# VBridger Manual

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## Overview

VBridger is a tool that transforms live ARKit/FACS data into additional formats that add to the virtual avatar experience.

The primary focus of VBridger at the moment is to combine tracking data for use with the Live2D app Vtube Studio by Denchisoft. It functions as an addon that allows the user to make full use of the ARKit tracking data for more realistic model movements.

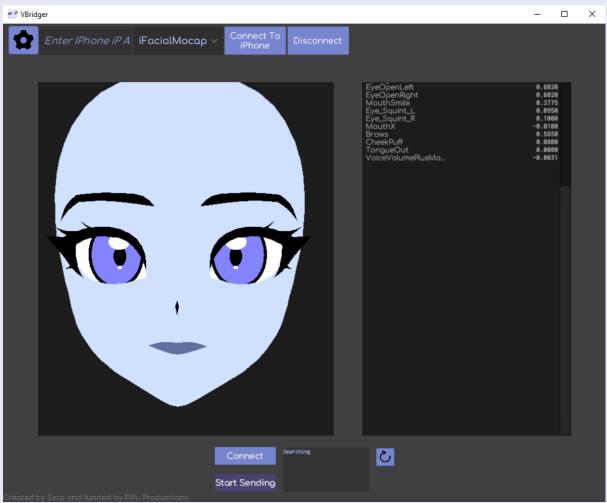
The base version of the app uses presets that have been officially created by PiPu Productions, and the DLC allows creators to create their own setting files. Anyone with the base app can load the settings generated by a creator.

## **Getting Started**

1. Open the app via Steam.

Windows Defender may ask you to allow the app to use your internet, make sure it is allowed on Public networks or it won't be able to connect to your phone to receive tracking data.

Prindows Security Alert				
Windows Defender Firewall has blocked some features of this app				
Windows Defender Firewall has blocked some features of vbridger.exe on all public and private networks.         Image: Name: vbridger.exe         Publisher:       Unknown         Path:       Image: Name Name Name Name Name Name Name Name				
Allow vbridger.exe to communicate on these networks: Private networks, such as my home or work network Public networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security)				
What are the risks of allowing an app through a firewall?	_			



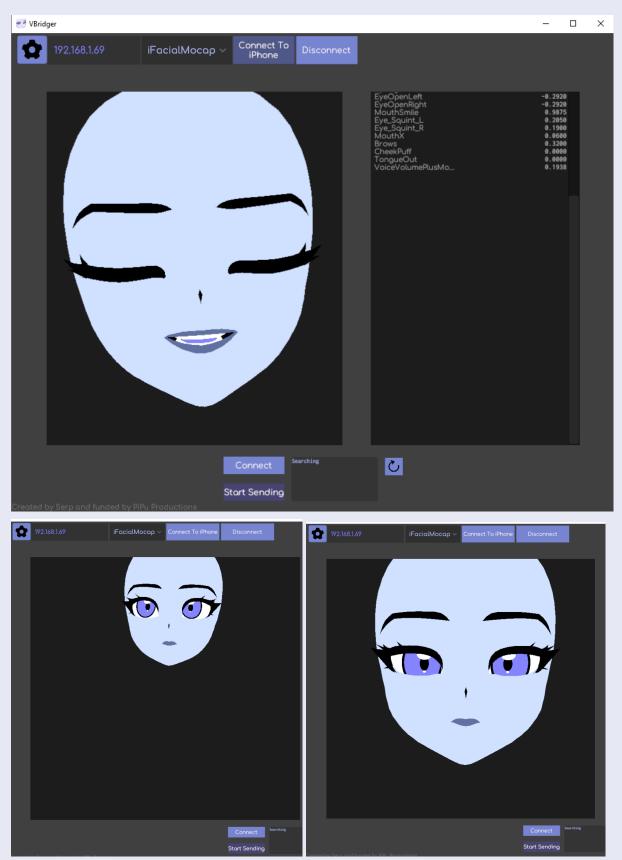
You should see a screen like this after it loads.

2. Find the local IP of your phone, it can generally be found in the Wifi settings. In apps like ifacialmocap it may be displayed along the top of your phone. It should look something like 192.168.1.XX (XX being random numbers). There will be no letters in the IP address.

VBridger Supports ifacialmocap(iPhone), FaceMotion3D(iPhone), as well as Meowface (Android). You can select which app you'd like to use by clicking the drop-down on the top bar.

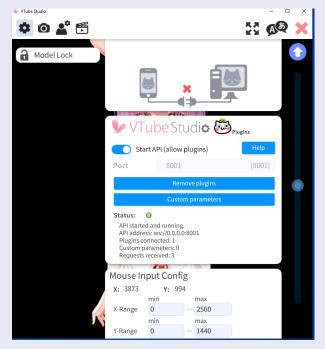
192.168.1.69	iFacialMocap ~	Connect To iPhone	Disconnect
	🗸 iFacialMocap		
	FaceMotion3d		
	MeowFace		

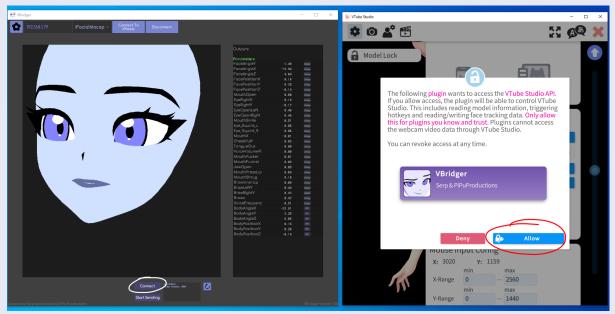
3. With your phone's IP in the address bar and the app open on your phone, select "Connect to iPhone" The face should begin moving now, matching what you do!



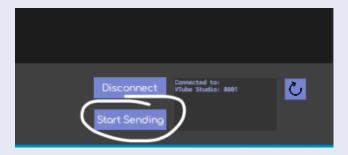
If your head is small and high up, press the "reset position" button on your phone, otherwise the position information will be incorrect!

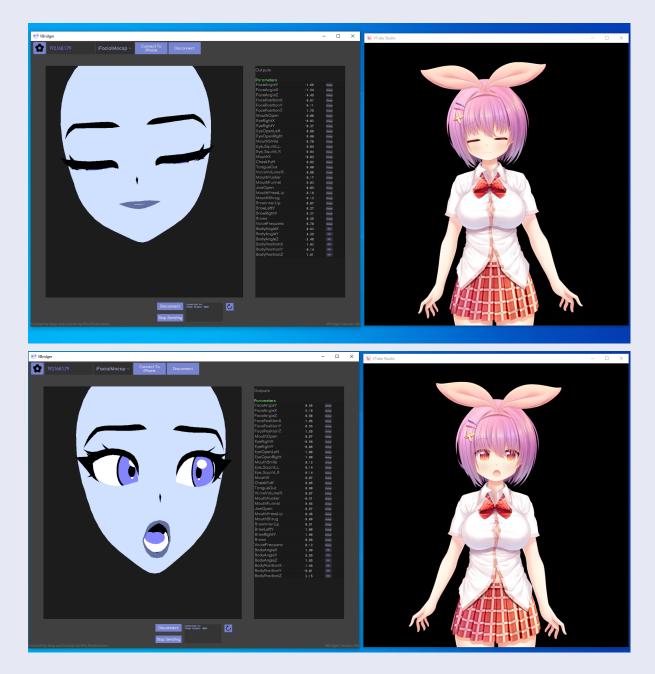
- 4. By default VBridger loads a file that creates outputs compatible with VTube Studio.
- In order to Connect to Vtube Studio, open the Vtube studio app. Make sure that the "Start API" is switched on. Then hit "Connect" On VBridger. Vtube studio will ask you to allow the plugin. Hit "Allow"





 Now all you need to do is hit " Start Sending" On VBridger and the model will start moving





7. By default, VBridger will send your tracking data to Vtube Studio and any additional windows you open. In order to stop VBridger from sending to a window of VTube Studio, turn off the API.

😸 Wridger	×		
1921681.79 Focusit forces Convect To Proceed Vibe Studio Window 2	- · · ×	Vifube Studio	
a Model Lock	PC/Mac IP (v4/v6): Show IP list	Model Lock	Lock screen rotation     Remember scene     Show controls
	Status: Server online. Waiting for connection from smartphone [25566]	Real Parts	Toggle Fullscreen Quit App
	USB Settings		Open data folder Import own models, BGs, items,
	Status: Oliconnected.		Start VTube Studio
			Connection Settings (WiFi) Start Server
			Port 25565 PC/Mac IP (v4/v6): Show IP list
	VTube Studic Constant API (allow plugins)		Status: Status: Lag: - Server online. Waiting for connection from smartphone
	Port 8001	HIII	USB Settings
	Custom parameters		USB Settings

## Base VBridger Settings

🥶 VBridger								-	
192.168.1.79	iFacialMocap ~	Connect To	Disconnect						
	il delatitocap	iPhone							
Load									
Debug Values						Outputs			
						Parameters			
Auto-Reconnect						FaceAngleY	6.45		
						FaceAngleX	-10.54	Delay	
Display Face						FaceAngleZ	3.12		
						FacePositionX	1.27		
Language	$\wedge$					FacePositionY	0.38		
Language						FacePositionZ	0.42		
Discord						MouthOpen	0.00		
Discoro						EyeRightX	0.13		
						EyeRightY	0.21		
						EyeOpenLeft	0.58		
						EyeOpenRight	0.58		
	1 f					MouthSmile	0.55		
						Eye_Squint_L	0.11		
						Eye_Squint_R	0.11		
						MouthX	0.00		
						CheekPuff	0.01		
						TongueOut	0.00		
						VoiceVolumePl	0.00		
						MouthPucker	0.08		
						MouthFunnel	0.04		
						JawOpen	0.05		
						MouthPressLip	0.10		
						MouthShrug	0.08		
						BrowInnerUp	0.07		
						BrowLeftY	0.38		
						BrowRightY	0.38		
						Brows	0.44		
						VoiceFrequenc	0.55		
						BodyAngleX	-15.60	100	
						BodyAngleY	11.57		
Created by Serp and funded by PiPu			onnect Connected YTube Stud	to: fio: 8001	<u>ر</u>				

- 1. Load Loads Saves
- 2. Save Save the Delay edits
- 3. Debug Values Shows the values next to the Outputs
- **4. Display Face** Toggles the 3D face preview
- 5. Language Change language settings. Does not affect output names, just UI.
- 6. Delay Change the Delay (milliseconds) of the parameter Output

## Editor DLC

### Menus and UI

Cf VBridger			- 🗆 ×
<b>1 2</b> 92.168.1.79	3 FacialMocap v 4 Connect To	Disconnect	
Inputs     5       BlendShopes     browDown_L     1.00       browDown_R     1.00       browDown_R     1.00       browDown_R     1.00       browOuterUp_L     1.00       browOuterUp_R     1.00       browOuterUp_R     1.00       cheekSquint_L     1.00       eyeBlink_R     1.00       eyeBlink_R     1.00       eyeLookDown_R     1.00       eyeLookOut_R     1.00       eyeLookOut_R     1.00       eyeLookOut_R     1.00       eyeLookOut_R     1.00       eyeLookOut_R     1.00       eyeUokOut_R     1.00       eyeUokOut_R     1.00       eyeWide_R     1.00       eyeWide_R     1.00       jowGorward     1.00       jowOpen     1.00       jowOpen     1.00       mouthFlown_L     1.00       mouthFlown_L     1.00       mouthFlown_L     1.00       mouthLowerDown_L     1.00       mouthLowerDown_R     1.00       mouthLowerDown_R     1.00       mouthLowerDown_R     1.00       mouthLowerDown_R     1.00       mouthLowerDown_R     1.00       mouthLowerDown_R     1.00       mouthL	Porometers headPosZ*-5	Add New Output 13	e -o.5 Parameters BodyPositionZ -e.5 10 14
Greated by Serp and funded by PIPu Pro	10 <sup>Stori</sup>	sending 11	VBridger Version 1.06

- 1. Settings
- 2. Phone IP
- 3. Tracking App Selection
- 4. Connect/Disconnect from Phone
- 5. Input Values
- 6. Output Editor
- 7. 3D Preview
- 8. Outputs
- 9. Connect (to Vtube Studio)
- 10. Start Sending (Begins sending Data)
- 11. Available Vtube Studio Windows
- 12. Refresh (must be pressed when opening/closing Vtube Studio windows!)
- 13. Add Output Button (Creates a new equation)
- 14. Delay Editor

### Settings

- Load Load any settings files
   Save
  - Save any Settings file
- Reset to Default Resets Outputs to whatever is in the "Default.vbridger" file in the Saves.
   If you overwrite your Default file, you can "Verify the Integrity of Files" via steam, and it'll re-download the factory settings.
- 4. Debug Values Toggles all the live number values
- 5. Display Face Toggles the 3D preview face
- 6. Language



Change language. Language affects the equations editor so the equations can be typed in the language of the program.

192.168.1.79	iFacio	lMocap ~ iPhoneへ接続 切断	
読み込み		新しい出力の追加	
保存		パラメータ	出力
デフォルトヘリセット		FaceAngleY	
デバッグ値	1.00		
自動再接続	1.00 1.00	(-頭の回転X*1.5) +((まばたき_L+まばたき_R)*-1) = -3.5	
画面表示	1.00 1.00	-50 0 50	
Language		FaceAngleX	
Discord まぱたき_R		頭の回転Y*1.5 = -1.5	
_ 目下_L _		-50 0 50	
目下_R 目内_L	日本語		Brows 0.50 Delay
目内_R 目外_L	Русский язык	FaceAngleZ	CheekPuff 1.00 Delay
目外_R 目上_L	Español	Jの回転Z*1.5 = 1.5	TongueOut 1.00 Pelay VoiceVolumePl 0.15 Delay
目上_R 寄り目_L	1.00	-50 0 50	BrowLeftY 0.50 Delay
寄り目_R 見開き L	1.00 1.00		BrowRightY 0.50 Pelay VoiceFrequenc 0.50 Pelay
見開き_R   顎前	1.00	FacePositionX	BodyAngleX -1.50 100
· · · · · · · · · ·	1.00	頭の位置X*-1 = -1	BodyAngleY -3.50 100 BodyAngleZ 1.50 100
顎右 口閉じる	1.00		BodyPositionX -1.00 100 BodyPositionY 1.00 100
ロえくぼ_L	1.00		BodyPositionZ -0.50
ロえくぼ_R しかめロ_L	1.00	FacePositionY	
しかめロ_R アヒルロ	1.00 1.00	頭の位置Y*1 = 1	
口左 口下_L	1.00 1.00		
口下_R	1.00		
		接続する VTube Studio: 8001	
		送信を開始しま	
reated by Serp and funded	by PiPu Productions		VBridger Version 1

### Output Editor

#### Overview

In the output editor, the Inputs can be used as variables in equations. Each output added will create a box where all the relevant information for that Output exists.

The top box is the name of the Output. This cannot be changed while VBridger is connected to any external app.

The middle box is where you can enter your driver equation.

The bottom boxes are used to communicate information to the receiving app, to let it know what range the values of the equation should fall within.

Output Parameter	x
Enter Equation	-
Min Default Max	
WIIT Derdat With	

The names must be typed perfectly, and will turn green once recognized.

	FaceAngleY	x
eyeBlink_		= -3
	-30 0 30	
	FaceAngleY	X
eyeBlink_L	FaceAngleY	× = -3

If typed incorrectly, the text will remain blue and when you hit enter, the box will turn red to show you that the equation isn't viable.

	FaceAngleY	x
eyeBlink_		= -3
	-30 0 30	

All math will be pinkish and plain values will remain blue.

		FaceAngleY			x
eyeBlink_L+40					41
	-30	Default	30		

All blendshape inputs will be a value of 0-1

BlendShapes	
browDown_L	1.00
browDown_R	1.00
browInnerUp	1.00
browOuterUp_L	1.00
browOuterUp_R	1.00

Joint values are less clear, the Eye rotations are generally -15 to 15, and Head rotations are generally -30 to 30.

Joints	
eyeLeftX	-1.39
eyeLeftY	10.04
eyeLeftZ	0.31
eyeRightX	-1.43
eyeRightY	6.96
eyeRightZ	0.22
headPosX	-0.46
headPosY	-2.57
headPosZ	0.30
headRotX	-0.31
headRotY	0.20
headRotZ	0.86

### Usage and Examples

### Equation Ex. 1

Eye Look Down is subtracted from Eye Look Up, so when I look down on the phone the output value goes into the negatives, and looking up stays in the positives.

By doing this, we've combined two inputs into one output, simplifying the data for Vtube Studio.

	Add	New Out	put			
		eyeLookY		x		
eyeLookUp_L - eyeLookDown_L				= -0.36	5	
	Min	Default	Max			
					6	
					eyeLookY	-0.3600
	Add	New Out	put			
	Add	l New Out	put	x		
eyeLookUp_L - eyeLookDown_L	Add		put	<b>X</b> = 0.58		2
eyeLookUp_L - eyeLookDown_L	Add		put Max			<u></u>
eyeLookUp_L - eyeLookDown_L		eyeLookY			 eyeLookY	

### Equation Ex. 2

Iphones track Smiling and Frowning on both left and right sides of the face, which creates 4 parameters. We can simplify this to just 1 by averaging smiling and frowning, and doing what we did above by placing the frown on the negative value.

The whole thing is divided by 2 to average out the left and right sides instead of just adding them together.

Add New Output		
	x	
(mouthSmile_L+mouthSmile_R)-(mouthFrown_L+mouthFrown_R))/2	= -0.43	
Min Default Max		
		4
		Mouth Smile and -0.4350 Frown
Add New Output		
Add New Output Mouth Smile and Frown	X	
	<b>X</b> = 0,445	
Mouth Smile and Frown	_	
Mouth Smile and Frown ((mouthSmile_L+mouthSmile_R)-(mouthFrown_L+mouthFrown_R))/2	_	
Mouth Smile and Frown ((mouthSmile_L+mouthSmile_R)-(mouthFrown_L+mouthFrown_R))/2	_	
Mouth Smile and Frown ((mouthSmile_L+mouthSmile_R)-(mouthFrown_L+mouthFrown_R))/2	_	

### Equation Ex. 3

Mouth Dimple activates when the mouth is closed, where mouth Stretch activates when the mouth is Open. Pucker is the opposite shape of both, so we can average the Dimple/Stretch Inputs and then subtract Pucker to create a single Output from the 5 inputs!

Kissy Face Stretch Face       X         (mouthDimple_L+mouthDimple_R+mouthStretch_R+mouthStretch_L)/4-mouthPucker       = -0.667         Min       Default       Max	
	Kissy Face Stretch -0.6675 Face
	Face
Kissy Face Stretch Face	
(mouthDimple_L+mouthDimple_R+mouthStretch_R+mouthStretch_L)/4-mouthPucker = 0.402	5 7

### Min Default Max

These are values that Vtube studio uses when you set a VBridger output as a tracking input there.

These don't affect the equation, but they change how vtube studio interprets it.

The Min is what Vtube studio expects to be your minimum value. The Max is what Vtube studio expects the highest value to be. The Default is somewhat unimportant, but it should be whatever value your equation uses as a base. Most of the time it will be 0, but a blink for example might be 1 when the eyes are open or in "standard" position.

Min Max Ex. 1

For this EyeOpen equation we are combining blink and eye wide to create one parameter. In Live2D, the blink value is 0 when the eye is closed, so we are going to do some math to reformat the values to match how the live2D parameters work.

We can subtract eyeBlink from 1 to invert the value. Now instead of being 1 when blinking, it will be 0, and instead of 0 while the eye is open, it will be 1. This means that our default value should be 1. Our minimum value will be 0 because we reach the blink when the value hits 0. We won't need to go into the negatives at all.

Eye Wide is usually rigged at 1.5 in Live2D parameters, so we want to halve the value. So when the eye is widest, the highest possible value is 1.5 instead of 2. So we will add a divided eyeWide to the blink equation. We'll set the Max to 1.5, and our Output is finished.

	EyeOpen_L	x
1-(eyeBlink_L)+(eyeWide_L/2)		= 1.22
	Min Default Max	
	EyeOpen_L	x
1-(eyeBlink_L)+(eyeWide_L/2)	EyeOpen_L	<b>X</b> = 0.71
1-(eyeBlink_L)+(eyeWide_L/2)	EyeOpen_L 0 1 1.5	

#### Min Max Ex. 2

#### Mouth X

Like the smile/frown equation, MouthX has a negative and positive value. The value will only go to -1 at minimum and 1 at max, and the neutral position (0) will be our default.

	MouthX	x
mouthRight-mouthLeft		= -0.04
mounkight-mountert		0.04
	-1 0 1	

#### Delay

Delay can be added to the Output as a modifier.

This will delay the sending of the information for the amount specified (in ms). This allows you to play with the timing of parameters.

