

Actor Face to Character Face

Overview

This tutorial shows you how to constrain an Actor face to a Character face. The major steps of this tutorial are as follows:

- Preparing the Scene (page 1)
- Defining Generic Expressions (page 2)
- Connecting an Actor Face to a Character Face (page 4)
- Animating a Custom Expression Over Motion Capture Data (page 4)



Note:

This tutorial does not explain how to perform basic functions such as merging files, selecting elements, and navigating the interface.

Step 1: Preparing the Scene

In this step, you will add a favorite path for the tutorial folder in the Asset browser window. As a result, you will be able to access the tutorial files directly from the interface.

1. From the menu bar, select **File>New**, then select **Layout>Editing**.

MotionBuilder displays a new scene using the Editing layout. This layout displays all the windows you need for your work in this tutorial.

2. Right-click in the Asset browser and select **Add favorite path** from the contextual menu (fig 56-1).

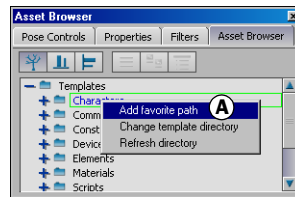


fig 56-1: A. Select Add favorite path from the contextual menu.

3. In the Open directory dialog box that appears, choose the **FaceA2C** folder (created when unzipping the *T56_Face_Actor_Char.zip* file) and click **OK**. The **FaceA2C** folder is added as a favorite path in the Asset browser.

4. From the **FaceA2C** folder in the Asset browser, drag the **surfer_face_char.fbx** file (fig 56-2, A) into the Viewer window and select **FBX Open>No Animation** from the contextual menu that appears.

The Surfer model appears in a T-stance (fig 56-2, B).

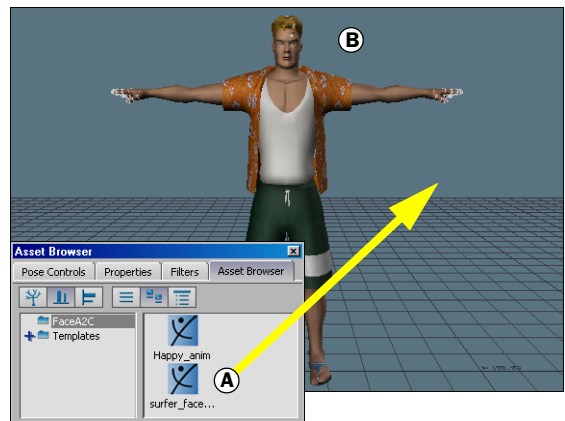


fig 56-2: A. Drag the *surfer_face_char.fbx* file into the scene. B. The Surfer appears in the center of the Viewer window.

2 MotionBuilder 6 Tutorials

Defining Generic Expressions

The **surfer_face_char.fbx** file also contains a Character face that has already been applied to the Surfer model.

5. From the Asset browser, drag the **Happy_anim.fbx** file (fig 56-2, A) into the Viewer window and select **FBX Merge>Take 001** from the contextual menu that appears.

The **Happy MoCap** Actor Face appears in the Actor Faces folder in the Scene browser (fig 56-3). You may need to expand the Actor Faces root folder to see it.

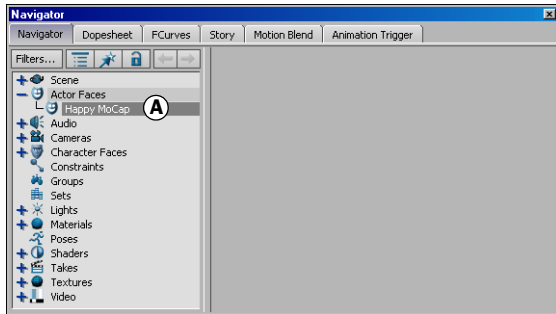


fig 56-3: Navigator A. The Happy MoCap Actor face displays.

Step 2: Defining Generic Expressions

In this step, you will define the Generic expressions for each shape. Generic expressions consist of various facial positions of the mouth, eyebrows, and eyes used to transfer facial motion from an Actor Face to a Character Face.

The Surfer model contains shapes for phonemes and various facial expressions, as well as shapes for each Generic expression. In this tutorial, you will work only with the Generic shapes.

1. Zoom in on Surfer's face to see the results of the following steps.
2. In the Character Face settings, switch to the **Character Face Definition** pane.

3. In the Expressions area, click the **Generic** tab to open this pane (fig 56-4, A).

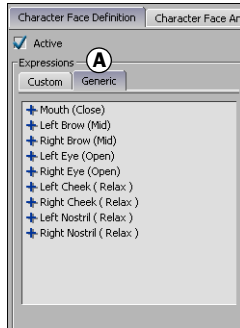


fig 56-4: Character Face settings A. Open the Generic pane.

4. Select **All By Name** from the Shapes menu (fig 56-5).

Selecting All By Name allows you to see all of the shapes at the same time. This is useful when all of the shapes have been named according to the facial shape they represent.

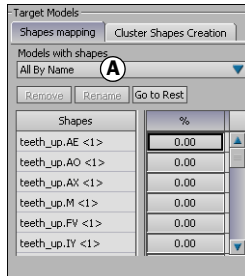


fig 56-5: Target Models area A. Select All By Name to show the shapes of all face models.

The shapes for the head, teeth, and tongue models display in the Shapes list by name. These models were Alt-dragged into the Shapes menu in a previous tutorial.

5. In the Generic pane, expand the **Mouth** group and select the **Open** expression (fig 56-6, A).

When you select a Generic expression, the effect shows on the model in the Preview area (fig 56-6, B).

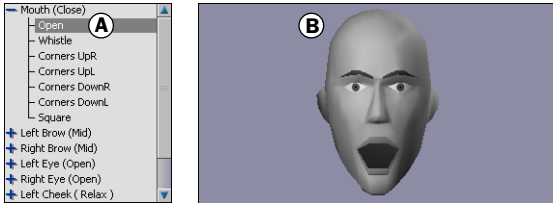


fig 56-6: A. The Open expression is selected in the Generic pane. B. The Preview model shows the effect of the Open expression.

6. In the Shapes list, double-click the **s_head.Mouth_Open** value field (fig 56-7, A), type **100**, and press **Enter**.

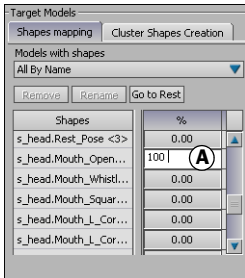


fig 56-7: Target Models area A. In the Shapes list, set the **s_head.Mouth_Open** value to 100%.

In the Viewer window, Surfer opens his mouth but his teeth remain closed and his tongue is too high.

7. Add to the mouth's Open expression by setting the values of the following shapes to **100**:

- teeth_up.Mouth_Open
- teeth_down.Mouth_Open
- tongue.Mouth_Open

Surfer should look like fig 56-8.



fig 56-8: The Open mouth expression.

At 100%, the Character's mouth matches the position of the mouth of the Preview model. This is the ideal position for the Generic expression. The Open expression is now associated with the **s_head.Mouth_Open**, **teeth_up.Mouth_Open**, **teeth_down.Mouth_Open**, and **tongue.Mouth_Open** shapes of the surfer model.

8. In the Generic pane, select **Whistle**, the next expression (fig 56-9, A).

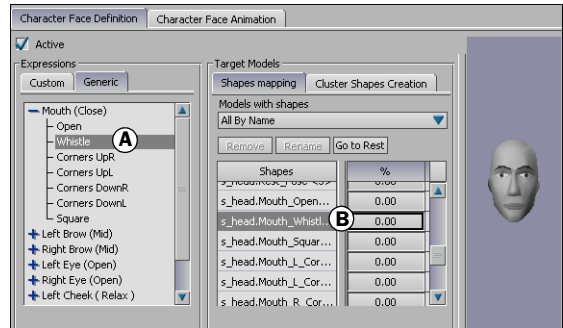


fig 56-9: Character Face settings A. Whistle expression is selected in the Generic pane. B. Whistle shape is selected in the Shapes list.

9. In the Shapes list, select the **s_head.Mouth_Whistle** shape (fig 56-9, B), then enter a value of **100** in its field.

The mouth position of the character in the Viewer window matches the mouth position of the model in the Preview pane.

10. Define the rest of the Generic expressions with the help of the following table. Select the expression in the Generic pane, then change the value of the corresponding shape in the Shapes list to **100**.

Generic pane	Shapes List
Corners UpR	s_head.Mouth_R_Corner_Up
Corners UpL	s_head.Mouth_L_Corner_Up
Corners DownR	s_head.Mouth_R_Corner_Down
Corners DownL	s_head.Mouth_L_Corner_Down
Square	s_head.Mouth_Square tongue.Mouth_Square teeth_up.Mouth_Square teeth_down.Mouth_Square
Left Brow Up	s_head.L_Brow_Up
Left Brow Down	s_head.L_Brow_Down
Right Brow Up	s_head.R_Brow_Up

Pro

4 MotionBuilder 6 Tutorials

Connecting an Actor Face to a Character Face

Right Brow Down	s_head.R_Brow_Down
Left Eye Close	s_head.L_Eye_Close
Left Eye Squint	s_head.L_Eye_Squint
Left Eye Wide Open	s_head.L_Eye_Wide_Open
Right Eye Close	s_head.R_Eye_Close
Right Eye Squint	s_head.R_Eye_Squint
Right Eye Wide Open	s_head.R_Eye_Wide_Open

11. Make sure that the expressions are associated with the correct shapes by selecting an expression, and viewing the shape values in the Shapes list and the effect on the character and Preview model.

Step 3: Connecting an Actor Face to a Character Face

In this step, you will connect an Actor face (Happy MoCap) to the Character face (Surfer face).

1. In the Scene browser, double-click the **Character Faces** root folder, then double-click **Surfer face** to display the Character Face settings (fig 56-10, A).
2. Click the **Character Face Animation** tab to display the Character Face Animation pane (fig 56-10, B).

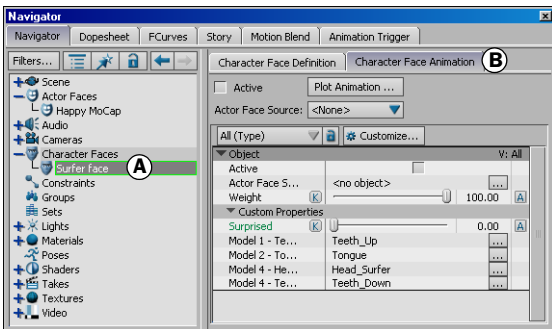


fig 56-10: Character Face Animation settings **A**. Double-click on Surfer face to display the Character Face settings. **B**. Character Face Animation tab.

3. Select **Happy MoCap** in the **Actor Face Source** menu and enable the **Active** option (fig 56-11).

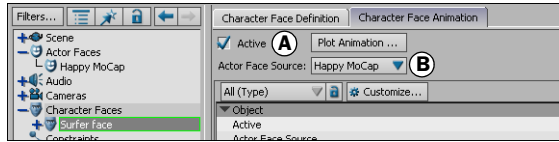


fig 56-11: **A**. Active option **B**. Constrain the Surfer face to the Happy Mocap actor face.

4. Play the animation.

Selecting the Actor face in the Actor Face Source menu constrains the Actor face to the Character face, and the defined Character face can then be driven with the animation data from the Happy Mocap Actor Face.

Step 4: Animating a Custom Expression Over Motion Capture Data

In this step, you will animate a custom expression using keyframes. The custom expression is animated over motion capture data without altering the original motion.

1. Play the animation (Ctrl-Spacebar).

Observe Surfer's facial expression between frames 240 and 270, when he speaks without a specific expression. You will modify the facial expression between these frames.

2. Stop playing the animation and go back to the beginning of the take.

3. Select the **Surprised** expression.

You must select an expression before you can keyframe it.

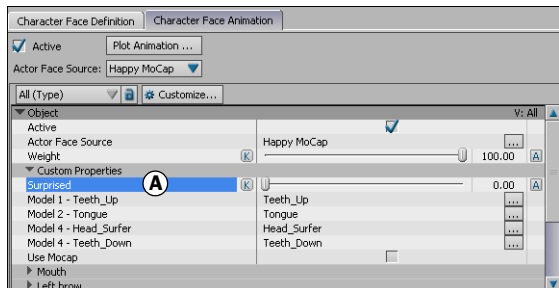


fig 56-12: Character Face Animation pane **A**. Surprised expression

5 MotionBuilder 6 Tutorials

Conclusion

4. Select **Layer 1** in the Layer field of the Key Controls window (fig 56-13) to add your keyframes on a separate layer.



fig 56-13: Key Controls window. A. Layer field

5. In the Key Controls window, select **Animation>Layer Options>Multi Layer**.

You can only keyframe on Layer 1 when Multi Layer is selected.

6. Move the Timeline indicator to **frame 240**.

The Timeline indicator is positioned when the Surfer's eyes and mouth are open (fig 56-14).



fig 56-14: The Surfer's face at frame 240.

7. Press **K** to set a keyframe at frame 240.

8. Move the Timeline indicator to **frame 270**, then press **K**.

Keyframes are now set at frames 240 and 270. You will modify the motion between these frames.

9. Move the Timeline indicator to **frame 260**.

The value for the "Surprised" expression is at zero. You will modify this expression to make the character look surprised between frame 240 and frame 270.

10. Drag the **Surprised** expression slider fully to the right, to set its value to **100** (fig 56-15).

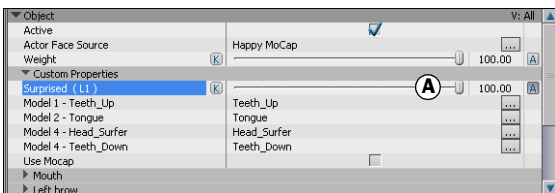


fig 56-15: A. Adjust the Surprised expression to 100%.

The Surprised expression is added to the existing animation, and the Surfer should resemble fig 56-16.



fig 56-16: The Surfer's face at frame 260 when the "Surprised" expression is at 100%.

11. Press **K** to set a keyframe.

A keyframe is added on the selected expression.

12. Play the animation.

You have altered the Surfer's expression between frames 240 and 270.

13. Click **Plot Animation** in the expressions pane.

14. Select **File>Save As** from the menu bar to save your scene as **surfer_happysurprised.fbx**.

Conclusion

In this tutorial, you connected an Actor face to a Character face, and keyframed animation for a custom expression.

6 MotionBuilder 6 Tutorials
Conclusion