

ExtractWeaver Official Manual

~ [Shift + E] Flawless Switch Tween Extraction & Multi-Layer Bone Transform to Single Vector Baking Engine ~

This document is the official manual for "**ExtractWeaver**" (formerly Extract Pose to Vector, Ver 1.00), a professional pose extraction and vector baking engine designed for Moho Pro 14 or later (Compatible with Moho 12 / 13 / 14).

Note: While extensively verified on Windows, its internal architecture (Lua script and native Moho matrix APIs) operates identically on macOS.

Part 1: What is ExtractWeaver? (Philosophy & 2 Extraction Routes)

1.1 Why "Extract & Bake"?

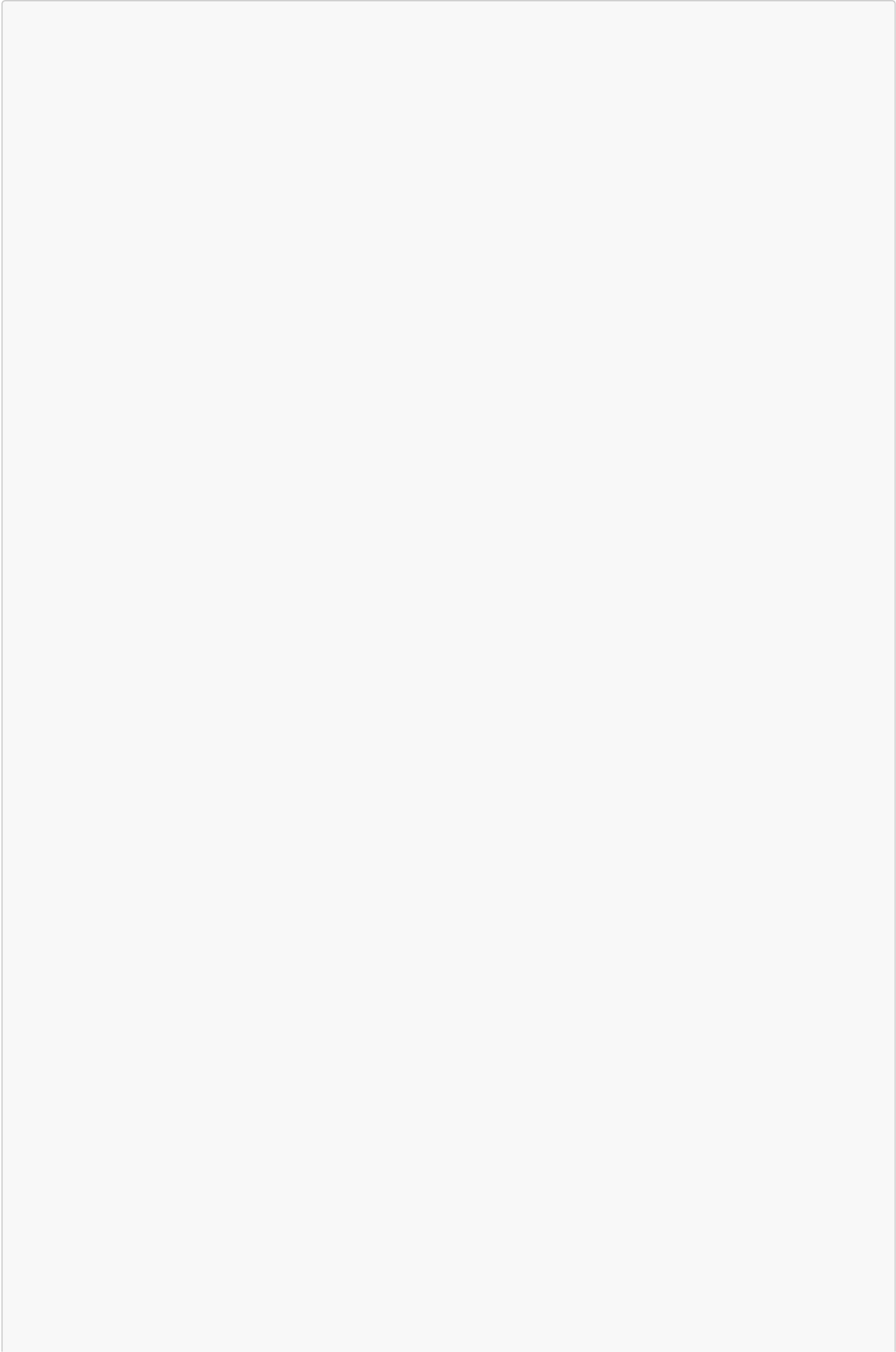
In modern Moho animation pipelines, complex character rigs and props utilizing bone dynamics, multi-layered vector hierarchies, and Switch layer sub-layer interpolation (Switch Tweening) produce rich, expressive animation.

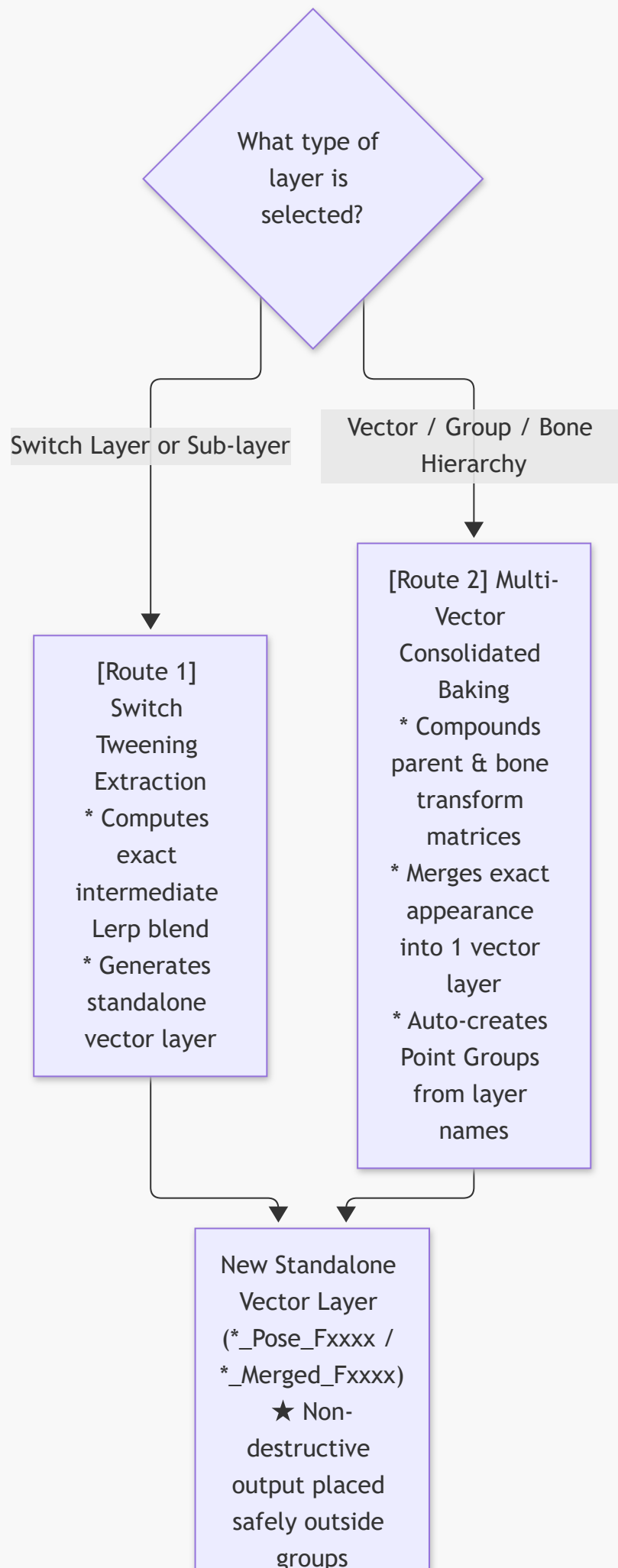
However, when transitioning to downstream illustration, asset reuse, or cel clean-up, animators face severe technical hurdles:

- "I want to extract a specific, beautifully deformed keyframe pose as a standalone 2D vector asset for other cuts."
- "I need to consolidate a complex, multi-layered bone rig into exactly one clean vector layer with zero pixel drift in depth or visual alignment."
- "I need to capture the smooth intermediate in-between shape during Switch layer interpolation (Switch Tweening) to paint detailed highlights and line art."

Traditionally, attempting this in native Moho resulted in messy workarounds: exploding group folders, copy-pasting shapes that immediately lose bone deformations, or losing tweened Switch shapes entirely.

"**ExtractWeaver**" resolves this permanently. In milliseconds, it calculates Moho's composite transformation matrices, bone deformations, and Switch interpolation states (Lerp) at the current timeline frame, baking the exact visual appearance into **an independent, standalone vector layer**. Accessible with a single press of **Shift + E** (the intuitive "E" for **E**xtract).





1.2 Two Major Extraction Routes

ExtractWeaver automatically detects the structure of your active selection and switches instantly to the optimal extraction algorithm:

Extraction Route	Target Layer Structure	Behavior & Distinct Advantages	Primary Use Cases
[Route 1] Switch Tweening Extraction	<ul style="list-style-type: none">• Switch Layer itself• Any sub-layer inside a Switch	Analyzes preceding and succeeding switch keyframes, computes exact interpolation ratio (Lerp Factor), and bakes vertices, curvatures, and line widths into a new vector layer.	<ul style="list-style-type: none">• Freezing 3D rotation angles from MeshPinWeaver• Extracting in-between mouth/eye shapes• Freezing fluid morphing shapes
[Route 2] Multi-Vector Consolidated Baking	<ul style="list-style-type: none">• Multiple selected vector layers• Standard Group Layers• Bone Layers / Full character rigs	Compounds all parent group transforms and bone deformations (Compound Matrix), projects all vertices to world space, and merges them into a single vector layer.	<ul style="list-style-type: none">• Flattening entire rigged character into 1 cel layer• Converting FoldWeaver 3D origami into 2D art• Clean-up guides and reusable keyframe assets

1.3 Automatic Point Group Categorization by Source Layer Name

When consolidating dozens of layers using Route 2, you never lose the ability to select individual body parts or costume details.

ExtractWeaver **automatically registers each source layer's name as a native Moho "Point Group"** on the merged vector layer. After baking, simply select Moho's Select Points tool and pick "Head", "Arm", "Torso", or "Costume" from the Group drop-down menu in the options bar to instantly select and modify that specific part's points, fills, or stroke widths.

1.4 Faithful Inheritance of Shapes, Colors & Fail-Fast Safety

- **Comprehensive Style & Shape Binding:** Fill colors, stroke colors, variable line widths, gradients, and custom styles are faithfully duplicated and bound to the new vector geometry.
- **Degeneracy (Zero-Span) Detection (Fail-Fast):** If generated geometry collapses to a single point due to numerical corruption (zero width and height), the broken layer is immediately pruned, and an alert safely aborts execution.

Part 2: Installation and Setup

2.1 File Placement

ExtractWeaver is engineered as an ultra-fast menu script. Place the script file into your custom content folder:

```
[Moho Custom Content Folder]
└─ scripts/
    └─ menu/
        └─ we_Extract Pose Layer.lua  <-- Place here
```

*Note: If Moho is already running, reload scripts via **[Ctrl + Alt + Shift + L]** or restart Moho to detect the tool.*

2.2 Menu Location

ExtractWeaver appears cleanly under Moho's top menu bar:
[Scripts] → [Weaver] → [ExtractWeaver: Pose to Vector]

2.3 Recommended Shortcut: **[Shift + E]**

To unlock maximum productivity, we strongly recommend assigning **Shift + E** (the "E" for **E**xtract) as part of the unified Weaver keymap:

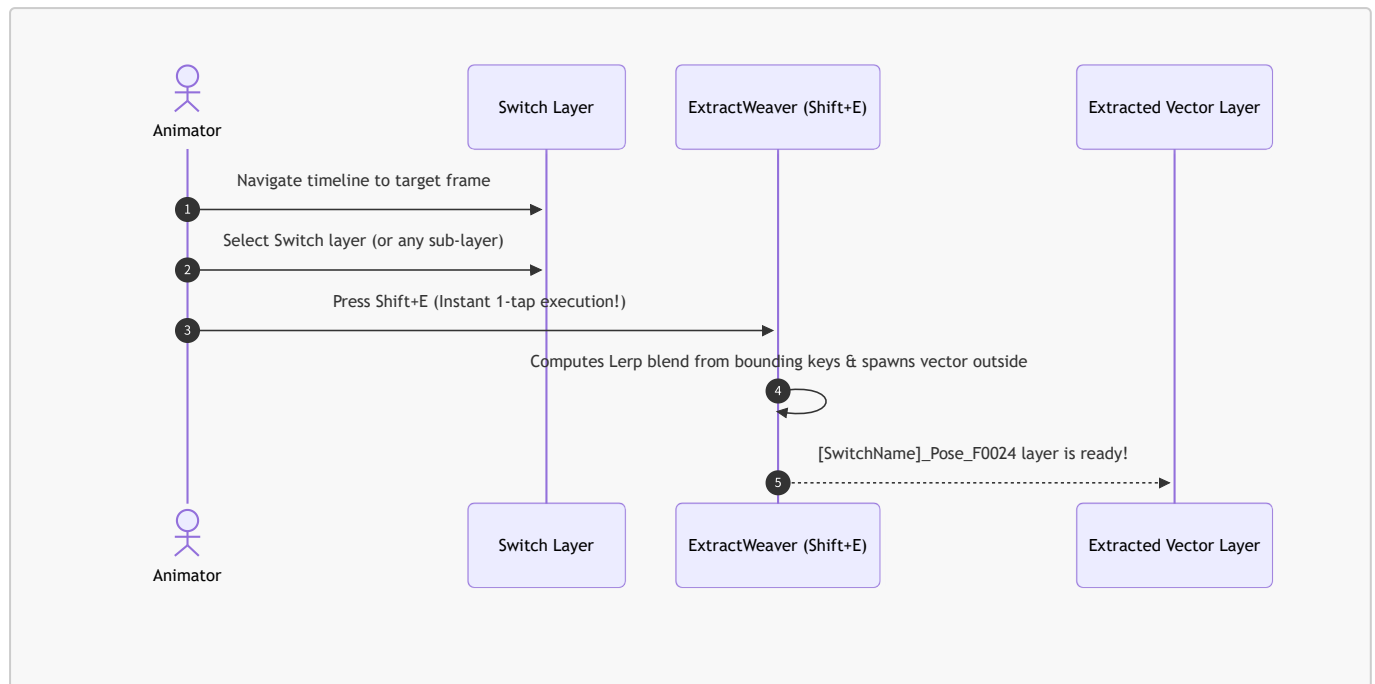
Script	Official Shortcut	Initial / Function	Weaver Pipeline Synergy
ExtractWeaver	Shift + E	Extract (Pose & Vector Baking)	Adjacent to Shift+W (Warp) on left-hand home position!
MeshWeaver	Shift + W	Warp (3-point / 4-point Smart Warp)	Texture wrapping & surface projection
PinWeaver	Shift + P	Pin (Multi-point Pin Bones)	Organic attachment & accessory pinning
FoldWeaver	Shift + A / O	Align / Origin	3D papercraft staging & hinge snapping
ShadowBaker	Shift + S	Shadow	3D cel-shaded lighting baking

Shortcut Setup Steps:

1. In Moho's top menu, open **Edit > Keyboard Shortcuts**.
2. Type **ExtractWeaver** (or **we_extract_pose_menu**) into the search box.
3. Assign **Shift + E** and click [OK].

Part 3: Practical Operations (Step-by-Step)

3.1 Route 1: Extracting In-Between Poses from Switch Layers

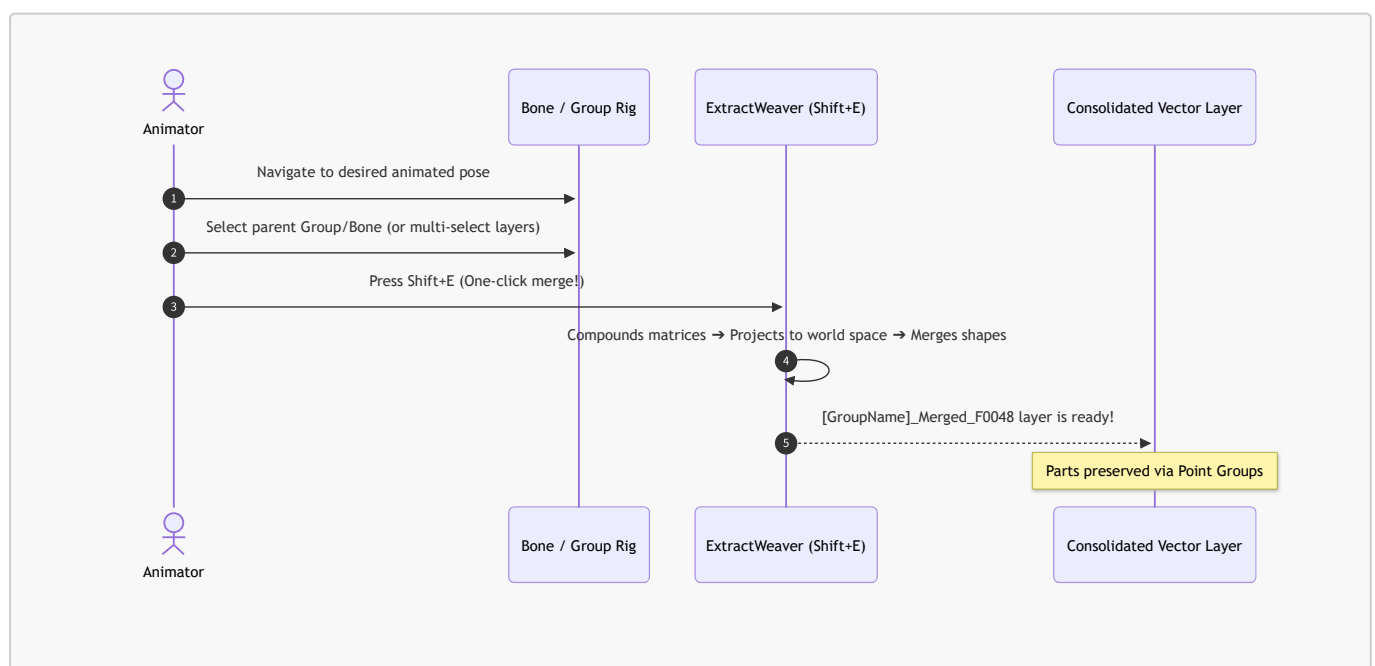


1. Move the timeline playhead to the target frame containing the pose you want to capture (can be on an exact keyframe or an in-between tween frame).
2. In the Layers palette, select the **Switch layer** (or any child layer inside it).
3. Press **Shift + E** (or choose **[Scripts] → [Weaver] → [ExtractWeaver: Pose to Vector]**).
4. A brand-new vector layer named `[SourceName]_Pose_F[FrameNumber]` appears directly above the Switch layer.

[!TIP] Switch Tweening Advantage:

If "Interpolate sub-layers" is active on the Switch layer, **smooth in-between morphing poses are frozen with 100% geometric accuracy**.

3.2 Route 2: Consolidating Deep Group & Bone Hierarchies into a Single Vector



1. Move the timeline playhead to the frame where your character strikes the desired pose.
2. Select your layers:
 - **To consolidate an entire rig:** Select the top **Group layer (or Bone layer)**.
 - **To consolidate specific parts:** Multi-select the target vector layers in the Layers palette (**Shift** or **Ctrl** click).
3. Press **Shift + E**.
4. Exactly one vector layer named **[BaseName]_Merged_F[FrameNumber]** is generated.
5. In the Select Points tool, use the **Group** drop-down to isolate, re-color, or edit any individual body part effortlessly!

Part 4: Technical Specifications & Safety Architecture

4.1 Compounded World Transformation Matrix Across All Hierarchies

When vector layers are nested deep within groups and bone hierarchies, position, rotation, scale, and shear are compounded at each level.

ExtractWeaver multiplies transformation matrices from the document root down to the target layer, generating the exact **Compound Transformation Matrix**:

$$\mathbf{P}_{\text{world}} = \mathbf{M}_{\text{root}} \times \cdots \times \mathbf{M}_{\text{parent}} \times \mathbf{M}_{\text{layer}} \times \mathbf{P}_{\text{local}}$$

This guarantees that every vertex is baked to world coordinates with zero angular distortion or scale drift.

4.2 Switch Tweening (Lerp Blend) Keyframe Search Algorithm

Route 1 scans the Switch timeline channel (**fSwitch**) to locate the preceding keyframe F_0 (Layer A) and succeeding keyframe F_1 (Layer B) surrounding the current frame F :

$$\text{Factor} = \frac{F - F_0}{F_1 - F_0}$$

When the bounding layers share matching vertex topologies, vertices, curvatures, and line widths are blended via linear interpolation (Lerp), producing flawless in-between geometry. If topologies differ, the nearest valid pose is sampled safely.

4.3 Objective Verification via Completion Dialog

Upon execution, ExtractWeaver displays an informative completion dialog detailing the output layer, frame number, and generated vertex/shape counts:

ExtractWeaver: 1 Vector Layer Ready!

- Output Layer: 'Character_Rig_Merged_F0032'
- Frame: 32
- Points: 482 | Shapes: 64

Extracted safely outside groups.

Switch interpolation, bone transforms, and keyframes are 100% preserved.

Part 5: Powerful Pipeline Synergy with the Weaver Series

ExtractWeaver unlocks massive workflow synergies when paired with other Weaver engines:

5.1 vs RigWeaver (Series 40): Infinite-Resolution Vector Companion to Smart PNG

- **RigWeaver:** Batch-exports animated character parts from timeline markers as raster PNG assets (Smart PNG).
- **ExtractWeaver:** Extracts key poses as **infinite-resolution vector layers**. Scalable without pixelation for high-resolution posters, marketing art, and SVG assets.

5.2 vs MeshPinWeaver (Series 53): Freezing Switch Lerp In-Betweens

- Freeze 3D prop rotation angles (e.g., three-quarter angle at 45°) generated by MeshWeaver at intermediate tween frames with a single tap of **Shift+E**.
- Provides clean, static vector outlines ready for detailed hand-drawn shading and line art.

5.3 vs ObjWeaver 3D (Series 70): Extracting 2D Cel Poses from 3D Rigs

- Extract key dramatic beats from complex 3D OBJ architectures or vehicle rigs into flat vector linework.
- Delete occluded backface lines, adjust stroke weights, and immediately begin final 2D cel animation clean-up.

5.4 vs FoldWeaver 3D (Series 50): Flattening 3D Spatial Papercraft into 2D Illustrations

- Flatten 3D spatial origami structures and mechanical props assembled in FoldWeaver directly onto a flat 2D vector plane, matching your exact camera viewpoint for single-frame illustrations and graphic prints.

Part 6: Troubleshooting & FAQ

Q1. Does moving the extracted layer damage the original model or rig?

A. 100% safe (Completely non-destructive).

The extracted vector layer is generated outside the original Switch group or bone hierarchy as an independent layer. The original character rig, motion keyframes, and switch data remain completely untouched.

Q2. I receive an alert: "No valid Vector Layers or Switch Groups found."

A. Please check your layer selection.

This occurs if an image layer, audio layer, or empty group is selected. Ensure you have selected a vector layer, a group containing vector layers, or a Switch layer before pressing **Shift+E**.

Q3. How can I recolor a specific body part on the merged layer?

A. Use native Moho Point Groups!

Select the Select Points tool (**G**) and choose the source layer name from the [Group] drop-down menu in the top options bar. All vertices belonging to that specific part are instantly selected, allowing immediate fill color and stroke adjustments.

Product Information & License

- **Product Name:** ExtractWeaver: Pose to Vector Layer (Weaver Pipeline Series)
- **Version:** Ver 1.00
- **Official Shortcut:** **Shift + E**
- **Developer:** Sentaku Clip
- **Copyright:** Copyright (C) 2026 Sentaku Clip. All Rights Reserved.