Make your character ready

A picture-led setup guide for Motion Studio 0.4.1, Face Studio 1.4.0 and Voice Studio 4.1.0. Cinema 4D R26 on Windows.

 **Motion Studio**

 **Face Studio**

 **Voice Studio**



Three tools, three jobs. Your character needs a working deformation rig at the end of each path.

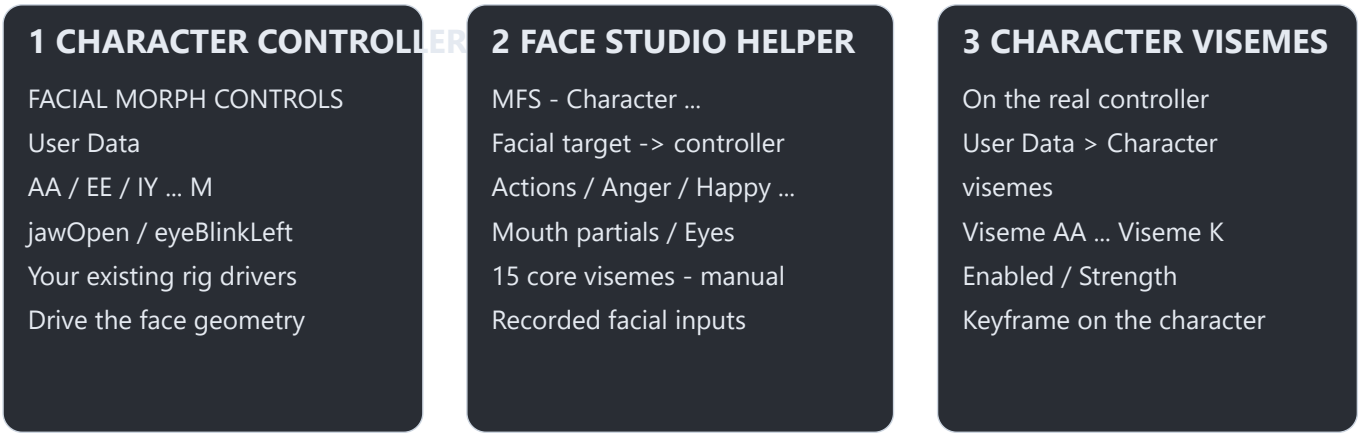
What you want	Read first
Move a body or fingers	Pages 12–13: source joints and body retargeting
Track a face from video	Pages 3–10: real facial shapes, names, User Data and Face Studio
Speak from dialogue audio	Pages 4, 7 and 11: the ten Voice channels and speech connection
Use facial bones	Pages 8–9: skin weights and facial-joint pose wiring

Start with a copy of your scene. Activate the product you own. Check a manual mouth-open and blink before recording. A control name identifies a route; the character also needs a real pose or a real bone driver.

The pictures are explanatory diagrams of the released tools and Cinema 4D concepts. They are not screenshots. Panels may be arranged differently in your layout. This guide can be read offline; the reference links at the end need an internet connection.

Understand your User Data panels

Use the facial target link to tell the performance helper from the character's own controller.



The MFS helper stores performances. The character controller drives your rig.

User Data map corresponding to the MFS helper and the character controller shown in the product interface.

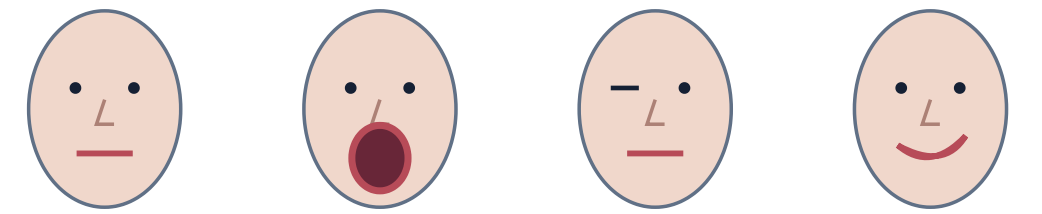
1. **Select the character's facial controller.** A useful name is `FACIAL MORPH CONTROLS`. Its existing numeric sliders must already move the face.
2. **Connect in Face Studio.** The new `MFS - …` object stores expression recipes, recorded inputs, playback settings and manual visemes. Check its **Facial target** link.
3. **Click Character visemes.** This selects the real character controller (or the mesh owning the selected Pose Morph). Open **User Data** → **Character visemes** to animate its 15 named dials.
4. **Click Show expression dials** to return to the MFS helper's library groups. The 100 full expressions, 30 mouth partials and 15 eye positions live here.

> **One intended target.** If several MFS objects exist, inspect each Facial target link. Preview the helper linked to your intended actor. Keep older unused layers disabled. The screenshots' categories such as ACTIONS, ANGER and HAPPY are library dials, not mandatory mesh-morph names.

The helper, controller and mesh are three different scene elements. Selecting a null with User Data does not by itself prove that its controls are wired to the mesh.

Create real facial morphs

Use point poses for a sculpted face, or use the facial-joint pose method on page 8.



POSE MORPH

Base Pose
AA
eyeBlinkLeft
mouthSmileLeft

Create real point changes or real joint poses before connecting the plugins.

At 0% the face returns to neutral. At 100% the selected pose must be visible.

Illustrative poses: neutral, an open mouth, one closed eye and a one-sided smile. Left/right always refers to the character.

1. Select the editable facial mesh and add a **Pose Morph** tag. For point shapes, enable **Points**. Keep the **Base Pose** as the relaxed neutral face.
2. In **Edit** mode, add a new pose and name it using the tables on the next page. Select that pose before moving points.
3. Sculpt the actual mouth, lip, cheek or eyelid change. Keep the same point count and point order for all shapes. Check eyelids, lips and teeth for intersections.
4. Switch to **Animate** mode. With other poses at zero, drag this pose from **0%** → **50%** → **100%** → **0%**. You must see a clean deformation and a return to neutral.
5. Repeat for the supported speech and expression shapes. Add eyelash, tear-line, teeth or tongue follow-through using your rig's existing deformation links.

Existing DAZ / imported characters. Reuse working imported morphs and their existing drivers. Check the visible results before renaming. Names can be adapted; missing geometry changes must be authored. The plugin does not sculpt new facial shapes or convert an unrigged head into a rig.

Cinema 4D concept reference: Maxon: Pose Morph. This guide's plugin mappings are taken from the R26 release source.

Use names both facial tools understand

Recommended shared profile: ten required Voice controls plus eight optional detail shapes. Use these same names on your poses and on any User Data inputs that drive them.

Exact base name	Voice support	Purpose
`AA`	Core	Open mouth / father
`EE`	Core	Wide lips / feet
`IY`	Core	Small relaxed opening; Face Studio also accepts IH
`OW`	Core	Rounded vowel; a separate OH shape improves Face Studio
`UW`	Core	Tight OO rounding
`F`	Core	F/V: lower lip under upper teeth
`W`	Core	Forward W/Q pucker
`SH`	Core	Forward SH/CH lips
`T`	Core	T/D consonant shape
`M`	Core	Complete M/B/P closure
`EH`	Extra	Separate mid-open EH
`IH`	Extra	Separate Face Studio IH
`OH`	Extra	Separate Face Studio open OH
`ER`	Extra	Separate Face Studio ER
`S`	Extra	S/TS detail; Face Studio T_S
`L`	Extra	Tongue tip raised
`K`	Extra	Slight opening / K detail
`TH`	Extra	Optional dental consonant

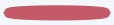
> **Voice controller rule.** A User Data controller must expose **all ten Core names exactly**: AA, EE, IY, OW, UW, F, W, SH, T, M. Use Float values from 0 to 1. The name `Viseme T_S` is not a replacement for the required controller field `T`.

Direct Pose Morph connections in Voice also accept IH→IY, OH→OW, OO→UW, FV→F, TD→T and MBP→M. When only a UW pose exists, its rounding can also supply W. The explicit Core names above keep custom setups easier to check.

Face Studio's flexible aliases use the Extra shapes when present. A ten-shape rig can still be used with approximations; it will not reproduce every mouth shape independently. The full Face alias table is in face-viseme-names.csv.

The 15 Face Studio visemes

These are the names of the manual dials that Face Studio adds to the character. Your underlying poses may use the shared base names on page 4.

Viseme AA  Open jaw	**Viseme EH**  Mid-open	**Viseme EE**  Wide / narrow	**Viseme IH**  Small relaxed opening
Viseme OH  Round / open	**Viseme OO**  Tight rounded lips	**Viseme ER**  Slightly pursed	**Viseme OW**  Animate wide to round
Viseme M_B_P  Lips fully closed	**Viseme F_V**  Lower lip / upper teeth	**Viseme T_S**  Teeth + slight opening	**Viseme SH_CH**  Forward / flared lips
Viseme L  Tongue tip raised	**Viseme W_Q**  Forward pucker	**Viseme K**  Small opening; hidden K	**NEUTRAL / REST** All speech dials = 0

Schematic mouth targets. Shape proportions depend on your character's lips, teeth, tongue and facial anatomy.

OW changes over time. Animate from a wider opening into a rounder shape. A single static pose is only one point along that transition.

Hidden sounds need refinement. Video tracks visible facial movement. Silent facial video cannot reliably identify tongue contact or a hidden K closure. K and other subtle consonants may need manual keys or audio-guided refinement.

Clear all manual viseme dials to return to the recorded or audio-controlled mouth performance. A keyed dial can become active again at later frames.

Add useful User Data to the rig

Create numeric controls on the real facial controller, then wire them to the face before connecting the plugins.

USER DATA > MANAGE USER DATA

Name: AA
Data type: Float
Interface: Float Slider
Unit: Percent
Limits / slider: 0% to 100%
Default: 0% | Animatable: on

WHAT THE VALUE MEANS

0% = 0.00 = neutral
50% = 0.50 = half strength
100% = 1.00 = full pose
Groups organize your sliders.
One slider needs one real route.
Test the mouth before capture.

User Data settings for a custom AA controller. A percentage is stored internally as a 0–1 value.

1. Create or select a null named `FACIAL MORPH CONTROLS`. In the Attributes Manager choose **User Data** → **Manage User Data** (or Add User Data).
2. Create a group such as **Speech controls**. Add the ten exact Core names from page 4. Use **Float**, a **Float Slider**, **Percent**, default **0%**, limits and slider limits **0%–100%**. Leave the fields animatable.
3. For expressions, add a group such as **Facial expressions** with exact channels such as `jawOpen`, `eyeBlinkLeft`, `eyeBlinkRight` and `mouthSmileLeft`. The full list is on page 15.
4. Connect each slider to a real pose or bone route as shown next. A controller with several recognized channels and “face”, “facial” or “expression” in its name can be discovered by Face Studio.

> **Preserve existing controls.** Do not delete and recreate keyed User Data fields to change their labels: their parameter IDs are what the animation tracks reference. Add and test new fields on a copy first. Finish naming and wiring before the initial Face Studio connection.

Maxon explains percent-to-0–1 conversion and parameter IDs in User Data.

Connect User Data to the face

An XPresso connection turns a visible slider into a working rig input.



Expression evaluation order for a custom controller:

Face Studio (-250) -> character visemes (-200) -> your driver (-100) -> pose / skin

A direct joint-angle route also needs a Range Mapper and a recorded neutral angle.

One connection for one pose. The evaluation order shown is a starting configuration for a new custom facial controller.

1. Add an **XPresso** tag to the facial controller. Drag the controller object and the relevant Pose Morph tag into the graph.
2. Expose the controller's **User Data** → **AA** as an output port. Expose the Pose Morph's **AA strength** as an input port. Connect the ports. Both use internal values from 0 to 1.
3. Repeat for the other Core speech controls and for the facial expression controls you created. Test one slider at a time with the plugins disabled.
4. For a newly built controller, evaluate its XPresso driver after the plugin's inputs and before deformation. **Expression priority −100** is a useful starting point after Face Studio's −250 input and the character-viseme override at −200.
5. If driving a joint angle directly, use a **Range Mapper** between the 0–1 input and the character's tested neutral-to-open local angle. Choose the joint's actual local axis. The angle is character-specific.

> **Use one connection per destination.** Two XPresso tags or an older expression tag writing the same pose can reset each other. Inspect the chain if a slider works only while dragged. Existing production rigs may need their established priorities preserved.

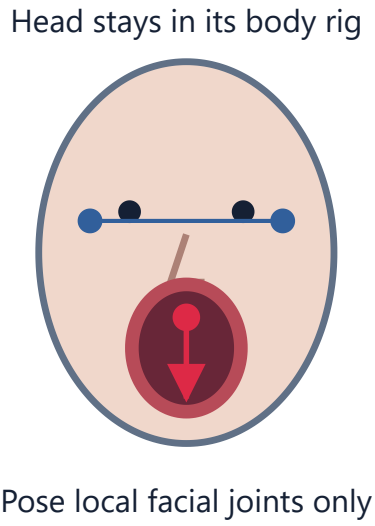
R26's Set Driver / Set Driven workflow is another way to build a relationship. For a custom bone face, driving named facial-joint poses keeps the controller independent of particular joint orientations.

Set up a bone-driven face

Facial bone names help organize the scene. The plugins connect to named morphs or wired numeric controls; they do not infer an arbitrary facial skeleton from joint names.

FACIAL SUBTREE (EXAMPLE)

Head [body animation]
FACE_JOINTS [Pose Morph tag]
Face_Jaw
Face_LowerTeeth
Face_Tongue_01
Face_Eye_L / Face_Eye_R
Face_UpperLid_L / _R
Face_LipCorner_L / _R



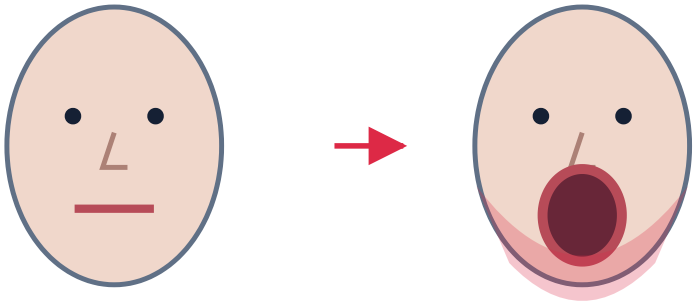
Example joint names and hierarchy. The facial pose subtree sits beneath the animated head and excludes the head joint itself.

1. Keep the body's **Head** joint in its existing rig. Place a facial subtree such as `FACE_JOINTS` beneath it. Jaw, lip, eyelid, eye and tongue joints belong inside that subtree.
2. Bind the facial mesh to the intended joints with its Weight and Skin setup, or reuse its working imported skin. Check the deformation manually before adding capture.
3. Add a **Pose Morph** tag on the facial subtree root. Enable **Hierarchy** and the local **Position / Rotation** channels your poses need. Keep the neutral Base Pose.
4. Create named poses such as AA, M and eyeBlinkLeft by moving the appropriate facial joints in Edit mode. In Animate mode, check each pose at 0%, 50% and 100%.
5. Wire the controller's matching User Data fields to those pose strengths. Reuse the same speech names as a point-morph face.

> **Keep the head out of facial poses.** A mouth-open pose should change jaw and lip joints, not record a 180° correction on the body's head or neck. Forward-axis fixes belong in the rig's neutral/reference setup. Use local transforms and test the rest pose.

Check weights, teeth and clothing

The capture can only look as good as the underlying deformation.



Neutral skin

Jaw-influenced region

CHECK THE WEIGHTS

- Upper teeth -> head
- Lower teeth -> jaw
- Soft lip transitions
- Eyelids -> correct side
- Clothing -> body joints
- Normalize per vertex

Illustrative influence regions. The exact weights and jaw pivot depend on the mesh and rig.

Part	What to check
Lower teeth / rigid jaw pieces	Follow the jaw rigidly, or use an equivalent existing jaw constraint.
Upper teeth / skull pieces	Follow the head or upper-jaw rig, not the opening lower jaw.
Lower lip / cheek transition	Blend influences smoothly; normalize vertex weights.
Left and right eyelids	Use the intended side's lid joints; check a full blink against the eyeball.
Tongue	Use the tongue's existing chain or poses; move its tip without stretching the whole head.
Clothes / hair / accessories	Bind and weight deforming pieces to the relevant body joints. Use rigid parenting only for pieces intended to move rigidly.

1. Turn off recorded capture and preview a neutral face. Move only AA to 25%, 50% and 100%. Return it to zero.
2. Test each blink independently, then a smile and a full lip closure. Check the jaw hinge, teeth, lashes and lip seam from the front and side.
3. Pose the body's shoulders, elbows, hips and knees. Clothing should follow its deformation rig without floating or stretching across unrelated joints.

If points remain behind, inspect their Weight tag's joint links and vertex influences. Adding more expression dials does not repair missing skin weights.

Connect and test Face Studio

Complete a manual preview before analyzing a customer performance.

MICHELE FACE STUDIO

Character: FACIAL MORPH CONTROLS
Connect character
Show expression dials -> MFS helper
Character visemes -> real controller
Transfer > Mouth mode
Video detail / 15 viseme mouth
Keep existing lip sync

CHARACTER / USER DATA

Character visemes
Character visemes enabled [on]
Character viseme strength 100%
Viseme AA 0% -> 100%
Viseme M_B_P 0% -> 100%
Return all manual dials to 0%.
Then preview video / audio.

Illustrated interface map: Show expression dials selects the helper; Character visemes selects the actual rig controller.

1. Open Face Studio and activate it. For a controller-based rig, choose its facial controller in the character list. For a direct shape rig, choose the mesh's compatible facial Pose Morph connection.
2. Click **Connect character**. Inspect the new MFS helper's **Facial target** link in User Data. The dropdown must name the intended actor.
3. Open **Visemes** and click **Viseme AA**. Confirm the mouth opens in the Cinema 4D editor viewport. Clear the manual dials when finished.
4. Click **Character visemes**. In the real controller's User Data, test a native Viseme AA dial and key it if desired. These controls remain embedded in the saved scene.
5. Choose and analyze a facial video, then use **Transfer / preview**. Match the start frame to your scene. Preview before baking.

> **Connect after the rig is complete.** Face Studio stores routes to existing parameter IDs. Adding new poses later does not automatically rebuild an already-connected layer's routes. On a new unanimated setup, remove its unused MFS layer and reconnect. For animated work, preserve the old layer and rebuild the revised setup on a duplicate character in a working scene copy.

The Picture Viewer or an ongoing movie render may show a cached render scene. Inspect facial previews in the editor viewport without interrupting an active render.

Connect Voice Studio and share the face

Voice Studio supplies speech. Face Studio can supply the eyes and brows while leaving the mouth to the audio.

VOICE INPUT	MICHELE SPEECH TAG	FACIAL OUTPUT
Clean recorded speech	On LIP SYNC - SPEECH	AA EE IY OW UW
Analyze / import cue JSON	Facial controller [link]	F W SH T M
Or Build from text	Pose Morph tag [link]	Optional L R S TH K
Natural speech mode	Start / Strength / Realtime	0% neutral / 100% pose
Waveform / timing editor	Bake speech keyframes	Teeth / tongue follow skin

For audio + Face Studio video, choose Keep existing lip sync and clear manual visemes.

Speech source → linked speech controller → actual mouth poses. Verify the links on the Michele Speech tag.

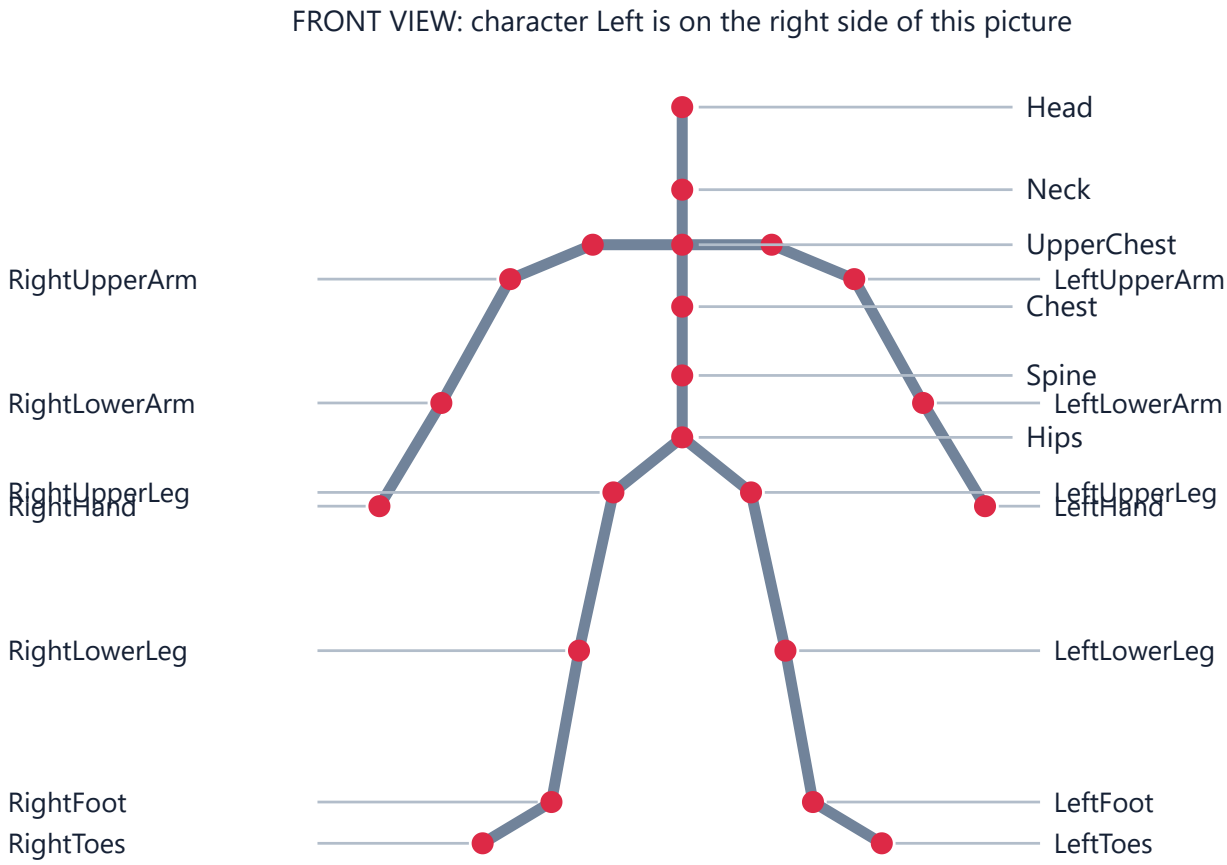
1. Select the prepared facial controller or speech Pose Morph mesh. Open Voice Studio, activate it and click **Connect rig**. Its User Data controller must contain all ten Core fields.
2. Inspect `LIP SYNC - SPEECH` and the **Michele Speech** tag. Confirm **Facial controller** and/or **Pose Morph tag** point to this character.
3. Analyze recorded dialogue or import mouth-cue JSON. Keep the cue JSON and its sibling playback audio together. Use **Play from start**, then refine the **Waveform / timing editor** if needed.
4. For simultaneous Face Studio capture, choose **Keep existing lip sync** in Face Studio's Mouth mode. Clear the MFS manual visemes and the character's native manual visemes so they do not override the audio.
5. If using Voice Studio's own facial-capture helper instead, choose **Expressions with audio (eyes, brows, smile)** for the expression layer. Preview, then bake the performance.

> **Several characters.** An existing Speech helper retains its linked target. Selecting a different mesh alone does not guarantee a retarget. Inspect the links before importing a new take; prepare and validate each actor's speech setup separately.

Check older jaw or mouth animation tracks as well as manual dials so the shot has one active mouth performance. Native Speech and Jaw Solver tags need activated Voice Studio to evaluate. Baked curves remain ordinary Cinema 4D animation.

Name and identify the body skeleton

The importer creates source joints. Your existing target rig can keep its original names when you assign matching body roles.



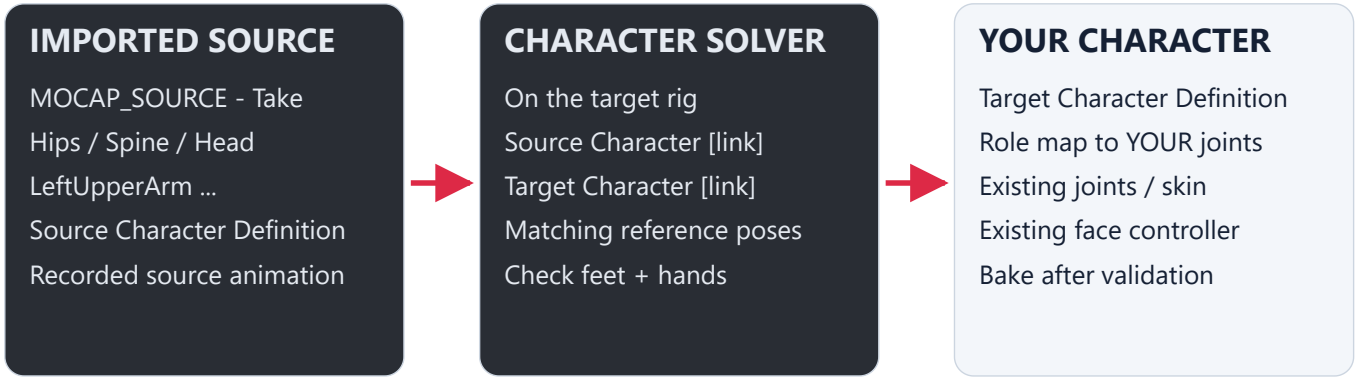
Canonical source bone names used by Motion Studio. Fingers continue from the hand into Proximal, Intermediate and Distal segments.

Use a matching reference pose: source and target should have compatible arm positions, facing direction, leg stance and scale. Define the same anatomical roles even if one rig uses hip / pelvis and the other uses Hips.

The full parent hierarchy is in body-joint-names.csv. For example, `LeftIndexProximal` is a child of `LeftHand`; `LeftIndexIntermediate` and `LeftIndexDistal` continue that chain.

Retarget body motion in Cinema 4D

A weighted target rig and a role map are required. Matching text labels alone do not attach a capture to a character.



Assign joint roles. Your existing weighted joints can keep their original names.

A source Character Definition and a target Character Definition feed a Character Solver on the target.

1. Record or analyze in Motion Studio. Import the `.mocap.json` with `cinema4d/Import_Michele_Mocap.py`. The importer opens a new document with animated source joints.
2. Bring the imported source hierarchy into a working copy of the character scene. Keep the target's existing mesh, skin, joint links and facial controls.
3. Create **Character Definition** tags for the source and target. Assign pelvis, spine, neck, head, arms, hands and legs to the appropriate roles. Include the finger roles needed by the shot.
4. Set compatible reference poses. Add a **Character Solver** on the target and assign its Source Character and Target Character definition links.
5. Scrub the source take. Check shoulders, elbows, knees, feet, facing direction and fingers. Refine the role mapping and neutral orientations before baking. Bake only the validated target channels.

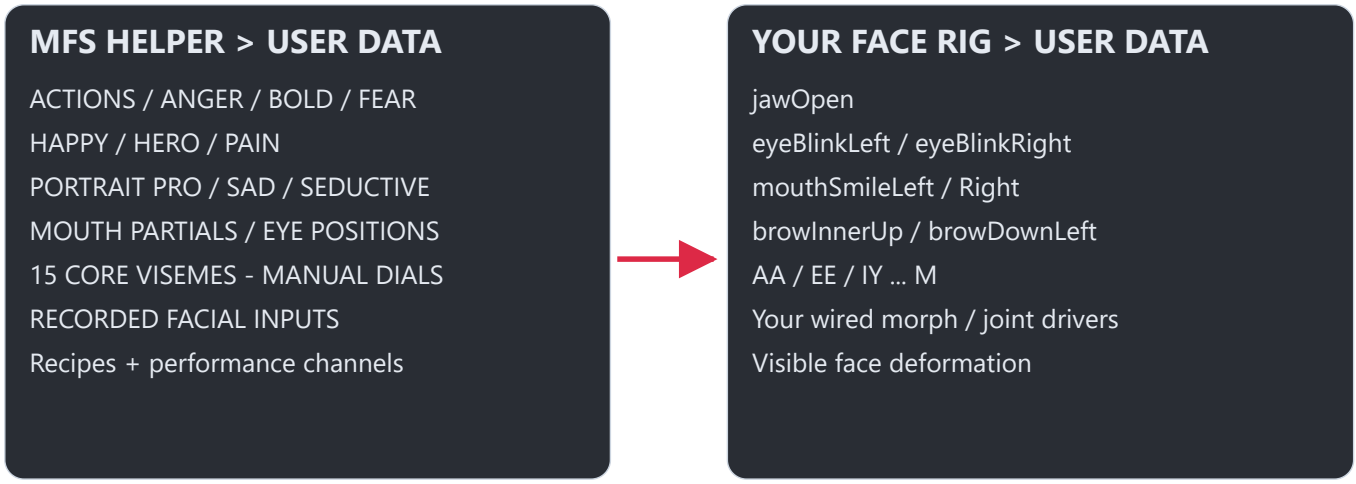
> **Units and capture limits.** Motion Studio's take stores metres; the native importer converts positions to Cinema 4D centimetres. Imported facial coefficients go to MOCAP_FACE_CONTROLS User Data, not automatically to facial bones. Monocular video body capture is approximate and hip-centred; it does not provide solved world travel or foot locking.

Phone face → User Data: Motion Studio's video path captures body and hands. Supported phone facial input can add coefficients to a take. On import, wire each `MOCAP_FACE_CONTROLS` output to the matching facial-controller input (for example `eyeBlinkLeft`), then use the existing controller-to-pose driver from page 7. Keep other facial sources disabled while testing that route.

Cinema 4D concepts: Character Definition and Character Solver. Product output behavior is documented from the shipped importer.

Use the expression library correctly

The library's dials are recipes built from the channels your rig supports.



The library categories in the supplied User Data panels feed the real expression controls on the face.

Library contents	What the character needs
100 full facial expressions	Compatible facial shapes or wired bone controls for the expression ingredients.
30 mouth-only expressions	Jaw and lip controls that visibly open, stretch, close, funnel or pucker.
15 eye positions	Recognized eye-look controls or bone-pose routes.
6 reset presets	A neutral reference and valid controller connections.
151 one-click presets / 145 library dials	The presets operate supported channels; unsupported details remain unavailable.

You do not need a mesh morph named `Action Belly Laugh` for that preset. You need the underlying jaw, mouth, eye and brow ingredients. For example, `eyeBlinkLeft` should close the character's left eyelid; `mouthSmileLeft` should raise its left mouth corner.

> **Keep generated groups intact.** Face Studio adds its own library groups, recorded inputs and manual visemes. Keep those on the helper. Put your rig-facing base controls on the character's own controller, and keep their driver links intact.

Test a full expression and then its eye and mouth partials. Return the dials to zero to check that the neutral pose is stable.

Reference: 52 facial channel names

Use the exact canonical spellings below for the broadest expression mapping. Left and Right refer to the character's own sides.

Channels 1–13	Channels 14–26	Channels 27–39	Channels 40–52
eyeBlinkLeft	eyeWideRight	mouthFrownRight	mouthUpperUpLeft
eyeLookDownLeft	jawForward	mouthDimpleLeft	mouthUpperUpRight
eyeLookInLeft	jawLeft	mouthDimpleRight	browDownLeft
eyeLookOutLeft	jawRight	mouthStretchLeft	browDownRight
eyeLookUpLeft	jawOpen	mouthStretchRight	browInnerUp
eyeSquintLeft	mouthClose	mouthRollLower	browOuterUpLeft
eyeWideLeft	mouthFunnel	mouthRollUpper	browOuterUpRight
eyeBlinkRight	mouthPucker	mouthShrugLower	cheekPuff
eyeLookDownRight	mouthLeft	mouthShrugUpper	cheekSquintLeft
eyeLookInRight	mouthRight	mouthPressLeft	cheekSquintRight
eyeLookOutRight	mouthSmileLeft	mouthPressRight	noseSneerLeft
eyeLookUpRight	mouthSmileRight	mouthLowerDownLeft	noseSneerRight
eyeSquintRight	mouthFrownLeft	mouthLowerDownRight	tongueOut

For a Pose Morph rig, these are the pose names. For a controller rig, these are numeric User Data names that must be wired to actual pose or bone drivers. Each channel normally uses an internal 0–1 range.

Example	Visible result to test
`jawOpen`	Opens the jaw in its local rig; upper teeth remain stable.
`eyeBlinkLeft`	Closes the character's left eyelid.
`mouthSmileRight`	Raises the right mouth corner.
`mouthPucker`	Narrows and pushes the lips forward.
`browInnerUp`	Raises the inner brow region.
`tongueOut`	Requires a real tongue route; a visible name does not add tongue geometry.

Some video trackers do not measure every channel. A named tongue control, for example, can still need manual or imported cues. Use facial-channels.csv to copy names, and face-viseme-names.csv for the 15 mouth aliases.

Troubleshoot and check the result

Run this checklist on a short test before a long capture, bake or render.

Symptom	Check and fix
A slider moves but the face does not	Verify the pose changes points or joints. Then check the User Data → pose-strength route and skin weights.
Face Studio cannot find the controller	Use a name such as FACIAL MORPH CONTROLS and several recognized numeric channels, or select a compatible facial Pose Morph.
Voice reports missing speech shapes	Provide all ten exact Core User Data names, or a compatible Pose Morph speech map. Do not substitute the generated 15-dial labels for that ten-field controller contract.
The wrong actor changes	Inspect the MFS Facial target or Michele Speech controller / Pose Morph links.
A pose snaps back immediately	Check animation keys, competing drivers and expression priorities. Keep one active writer per destination.
The audio mouth is overridden	Choose Keep existing lip sync; clear both sets of manual Face visemes and check later keys.
Head turns or clothing floats	Fix neutral transforms, solver role mapping, driver scope and weights. Keep the head out of facial-only hierarchy poses.
New morphs are ignored after setup	Finish the rig before connecting; preserve old animated layers and rebuild revised routes on a working copy.

Five-minute acceptance test

- At neutral, all facial shapes and joints return to the saved rest state.
- AA, M, left blink, right blink and a smile visibly work at 0%, 50% and 100%.
- A short voice clip has complete lip closure and no competing manual override.
- A short body take preserves elbows, knees, facing direction, hands and clothing deformation.
- A saved and reopened working copy reproduces the tested result.

Reference files: Voice names · Body hierarchy · Facial channels · Face visemes.