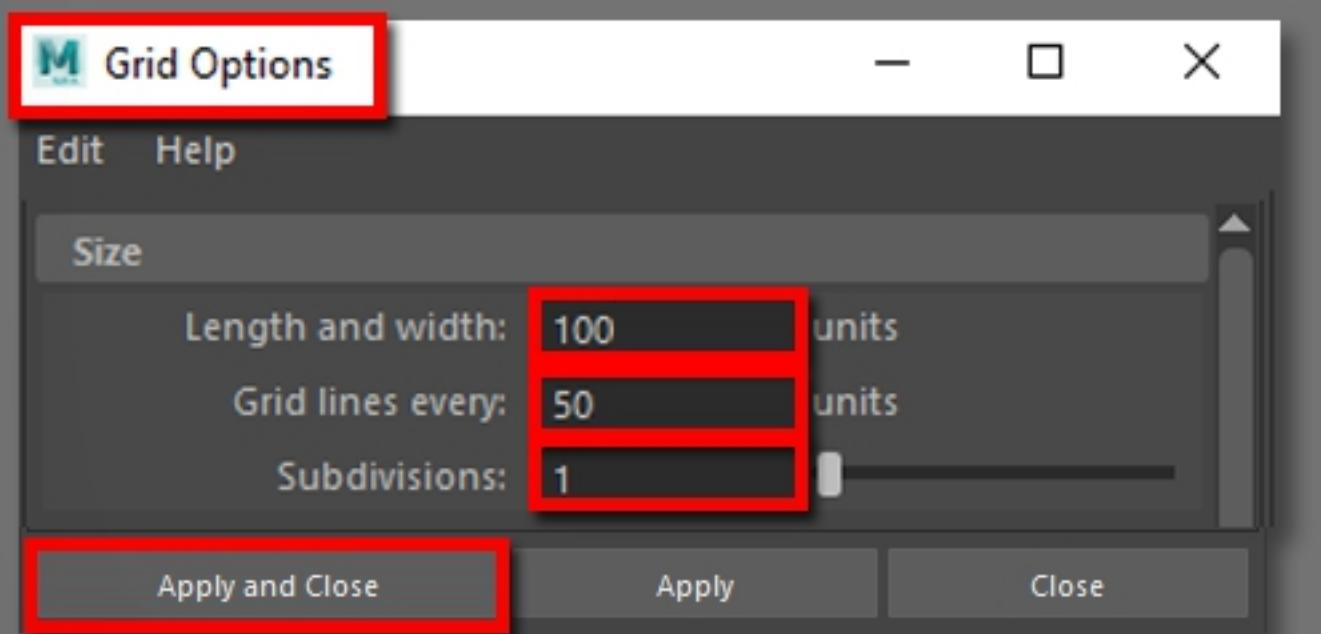
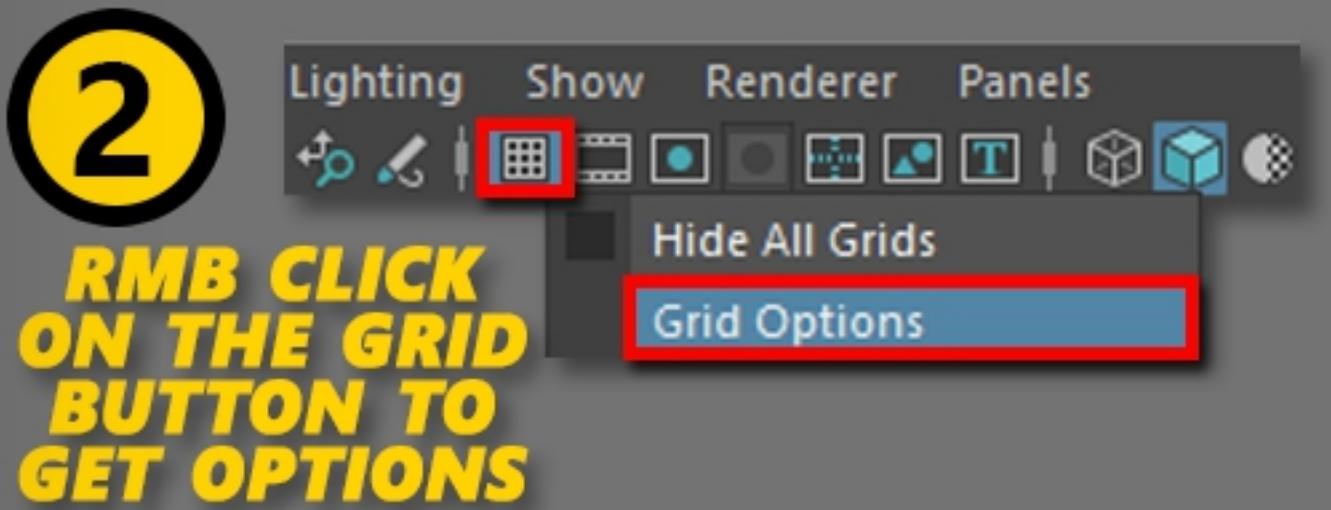
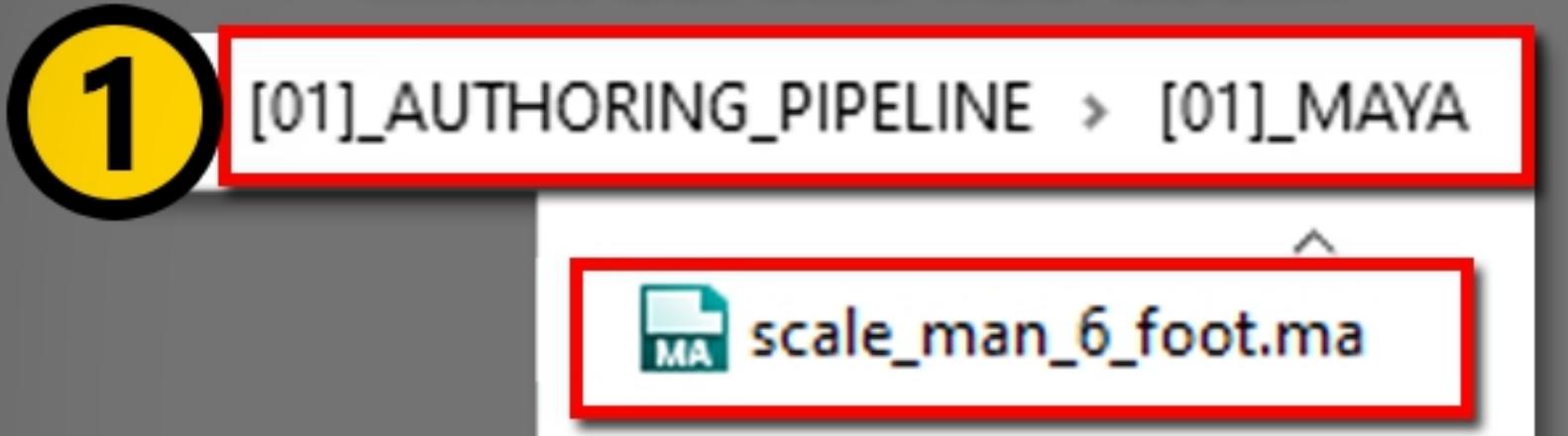
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**SCALE MAN & MOCAP CLEANUP**

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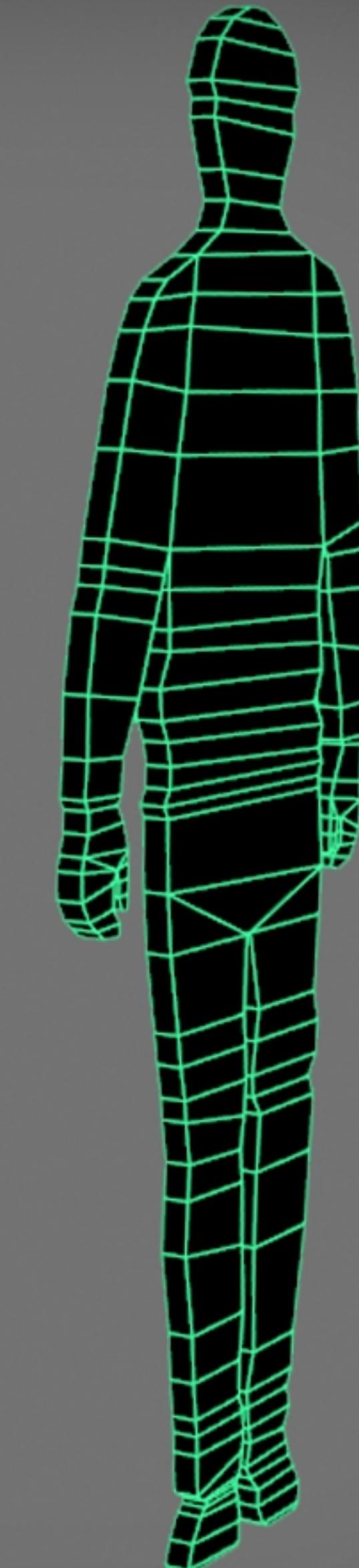
# SCALE MAN 6 FOOT

**SCALE IS KEY SO REMEMBER  
TO SETUP UP YOUR GRID IN  
MAYA BEFORE YOU BEGIN**



**THESE SETTINGS GIVE  
YOU A GRID OF 50 CM  
FOR EACH SEGMENT**

- 3 USE THIS IN  
EVERY SCENE  
TO SCALE YOUR  
MODELS PROPERLY
- 4 EXPORT INTO  
FBX FORMAT TO  
USE IN OTHER  
PROGRAMS  
LIKE ZBRUSH



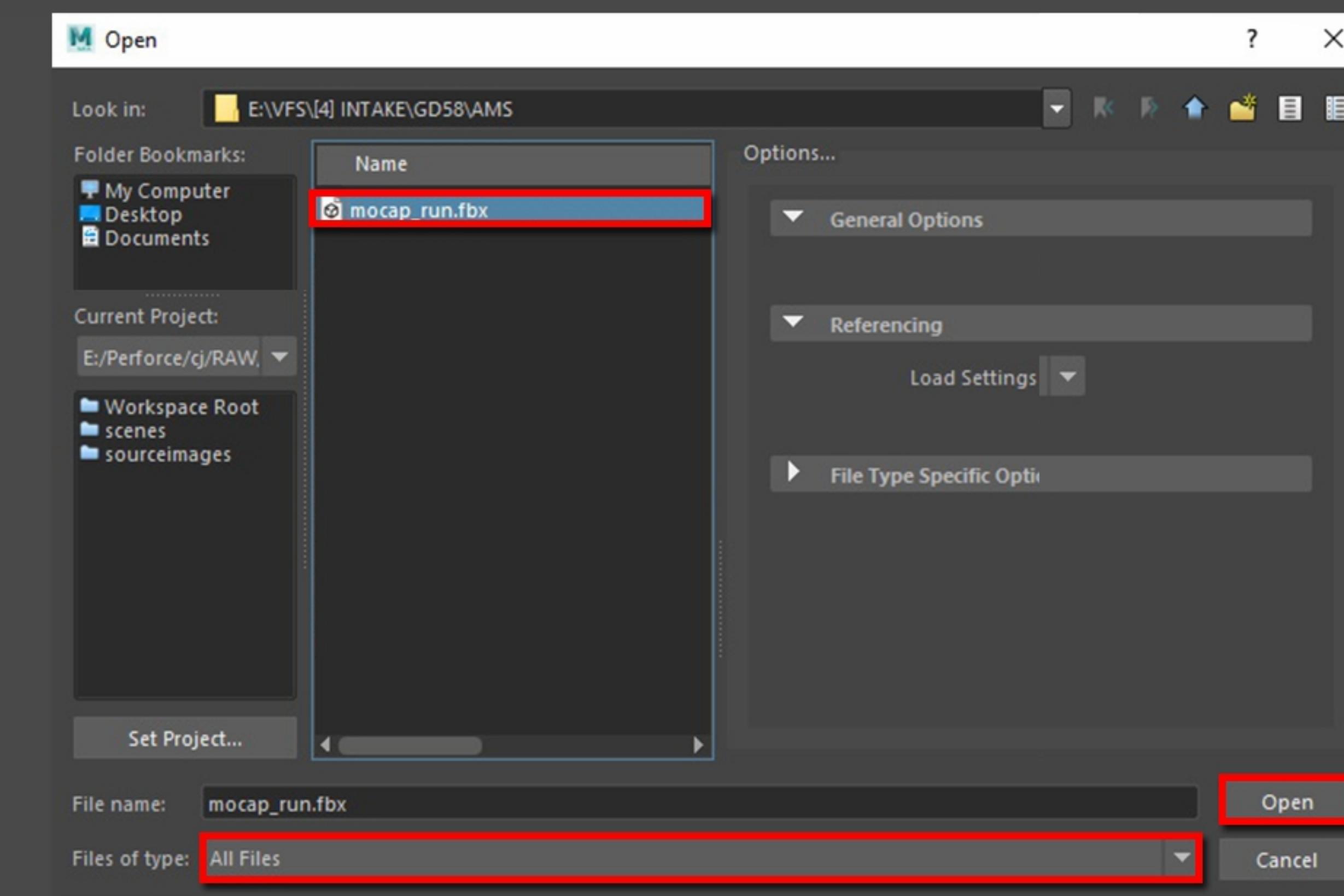
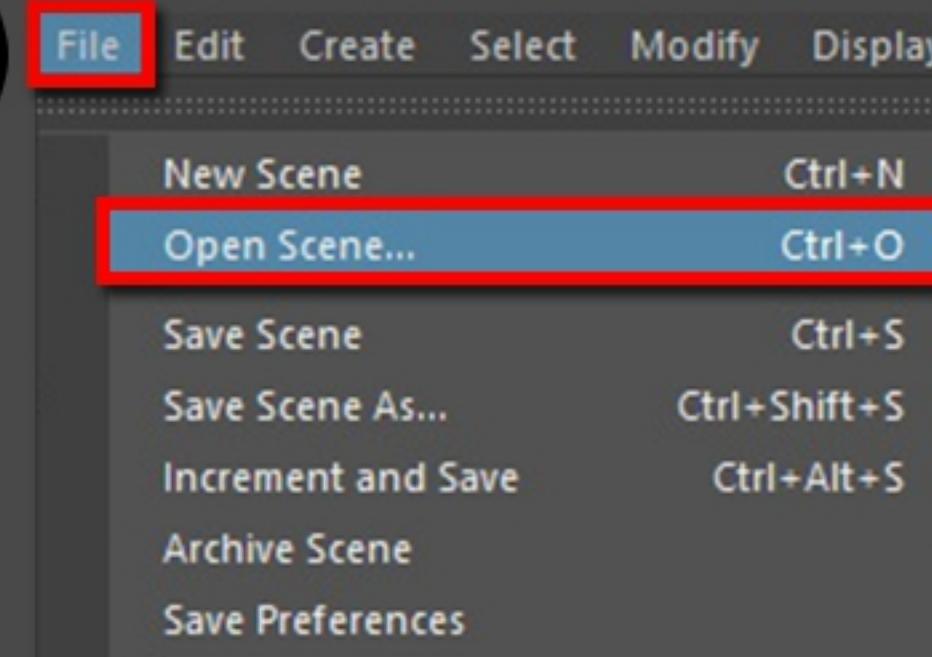
# **MOCAP CLEANUP**

- **IMPORT SETTINGS**
- **ISOLATE LOOP**
- **DELETE EXCESS KEYS**
- **BAKE SIMULATION**
- **CYCLE ANIMATION**
- **UNDETECTABLE LOOP**
- **RESAMPLE KEYS**
- **RENUMBER KEYS**
- **EXPORT SETTINGS**



# IMPORT SETTINGS

1



2

**CHANGE FILE TYPES TO ALL  
FILES TO SEE .FBX FILES & OPEN**

# ISOLATE LOOP

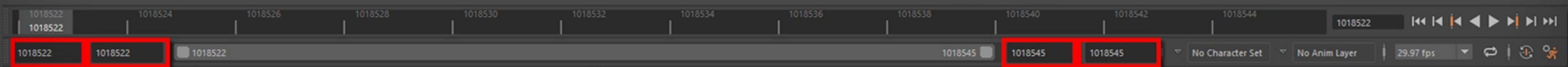
4

**SCRUB THE  
TIMELINE & FIND  
THE END FRAME**



3

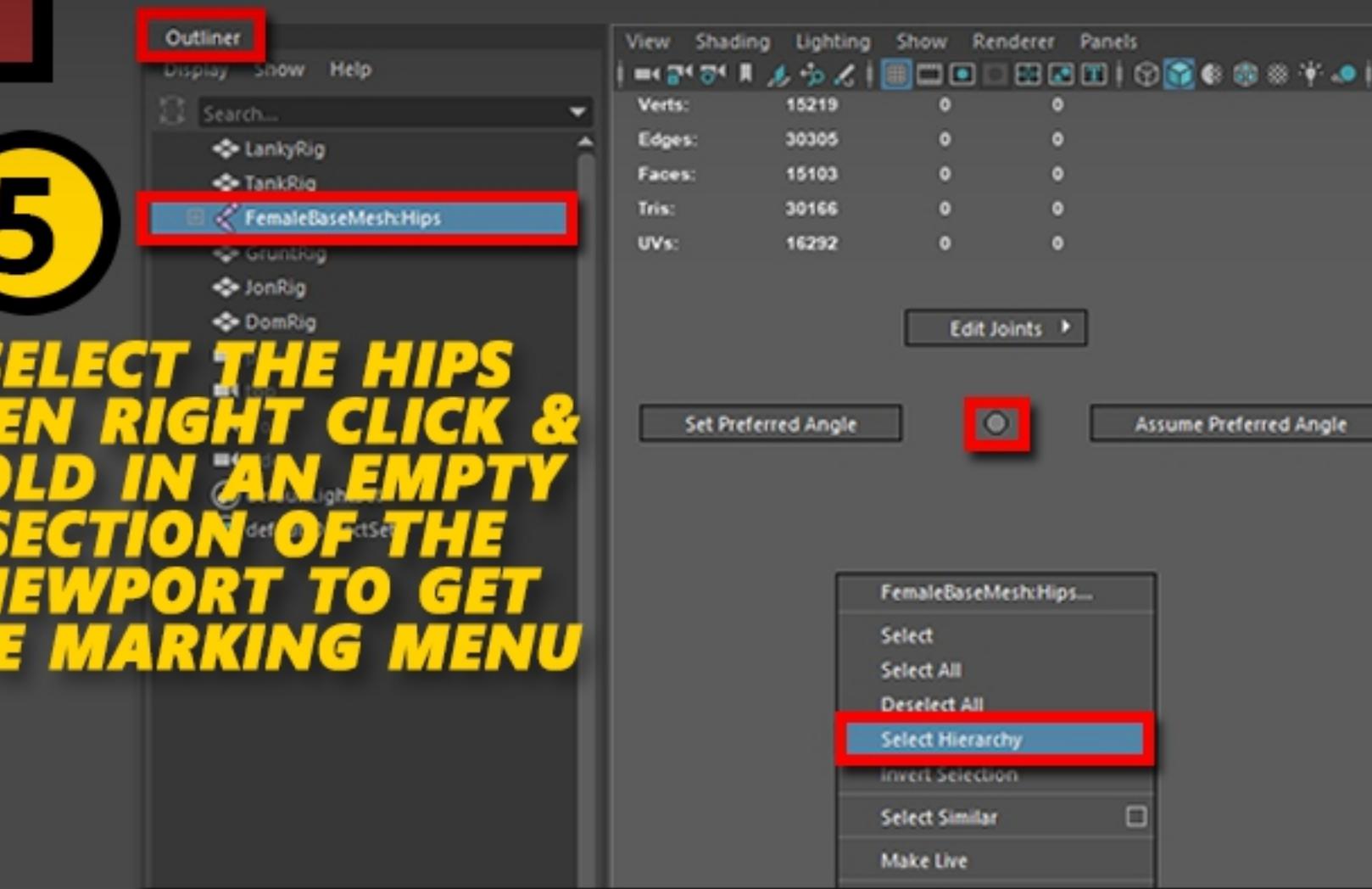
**SCRUB THE  
TIMELINE & FIND  
THE START FRAME**



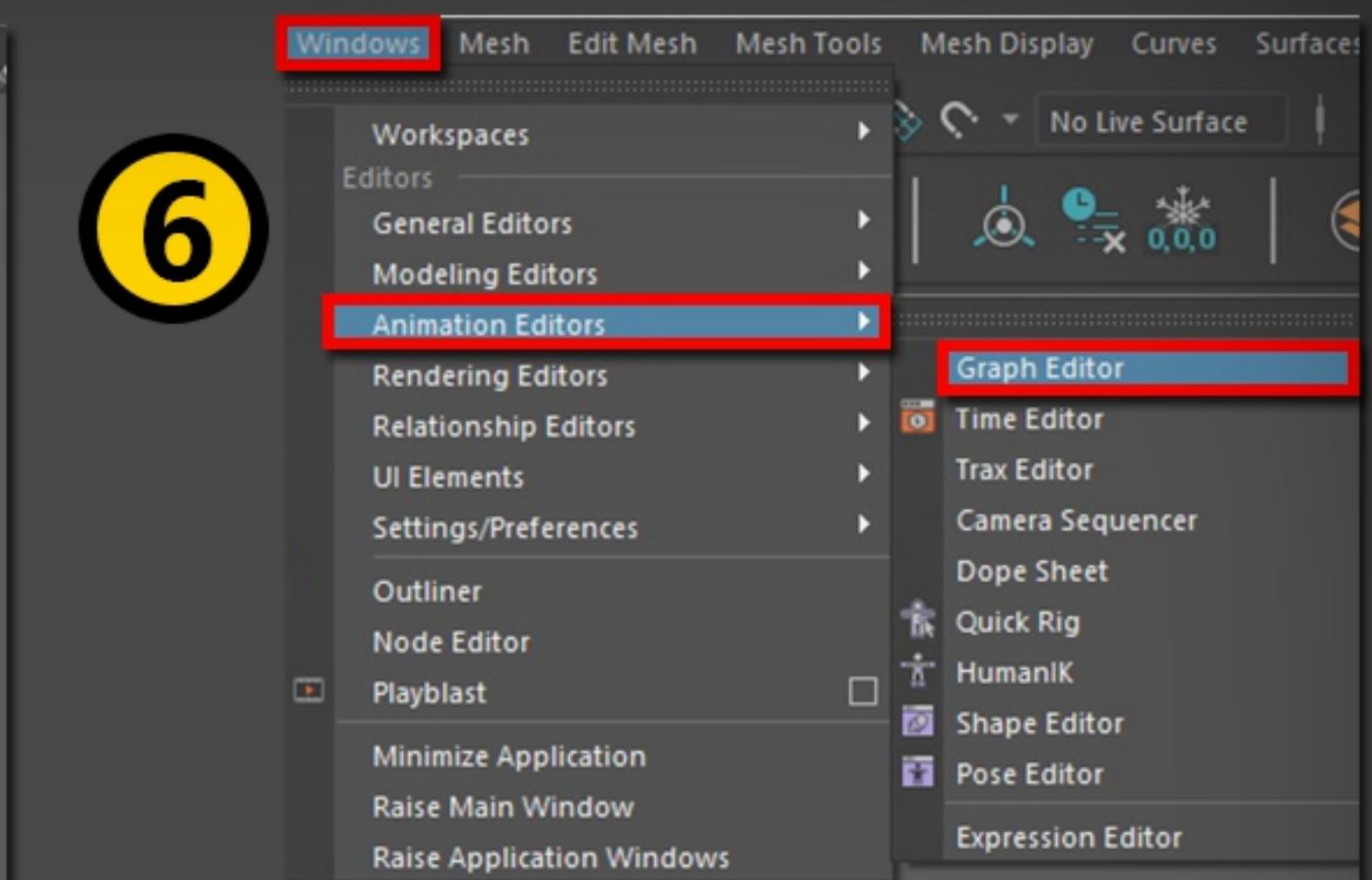
3 **SET THE START OF THE  
RANGE SLIDER TO THE  
START FRAME, 1018522**

4 **SET THE END OF THE  
RANGE SLIDER TO THE  
END FRAME, 1018545.**

# DELETE EXCESS KEYS



**SELECT THE HIPS  
THEN RIGHT CLICK &  
HOLD IN AN EMPTY  
SECTION OF THE  
VIEWPORT TO GET  
THE MARKING MENU**



**Animation Editors**

Rendering Editors

Relationship Editors

UI Elements

Settings/Preferences

Outliner

Node Editor

Playblast

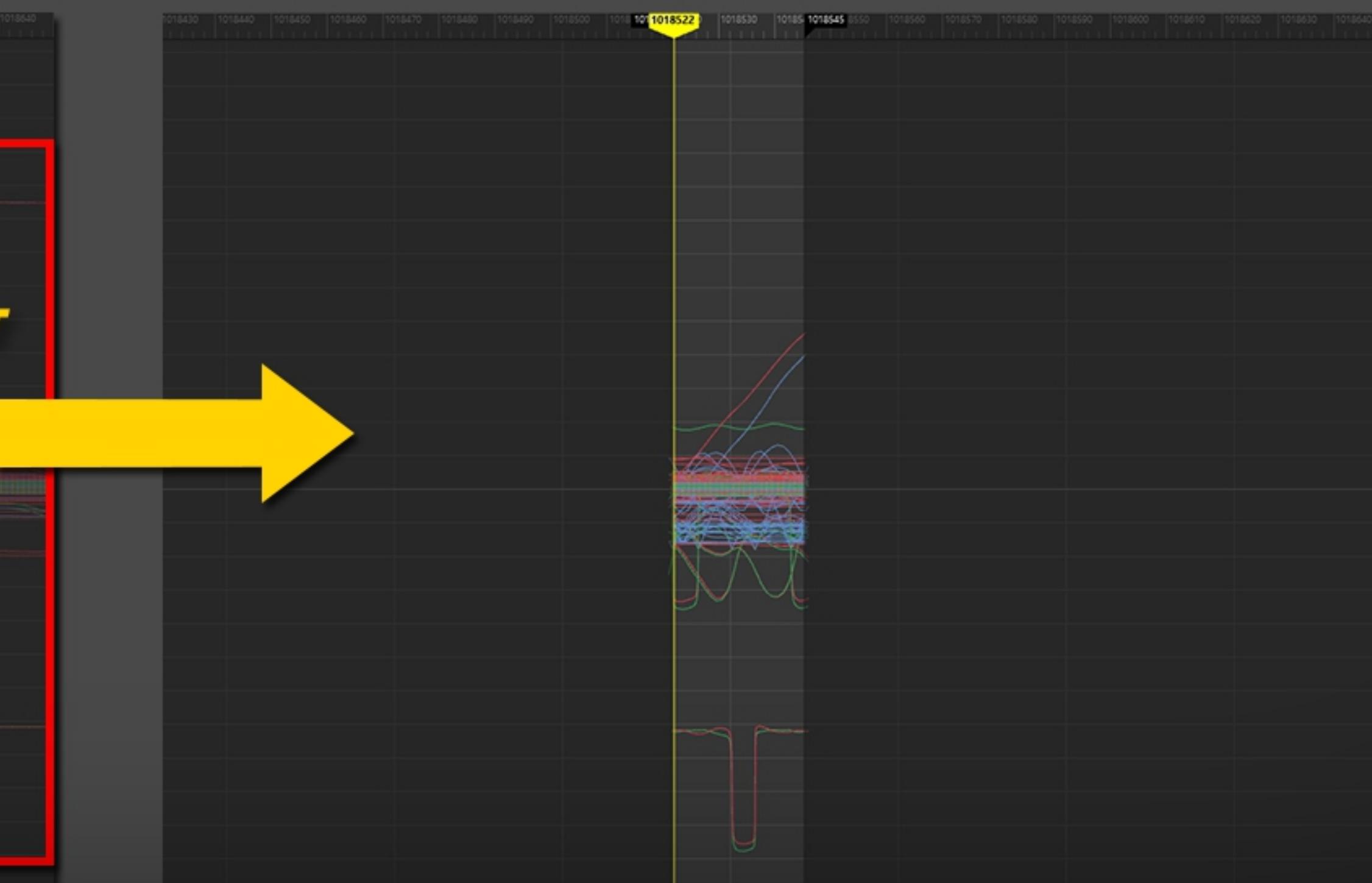
Minimize Application

Raise Main Window

Raise Application Windows



**DELETE EXCESS  
KEYS ON THE LEFT**



**DELETE EXCESS  
KEYS ON THE RIGHT**

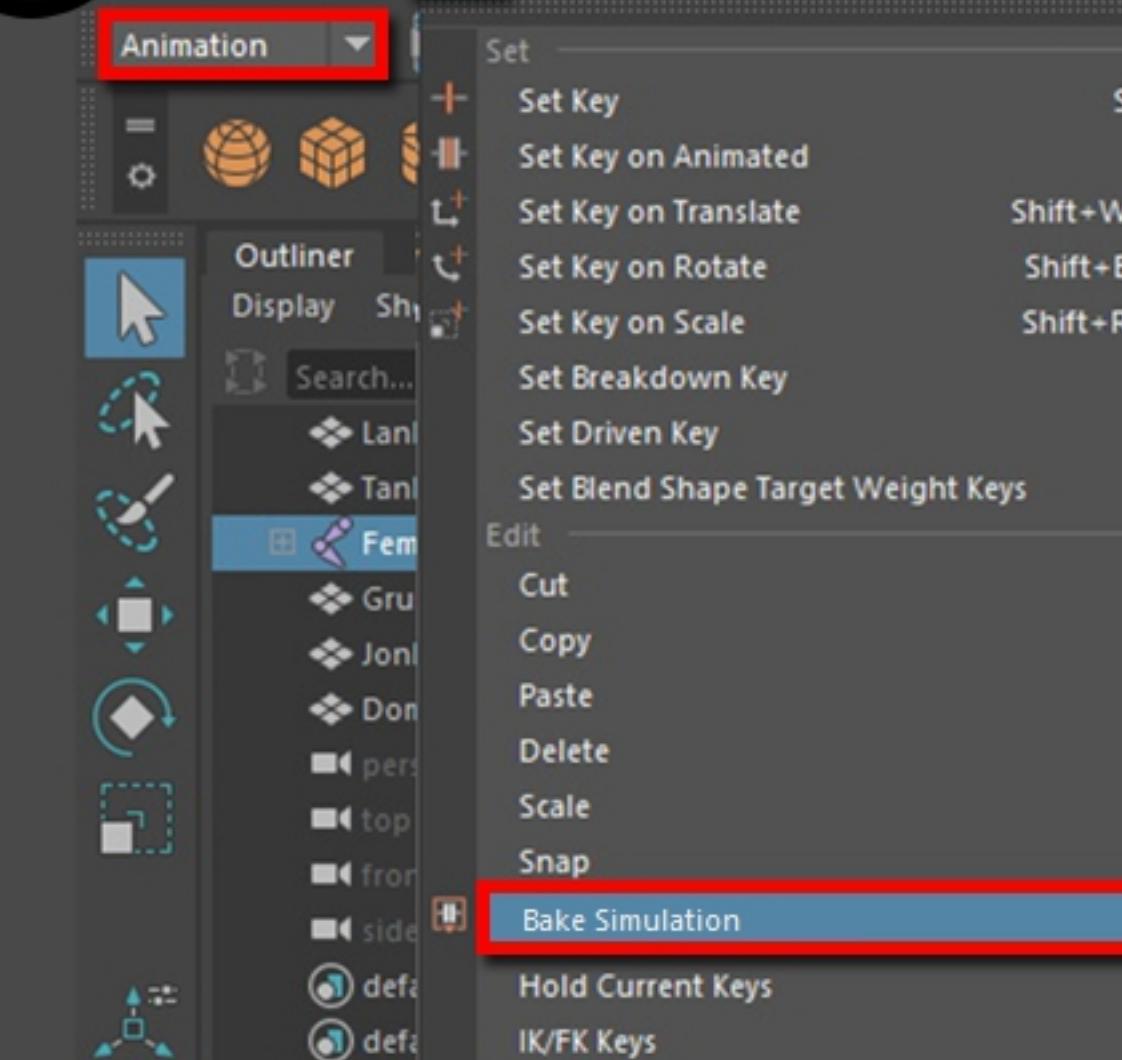
# BAKE SIMULATION

9

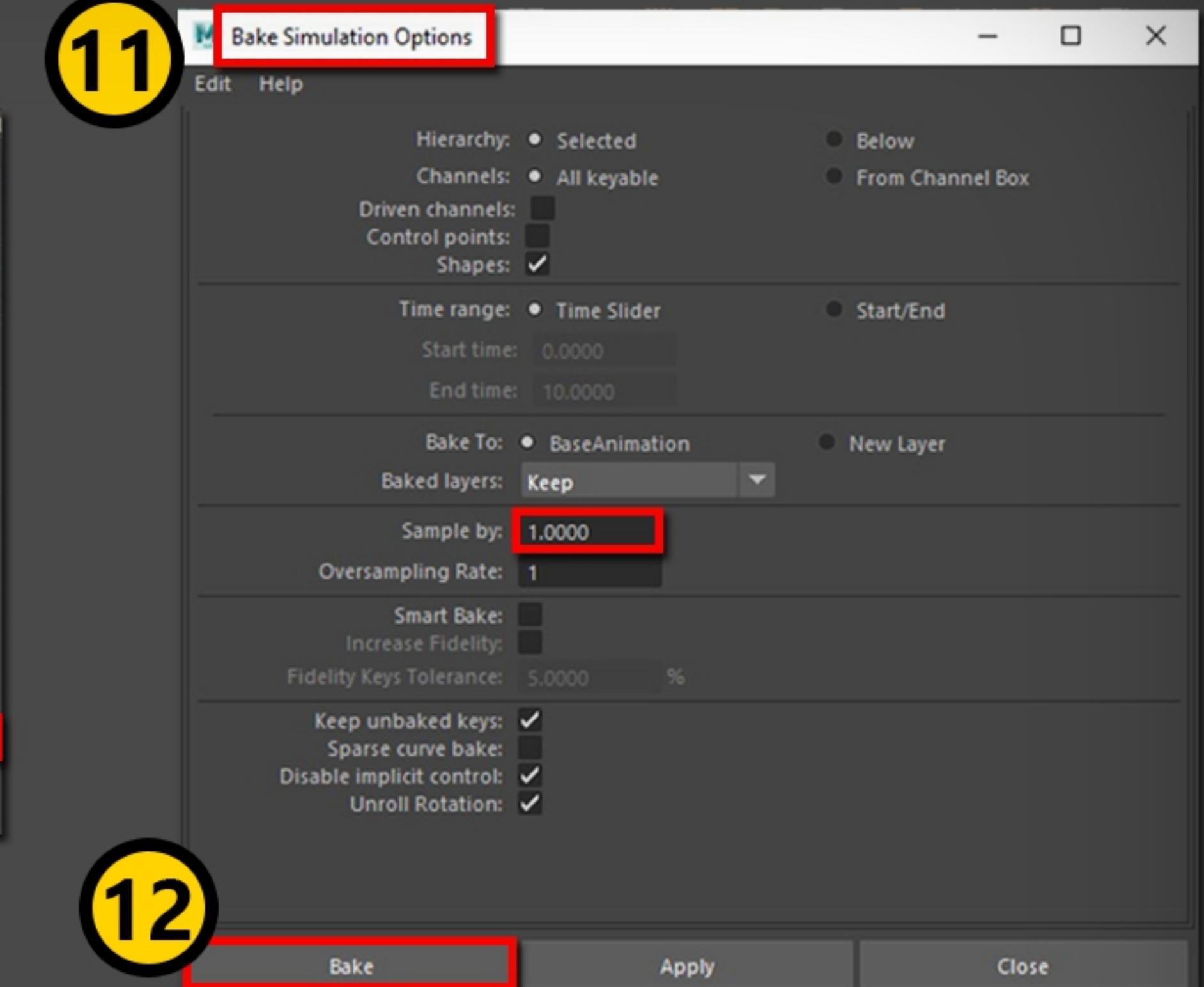
**SELECT ALL KEYS**



10



11



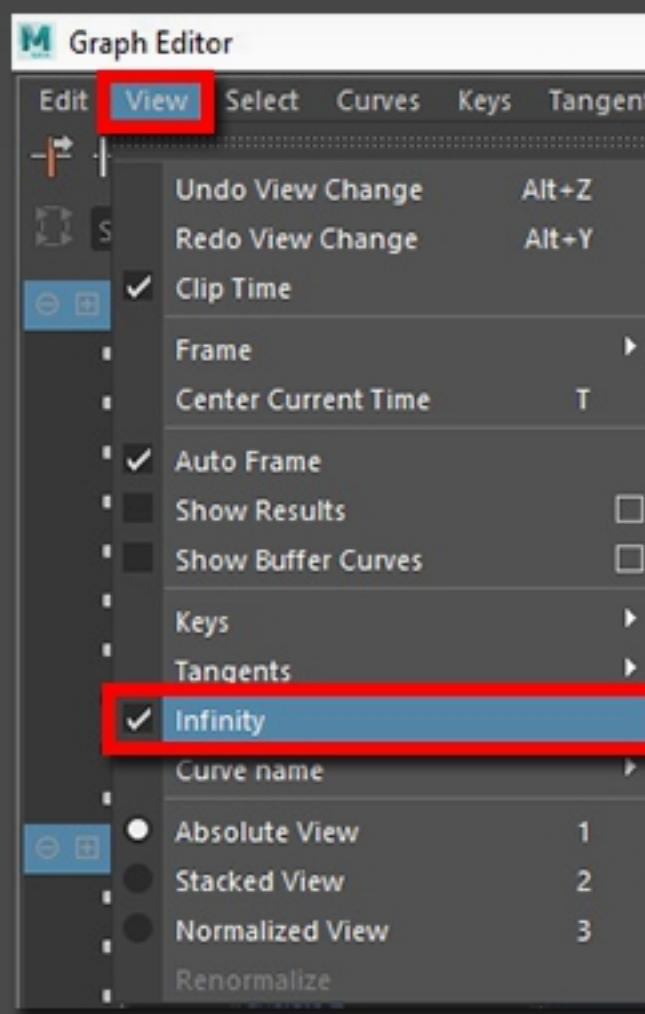
12



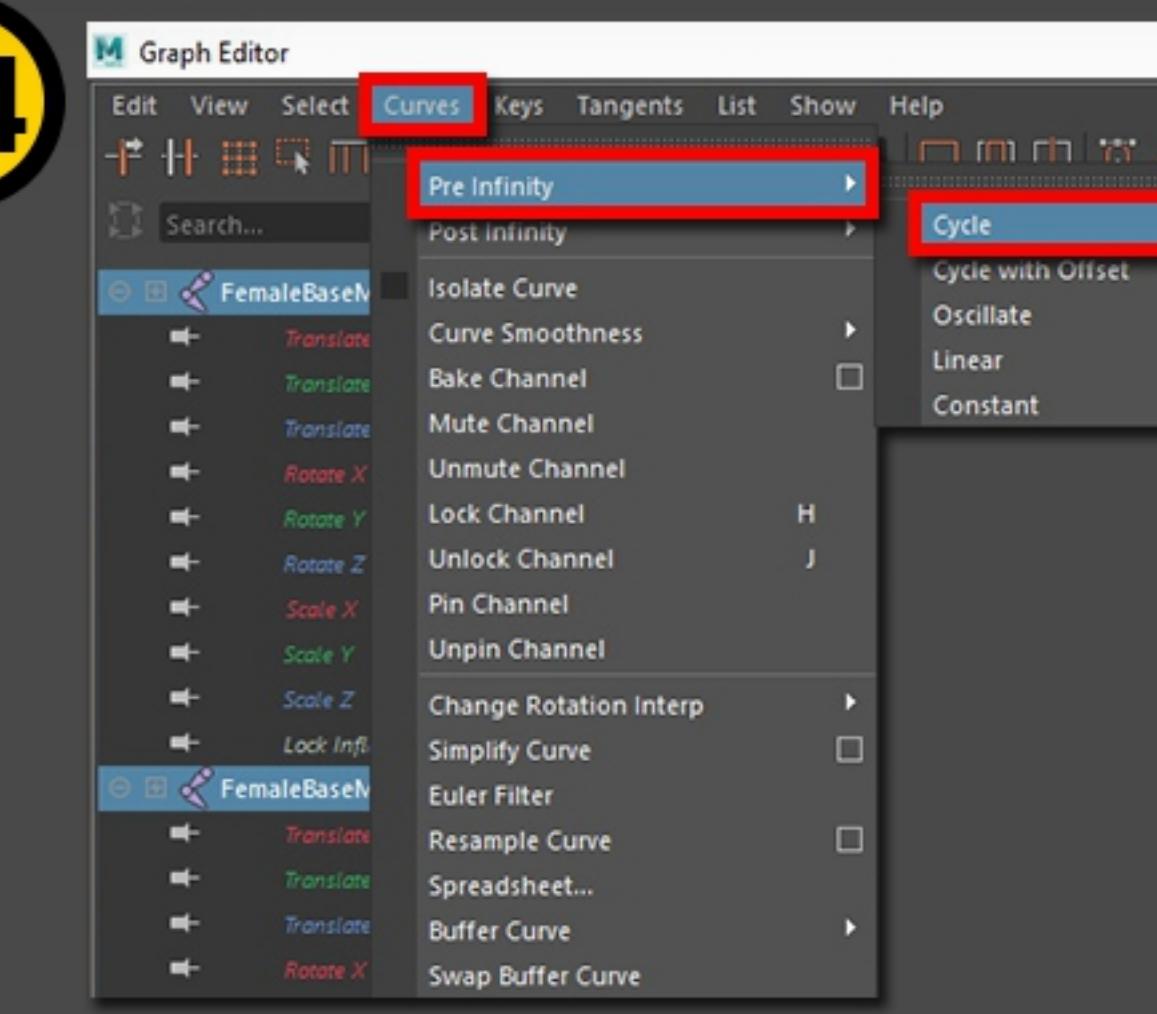
**NOW WE HAVE  
CLEAN KEYS  
EVERY FRAME**

# CYCLE ANIMATION

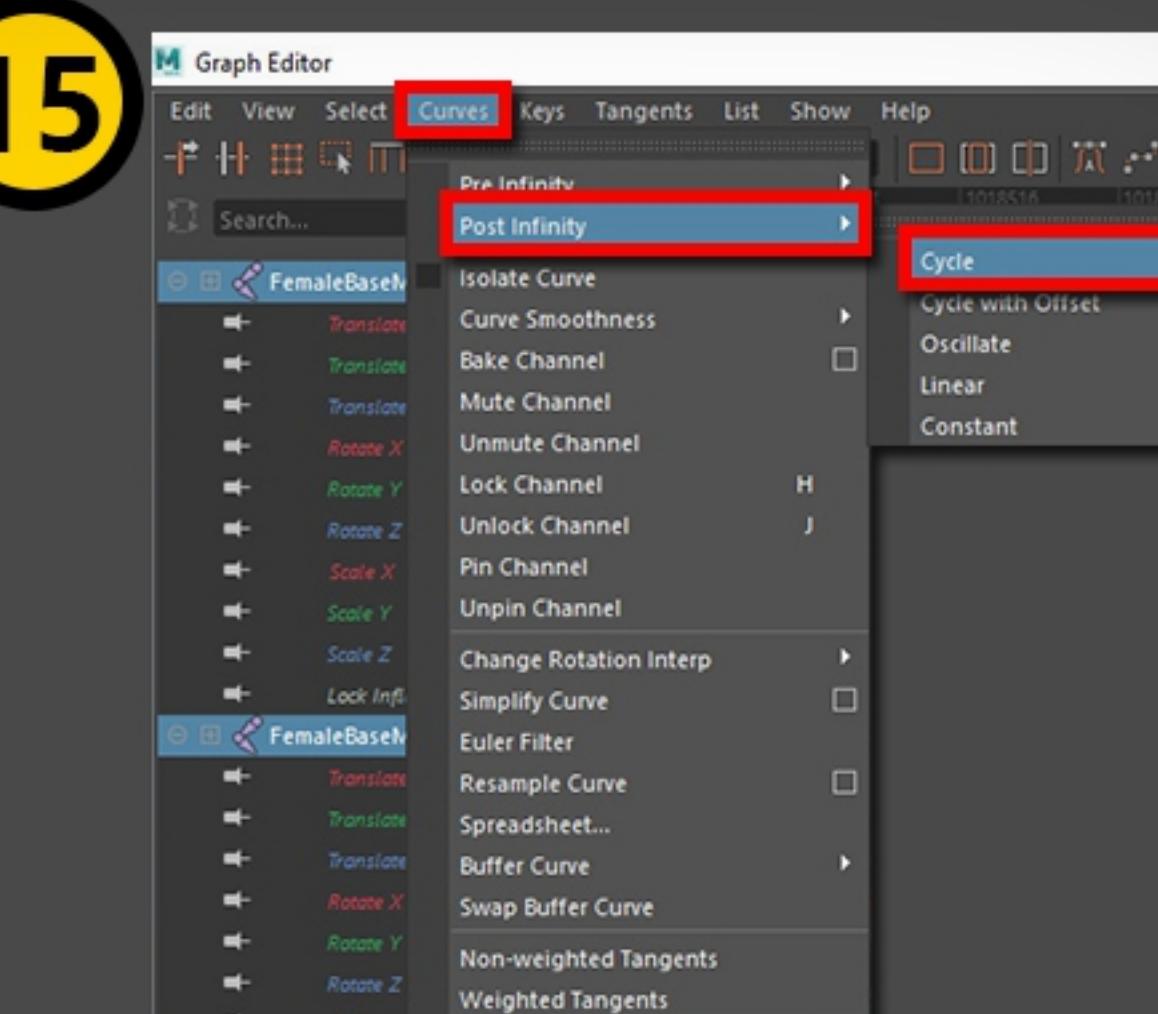
13



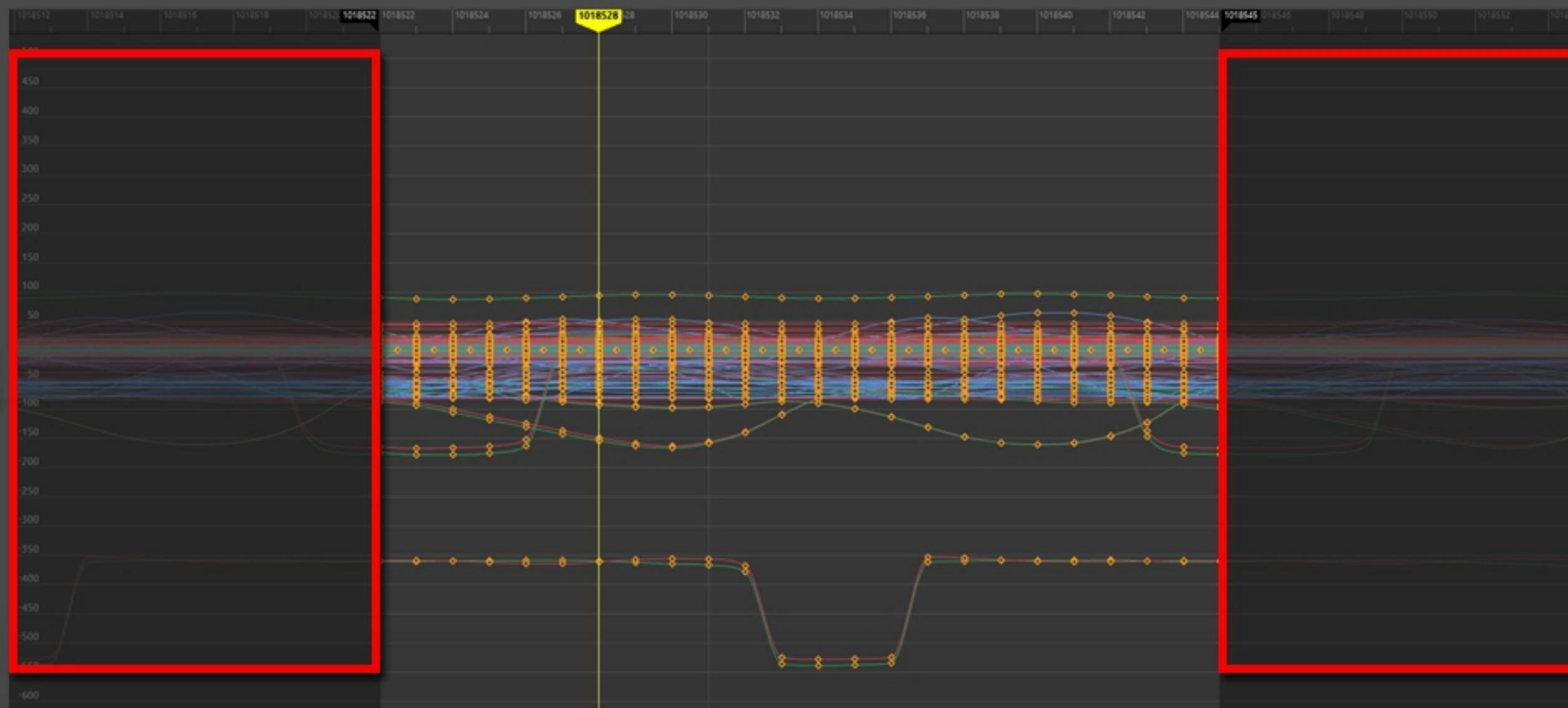
14



15

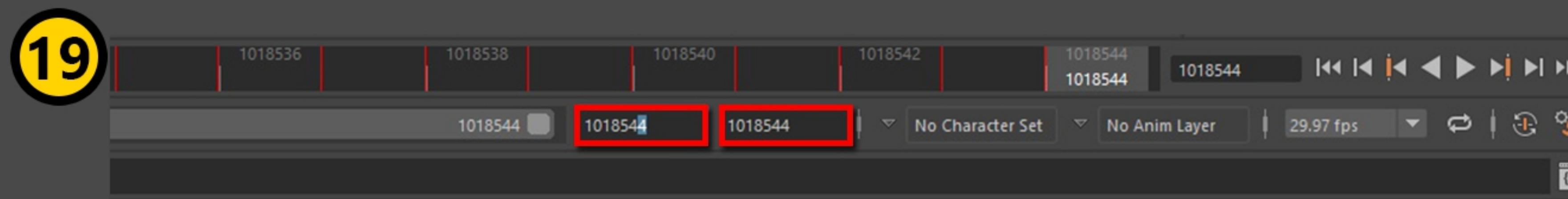
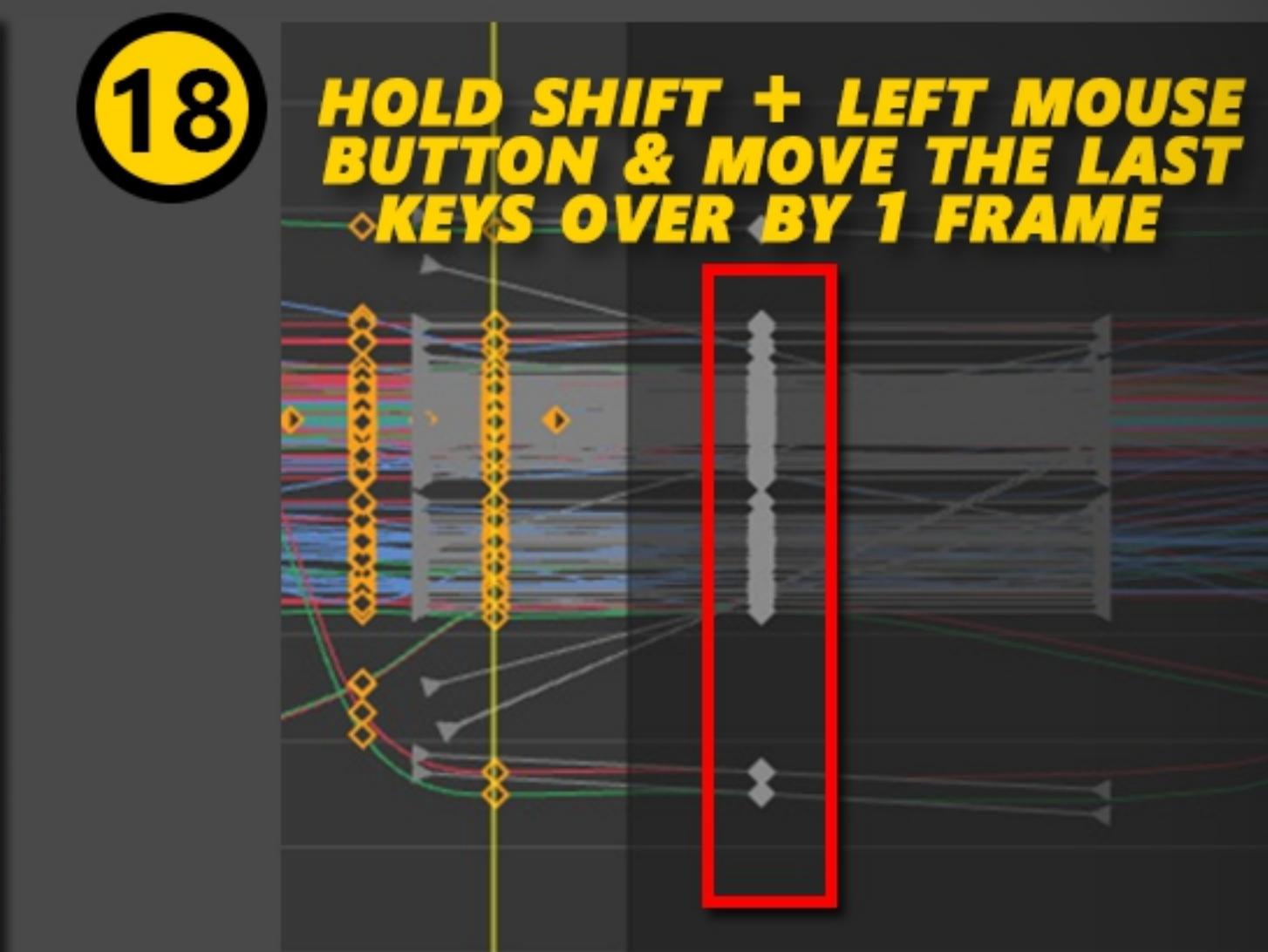
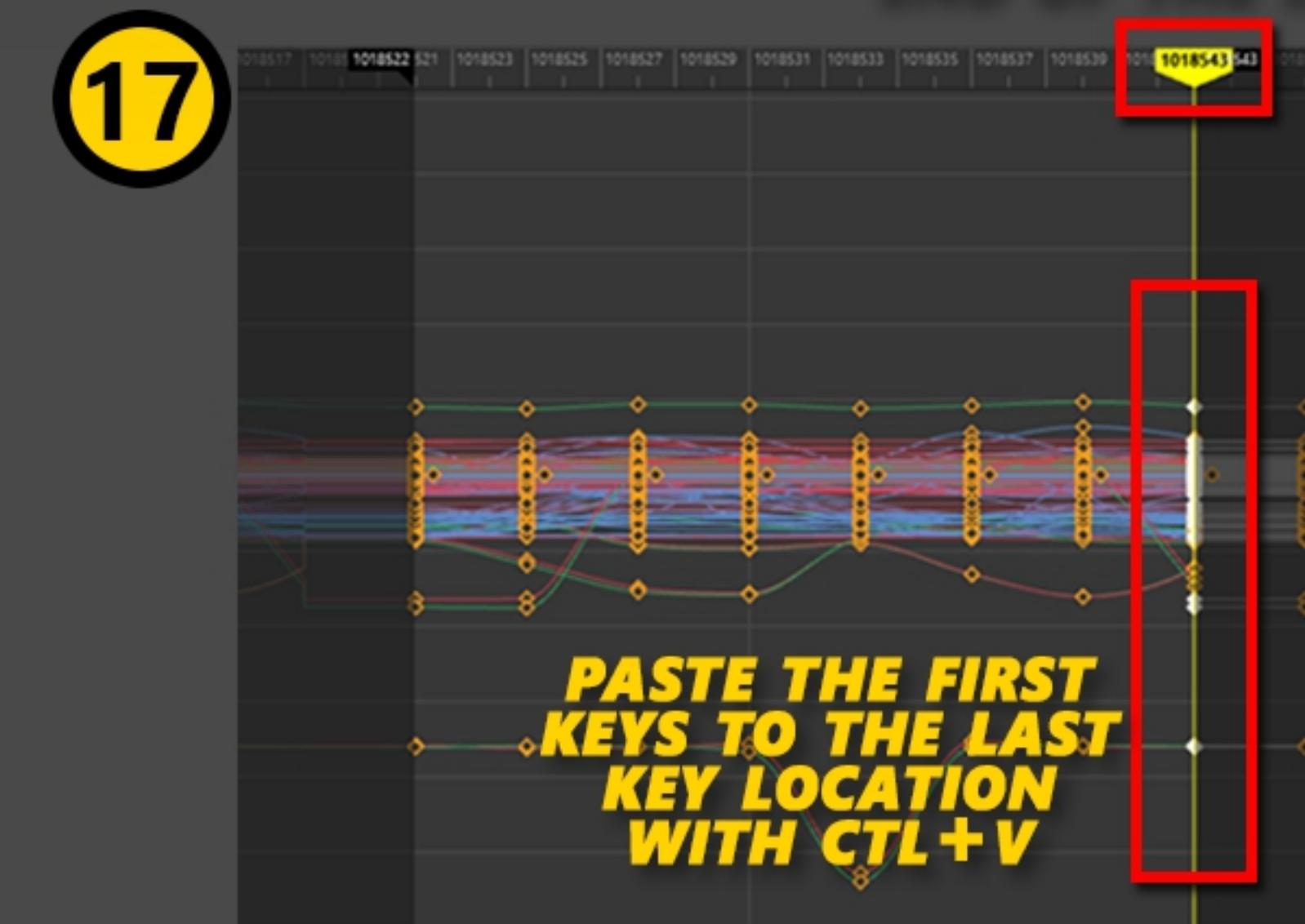
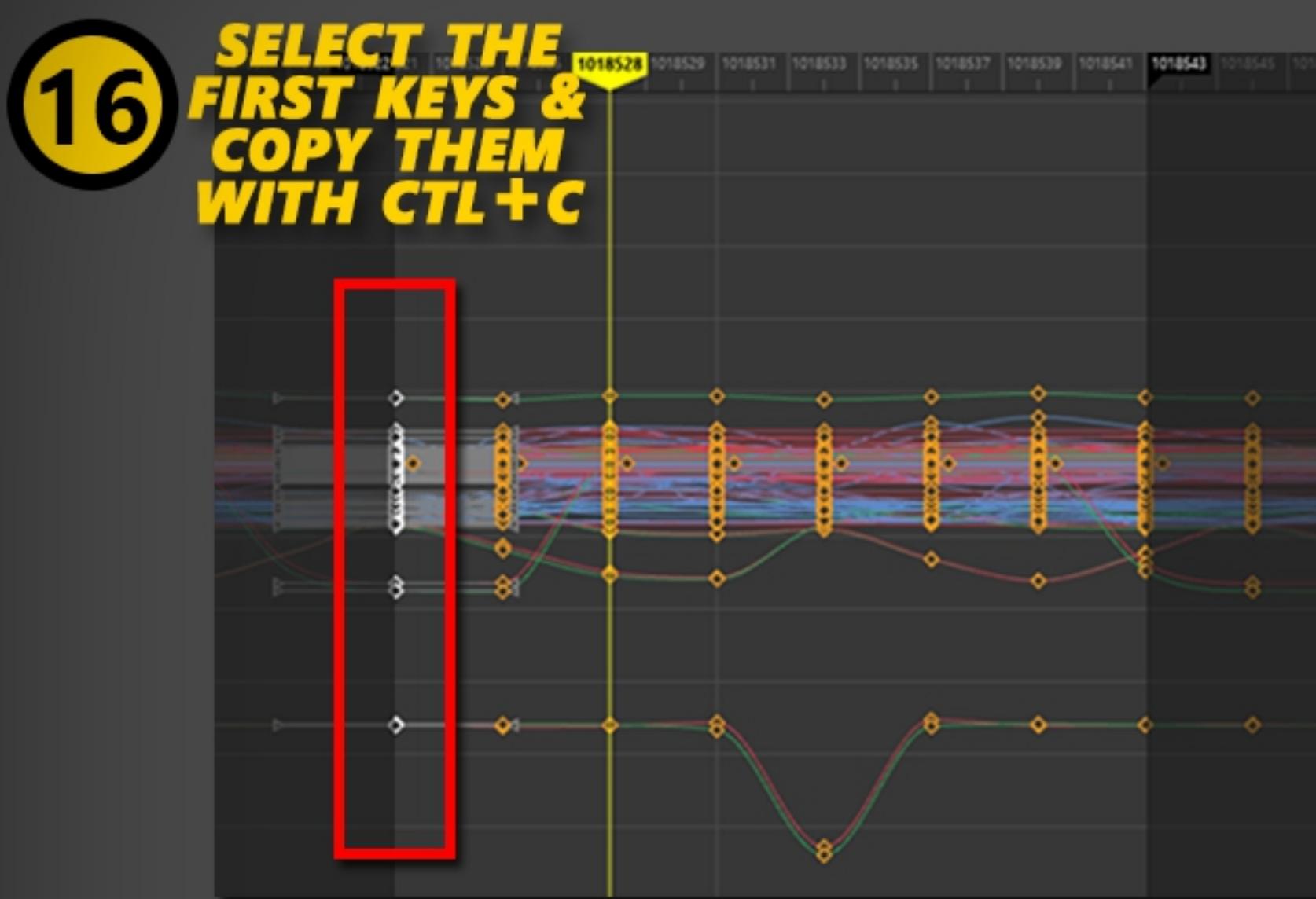


**ANIMATION  
NOW CYCLES  
ON THE LEFT**



**ANIMATION  
CYCLES ON THE  
RIGHT AS WELL**

# UNDETECTABLE LOOP



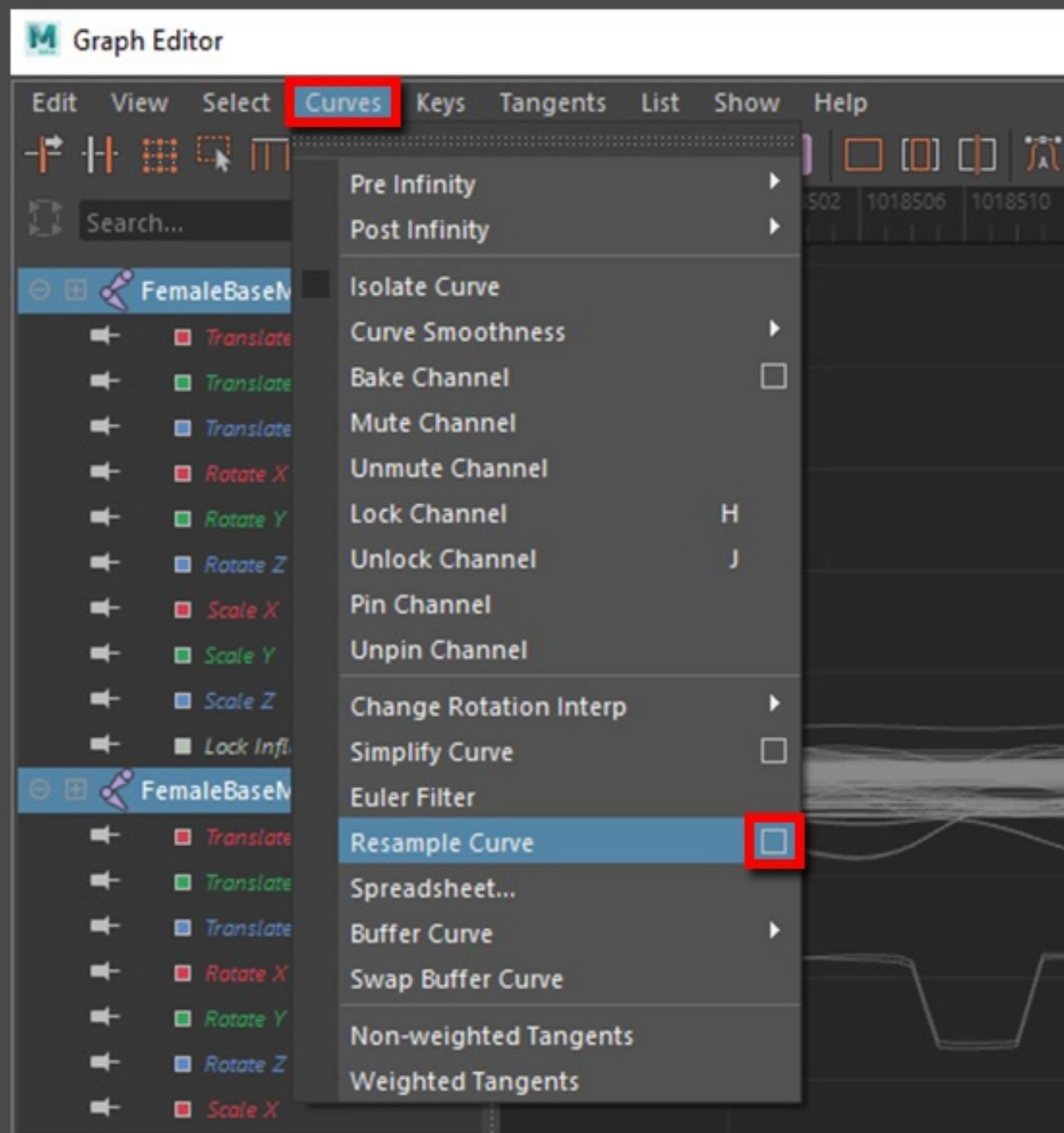
CHANGE THE LAST KEY OF THE RANGE SLIDER DOWN BY 1 FRAME

THIS USUALLY MAKES THE LOOP UNDETECTABLE WITH NO HITCHING

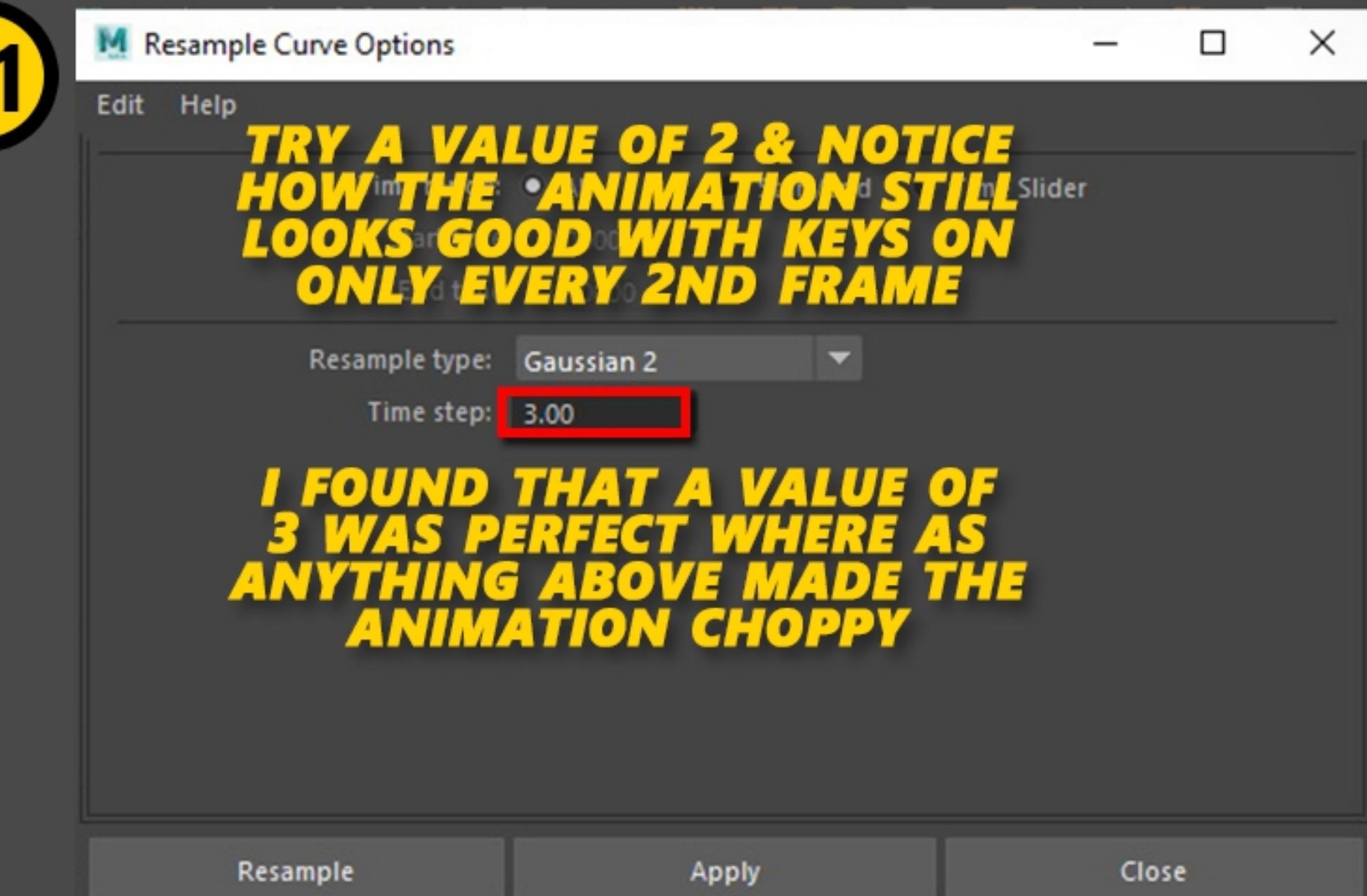
# RESAMPLE KEYS

20

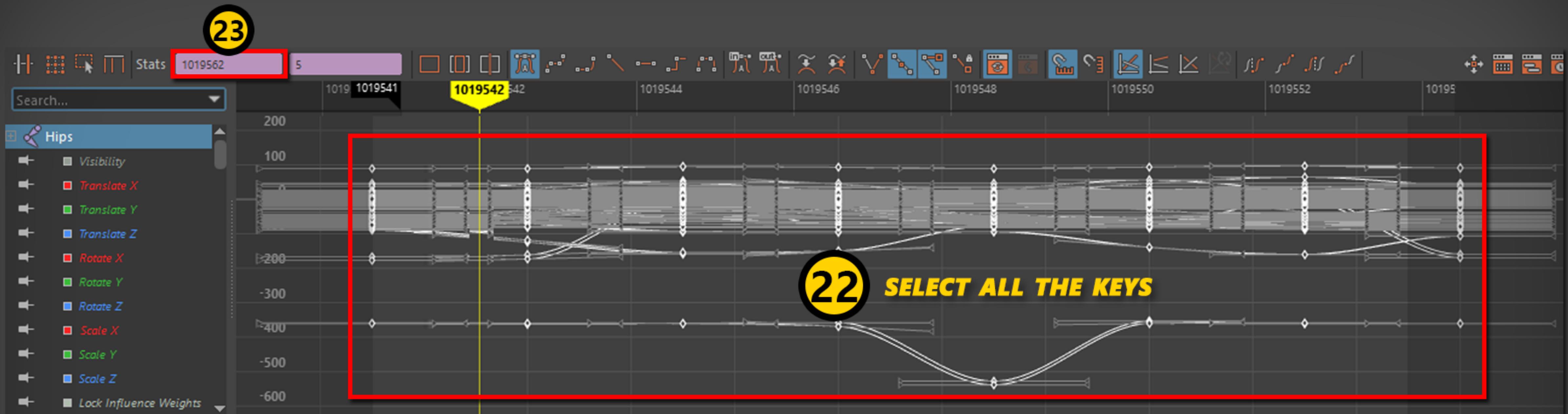
**MAKE SURE  
TO SELECT ALL  
KEYS BEFORE  
YOU RESAMPLE**



21



# RENUMBER KEYS



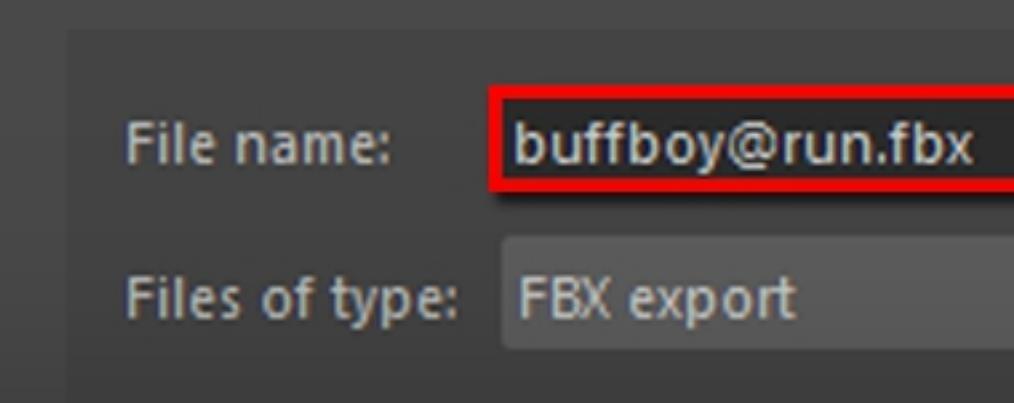
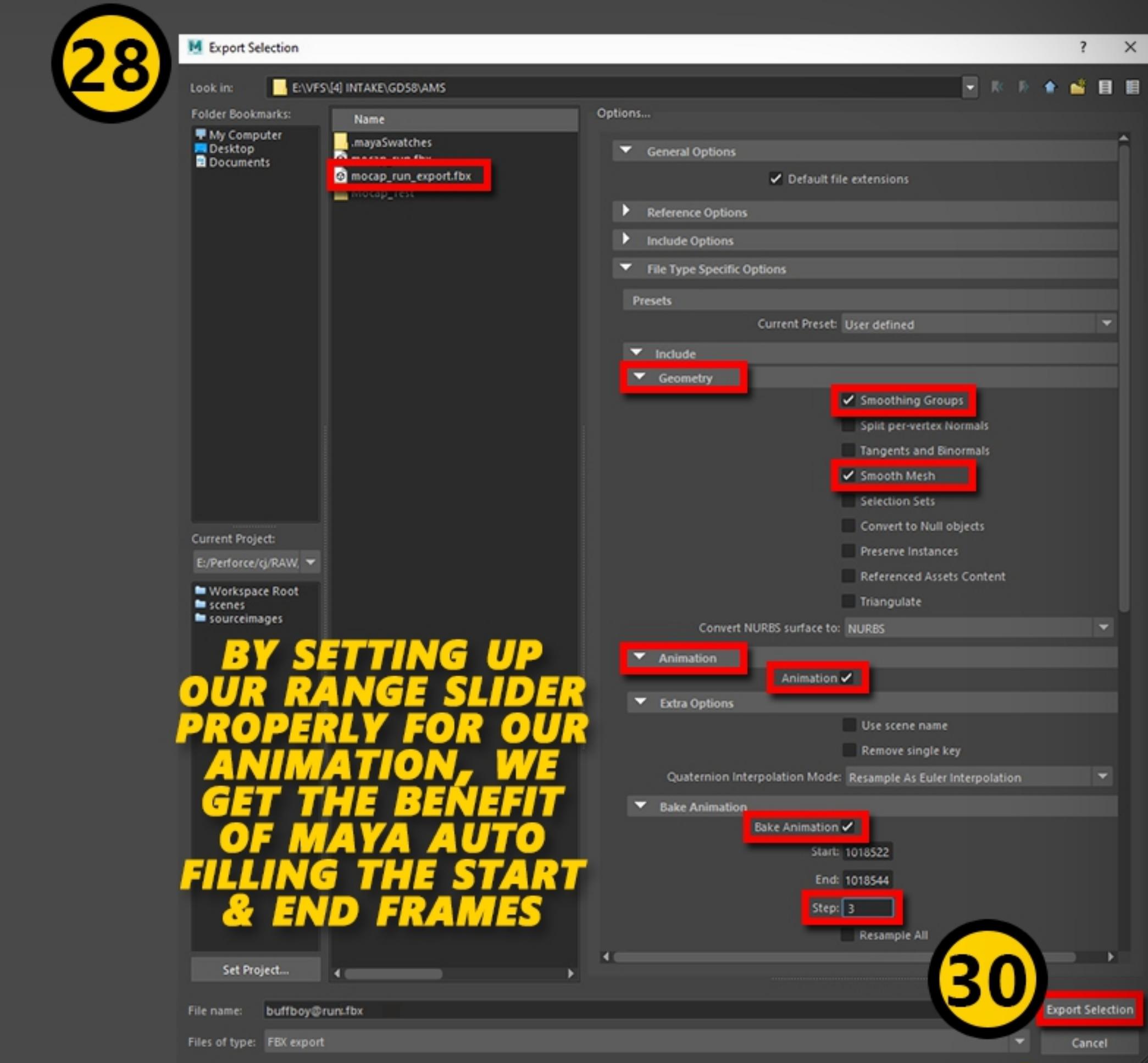
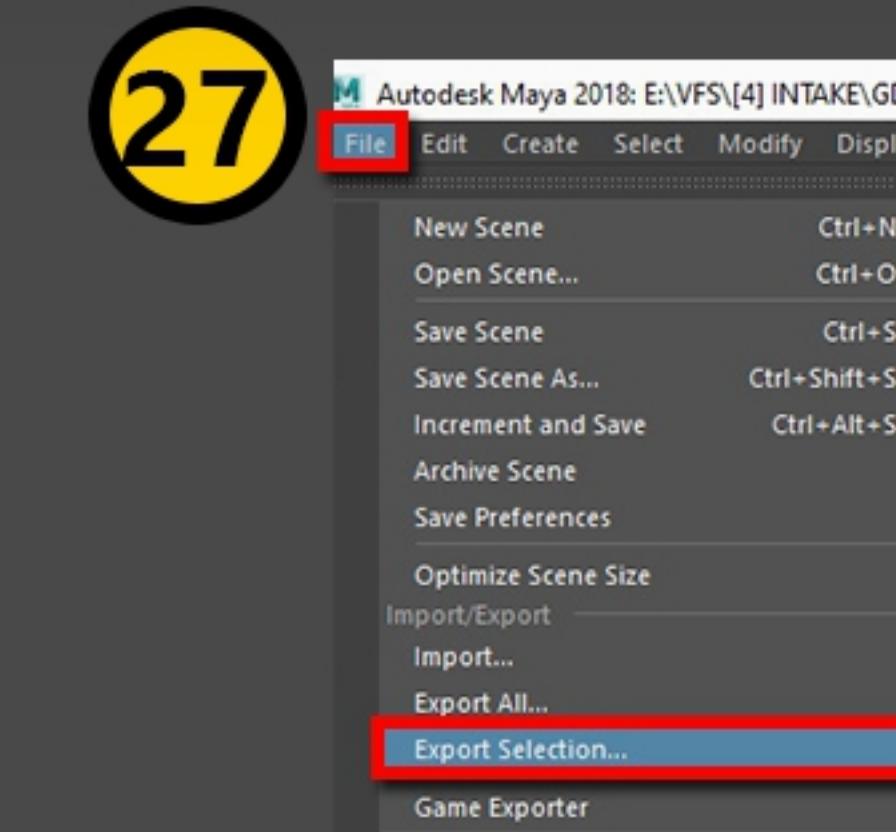
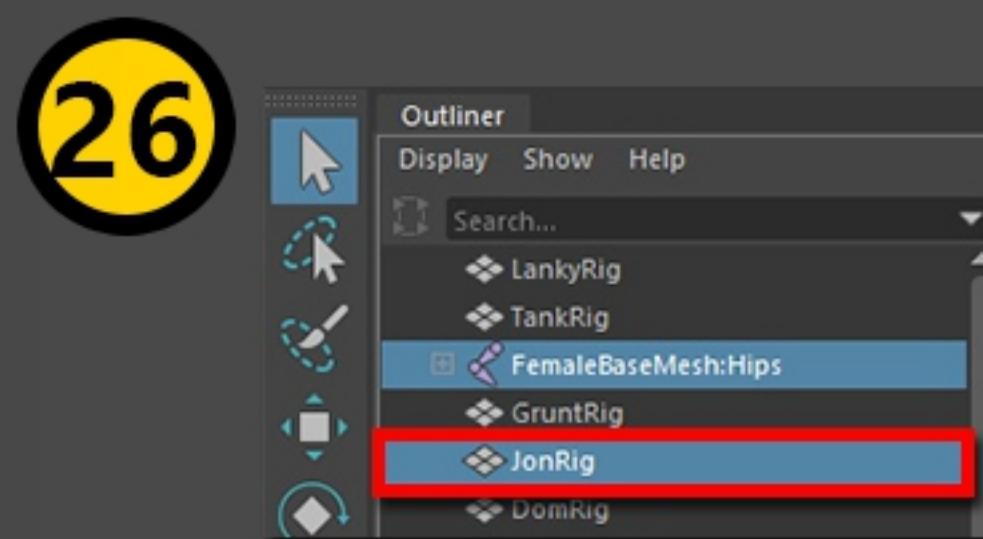
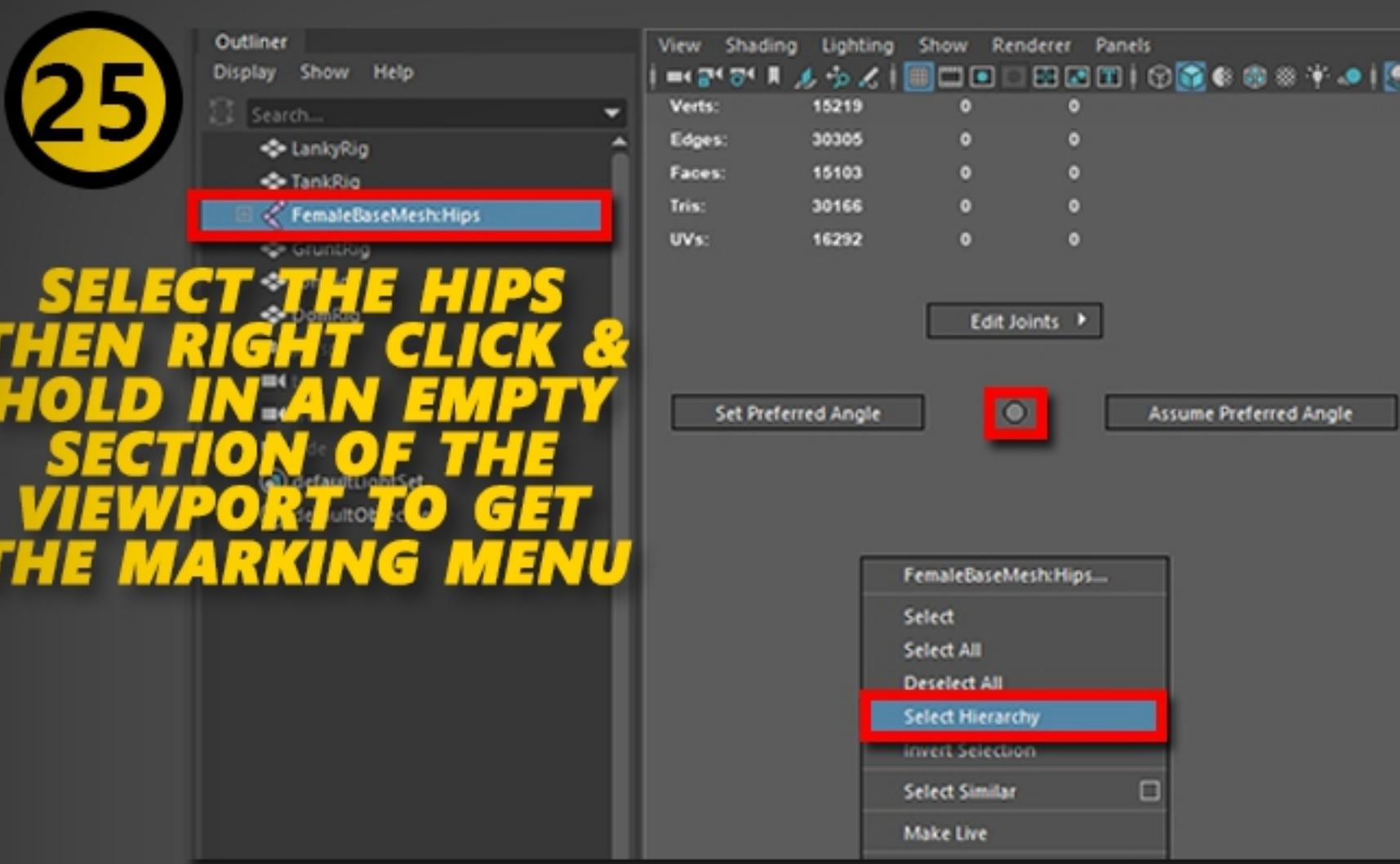
Stats 1019562 → Stats -=1019561

23 TAKE THIS NUMBER & ...

24 ADD "-=" TO THE FRONT  
& THEN SUBTRACT 1 FRAME  
FROM THE END & HIT ENTER

NOW YOUR CLIP  
STARTS AT FRAME 1!!!

# EXPORT SETTINGS



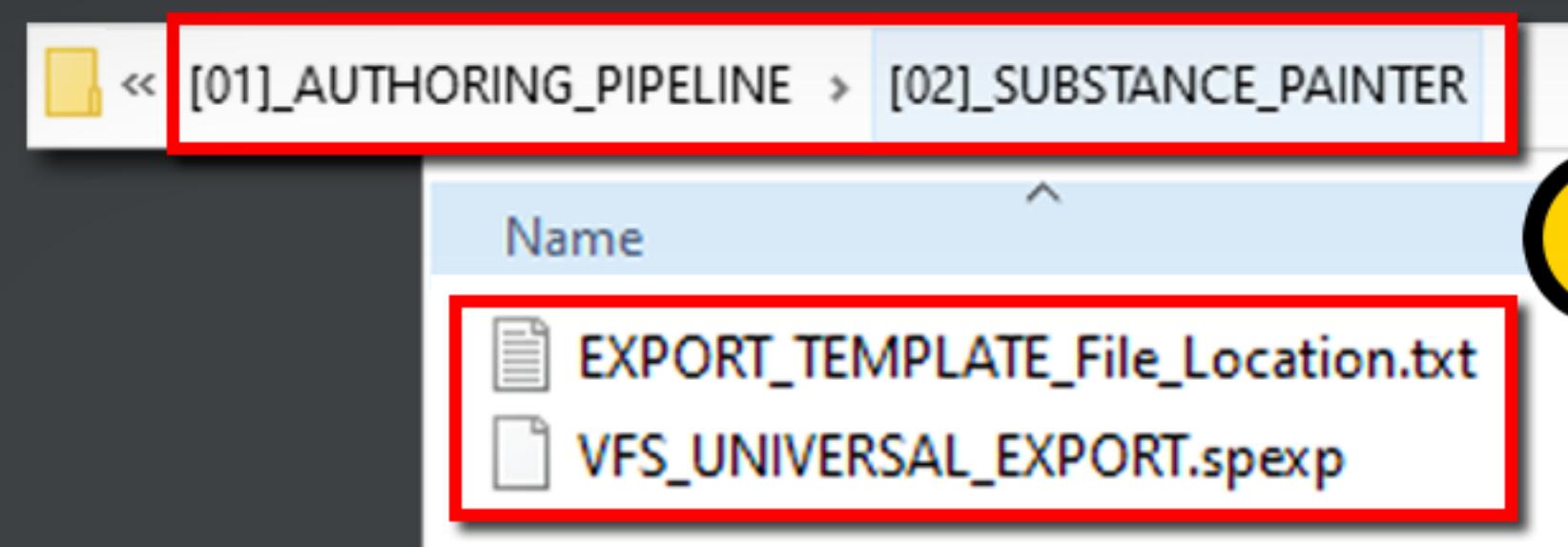
**MAKE SURE TO USE THE  
NAME OF YOUR CHARACTER  
THEN @ THEN THE NAME  
OF THE ANIMATION CLIP**



# SUBSTANCE PAINTER

**UNIVERSAL EXPORT**

# SETUP



1 FIND THE  
SUBSTANCE PAINTER  
SECTION WITH 2 FILES  
IN THE STARTER PACK

COPY THE LINK &  
PASTE INTO YOUR  
FILE EXPLORER BUT  
BE SURE TO REPLACE  
THE SECTION WITH  
YOUR PC NAME

2

```
EXPORT_TEMPLATE_File_Location.txt - Notepad
File Edit Format View Help
-----
LOCATION > C:\Users\***YOUR_PC_NAME***\Documents\Allegorithmic\Substance Painter\shelf\export-presets
-----
FILES > VFS_UNIVERSAL_EXPORT.spexp
```

3

COPY THE  
"VFS\_UNIVERSAL\_EXPORT.SPEXP"  
FILE INTO THAT LOCATION



# USAGE



SETTINGS    **OUTPUT TEMPLATES**    LIST OF EXPORTS

Presets  
VFS\_UNIVERSAL\_EXPORT

Output maps Create: Gray RGB R+G+B RGB+A R+G+B+A

\$textureSet_BaseColorOpacity	\$	RGB	A	tga	8 bits	X		
\$textureSet_AORoughMetalEmissive	\$	R	G	B	A	tga	8 bits	X
\$textureSet_NormalDX	\$	RGB				tga	8 bits + dithering	X

Input maps    Mesh maps

- Ambient occlusion
- Anisotropy angle
- Anisotropy level
- Base Color**
- Blending mask
- Diffuse
- Displacement
- Emissive**
- Glossiness
- Height
- Ior
- Metallic**
- Normal
- Opacity**
- Reflection
- Roughness**
- Scattering
- Specular
- Specular level
- Transmissive

Converted maps

- 1/ior
- Mixed AO**
- Diffuse
- f0
- Glossiness
- Glossiness<sup>2</sup>
- Normal DirectX**
- Normal OpenGL
- Reflection
- Specular
- Unity4 Diffuse
- Unity4 Gloss

**1** **PICK THE OUTPUT TEMPLATE FOR UNITY & INSPECT IT**

Export textures

SETTINGS    **OUTPUT TEMPLATES**    LIST OF EXPORTS    Include all

Global settings    Lambert1 \*

General Export Parameters

Output directory: E:/VFS/[1] CURRICULUM/[T2] EN/[01]\_AUTHORING R

Output template: **VFS\_UNIVERSAL\_EXPORT**

File type: **targa** 8 bits + dithering

Size: Based on each Texture Set's size

Padding: Dilation infinite 16

Export shaders parameters

Reset all    Cancel    Save settings    **Export**

**2** **NOTE THAT WE ARE USING DIRECT X FOR NORMAL MAPS HERE EVEN THOUGH UNITY USES OPENGL BY DEFAULT. WE FIX THIS IN OUR UBER SHADER.**

**3** **PICK THE PROPER OUTPUT TEMPLATE FOR UNITY & SELECT TARGA FORMAT THEN EXPORT**



# SUBSTANCE DESIGNER

**UNIVERSAL TEMPLATE**

# SETUP

FIND THE  
SUBSTANCE  
DESIGNER  
SECTION IN THE  
STARTER PACK

1

[01]\_AUTHORING\_PIPELINE > [03]\_SUBSTANCE\_DESIGNER

COPY THIS FILE  
ANYWHERE ON  
YOUR PC

2

VFS\_UNIVERSAL\_TEMPLATE.sbs

4  
OPEN THE  
TEMPLATE  
.SBS FILE



EXPLORER

VFS\_UNIVERSAL\_TEMPLATE

5  
RIGHT CLICK ON  
VFS\_UNIVERSAL\_TEMPLATE

- New
- Import
- Link
- Reload Ctrl+R
- Save Ctrl+S
- Save As...

6

SAVE THE .SBS AS A NEW FILE  
WITH THE NAME OF THE MATERIAL  
YOU ARE CREATING



- Add Node
- Add Comment
- Add Frame
- Add Pin
- Add Dot Node
- View Outputs In 3D View

7

RIGHT CLICK ON THE  
GRIDDED GRAPH SECTION  
& SELECT "VIEW OUTPUTS  
IN 3D VIEW" TO REFRESH YOUR  
GRAPH & THE 3D VIEWPORT

# USAGE

**1** DOUBLE CLICK ON THE GRIDED GRAPH SECTION TO VIEW THE OPTIONS

**2** PICK THE OPTIONS YOU NEED FOR YOUR MATERIAL

**3** FIND YOUR OUTPUT LOCATION & SELECT .TGA

**4** TURN OFF DESIGNER ONLY SECTION

**5** TURN ON AUTOMATIC EXPORT WHEN YOUR ITERATING & EVALUATING IN ENGINE

INPUT PARAMETERS

Parameters Preview Presets

Default Settings

BASECOLOR with OPACITY (A)

AO ROUGH METAL with EMISSIVE (A)

Opacity ON  
Emissive ON

Clean Export Outputs...

Export outputs

From graph Batch

Destination: ::/VFS/[1] CURRICULUM/[T4] 3DM2 [+] /AUTHORING

Format: Truevision Targa (\*.tga \*.targa)

Pattern: \$(graph)\_\$(identifier)

Preview: vfs\_universal\_template\_metallic

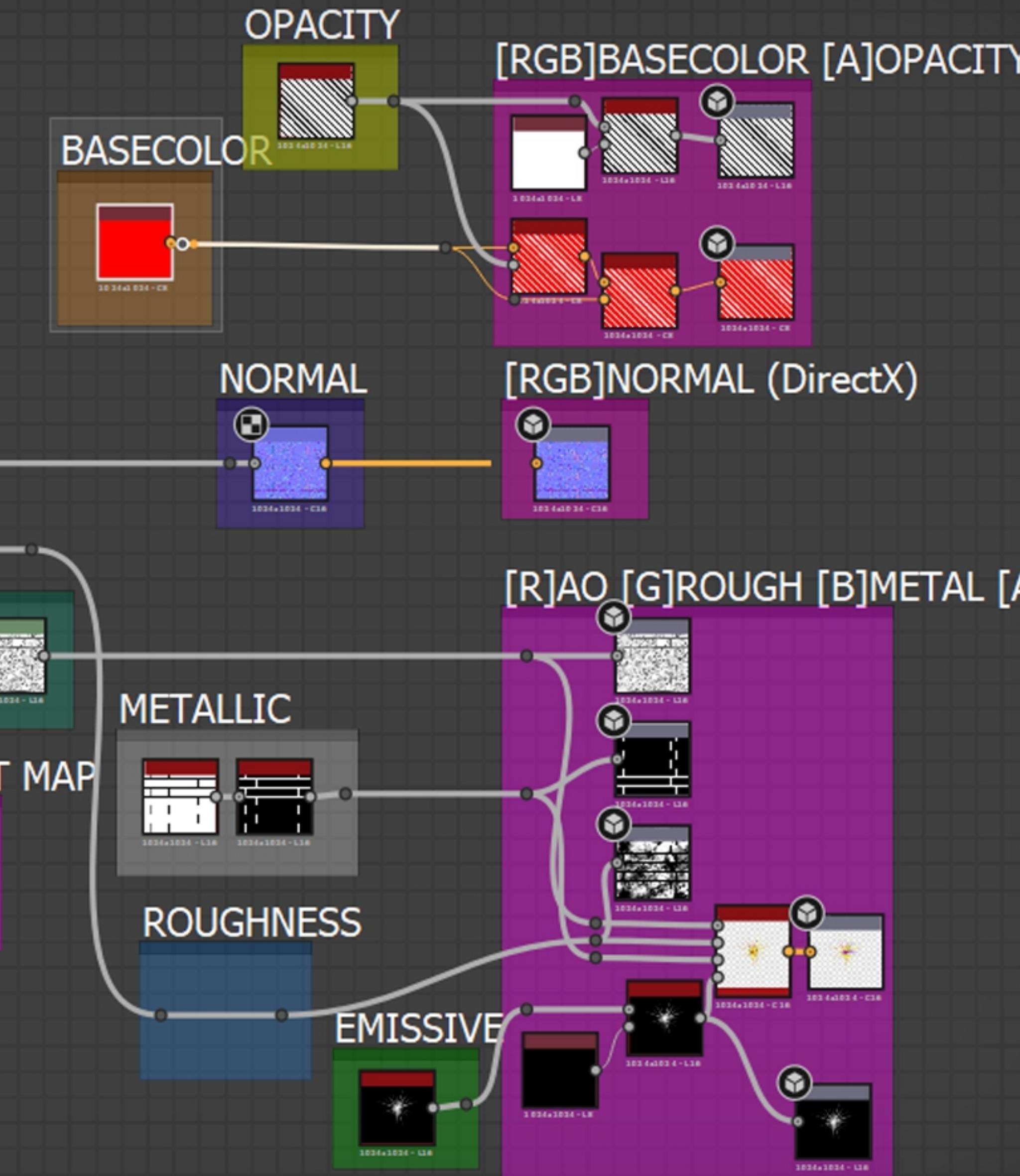
Outputs

- >  DESIGNER\_ONLY
- EXPORT
  - ✓ AORoughMetal
  - ✓ BaseColor
  - ✓ NormalDX

All None

Automatic export when outputs change

Export outputs Close





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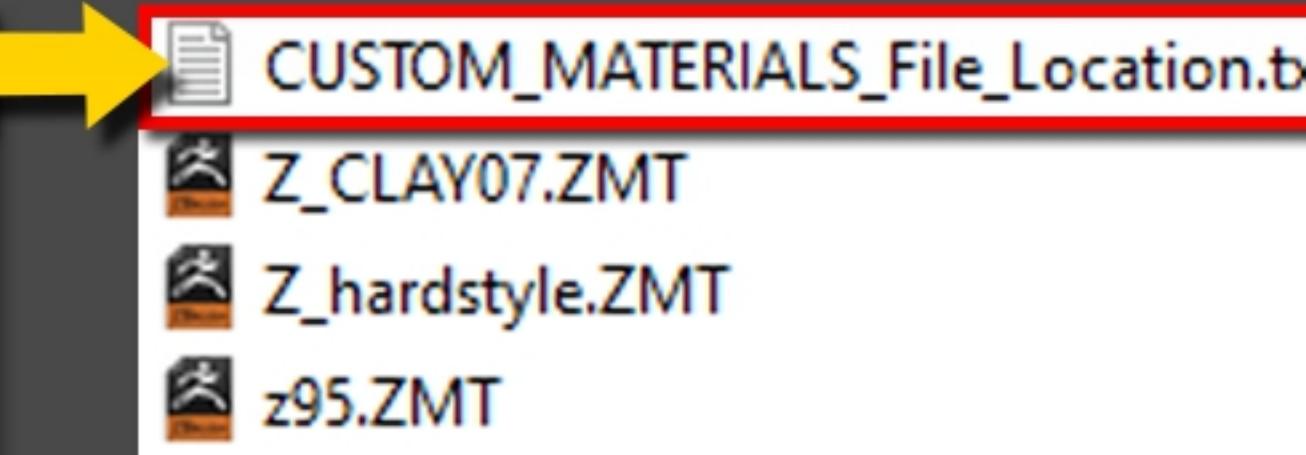
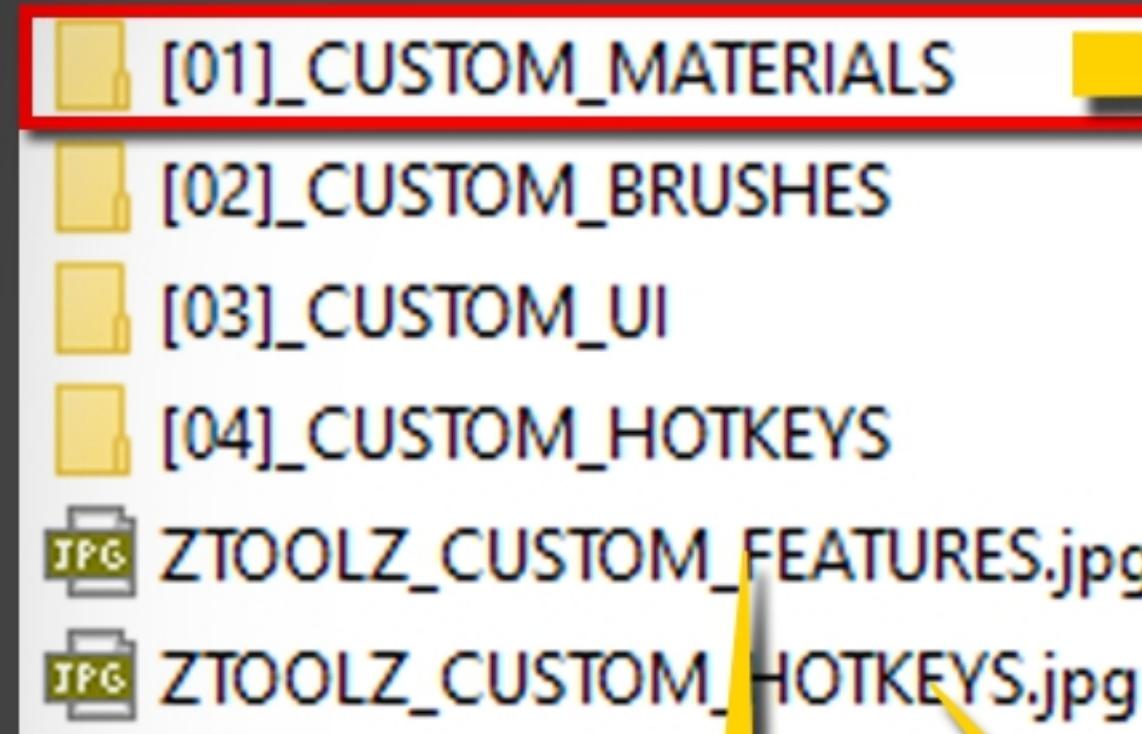
**ZTOOLZ SETUP**

---

# ZTOOLZ FILES

1

[01]\_AUTHORING\_PIPELINE > [04]\_ZBRUSH > ZTOOLZ



LOCATION > C:\Program Files\Pixologic\\*\*YOUR\_VERSION\*\*\ZData\Materials\MatCap  
-----  
FILES > Z\_CLAY07.ZMT / Z\_hardstyle.ZMT / z95.ZMT

2 IN EACH FOLDER  
LOOK FOR THE TEXT  
FILE & FOLLOW THE  
INSTRUCTIONS



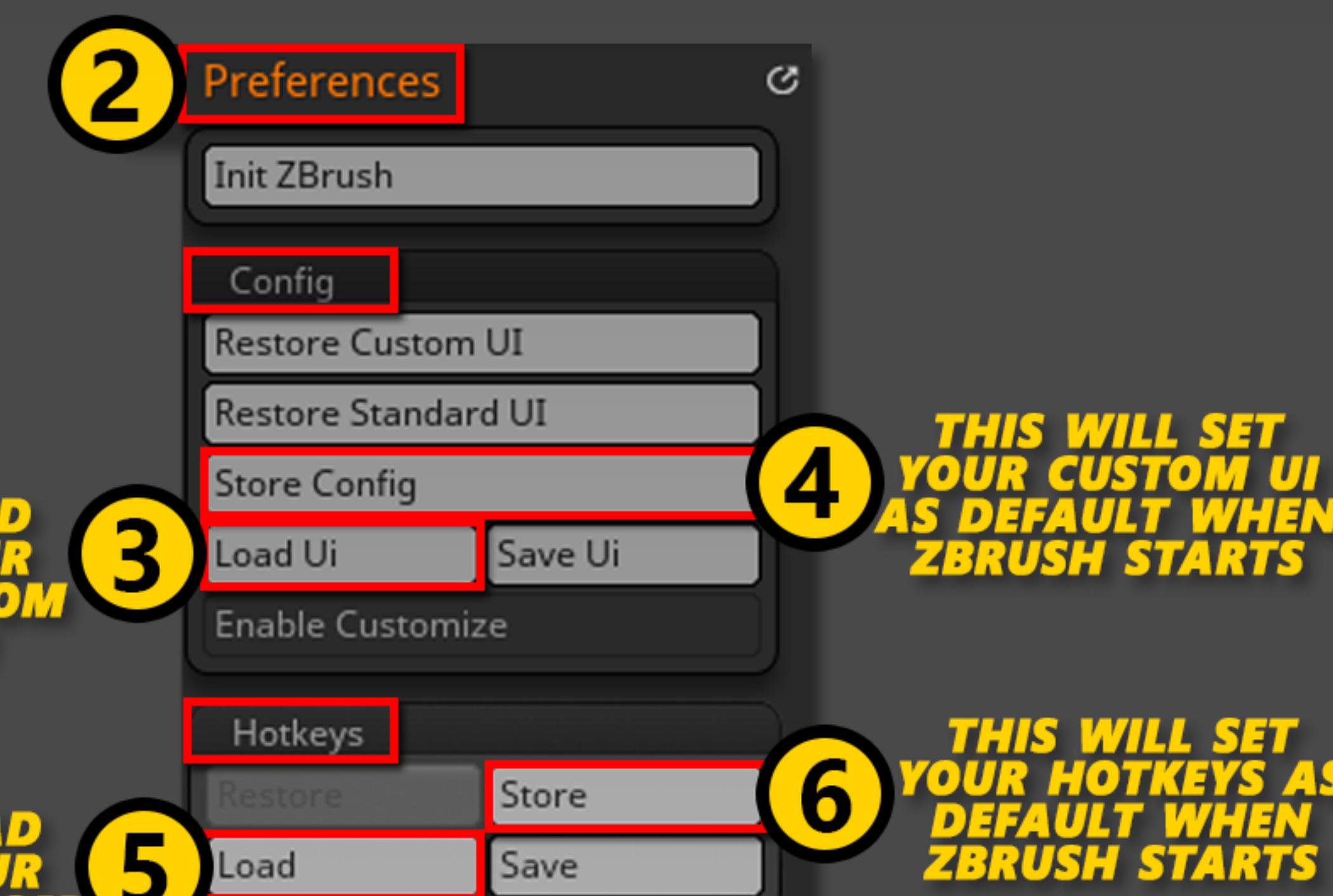
3 THERE ARE 2 PICTURES  
DETAILED WHAT ZTOOLZ  
SHOULD LOOKS LIKE &  
DETAILS THE HOTKEYS

# ZTOOLZ INSTALL

**1**  
**IN ZBRUSH  
LOAD THE UI &  
HOTKEYS FILES**

**LOAD  
YOUR  
CUSTOM  
UI**

**LOAD  
YOUR  
CUSTOM  
HOTKEYS**



**THIS WILL SET  
YOUR CUSTOM UI  
AS DEFAULT WHEN  
ZBRUSH STARTS**

**THIS WILL SET  
YOUR HOTKEYS AS  
DEFAULT WHEN  
ZBRUSH STARTS**

# SCALE TEMPLATE PROJECT

S Draw Size 64 Dynamic TotalPoints: 422 18 35 Colorize SPix 3 BPR

**SCALE IS KEY SO USE  
THIS SCALE TEMPLATE  
BEFORE YOU START**

**1**

[01]\_AUTHORING\_PIPELINE > [04]\_ZBRUSH >  
 ZTOOLZ  
 zbrush\_scale\_template.ZPR

**WHEN YOU EXPORT YOUR  
FINAL SCULPT BACK INTO MAYA  
YOUR SCALE WILL BE CORRECT**



