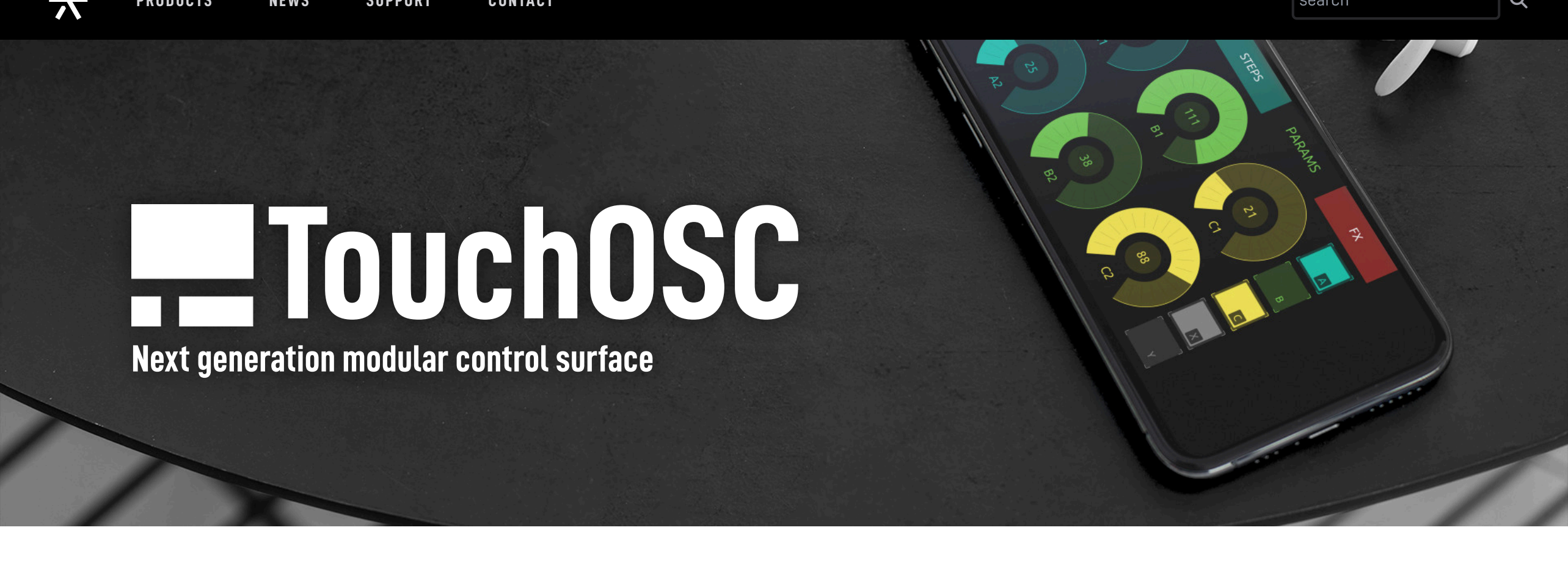

TouchOSC

Next generation modular control surface

→ TouchOSC Manual

Introduction

TouchOSC is a modular control surface toolkit for designing and constructing custom controllers that can be used on a multitude of operating systems and devices.

TouchOSC can be used on touch-screen mobile devices as well as desktop operating systems using traditional input methods.

TouchOSC can communicate with other software and hardware using the MIDI and Open Sound Control protocols in a variety of ways and via many different types of wired and wireless connections simultaneously.

All versions of TouchOSC include the powerful, integrated editor, to customize every detail of your controller setup. If the default behavior of the selection of available controls does not exactly do as you wish, there is unlimited possibilities using the deep scripting engine and the easily configured inter-control communication using local messages.

Any control surface document you create can be freely exchanged between all versions of the application, and we've worked hard to make sure that every aspect of your controller will be rendered and behave exactly the same, no matter what kind of hardware TouchOSC is running on.

We are always working on adding more protocols, input methods and features, if you would like to suggest anything that is missing for your use-case or workflow - please do not hesitate to contact us ✉ and let us know. We think of every single suggestion as a **vote** - if enough votes are cast, we will make it happen!

Please note that a manual for an application as complex as TouchOSC will always be a work in progress, much like the application itself, and we will continually update these pages based on user feedback and application updates - of which there will be many.

So please do check back from time to time for updates and additions to the material presented here.

Hexler Heavy Industries - 2021

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- Ableton Live

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→ TouchOSC Manual

Getting Started

No one likes to read manuals, right?

To get you started as quickly as possible, we've compiled brief tutorials for the minimum steps required to set up working MIDI and OSC connections, and an example of how the MIDI mapping of another application would usually work.

These are not meant to be exhaustive instructions on how to set up TouchOSC, but more of a **quick start** to make use of your new control surface **right now**.

If you run into trouble with these, or want to know more, please do consult the detailed sections of the manual for each of the respective functions and configuration, and please feel free to contact us if nothing helps or you think something that should be mentioned here is missing.

- MIDI
- OSC
- Ableton Live

→ TouchOSC Manual

Getting Started · MIDI

In this short tutorial, we will be setting up the sending of MIDI messages from TouchOSC to another application on the network.

We'll be using the TouchOSC Bridge utility application, to handle sending MIDI messages over the network, as this is a common use-case for control surfaces running on mobile touch-screen devices.

If you want to send MIDI messages between TouchOSC and other applications or ports on the same device or computer, the set-up becomes much more straight forward, and you can skip the steps involving TouchOSC Bridge in this tutorial.

⚠ If you are running the Windows operating system and choose to connect via a network connection, please note that the Windows firewall can prevent this setup from working. Should you run into problems, please disable the Windows firewall temporarily and try again.

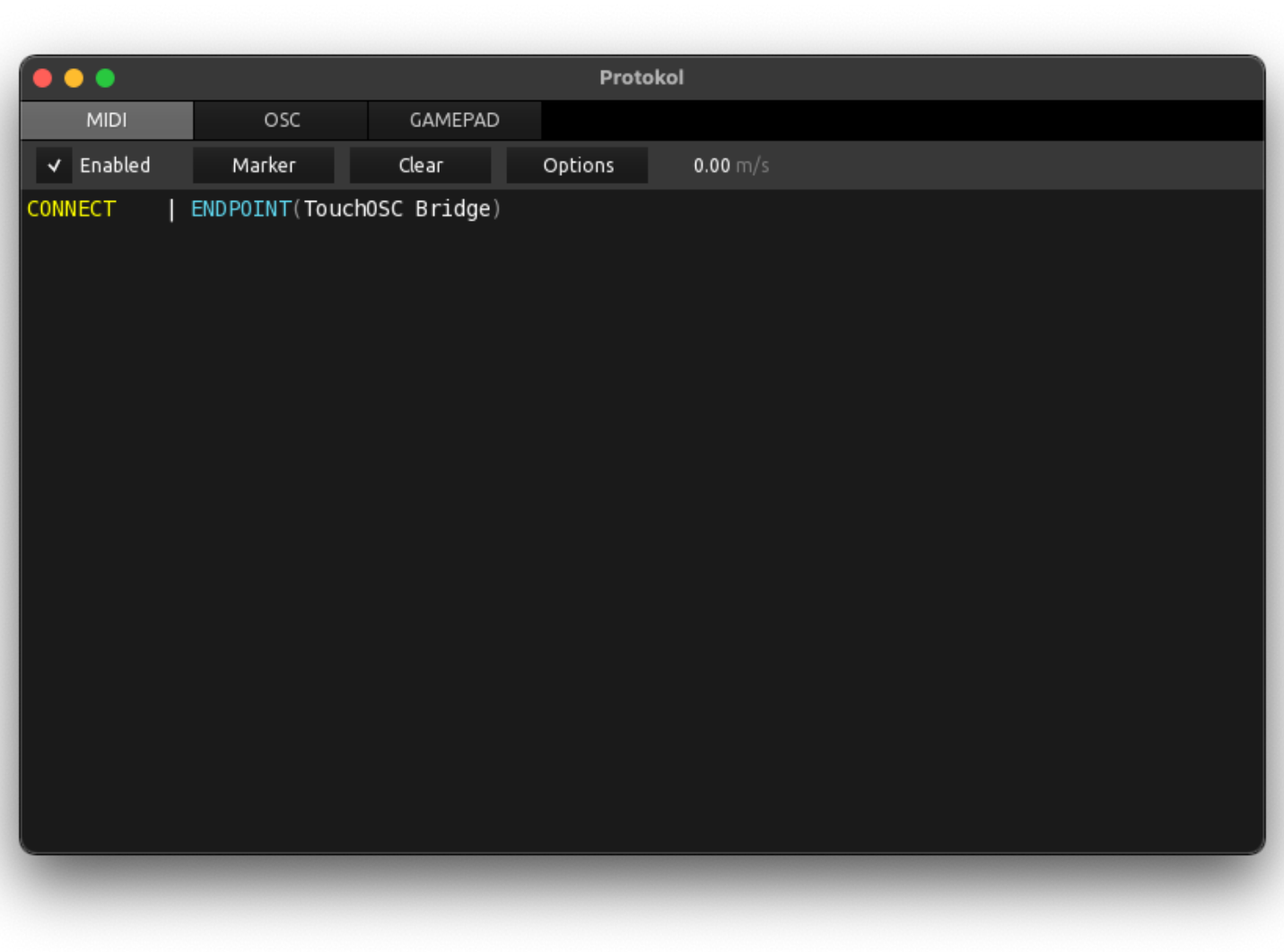
Getting Started · MIDI
02:26

- Protokol
- TouchOSC Bridge
- TouchOSC
- Send MIDI messages

Protokol ↑

We'll be using the Protokol application, our free tool for testing OSC and MIDI connections and messages. This is the same utility we use in-house for testing our applications.

Protokol is available for all the same platforms as TouchOSC and is a free download.


Protokol
MIDI
OSC
GAMEPAD
✓ Enabled
Marker
Clear
Options
0.00 m/s

```
CONNECT     | ENDPOINT(TouchOSC Bridge)
```

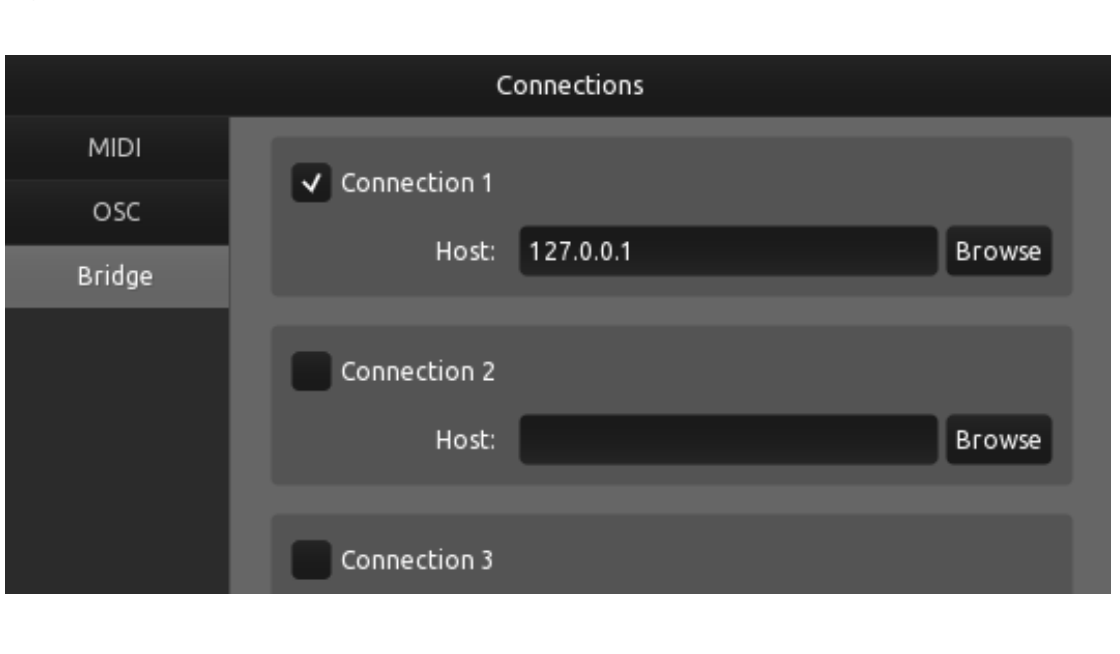
- Download and install any version of Protokol
- Launch the application, switch to the **MIDI** tab page, and check the checkbox next to **Enabled**
- Protokol is now waiting for incoming MIDI messages on all available MIDI ports

TouchOSC Bridge ↑

- Download and install TouchOSC Bridge
- Launch the application, a small icon will appear in the menu bar on macOS, or the task tray on Windows
- Protokol should now display the connection of the new MIDI port created by TouchOSC Bridge

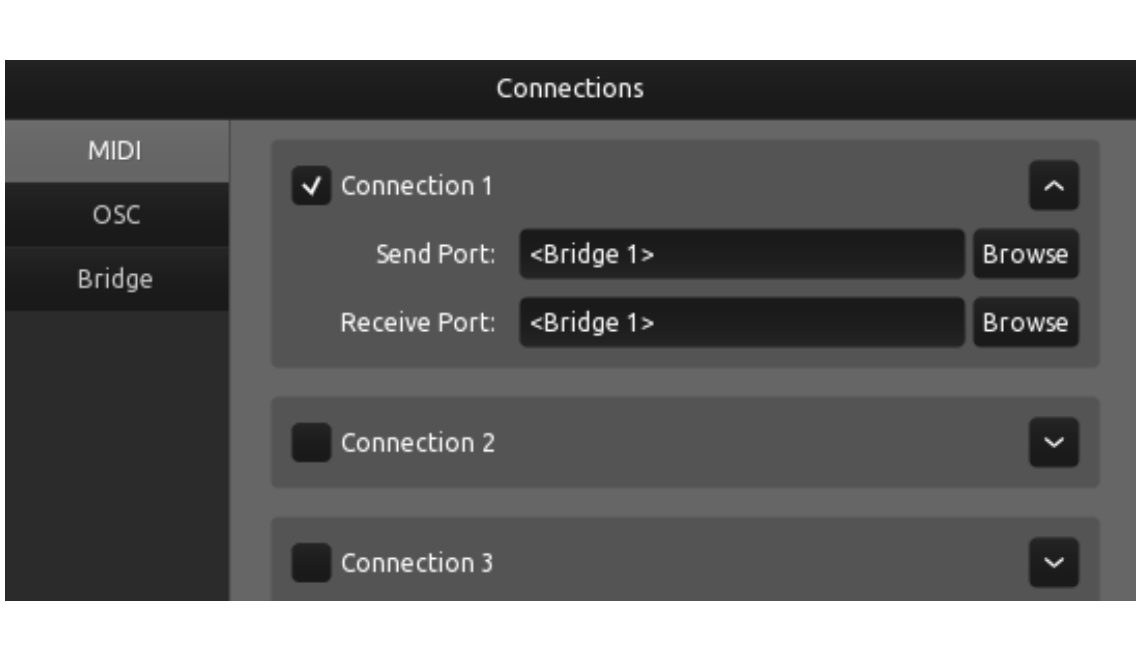
TouchOSC ↑

Next we'll configure TouchOSC to send MIDI messages to TouchOSC Bridge and load one of the included example layouts.


Connections
MIDI
OSC
Bridge
Browse
Browse

☑ Connection 1
Host: 127.0.0.1
☐ Connection 2
Host:
☐ Connection 3

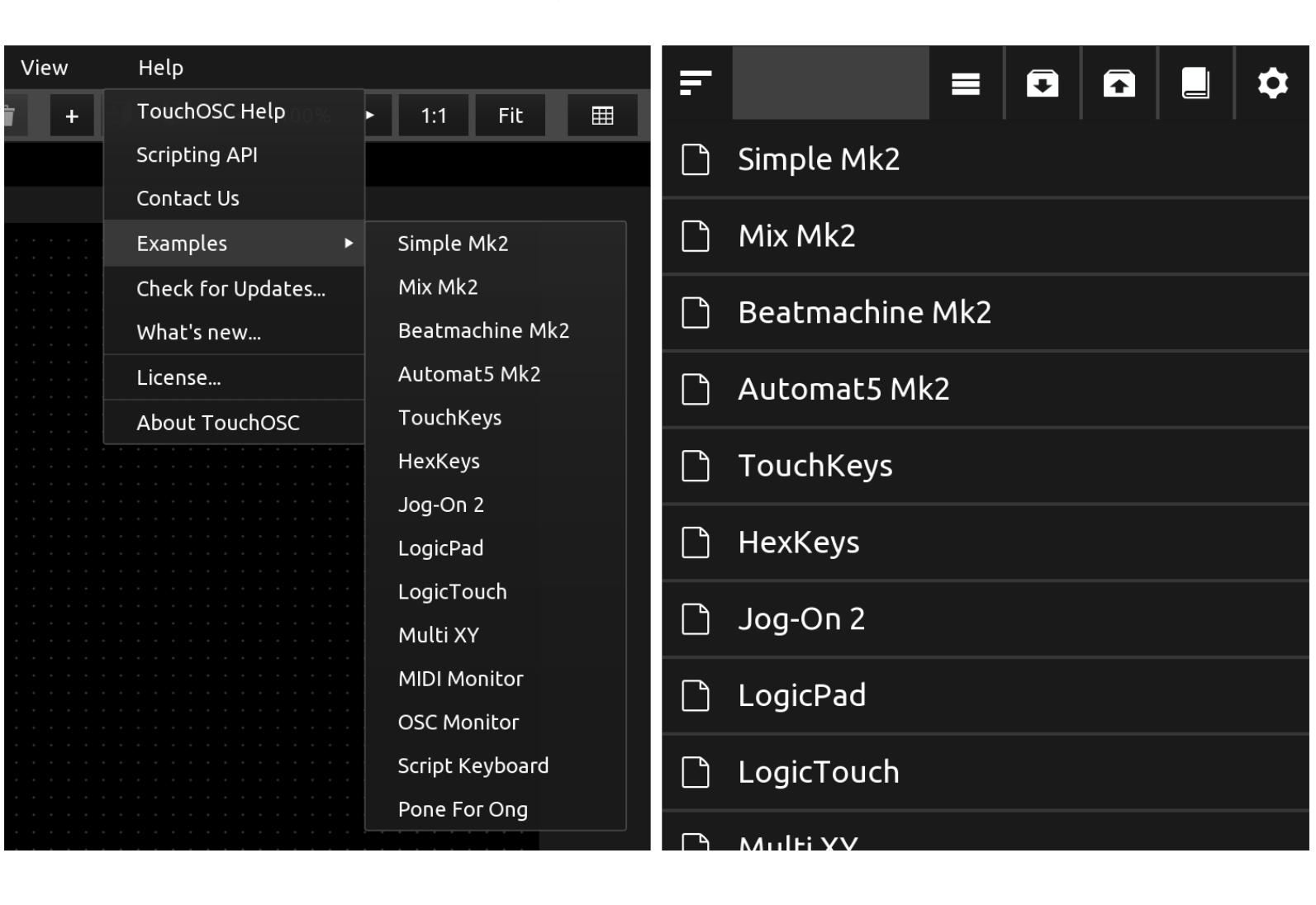
- Launch TouchOSC and open the **Connections** configuration by pressing the button with the chain link icon on the editor toolbar
- Switch to the **Bridge** tab page
- Enable the checkbox next to **Connection 1** and use the **Browse** button to select the name of the host or device where you launched TouchOSC Bridge
- The **Host** field should now be filled in


Connections
MIDI
OSC
Bridge
Browse
Browse

☑ Connection 1
Send Port: <Bridge 1>
Receive Port: <Bridge 1>
☐ Connection 2
☐ Connection 3

- Switch to the **MIDI** tab page
- Enable the checkbox next to **Connection 1** and use the **Browse** buttons to select **<Bridge 1>** for both the **Send Port** and **Receive Port** fields.

Now we'll load one of TouchOSC's included example layouts.

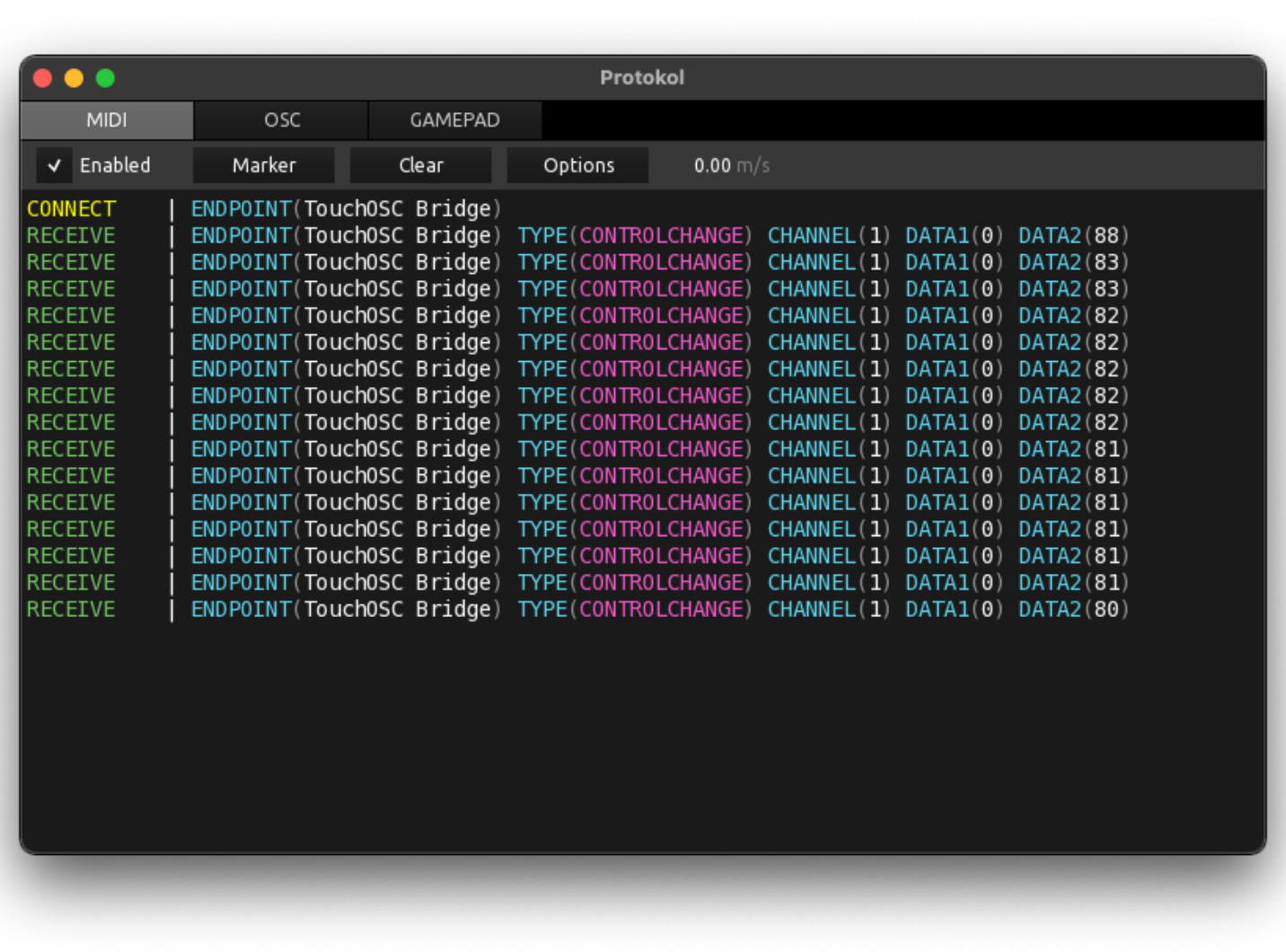

View
Help
TouchOSC Help
Scripting API
Contact Us
Examples
Check for Updates...
What's new...
License...
About TouchOSC
1:1
Fit
Simple Mk2
Mix Mk2
Beatmachine Mk2
Automat5 Mk2
TouchKeys
HexKeys
Jog-On 2
LogicPad
LogicTouch
Multi XY
MIDI Monitor
OSC Monitor
Script Keyboard
Pone For Ong

- Open the list of included example layouts, depending on your operating system:
- **For the desktop version**, find the menu at **Help > Examples**
- **For the mobile version**, find the example browser at the top of the editor panel on the right, and press the button with the book icon
- Select any one of the first four documents with **Mk2** in the name

With the document now loaded, and the connection configured, put TouchOSC into **control surface mode** by pressing the **play** button on the editor toolbar, or by using the CTRL/CMD+E keyboard shortcut on desktop platforms.

Send MIDI messages ↑

With both the receiver and sender configured and ready to go, we'll send some MIDI messages.


Protokol
MIDI
OSC
GAMEPAD
✓ Enabled
Marker
Clear
Options
0.00 m/s

```
CONNECT     | ENDPOINT(TouchOSC Bridge)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(88)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(83)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(83)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(82)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(82)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(82)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(82)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(82)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(81)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(81)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(81)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(81)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(81)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(81)
RECEIVE     | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(80)
```

Move a fader, press a button or interact with any other control on the control surface in TouchOSC and you should see the received MIDI messages being printed in Protokol.

→ TouchOSC Manual

Getting Started · OSC

In this short tutorial, we will be setting up the sending of OSC messages from TouchOSC to another application.

⚠ If you are running the Windows operating system and choose to connect via a network connection, please note that the Windows firewall can prevent this setup from working. Should you run into problems, please disable the Windows firewall temporarily and try again.

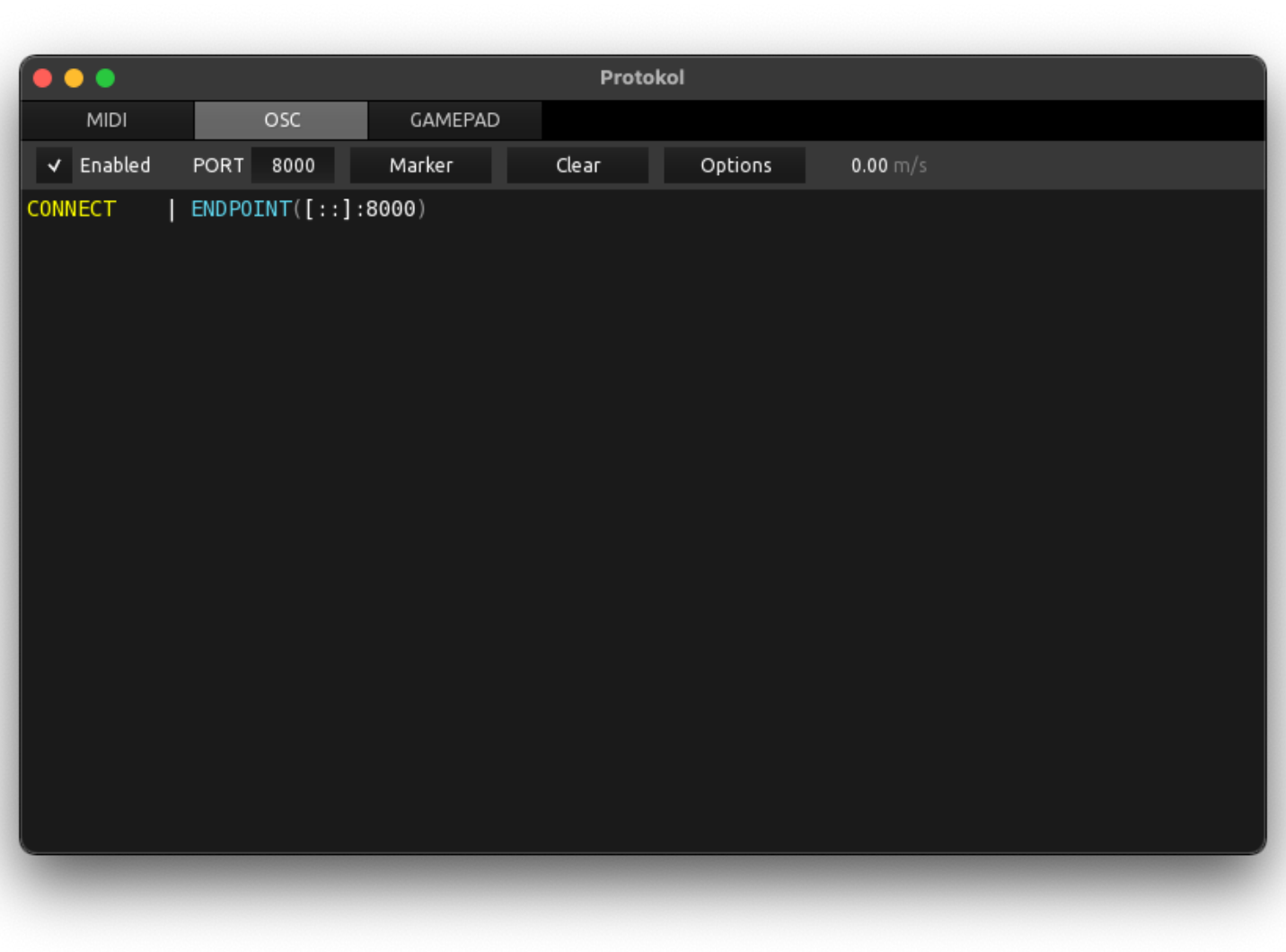
Getting Started · OSC
02:06

- Protokol
- TouchOSC
- Send OSC messages

Protokol ↑

We'll be using the Protokol application, our free tool for testing OSC and MIDI connections and messages. This is the same utility we use in-house for testing our applications.

Protokol is available for all the same platforms as TouchOSC and is a free download.

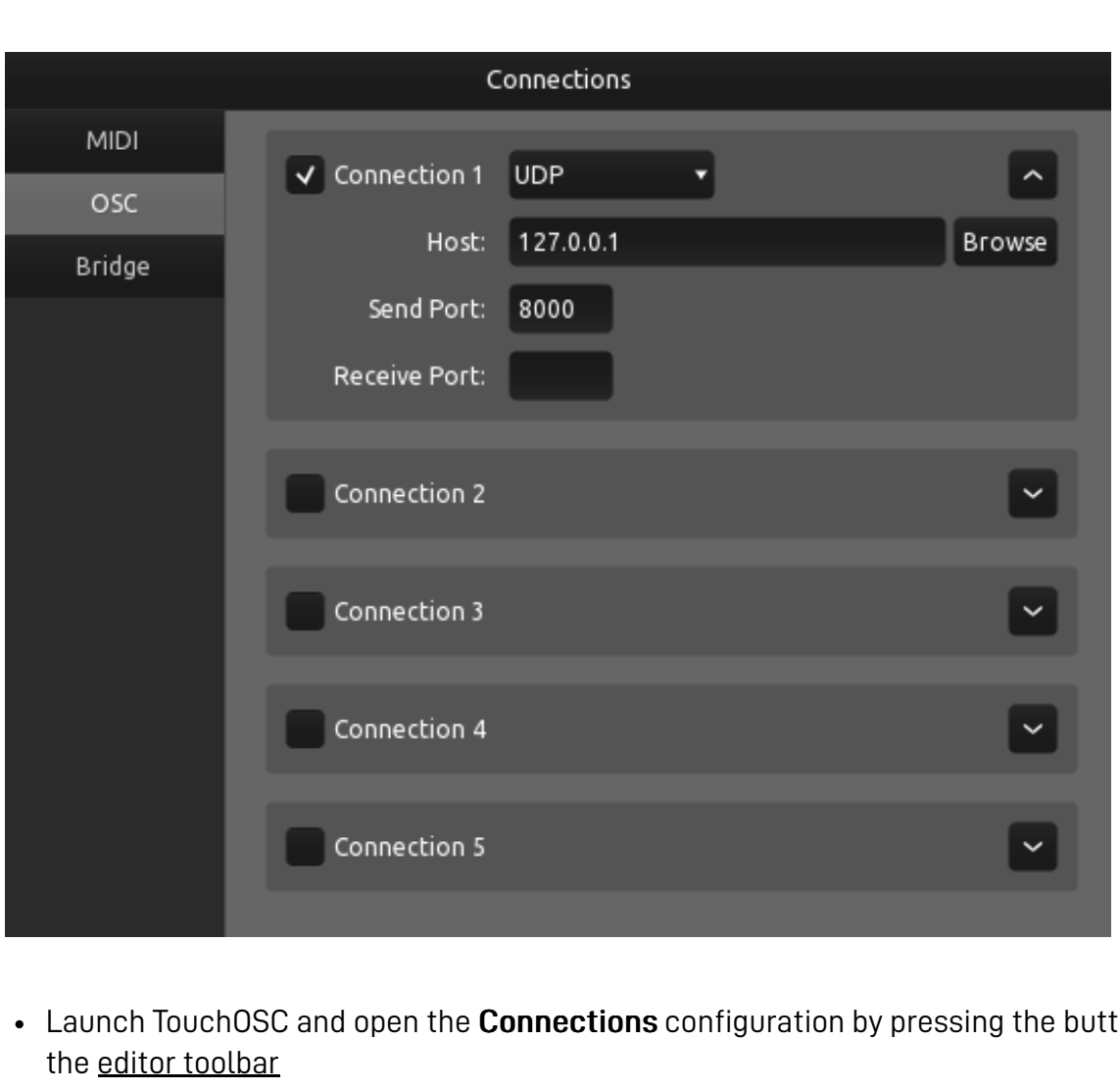

Protokol
MIDI
OSC
GAMEPAD
✓ Enabled
PORT 8000
Marker
Clear
Options
0.00 m/s

```
CONNECT     | ENDPOINT([::]:8000)
```

- Download and install any version of Protokol
- Launch the application, switch to the **OSC** tab page, and check the checkbox next to **Enabled**
- Protokol is now listening for OSC messages and is also advertising its OSC receiver on the network.

TouchOSC ↑

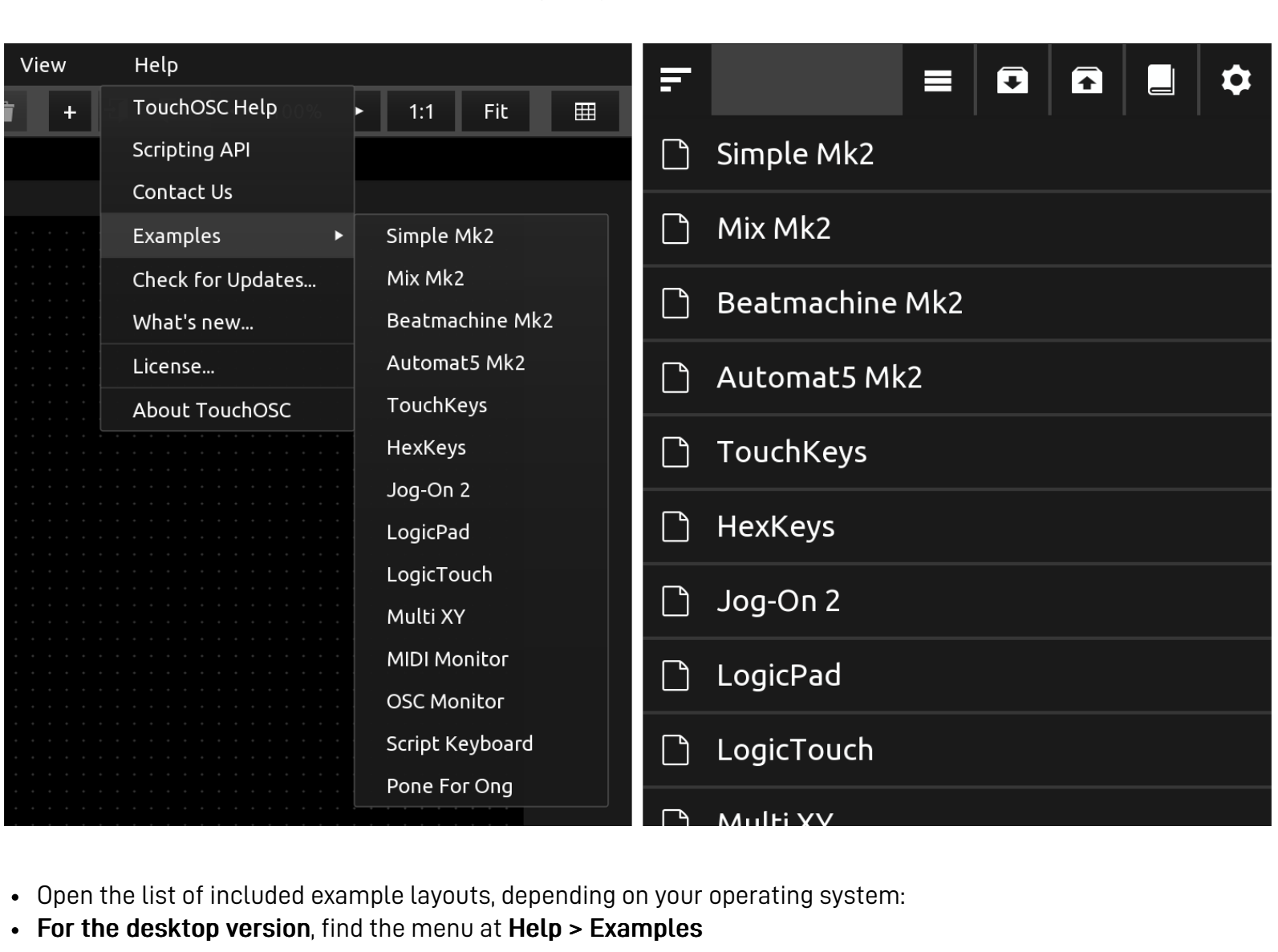
Next we'll configure TouchOSC to send OSC messages to Protokol and load one of the included example layouts.


Connections
MIDI
OSC
Bridge
Browse

☑ Connection 1 UDP
Host: 127.0.0.1
Send Port: 8000
Receive Port:
☐ Connection 2
☐ Connection 3
☐ Connection 4
☐ Connection 5

- Launch TouchOSC and open the **Connections** configuration by pressing the button with the chain link icon on the editor toolbar
- Switch to the **OSC** tab page
- Enable the checkbox next to **Connection 1** and use the **Browse** button to select the name of the host or device where you launched Protokol
- Both **Host** and **Send Port** fields should now be filled in

Now we'll load one of TouchOSC's included example layouts.

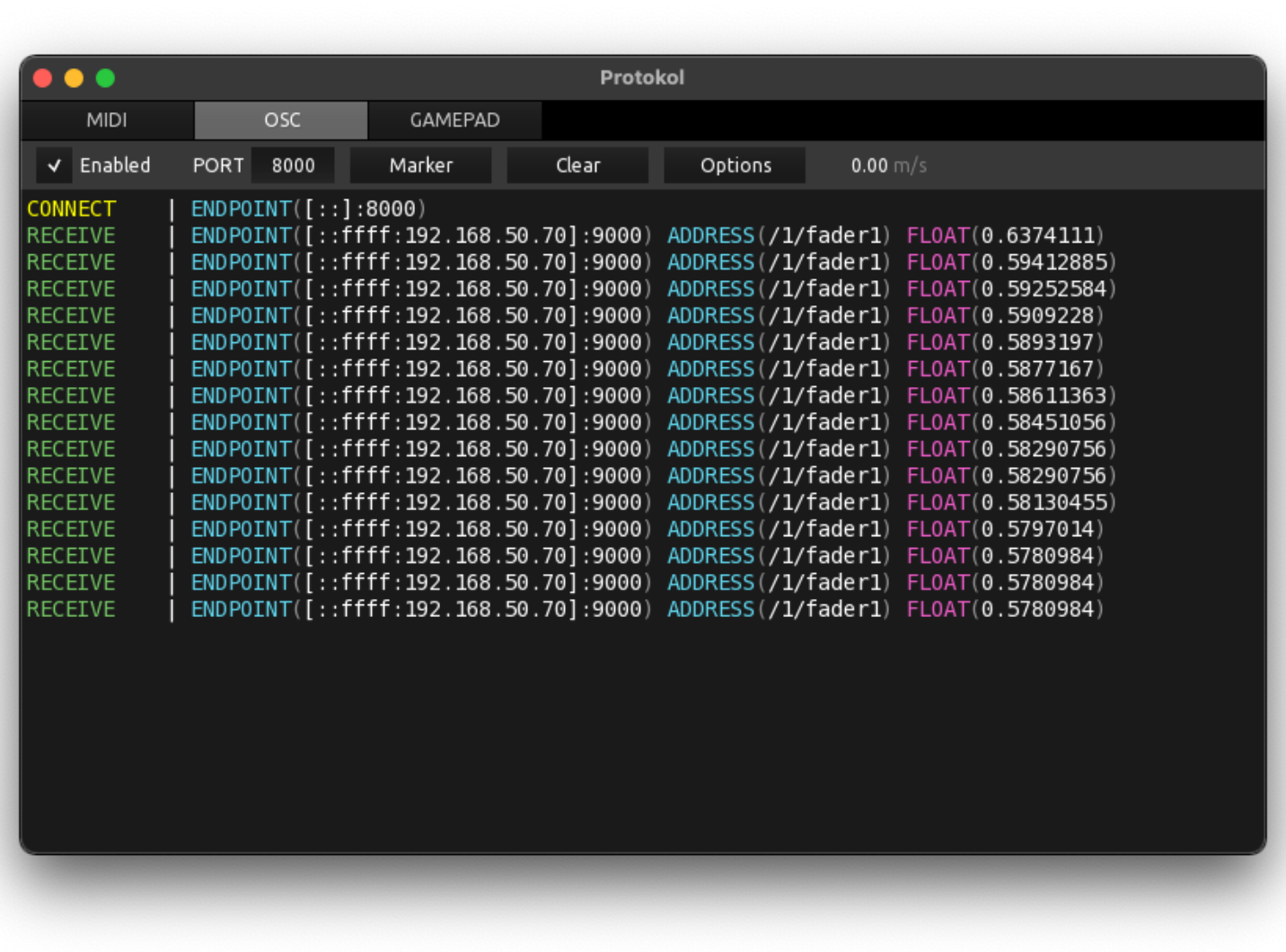

View
Help
TouchOSC Help
Scripting API
Contact Us
Examples
Check for Updates...
What's new...
License...
About TouchOSC
1:1
Fit
Simple Mk2
Mix Mk2
Beatmachine Mk2
Automat5 Mk2
TouchKeys
HexKeys
Jog-On 2
LogicPad
LogicTouch
Multi XY
MIDI Monitor
OSC Monitor
Script Keyboard
Pone For Ong

- Open the list of included example layouts, depending on your operating system:
- **For the desktop version**, find the menu at **Help > Examples**
- **For the mobile version**, find the example browser at the top of the editor panel on the right, and press the button with the book icon
- Select any one of the first four documents with **Mk2** in the name

With the document now loaded, and the connection configured, put TouchOSC into **control surface mode** by pressing the **play** button on the editor toolbar, or by using the CTRL/CMD+E keyboard shortcut on desktop platforms.

Send OSC messages ↑

With both the receiver and sender configured and ready to go, we'll send some OSC messages.


Protokol
MIDI
OSC
GAMEPAD
✓ Enabled
PORT 8000
Marker
Clear
Options
0.00 m/s

```
CONNECT     | ENDPOINT([::]:8000)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.6374111)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.59412885)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.59252584)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.5909228)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.5893197)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.5877167)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.58611363)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.58451056)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.58290756)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.58290756)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.58130455)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.5797014)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.5780984)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.5780984)
RECEIVE     | ENDPOINT([::ffff:192.168.50.70]:9000) ADDRESS(/1/fader1) FLOAT(0.5780984)
```

Move a fader, press a button or interact with any other control on the control surface in TouchOSC and you should see the received OSC messages being printed in Protokol.

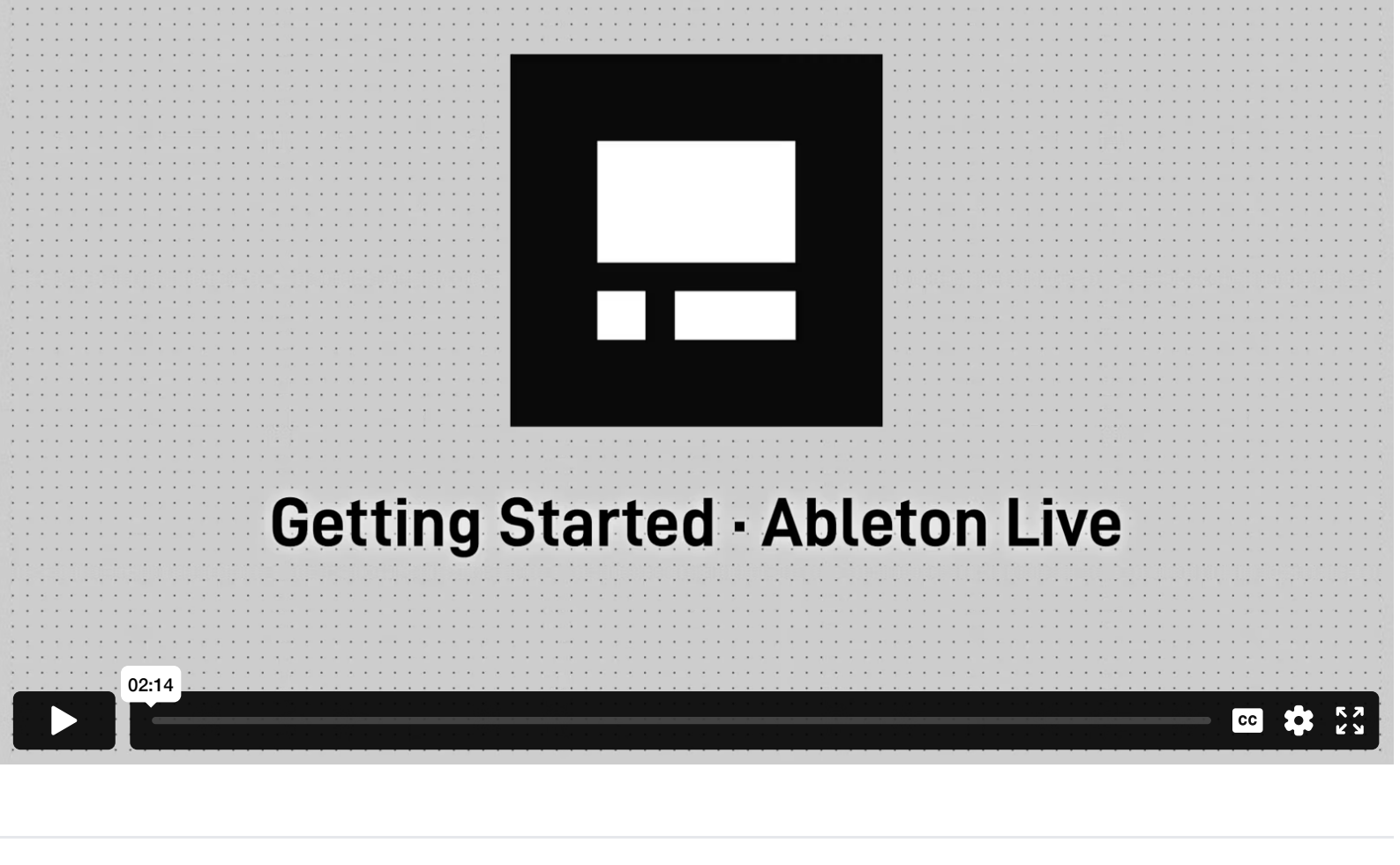
→ TouchOSC Manual

Getting Started · Ableton Live

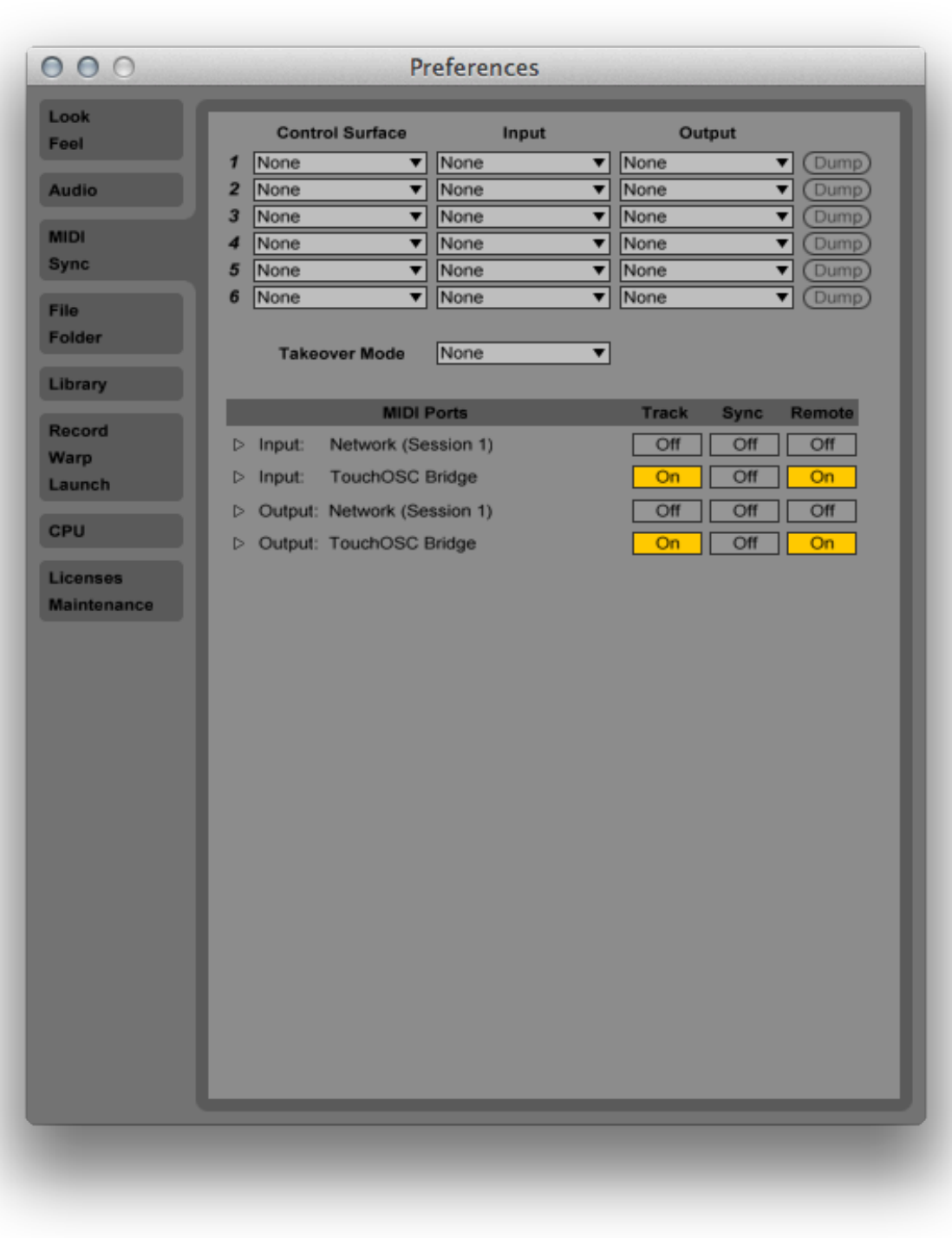
In this short tutorial, we will walk through mapping MIDI messages from TouchOSC to interface elements in Ableton Live.

⚠ You should complete the steps in the Getting Started · MIDI tutorial first, so we have a working MIDI connection before we start setting up Ableton Live.

Even though we are using Ableton Live in this example, other applications can usually be configured in a similar fashion. Please refer to the application's manual, specifically the MIDI mapping / learn section, to find out how you can map MIDI messages to application functions.

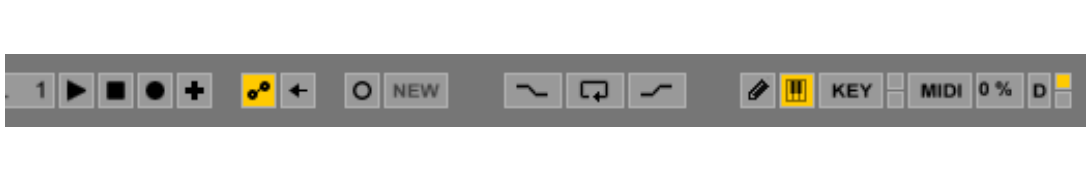

Getting Started · Ableton Live
02:14

Open Ableton Live's **Preferences** dialog, select the section labelled "MIDI / Sync" and enable the **Track** and **Remote** columns for the MIDI Ports labelled **TouchOSC Bridge**.

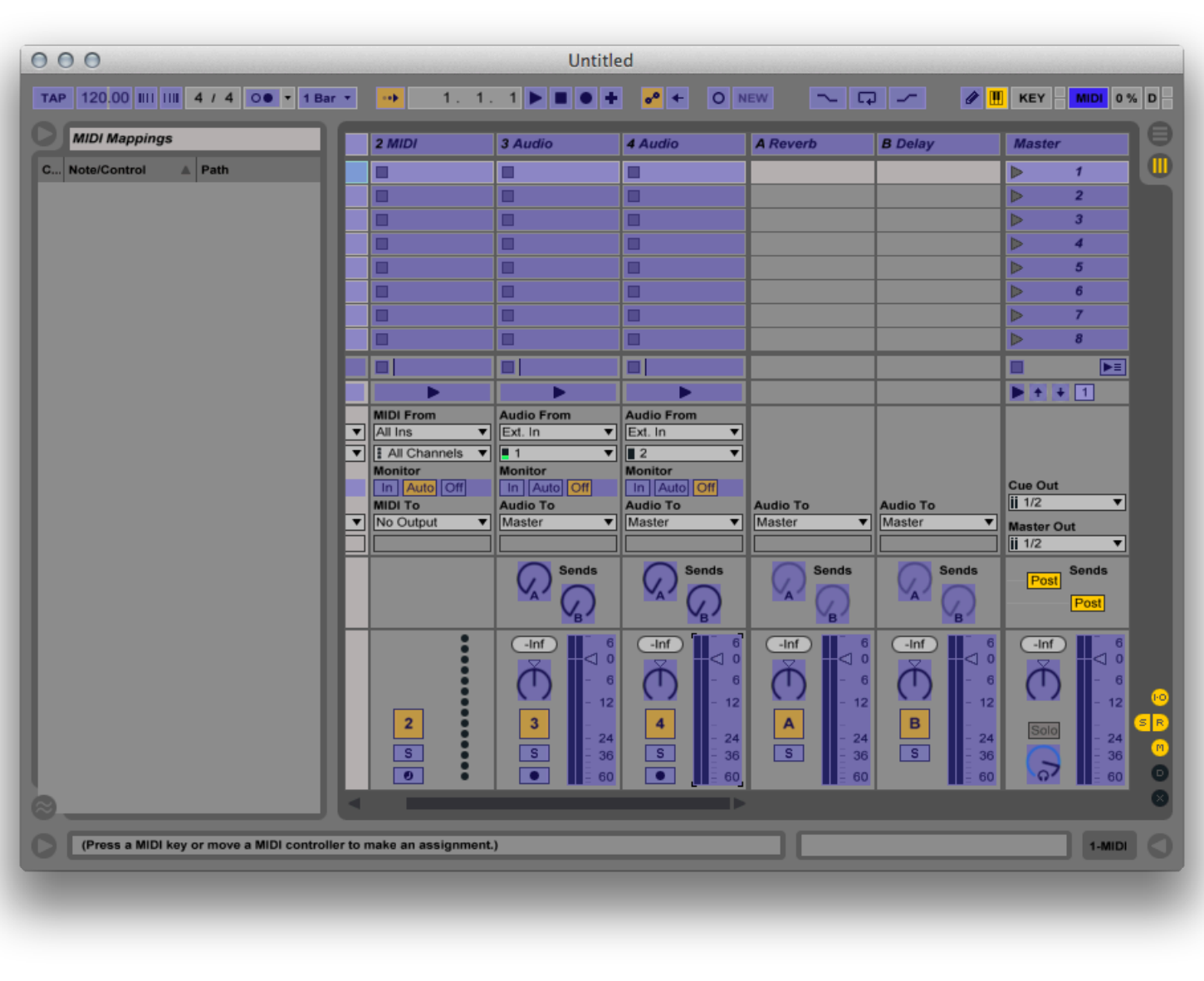

Preferences
Look
Feel
Audio
MIDI
Sync
File
Folder
Library
Record
Warp
Launch
CPU
Licenses
Maintenance
Control Surface
Input
Output
Dump
Takeover Mode
None

MIDI Ports	Track	Sync	Remote
▷ Input: Network (Session 1)	Off	Off	Off
▷ Input: TouchOSC Bridge	On	Off	On
▷ Output: Network (Session 1)	Off	Off	Off
▷ Output: TouchOSC Bridge	On	Off	On

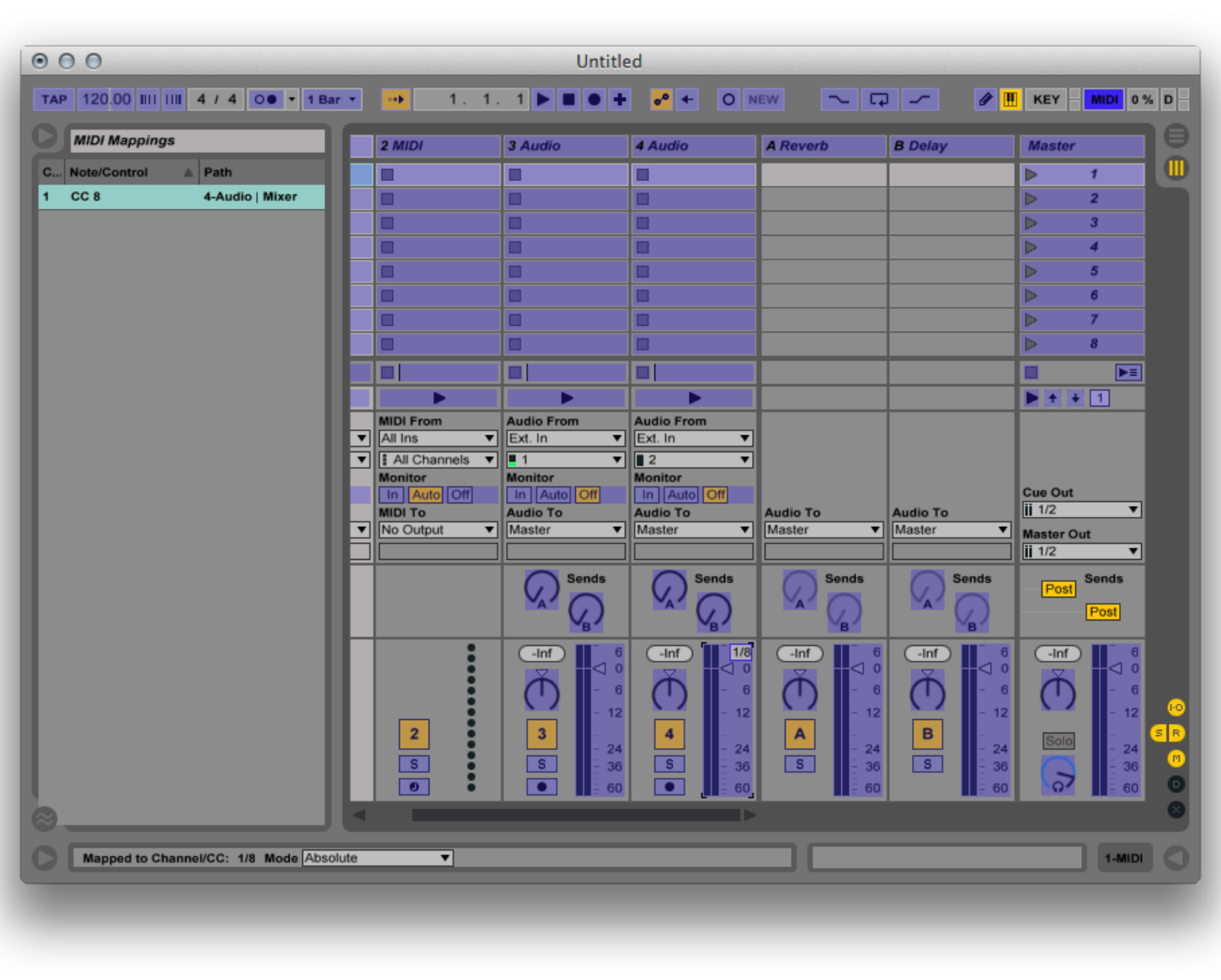
Now Ableton Live is receiving and sending MIDI messages through TouchOSC Bridge. To confirm this, move or press any control in TouchOSC's **Simple Mk2** layout (which we loaded in the MIDI tutorial) and you should see the tiny light in the very top-right corner of Ableton Live light up whenever you do so.


NEW
KEY
MIDI
0 %
D

Enter Ableton Live's MIDI Mapping mode by pressing the button labelled **MIDI**, also in the top-right corner. This will highlight all elements in Live's UI that can be assigned to MIDI controllers with a blue overlay. Select one of these elements, such as one of the Audio-channel's volume faders, and the next MIDI message received by Live will be assigned to this UI element.


Untitled
MIDI Mappings
Note/Control
Path
2 MIDI
3 Audio
4 Audio
A Reverb
B Delay
Master
(Press a MIDI key or move a MIDI controller to make an assignment.)

Move or press any of the controls in TouchOSC and you will see that Live will add a row to the **MIDI Mappings** window, and will add another overlay right above the selected UI element displaying details about the MIDI message, such as channel and type.

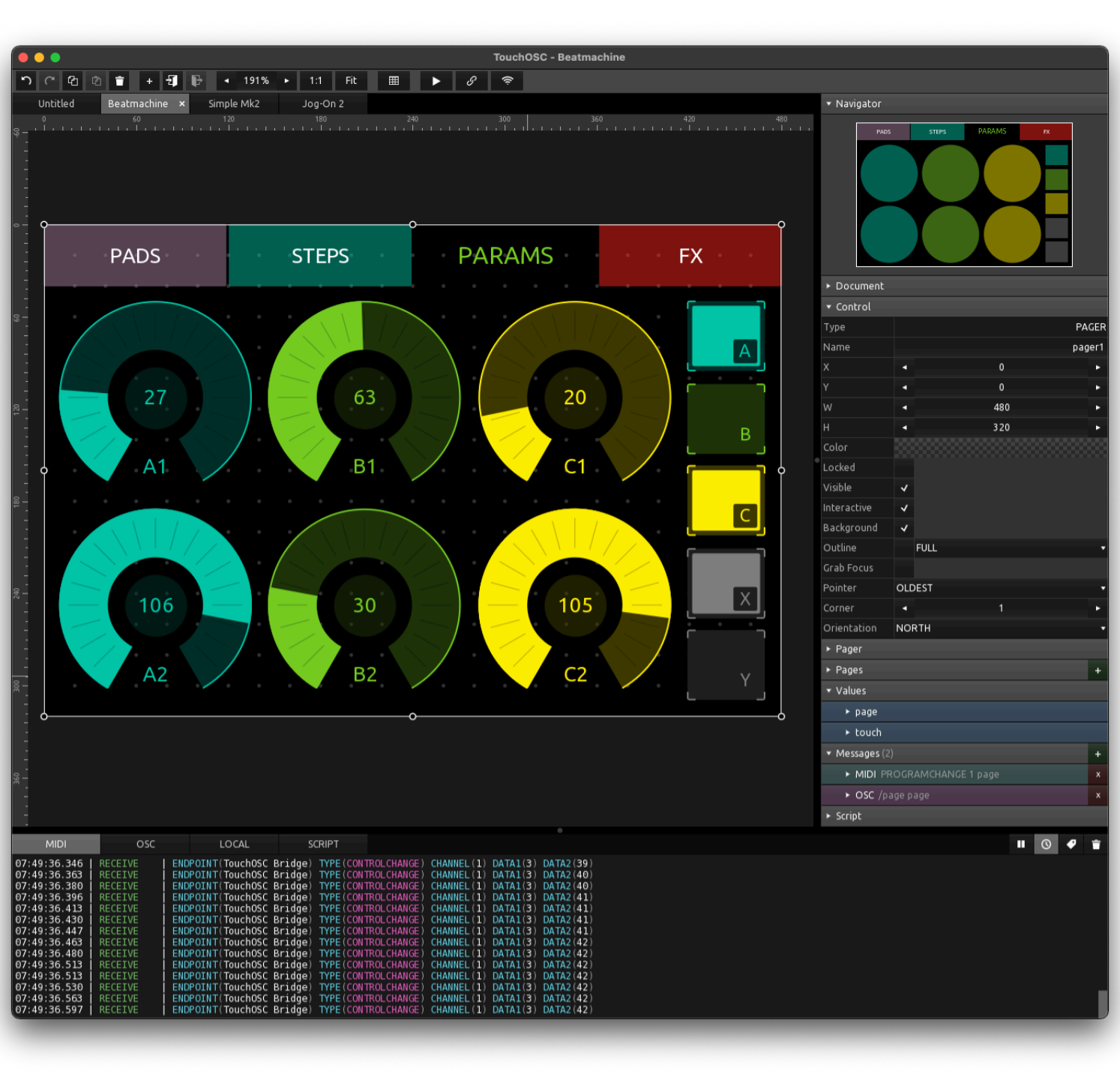

Untitled
MIDI Mappings
Note/Control
Path
1 CC 8 4-Audio | Mixer
2 MIDI
3 Audio
4 Audio
A Reverb
B Delay
Master
Mapped to Channel/CC: 1/8 Mode Absolute

The element is now mapped bi-directionally between TouchOSC and Live. You can now exit Live's MIDI Mapping mode by clicking on the **MIDI** button in the top-right corner again and start controlling Live with TouchOSC. For more info on configuring Ableton Live please refer to Ableton's official manual.

→ TouchOSC Manual

Editor

TouchOSC comes with a powerful, integrated editor on all platforms, for creating and editing control surface documents.



Type PAGER
Name pager1
X 0
Y 0
W 480
H 320
Visible ✓
Interactive ✓
Background ✓
Outline FULL
Pointer OLDEST
Corner 1
Orientation NORTH

```
07:49:36.346 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(39)
07:49:36.363 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(40)
07:49:36.380 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(40)
07:49:36.396 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(41)
07:49:36.413 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(41)
07:49:36.430 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(41)
07:49:36.447 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(41)
07:49:36.463 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(42)
07:49:36.480 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(42)
07:49:36.513 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(42)
07:49:36.513 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(42)
07:49:36.530 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(42)
07:49:36.563 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(42)
07:49:36.597 | RECEIVE    | ENDPOINT(TouchOSC Bridge) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(3) DATA2(42)
```

TouchOSC can open `touchosc` layout files made for TouchOSC Mk1, and some aspects of the import can be configured in the preferences.

Documents will be saved in a new `tosc` document format, specific to this new version, which is **not** compatible with the TouchOSC Mk1 application.

Multiple documents can be opened at the same time and all parts of the layout can be copied from one document to another.

Multiple instances of the application can be connected over the network, for synchronized editing and preview on multiple clients in real-time, using the application's Editor Network client-server functionality.

While there a minor differences between the desktop and mobile versions, most functions work identical across all supported platforms, and we'll point out some of the differences in their respective sections.

→ TouchOSC Manual

Editor · Interface

The main interface of TouchOSC can be in one of two modes, **Editor** and **Control Surface** mode.

Switch to control surface mode by pressing the **play** button in the editor Toolbar, and the **circle** icon button in the control surface to switch back. On desktop platforms the CTRL/CMD+E keyboard shortcut can be used to toggle between both modes.

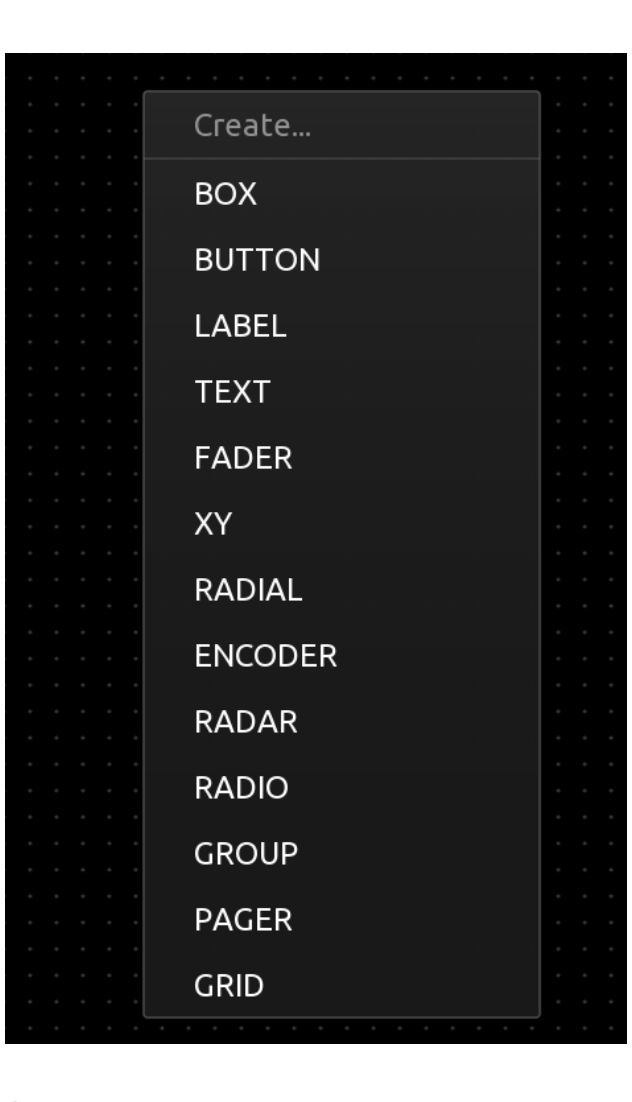
The position of the **circle** button in the control surface can be configured in the preferences.

- Control Surface Editor
- Panel
- Toolbar
- Log View
- Message Mapping
- Font Viewer

Control Surface Editor ↑

The main control surface editing area is where most editing actions take places.

Right-clicking on an empty area of the document (or long-pressing on mobile platforms) will bring up the **Create** context menu for adding new controls.

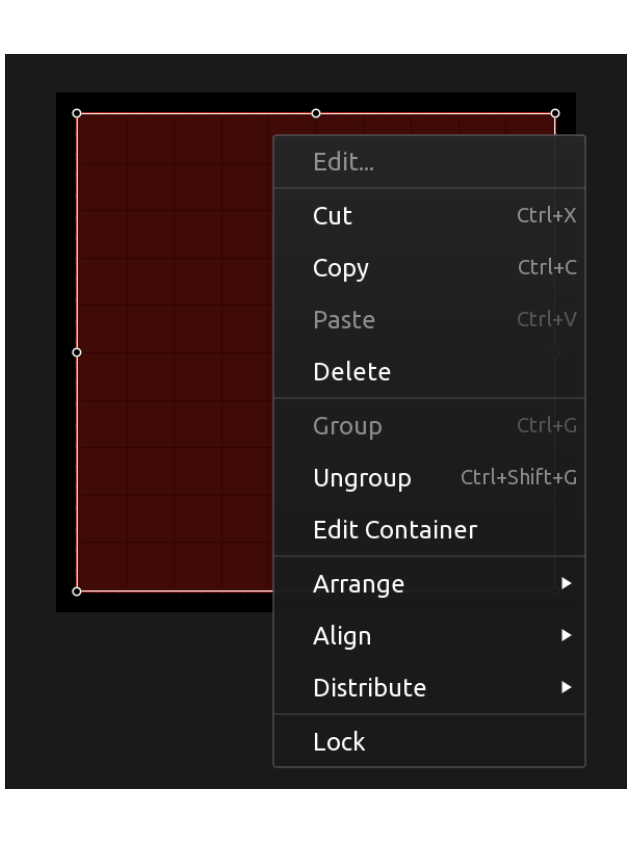


Controls can be selected, either by directly pressing on a control's frame or using a lasso selection by pressing and dragging from an empty area of the document. With controls selected, the panel on the right will display context-sensitive information and properties depending on the type of selection and number of selected controls.

When resizing controls using the handles placed around the edges of the control's frame, on desktop platforms the following modifier keys can be held down to restrict the re-sizing behavior:

- **SHIFT** - Resize with original aspect-ratio locked
- **CONTROL** - Resize around the center point of the control

Right-clicking on the selection (or long-pressing on mobile platforms) will bring up the **Edit** context menu.

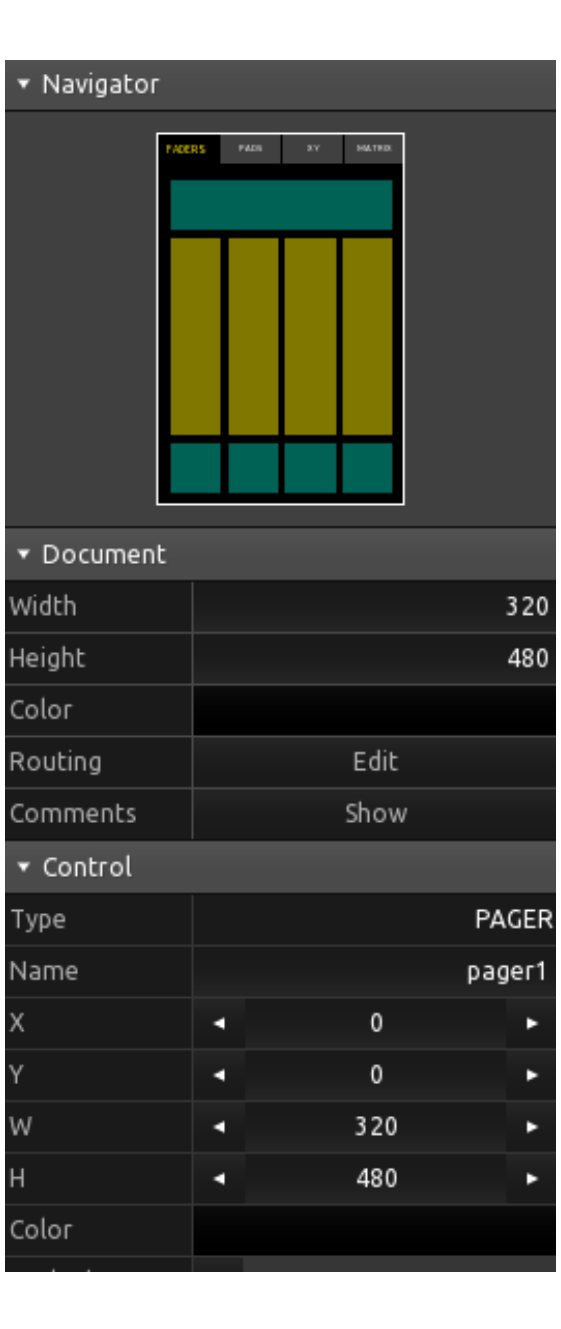


When a control is locked, it cannot be selected. A locked control can be unlocked using the document tree view.

Some types of controls are containers for other controls, selecting **Edit container** from the **Edit** context menu will descend into the container and display the contents for editing.

To exit editing a container, use the additional **Exit container** menu item of the **Create** menu, or double-click outside of the container's frame bounds in the editor.

Panel ↑

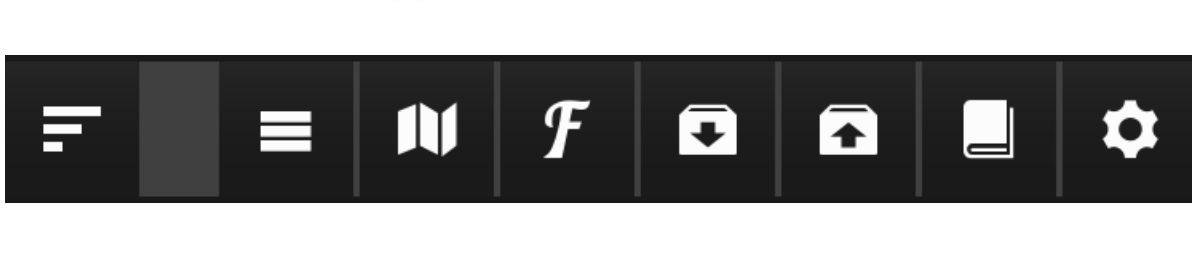


Width 320
Height 480
Color
Routing Edit
Comments Show
Type PAGER
Name pager1
X 0
Y 0
W 320
H 480
Color

The editor panel on the right will display a navigator view of the whole document, the document properties, a hierarchical document tree view of all controls, and, if any controls are currently selected, the control properties, values and messages of the current selection.

All sections of the editor panel can be collapsed and expanded using the section header bar.

On **mobile platforms**, the top of the panel holds an additional toolbar with functions that would usually be found in the window menu on desktop platforms.



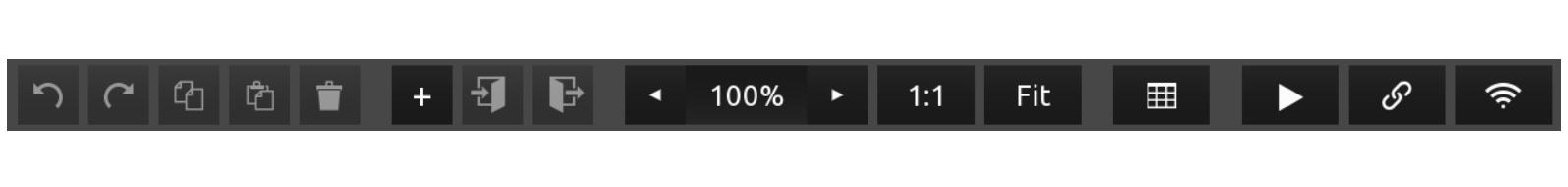
From left to right, the functions are as follows:

- Toggle the **editor panel**
- Toggle the **log view**
- Open the **message mapping** dialog
- Open the **font viewer**
- **Save** document
- **Open** document
- **Open** an included example layout
- Application **preferences** and **about** screen

Toolbar ↑

The editor toolbar holds buttons and menus for various control surface editor functions.

> **PLEASE NOTE:** On mobile platforms with small screens there might not be enough horizontal space to display all toolbar buttons, in which case the toolbar can be scrolled by touch, and slightly transparent, white overlays will be displayed at either end to indicate this.



From left to right, the functions are as follows:

- **Undo**
- **Redo**
- **Copy** selection
- **Paste** clipboard contents
- **Delete** selection

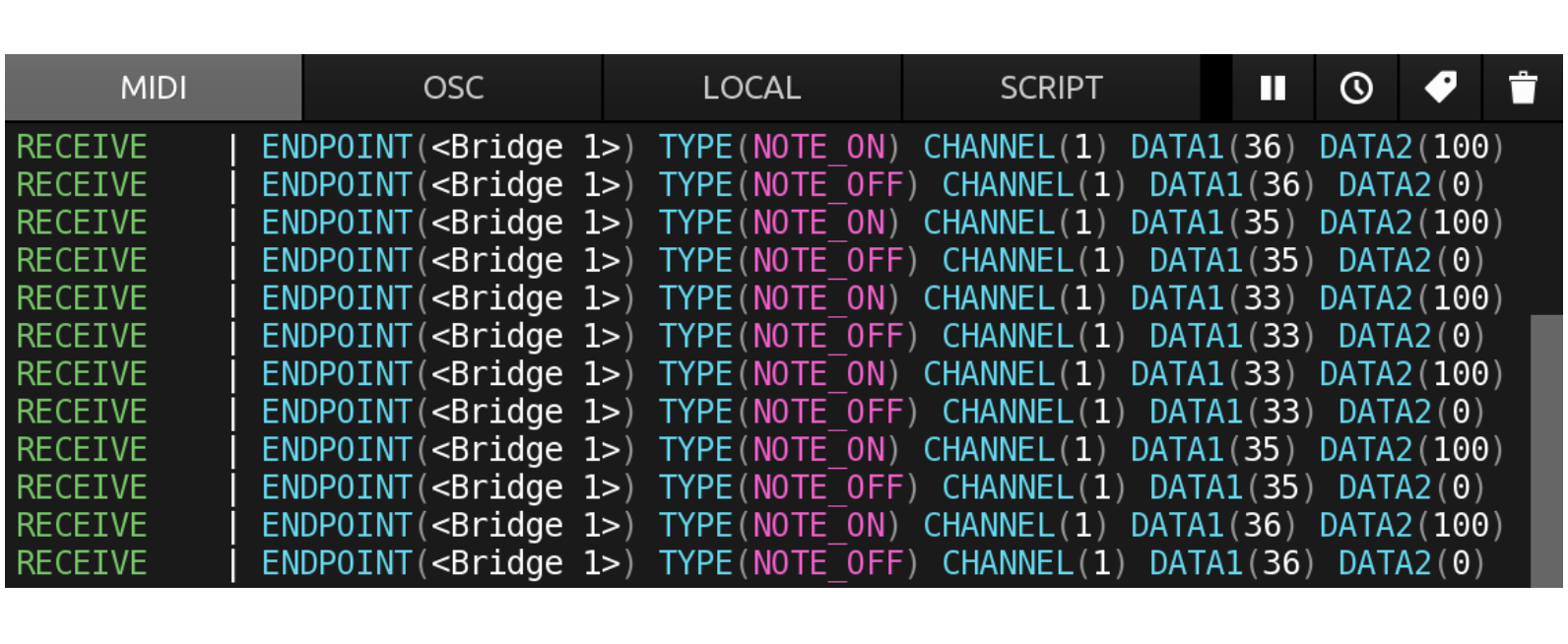
- **Add control**
- **Edit container** - With an editable container control type selected, this function becomes available to edit the container contents.
- **Exit container** - When editing the contents of an editable container control type, this function becomes available to exit the current container and ascend one level in the document hierarchy.

- **Zoom** step and numeric input
- **Zoom to 1:1**
- **Zoom to Fit**
- **Grid, snap and rulers** menu

- Switch to **control surface view**
- **Connections** configuration
- **Editor Network** configuration

Log View ↑

The log view provides a way for various systems of the application to print information about the internal state. This can be helpful when troubleshooting problems or for confirming that configured connections or scripts are working correctly.



```
RECEIVE    | ENDPOINT(<Bridge 1>) TYPE(NOTE_ON) CHANNEL(1) DATA1(36) DATA2(100)
RECEIVE    | ENDPOINT(<Bridge 1>) TYPE(NOTE_OFF) CHANNEL(1) DATA1(36) DATA2(0)
RECEIVE    | ENDPOINT(<Bridge 1>) TYPE(NOTE_ON) CHANNEL(1) DATA1(35) DATA2(100)
RECEIVE    | ENDPOINT(<Bridge 1>) TYPE(NOTE_OFF) CHANNEL(1) DATA1(35) DATA2(0)
RECEIVE    | ENDPOINT(<Bridge 1>) TYPE(NOTE_ON) CHANNEL(1) DATA1(33) DATA2(100)
RECEIVE    | ENDPOINT(<Bridge 1>) TYPE(NOTE_OFF) CHANNEL(1) DATA1(33) DATA2(0)
RECEIVE    | ENDPOINT(<Bridge 1>) TYPE(NOTE_ON) CHANNEL(1) DATA1(33) DATA2(100)
RECEIVE    | ENDPOINT(<Bridge 1>) TYPE(NOTE_OFF) CHANNEL(1) DATA1(33) DATA2(0)
RECEIVE    | ENDPOINT(<Bridge 1>) TYPE(NOTE_ON) CHANNEL(1) DATA1(35) DATA2(100)
RECEIVE    | ENDPOINT(<Bridge 1>) TYPE(NOTE_OFF) CHANNEL(1) DATA1(35) DATA2(0)
RECEIVE    | ENDPOINT(<Bridge 1>) TYPE(NOTE_ON) CHANNEL(1) DATA1(36) DATA2(100)
RECEIVE    | ENDPOINT(<Bridge 1>) TYPE(NOTE_OFF) CHANNEL(1) DATA1(36) DATA2(0)
```

The log view will display:

- MIDI/OSC: Received and sent MIDI and OSC messages
- LOCAL: Values transmitted using local messages
- GAMEPAD: Received inputs from connected game controllers
- SCRIPT: Script errors and calls to the script `print` function

> **PLEASE NOTE:** When the log view is opened, the application will enable a slower code path to print and format information about its internal state. This will cause a lot of additional processing to take place and will cause **reduced run-time performance**. We advise to only open the log view when troubleshooting problems during development.

The additional buttons in the top right provide the following functions, from left to right:

- **Pause** the logging of messages
- Display a **timestamp** for messages
- Insert a **marker** into the log
- **Clear** the log

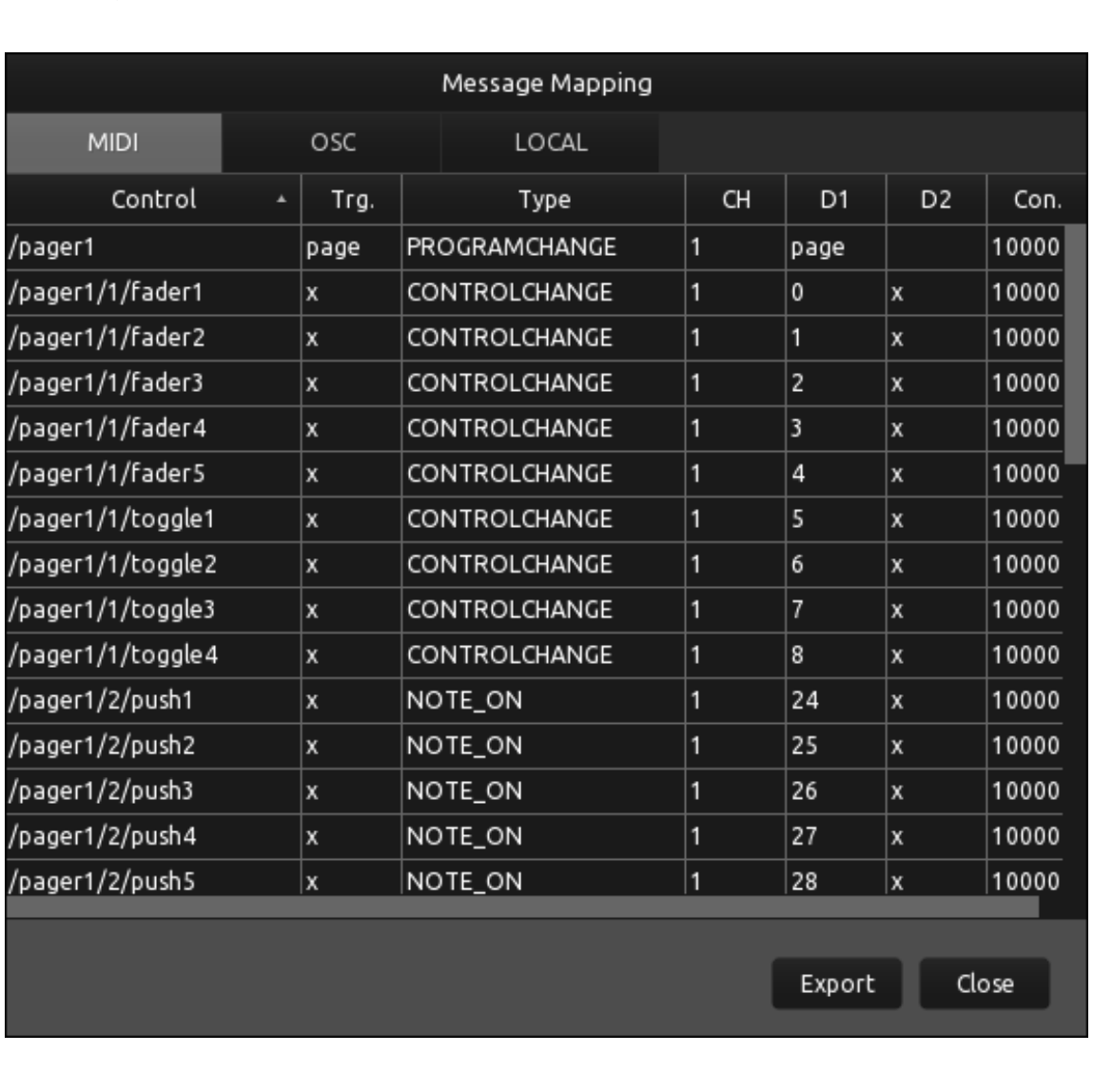
On desktop platforms, it is possible to open the log view in a separate window using an option in the preferences.

Message Mapping ↑

The Message Mapping dialog displays a sortable table of all MIDI, OSC, LOCAL and GAMEPAD messages configured for the current document.

Messages can be sorted by each column in the table by clicking/tapping on the table header and exported to a comma-separated format (CSV) using the **Export** button.

Double-clicking or tapping any row in the table will close the dialog and select the control that the message is owned by in the control surface editor view.



Control	Trg.	Type	CH	D1	D2	Con.
/pager1	page	PROGRAMCHANGE	1	page		10000
/pager1/1/fader1	x	CONTROLCHANGE	1	0	x	10000
/pager1/1/fader2	x	CONTROLCHANGE	1	1	x	10000
/pager1/1/fader3	x	CONTROLCHANGE	1	2	x	10000
/pager1/1/fader4	x	CONTROLCHANGE	1	3	x	10000
/pager1/1/fader5	x	CONTROLCHANGE	1	4	x	10000
/pager1/1/toggle1	x	CONTROLCHANGE	1	5	x	10000
/pager1/1/toggle2	x	CONTROLCHANGE	1	6	x	10000
/pager1/1/toggle3	x	CONTROLCHANGE	1	7	x	10000
/pager1/1/toggle4	x	CONTROLCHANGE	1	8	x	10000
/pager1/2/push1	x	NOTE_ON	1	24	x	10000
/pager1/2/push2	x	NOTE_ON	1	25	x	10000
/pager1/2/push3	x	NOTE_ON	1	26	x	10000
/pager1/2/push4	x	NOTE_ON	1	27	x	10000
/pager1/2/push5	x	NOTE_ON	1	28	x	10000

The columns for each type of message are as follows:

- MIDI
  - **Control** - The control the message is configured for
  - **Trg.** - The value object(s) that will trigger the sending of the message
  - **Type** - The type of the MIDI message
  - **CH** - The channel of the MIDI message
  - **D1** - The value of the first data byte of the MIDI message
  - **D2** - The value of the second data byte of the MIDI message (if any)
  - **Con.** - The connections the message is configured to be sent/received on (left to right from first to last connection, 1=enabled, 0=disabled)
- OSC
  - **Control** - The control the message is configured for
  - **Trg.** - The value object(s) that will trigger the sending of the message
  - **Address** - The OSC address of the message
  - **Arguments** - The arguments of the message
  - **Con.** - The connections the message is configured to be sent/received on (left to right from first to last connection, 1=enabled, 0=disabled)
- LOCAL
  - **Control** - The control the message is configured for
  - **Trg.** - The value object(s) that will trigger the sending of the message
  - **⊙→** - The source variable of the message
  - **Target** - The target control of the message
  - **→⊙** - The target variable of the message
- GAMEPAD
  - **Control** - The control the message is configured for
  - **Input** - The game controller input that will trigger the message
  - **Target** - The target value or property of the message
  - **Con.** - The connections the message is configured to be received on (left to right from first to last connection, 1=enabled, 0=disabled)

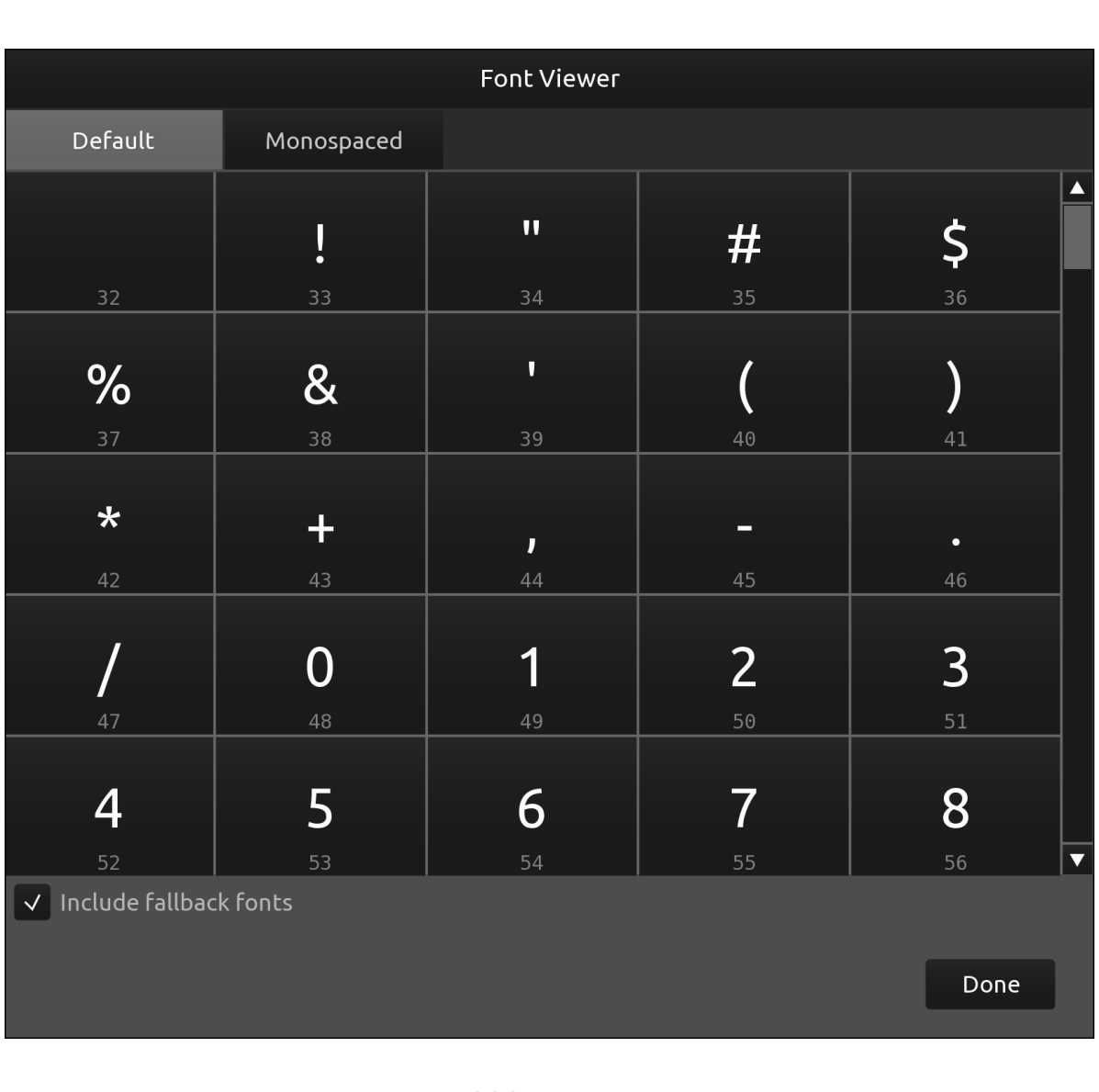
Font Viewer ↑

The Font Viewer provides a way to browse all characters of the typefaces included with the application.

The application embeds a number of fonts available in all versions for all platforms, to guarantee that any document shared between operating systems and platforms will be rendered exactly the same - without errors or missing symbols.

At the top there is a choice of two styles of typefaces, **Default** and **Monospaced**, analogous to the **font** property of TouchOSC's **Label** and **Text** controls.

Clicking or tapping any character in the font viewer will copy that character to the clipboard.



32	! 33	" 34	# 35	$ 36
% 37	& 38	' 39	(40	) 41
* 42	+ 43	, 44	- 45	. 46
/ 47	0 48	1 49	2 50	3 51
4 52	5 53	6 54	7 55	8 56

☑ Include fallback fonts

When rendering any character, TouchOSC will search a series of fallback typefaces:

- Default
  - Ubuntu Regular
  - Noto Sans
  - Noto Emoji
- Monospaced
  - DejaVu Sans Mono
  - Noto Sans
  - Noto Emoji

Unchecking the **Include fallback fonts** option will limit the display of characters to the first font in the fallback chain only.

> **PLEASE NOTE:** This option only affects the display in the font viewer itself, and not the rendering of **Label** and **Text** controls.

→ TouchOSC Manual

Editor · Document

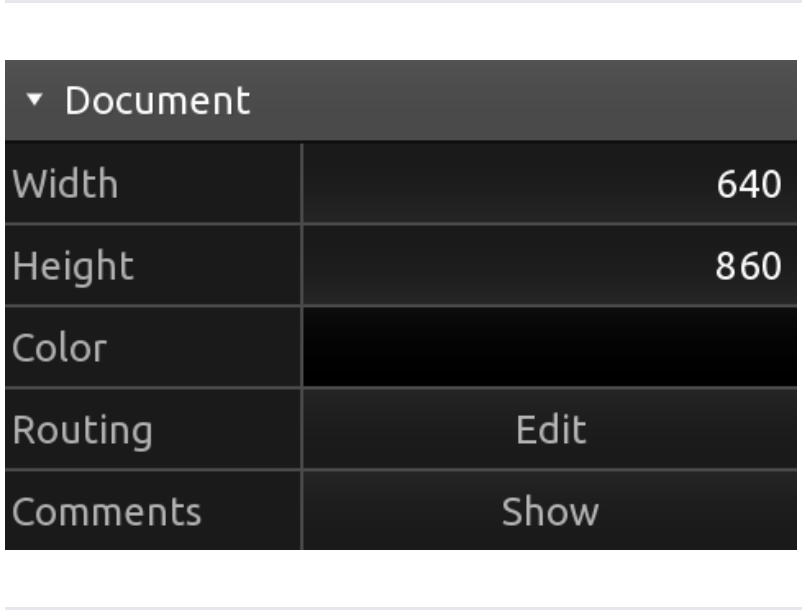
A document is the top-level container for all controls and the root node of the control hierarchy tree.

A document has properties that define the display size and background color, global routing options for messages and optional notes by the creator.

A document can also have a script attached and define control callback functions, which will be called before any other script callbacks and allow to capture certain events globally before they are forwarded to the target controls. See Object Callback Functions for details.

> **Note** that documents will be scaled proportionally to the available display size when rendered in control surface mode. For performance reasons, it is advised to choose the smallest possible size and aspect ratio to comfortably position and edit your layout's controls, and let the application handle the final scaling for presentation.

- Width
- Height
- Color
- Routing
- Comments
- Document Tree



Width 640
Height 860
Color
Routing Edit
Comments Show

Width ↑

The width of the document.

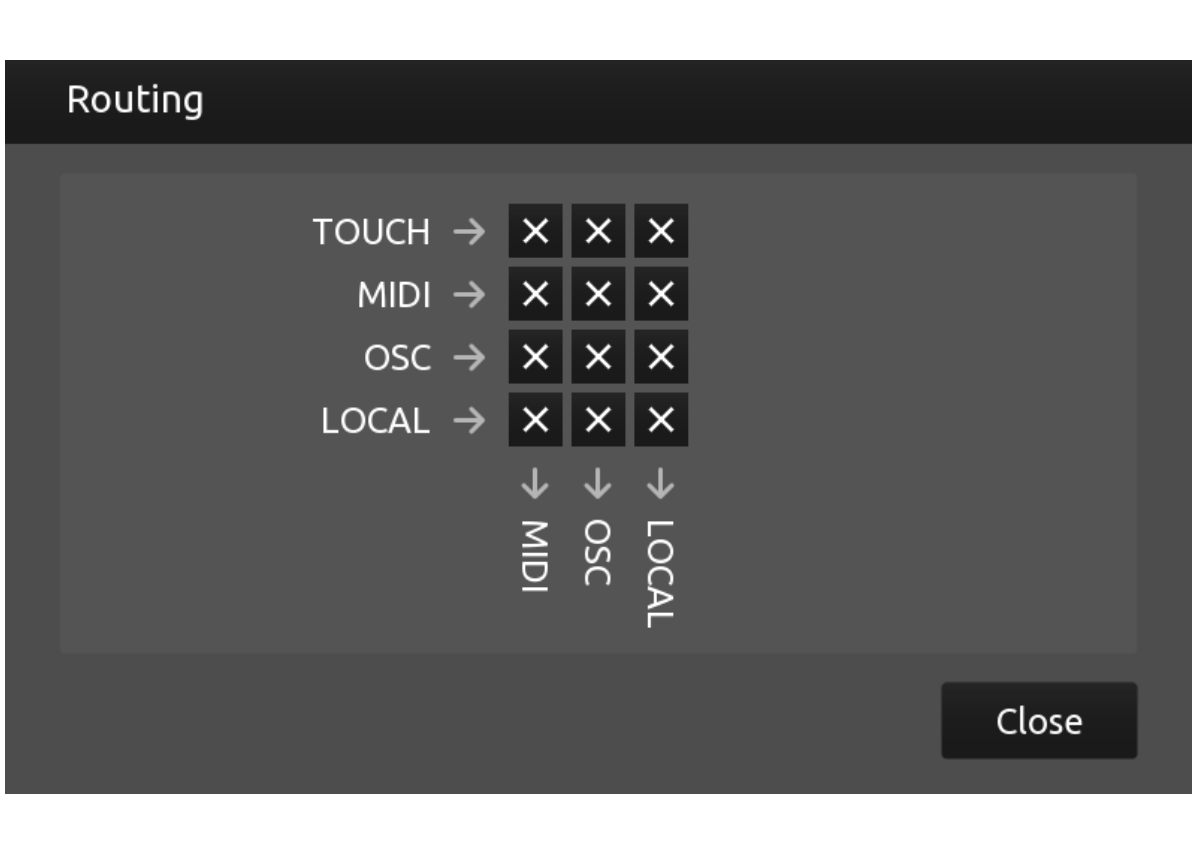
Height ↑

The height of the document.

Color ↑

The background color of the document.

Routing ↑



	MIDI	OSC	LOCAL
TOUCH →	☒	☒	☒
MIDI →	☒	☒	☒
OSC →	☒	☒	☒
LOCAL →	☒	☒	☒

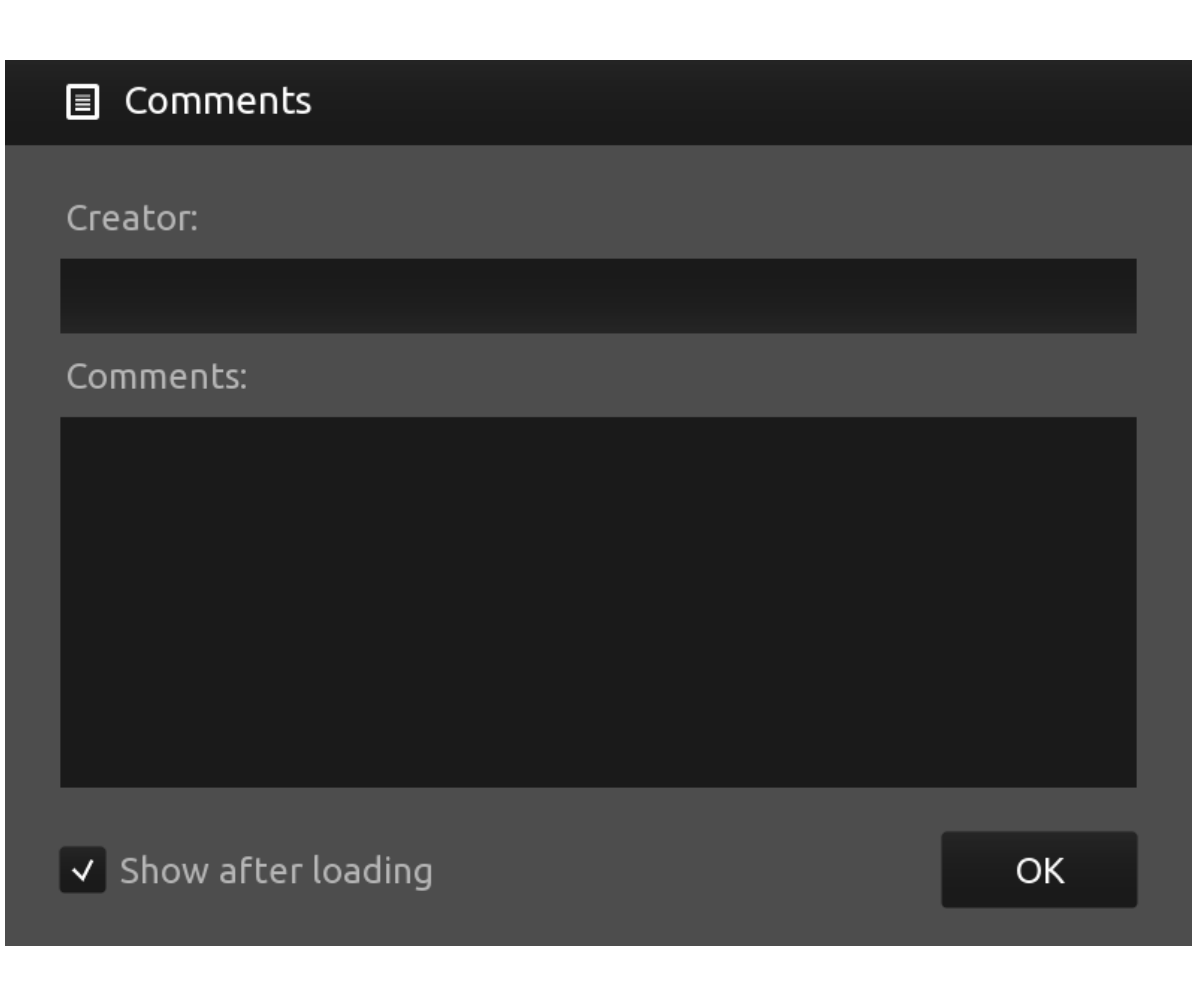
The global routing matrix determines which types of received messages or input will cause any other type of configured messages to be sent or suppressed.

The left column lists all possible types of inputs that can change a control's values. The bottom row lists all possible types of messages that can be sent in response to a control's value changing.

Any event changing a control's value will be tagged with the type of action that caused the value change. When a control's value changes, the application then compiles a list of all enabled messages that are being triggered by this value change. The application will then consult the routing options of the document to determine which of these messages will be sent depending on the type of event that caused the initial value change.

For example: If any control has an enabled MIDI message that will update the control's x value on reception, and an enabled OSC message that specifies the x value as a trigger, the incoming MIDI message will only cause the OSC message to be sent if the cross at the intersection between MIDI input in the left column and OSC output in the bottom row is checked.

Comments ↑



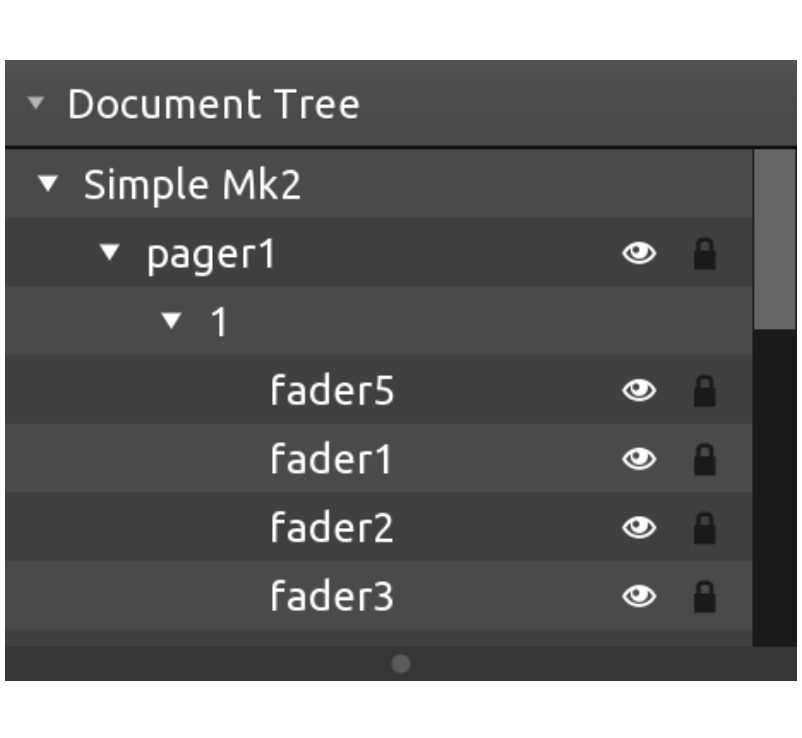
☑ Show after loading

Each document can optionally have creator's name and comments attached to it. The **Comments** button in the document properties panel will be highlighted if these are not empty.

At the bottom of the dialog, and also in the preferences, there is an option to automatically open the creator's comments after loading the document, if any.

We do encourage users to leave this option enabled, as there might be helpful tips, tricks and guidance attached to a document. Also, in our humble opinion, it's just nice to acknowledge the person sharing their work.

Document Tree ↑



Simple Mk2
  pager1
    1
      fader5
      fader1
      fader2
      fader3

The document tree displays a hierarchical view of all controls in the document.

Controls can be selected and the current selection will be highlighted in the tree structure. For each control the **visible** and **locked** properties can be toggled with the *eye* and *lock* icons on the right respectively.

Controls that are containers and hence can contain child controls will be displayed as tree nodes that can be expanded and collapsed using the *arrow* icon to the left of the control name.

→ TouchOSC Manual

Editor · Control

A control is the main object and basic building block for constructing control surfaces.

A control has properties and values that define its appearance and behavior, and controls can have messages and scripts attached to it.

Some control types can be containers for other controls. All controls carry a reference to their parent control, except for the document root container at the very top of the document hierarchy.

See the Control Reference for a complete list of available control types and their properties.

→ TouchOSC Manual

Editor · Control · Properties

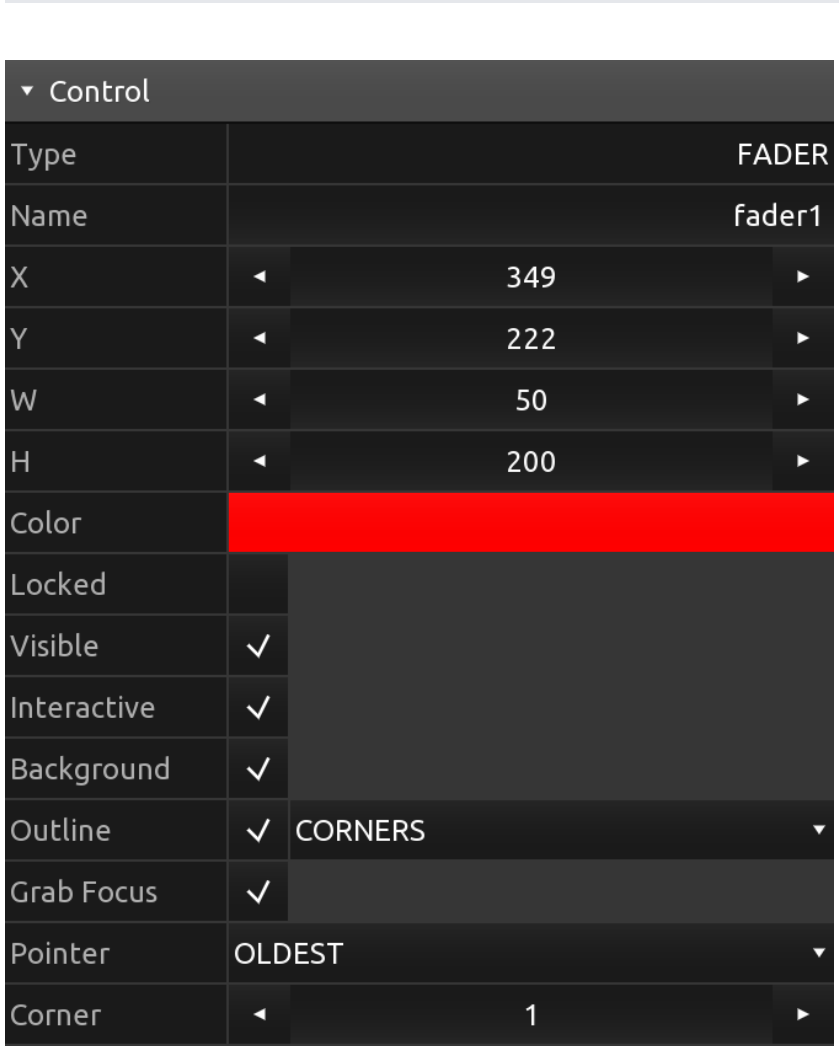
All controls have properties that determine appearance and behaviour.

Control properties can be changed in the editor and by messages and scripts.

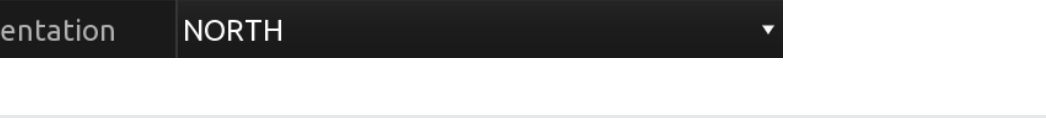
All controls have a set of common properties and another set of properties specific to their type. Not all control types might use all the common properties or use them in the same way.

For a list of control type specific properties, see the control reference.

- Type
- Name
- Tag
- X, Y, W, H
- Color
- Locked
- Visible
- Interactive
- Background
- Outline
- Grab Focus
- Pointer
- Corner
- Orientation



Type FADER
Name fader1
X 349
Y 222
W 50
H 200
Color
Locked
Visible ✓
Interactive ✓
Background ✓
Outline ✓ CORNERS
Grab Focus ✓
Pointer OLDEST
Corner 1



Orientation NORTH

Type ↑

The type of the control.

See the control reference for all possible types of controls.

Name ↑

The name of the control.

A name string can be freely assigned to a control and does not have to be unique. Use this property to identify controls in messages or scripts.

Tag ↑

A tag for the control.

A tag string can be freely assigned to a control and does not have to be unique. Use this property to identify controls in messages or scripts.

X, Y, W, H ↑

The x and y position and the width and height of the control.

Note: All are integer values.

Color ↑

The color of the control.

Depending on the type of control, this property will be used as a base color from which multiple shades will be generated for different parts of the control.

Locked ↑

The locked state of the control.

When a control is locked, it cannot be selected or otherwise modified in the editor. To unlock a control, right-click (or long-press on mobile) and select **Unlock** from the context menu.

Visible ↑

The visible state of the control.

If the visible property is set to off, apart from the control not being rendered, it will also not be considered as the target for any pointer interaction, same as if the Interactive property was set to off.

When a control is not visible, it can still be selected in the editor, either directly or by lasso selection, to change the visibility back to on.

Note: The list of pointers currently associated with the control will not be modified when this property changes.

Interactive ↑

The interactive state of the control.

This property determines if the control will be considered when picking the target of a pointer interaction.

Note: The list of pointers currently associated with the control will not be modified when this property changes.

Background ↑

Determines if the control should be rendered with a background.

Outline ↑

Determines if the control should be rendered with an outline and which style of outline.

Possible outline styles are:

- FULL
- CORNERS
- EDGES

Grab Focus ↑

Determines if the control will *capture* pointers that are interacting with it.

If this property is set to off, a pointer will only be associated with the control for as long as the pointer's position is within the frame of the control and no other control has captured it.

If this property is set to on, the pointer will be added to the list of the control's pointers when it first enters the control's frame, and only be removed when the pointer event ends.

Pointer ↑

Determines which pointer takes priority if there's multiple pointers interacting with the control.

Most types of controls only need one pointer input to determine their behavior, for example a button or a fader-like control. If multiple pointers are associated with the control, this property will determine which of the pointers will be selected as the *most significant* one - the one that will be used when updating the control's state and values.

Possible values are:

- OLDEST
- NEWEST

Corner ↑

Determines the amount of corner rounding the control will be rendered with.

A value in the range from `0` to `10`, with zero indicating *no rounded corners*.

Orientation ↑

Determines the orientation of the control, which will influence the control's rendering and behavior depending on control type.

→ TouchOSC Manual

Editor · Control · Values

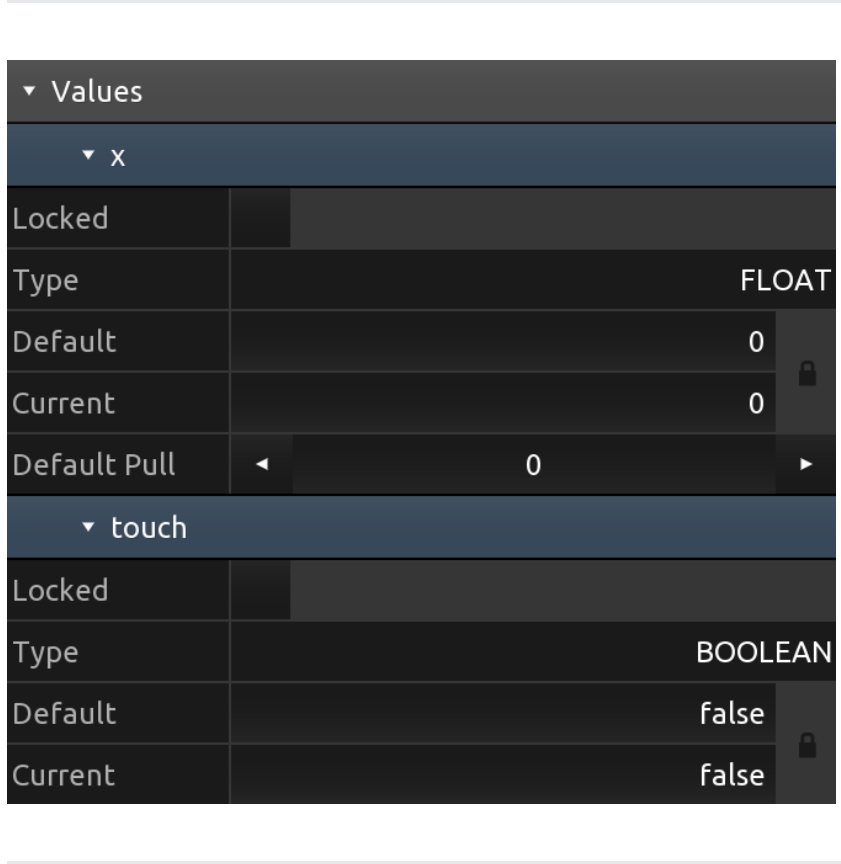
A control can have multiple value objects that are related to a control's internal state.

Values differ from properties in that they can be used as triggers for messages and script callback functions.

A value object can be changed by pointers, messages and scripts. Whenever any value object changes, the application will invoke the control's `onValueChanged` script callback function, if it is defined, and then process all messages that specify the changed value in their list of triggers.

All controls have a **Touch** value object, the BOOLEAN value of which indicates if there are any pointers currently interacting with the control.

- Locked
- Type
- Default
- Current
- Default Pull
- Default-Current Lock



Values

x

Locked

Type FLOAT

Default 0

Current 0

Default Pull 0

touch

Locked

Type BOOLEAN

Default false

Current false

Locked ↑

The locked state of the value object.

If a value is locked it cannot be changed by any pointers, messages or scripts.

Type ↑

The type of the value object.

Possible value types are:

- BOOLEAN
- INTEGER
- FLOAT
- STRING

Default ↑

The default value of this value object.

The value that this value object will hold when the document is loaded initially.

Current ↑

The current value of this value object.

Default Pull ↑

A factor, ranging from `0` to `100` that specifies how strongly the **Current** value will be *pulled* towards the **Default** value when the control is not currently the target of any pointer.

Note: This value property is currently only available for value objects of type FLOAT.

Default-Current Lock ↑

The lock icon next to the **Default** and **Current** value fields can be used to lock both to the same value, meaning if one changes, the other will also change.

Enabling this property will make sure that the value object will be saved with its current value as the default value, which will then be restored when the document is loaded.

→ TouchOSC Manual

Editor · Messages

TouchOSC supports multiple message types to send and receive.

MIDI, OSC and local messages can be sent in response to control value object changes using a message's **trigger** configuration.

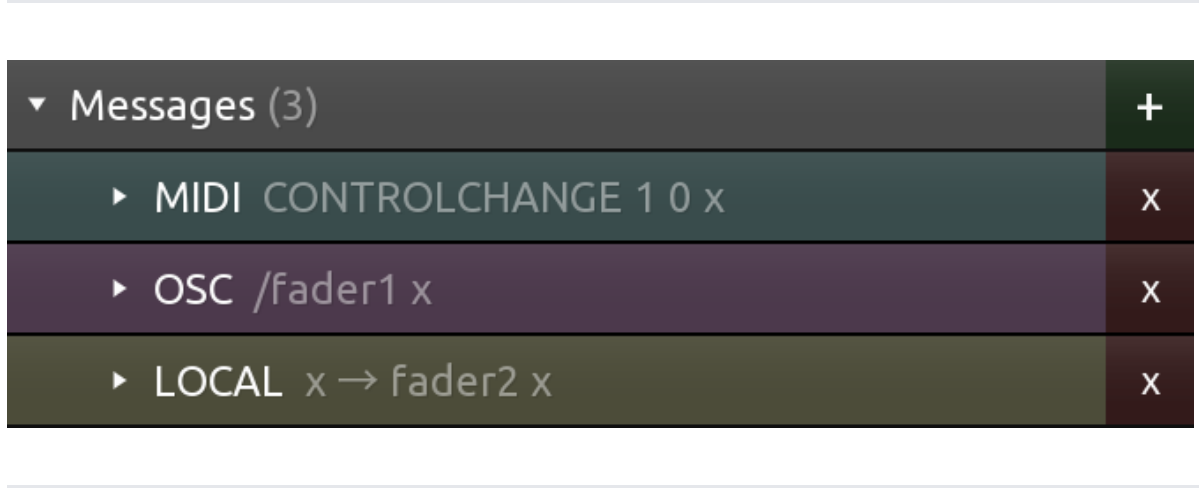
MIDI and OSC messages can be also be sent using script functions and can be received on configured connections.

Messages can be added by pressing the **plus** button on the right of the message panel header in the editor panel and selecting one of the available message types.

Messages can be removed by pressing the **x** button on the right of each individual message's panel header and confirming the action.

A control can have an unlimited number of messages configured. Messages will be processed in the order they are listed in the interface, the order of messages can be changed by dragging the message to a new position in the list.

- MIDI
- OSC
- Local
- Gamepad



Messages (3)

MIDI CONTROLCHANGE 1 0 x

OSC /fader1 x

LOCAL x → fader2 x

MIDI ↑

A MIDI message to send and receive on one of the configured MIDI connections.

See the section on MIDI message configuration for details.

OSC ↑

An Open Sound Control message to send and receive on one of the configured OSC connections.

See the section on OSC message configuration for details.

Local ↑

A local message to efficiently send messages between controls in a document without the overhead of a communication protocol or need for complex scripting.

See the section on Local message configuration for details.

Gamepad ↑

A gamepad message for receiving inputs from a connected game controller.

See the section on Gamepad message configuration for details.

→ TouchOSC Manual

Editor · Messages · MIDI

A control can have multiple MIDI messages configured. Messages can be both sent and received on multiple connections.

When a message is enabled to send, it will be sent on the configured connections when any of the control's values enabled as trigger change, and if the change matches the change condition of the trigger.

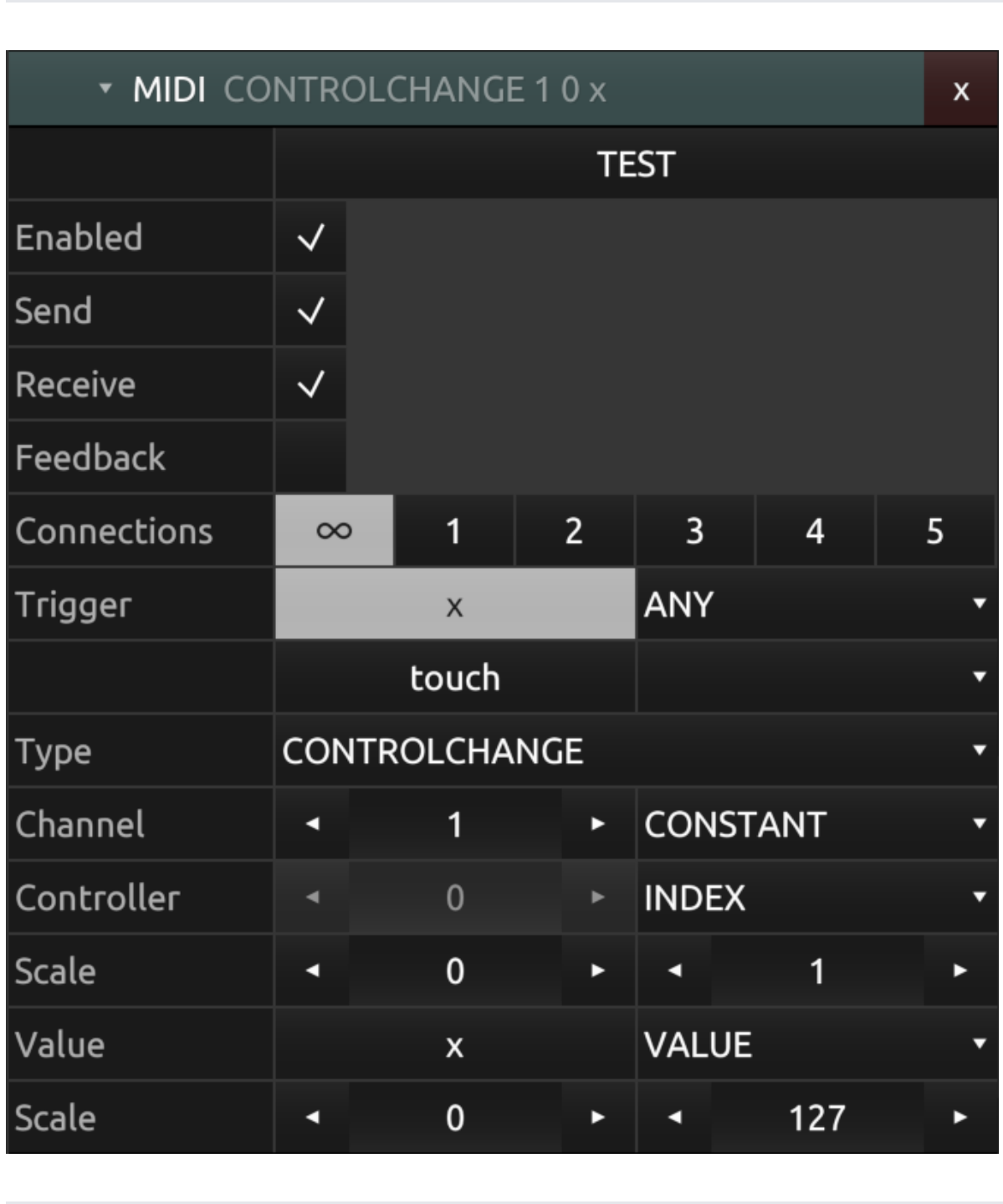
When a message is enabled to receive, it will be considered to be matched against received MIDI messages if the incoming message is received on one of the enabled connections.

Message matching depends on the type of MIDI message. TouchOSC defines part of a MIDI message as the **address** part, used for routing to determine the target controls, and another part as the **payload**.

The type of the message and the **address** part will be used to determine if the incoming message matches the control's message, and the **payload** part will then be processed to extract values and properties to update (if so configured).

See the message matching section for details on address/payload for each message type.

- TEST
- Enabled
- Send
- Receive
- Feedback
- No Duplicates
- Connections
- Trigger
- Type
- Matching



MIDI CONTROLCHANGE 1 0 x

TEST

Enabled ✓

Send ✓

Receive ✓

Feedback

Connections ∞ 1 2 3 4 5

Trigger x ANY

touch

Type CONTROLCHANGE

Channel 1 CONSTANT

Controller 0 INDEX

Scale 0 1

Value x VALUE

Scale 0 127

TEST ↑

Trigger sending of the message manually.

The TEST button will send the message immediately as currently configured.

All message settings will be evaluated except for the **Enabled**, **Send**, **Receive**, **Feedback**, **No Duplicates** flags and **Trigger** configuration.

Enabled ↑

The enabled state of the message.

If a message is not enabled, it will neither be sent or matched to received messages.

Send ↑

The send enable flag of the message.

Only if the send flag is set to on for the message, it will be considered for sending when any of the values enabled as triggers change, and the trigger's change condition is met.

Receive ↑

The receive enable flag of the message.

Only if the receive flag is set to on for the message, it will be considered for being matched against any incoming MIDI messages received on any of the connections enabled for the message.

Feedback ↑

The feedback enable flag of the message.

The feedback flag controls the processing of the message in situations where both the send and receive flags are enabled and a received MIDI message changes a value that is also enabled in the list of send triggers for the message.

If a received MIDI message, and subsequent change of value, would also cause the same message to be sent again immediately, this could cause an undesirable feedback loop in the interaction with another application, hence this flag controls if the message should be sent again in this case.

> ⚠ **The feedback enable flag is set to off by default because of the potential problems this behavior could cause. Please handle with care.**

No Duplicates ↑

Prevent the sending of duplicate messages.

Enabling this flag will keep a history of the most recently sent message and prevent sending of identical messages multiple times in a row.

Sending of duplicate messages can occur in certain cases and message configurations, for example when scaling the high resolution floating point value of a control to the MIDI value range.

> ⚠ **It is advised to only enable this flag if the receiving side shows problems with duplicate messages.**

Connections ↑

The connections that the message should be sent and received on. The numbers refer to the numbered MIDI connections configured in the MIDI connections configuration.

If the message is enabled to be sent, it will be sent only on the connections enabled here.

If the message is enabled to be received, any received MIDI messages will only be considered to be matched to this message if received on one of the connections enabled here.

The special connection labelled '∞' enables sending/receiving messages on all connections.

Trigger ↑

The trigger conditions for the message to be sent.

If the message send flag is set to on, it will be sent only if any of the value objects enabled here change, and only if the configured change condition is being met.

Any of the control's values can be enabled individually here, with one of the possible change conditions of:

- **ANY** - Any change in value will cause the message to be sent
- **RISE** - Any change causing the value to increase will cause the message to be sent
- **FALL** - Any change causing the value to decrease will cause the message to be sent

Type ↑

The type of MIDI message.

TouchOSC supports the following types of MIDI messages:

- Note Off/On
- Poly pressure
- Control change
- Program change
- Channel pressure
- Pitch bend
- System exclusive

Depending on the type of message selected, the configuration of the message fields will change. For any of the possible parts of any given MIDI message type, the source value used can be any of:

- **CONSTANT**
  A constant value.
- **INDEX**
  The current index of the control in its parent list of child controls.
- **VALUE**
  The current value of one of the control's value objects.
- **PROPERTY**
  The current value of one of the control's properties.

All values will be converted to integer types, and all source value types except for CONSTANT can optionally be scaled before sending (and in reverse after reception).

Scaling is applied using the following calculation:

```
out = min + in * (max - min)
```

Matching ↑

If the receive flag is set to on for a message, it will be considered as the target of any received MIDI message if its configuration matches the incoming message.

The type of message will determine how an incoming message will be matched, and then possibly routed, to be received and processed according to this message's configuration. Only if an incoming message's **type and address** part match the configured message will it be received and processed according to this message's description.

If the message configuration uses a control value or property for any of the **address** parts of the message type, the received message has to also match current values of these at the time of reception.

If the message configuration uses a control value or property for the **payload** part of the message type, the value or property will be updated using the received payload value.

The following table lists the parts of a MIDI message TouchOSC considers address and payload for each of the supported message types:

Type	Address	Payload
Note Off/On	Channel + Note	Velocity
Poly pressure	Channel + Note	Velocity
Control change	Channel + Controller	Value
Program change	Channel	Value
Channel pressure	Channel	Value
Pitch bend	Channel	Value

> ⚠ **Received messages of type System exclusive can only be processed using scripting and only at the document root level.**

→ TouchOSC Manual

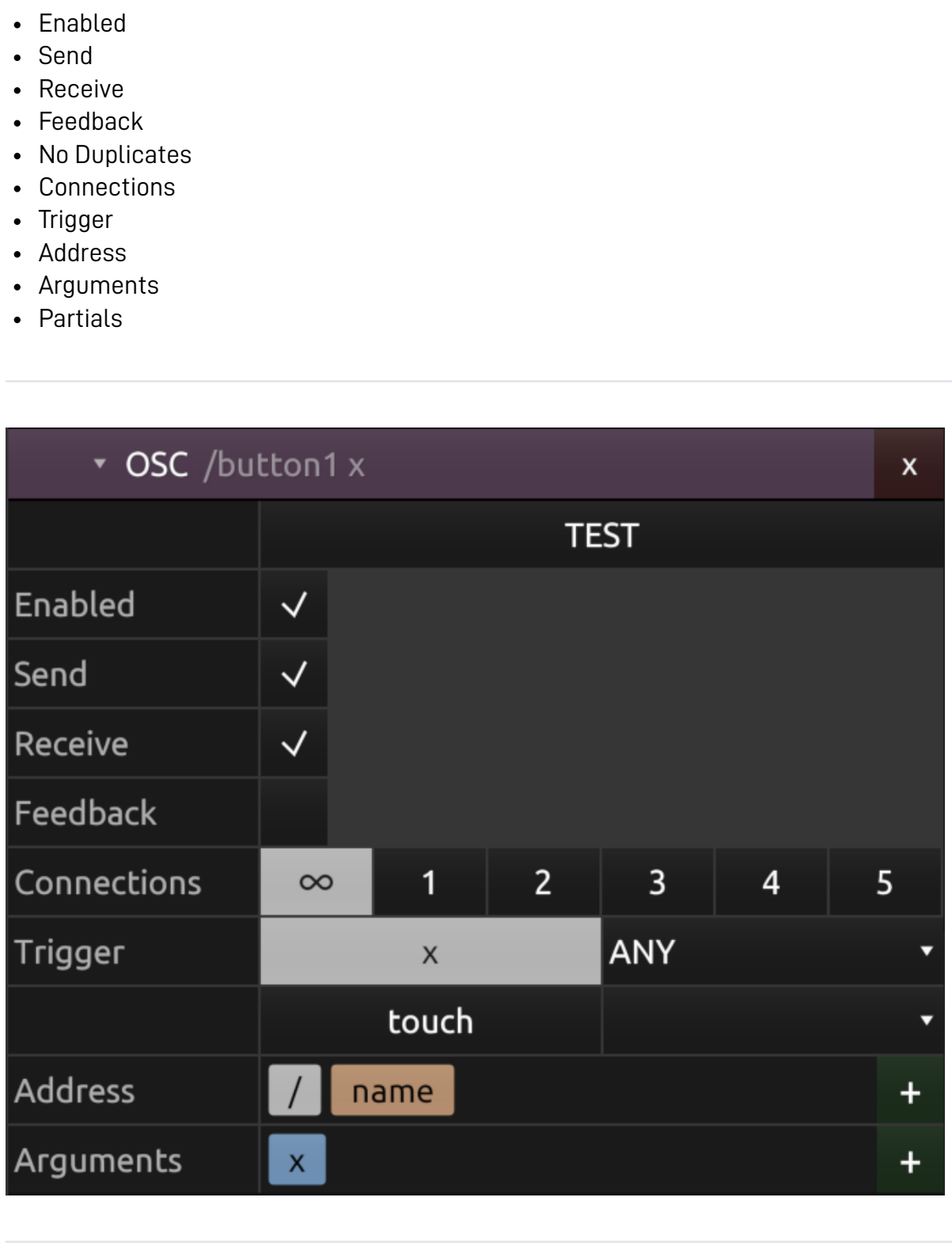
Editor · Messages · OSC

A control can have multiple OSC messages configured. Messages can be both sent and received on multiple connections.

When a message is enabled to send, it will be sent on the configured connections when any of the control's values enabled as trigger change, and if the change matches the change condition of the trigger.

When a message is enabled to receive, it will be considered to be matched against received OSC messages if the incoming message is received on one of the enabled connections and the address part matches the received message.

- TEST
- Enabled
- Send
- Receive
- Feedback
- No Duplicates
- Connections
- Trigger
- Address
- Arguments
- Partials



OSC /button1 x

TEST

Enabled ✓

Send ✓

Receive ✓

Feedback

Connections ∞ 1 2 3 4 5

Trigger x ANY

touch

Address / name

Arguments x

TEST ↑

Trigger sending of the message manually.

The TEST button will send the message immediately as currently configured.

All message settings will be evaluated except for the **Enabled**, **Send**, **Receive**, **Feedback**, **No Duplicates** flags and **Trigger** configuration.

Enabled ↑

The enabled state of the message.

If a message is not enabled, it will neither be sent or matched to received messages.

Send ↑

The send enable flag of the message.

Only if the send flag is set to on for the message, it will be considered for sending when any of the values enabled as triggers change, and the trigger's change condition is met.

Receive ↑

The receive enable flag of the message.

Only if the receive flag is set to on for the message, it will be considered for being matched against any incoming OSC messages received on any of the connections enabled for the message.

Feedback ↑

The feedback enable flag of the message.

The feedback flag controls the processing of the message in situations where both the send and receive flags are enabled and a received OSC message changes a value that is also enabled in the list of send triggers for the message.

If a received OSC message, and subsequent change of value, would also cause the same message to be sent again immediately, this could cause an undesirable feedback loop in the interaction with another application, hence this flag controls if the message should be sent again in this case.

The feedback enable flag is set to off by default because of the potential problems this behavior could cause. Please handle with care.

No Duplicates ↑

Prevent the sending of duplicate messages.

Enabling this flag will keep a history of the most recently sent message and prevent sending of identical messages multiple times in a row.

Sending of duplicate messages can occur in certain cases and message configurations, for example when scaling the high resolution floating point value of a control to a smaller value range or integer/boolean values.

> ⚠ **It is advised to only enable this flag if the receiving side shows problems with duplicate messages.**

Connections ↑

The connections that the message should be sent and received on. The numbers refer to the numbered OSC connections configured in the OSC connections configuration.

If the message is enabled to be sent, it will be sent only on the connections enabled here.

If the message is enabled to be received, any received OSC messages will only be considered to be matched to this message if received on one of the connections enabled here and the address part matches the received message.

The special connection labelled '∞' enables sending/receiving messages on all configured connections.

Trigger ↑

The trigger conditions for the message to be sent.

If the message send flag is set to on, it will be sent only if any of the value objects enabled here change, and only if the configured change condition is being met.

Any of the control's values can be enabled individually here, with one of the possible change conditions of:

- **ANY** - Any change in value will cause the message to be sent
- **RISE** - Any change causing the value to increase will cause the message to be sent
- **FALL** - Any change causing the value to decrease will cause the message to be sent

Address ↑

The address part of the message.

The address of the message can be configured with a series of partials that will be evaluated to produce the final address string.

The address of the message will be used to match any incoming OSC messages and determine if the received message should be routed to this control.

Arguments ↑

The arguments of the message.

The arguments of the message can be configured with a series of partials, each one representing a single argument to the message.

When sending messages, all argument partials will be evaluated and replaced with the actual value depending on each partial's configuration.

When receiving messages, the received message's arguments will be matched sequentially against the list of partials, and any value objects and properties used in partials will be updated with the received values according to each partial's configuration.

Partials ↑

Partials are the building blocks for constructing OSC message address and argument descriptions. The partials will be evaluated from left to right according to their configuration when producing the actual address and arguments of a message.

Partials can be added to the address and argument lists using the plus button on the right and selecting one of the possible partial types.

A partial can be of the following types:

- **CONSTANT**
  A constant value.
- **INDEX**
  The current index of the control in its parent list of child controls.
- **VALUE**
  The current value of one of the control's value objects.
- **PROPERTY**
  The current value of one of the control's properties.

A partial can be selected and the selected partial can be deleted by pressing the DELETE key on desktop platforms, or right-clicking (long-pressing on mobile platforms) on the partial and confirming the delete in the context menu.

When a partial is selected, more configuration options will be shown depending on type of the partial and if the partial is part of the message address or argument list. Possible options include scaling the value and conversion to one of the following types:

- BOOLEAN
- INTEGER
- FLOAT
- STRING

Scaling is applied using the following calculation:

```
out = min + in * (max - min)
```

The order of partials can be changed by dragging a partial to a new position inside the list.

→ TouchOSC Manual

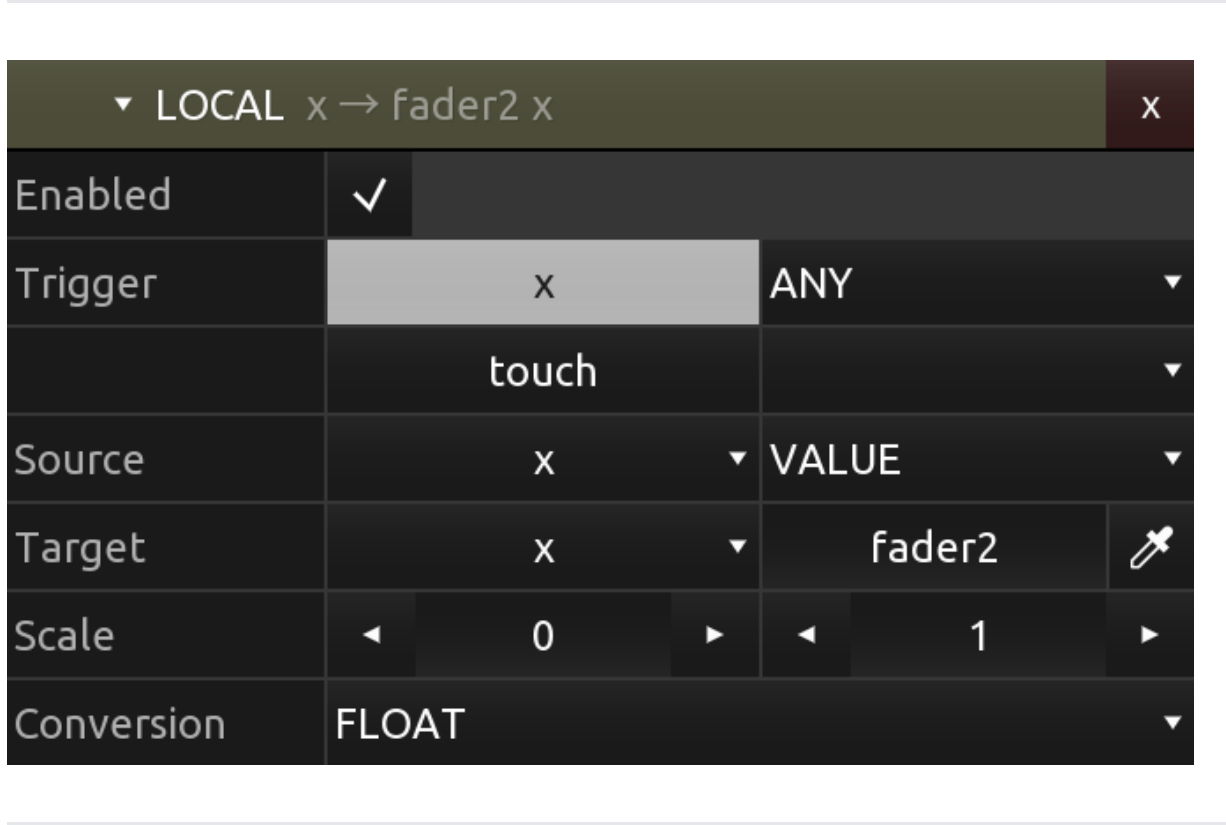
Editor · Messages · Local

A control can have multiple local messages configured. Local messages act like a direct connection between controls to change values and properties locally.

A control can be both the source and target of a local message, for example changing its own color based on the state of its `touch` value object.

On desktop platforms, a local connection between controls can be quickly created in the editor by holding down the ALT key and drawing a connection between source and target controls. On all platforms, the target can be picked using the picker icon in the target row.

- Enabled
- Trigger
- Source
- Target
- Scale
- Conversion



LOCAL x → fader2 x

Enabled ✓

Trigger x ANY

touch

Source x VALUE

Target x fader2

Scale 0 1

Conversion FLOAT

Enabled ↑

The enabled state of the message.

If a message is not enabled, it will not be sent.

Trigger ↑

The trigger conditions for the message to be sent.

If the message enabled flag is set to on, it will be sent only if any of the value objects enabled here change, and only if the configured change condition is being met.

Any of the control's values can be enabled individually here, with one of the possible change conditions of:

- **ANY** - Any change in value will cause the message to be sent
- **RISE** - Any change causing the value to increase will cause the message to be sent
- **FALL** - Any change causing the value to decrease will cause the message to be sent

Source ↑

The source value to be sent to the target control.

The source value can be one of the following types:

- **CONSTANT**
  A constant value.
- **INDEX**
  The current index of the control in its parent list of child controls.
- **VALUE**
  The current value of one of the control's value objects.
- **PROPERTY**
  The current value of one of the control's properties.

Target ↑

The target value and control of the message.

Enabling target picking mode using the picker icon on the right will assign the next selected control in the editor as the target control of the message. Pressing the picker icon again (or pressing the ESC key on desktop platforms) will cancel target picking mode.

After selecting a target control, the name of the target control will be displayed and clicking on the target control's name will select the control in the editor.

The target value menu will be populated with the available target values. The target value can be one of the following types:

- **VALUE**
  One of the target control's value objects.
- **PROPERTY**
  One of the target control's properties.

Scale ↑

The scaling to apply to the source value.

Scaling is applied using the following calculation:

```
out = min + in * (max - min)
```

Conversion ↑

The type conversion to apply to the source value.

The conversion can be one of the following types:

- BOOLEAN
- INTEGER
- FLOAT
- STRING

→ TouchOSC Manual

Editor · Messages · Gamepad

A control can have multiple gamepad messages configured. Gamepad messages can only be received and not sent.

A gamepad message is configured to wait for a certain game controller input on one or multiple configured gamepad connections, and apply the received input value to one of the control's values or properties.

For portability between platforms, and to allow TouchOSC documents to be shared with users using different input devices, all game controllers are mapped to a standard Xbox 360-like controller layout.

This is the same strategy as employed by the ubiquitous Steam game client and the popular SDL2 game development library, and we support the same mapping database format as these.

On desktop platforms, if no mapping can be found for the game controller in the included database, TouchOSC will output a warning to the log view upon connection.

It is possible to update and customize TouchOSC's internal database of controller mappings by placing a text file following SDL2's game controller database format in TouchOSC's configuration directory, found at the following location for each platform:

- **Windows:**

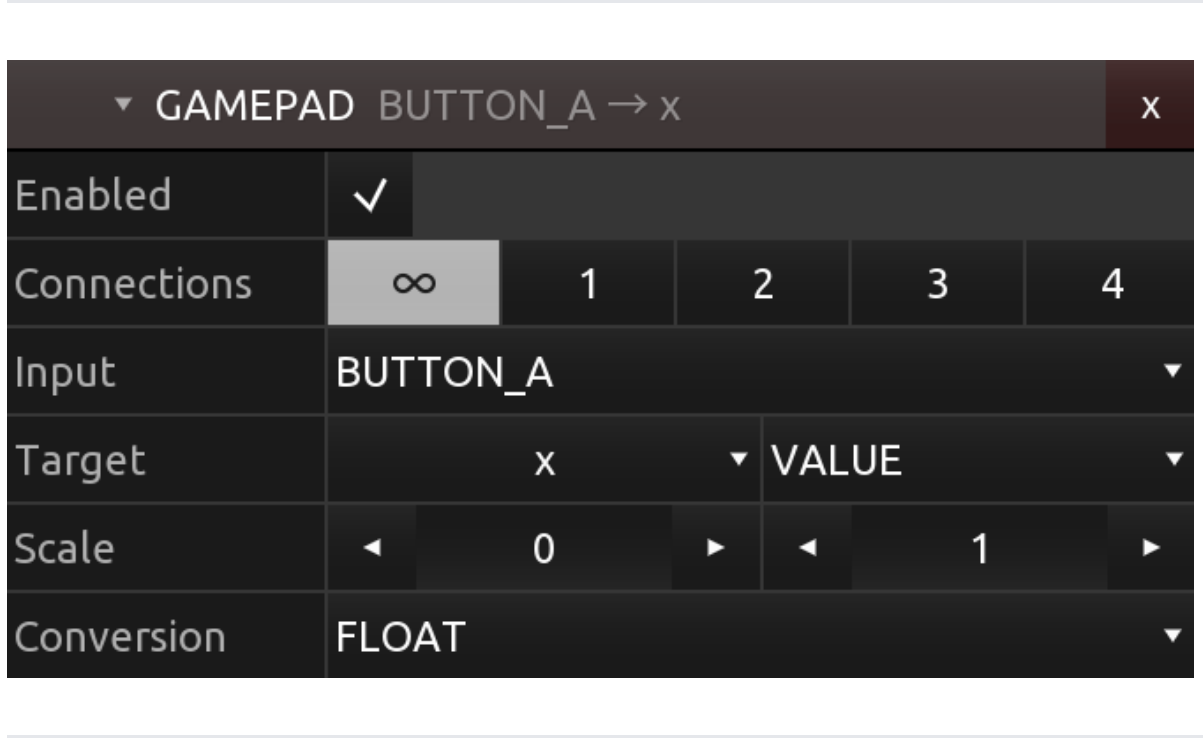
  `%AppData%/TouchOSC/`
- **macOS:**

  `~/Library/Application Support/net.hexler.lex/`
- **Linux:**

  `~/.TouchOSC/`

TouchOSC will look for a file called `gamecontrollerdb.txt` at this path once at application launch, and if found, will try to load and apply that configuration.

- Enabled
- Connections
- Input
- Target
- Scale
- Conversion



GAMEPAD BUTTON_A → x

Enabled ✓

Connections ∞ 1 2 3 4

Input BUTTON_A

Target x VALUE

Scale 0 1

Conversion FLOAT

Enabled ↑

The enabled state of the message.

If a message is not enabled, it will not be processed when a matching input is received.

Connections ↑

The connections that the message should be received on. The numbers refer to the numbered configured game controllers in the Gamepad connections configuration.

The special connection labelled '∞' enables receiving messages on all connections.

Input ↑

The type of input received from the game controller.

The input can be one of the following:

- **STICK_LEFT_X**
  The x-axis of the left analog stick
- **STICK_LEFT_Y**
  the y-axis of the left analog stick
- **STICK_RIGHT_X**
  The x-axis of the right analog stick
- **STICK_RIGHT_Y**
  The y-axis of the right analog stick
- **TRIGGER_LEFT**
  The left trigger at the back of the controller
- **TRIGGER_RIGHT**
  The right trigger at the back of the controller
- **BUTTON_UP**
  The up button on the directional pad
- **BUTTON_DOWN**
  The down button on the directional pad
- **BUTTON_LEFT**
  The left button on the directional pad
- **BUTTON_RIGHT**
  The right button on the directional pad
- **BUTTON_A**
  The face button often labelled A
- **BUTTON_B**
  The face button often labelled B
- **BUTTON_X**
  The face button often labelled X
- **BUTTON_Y**
  The face button often labelled Y
- **BUTTON_STICK_LEFT**
  The button input pressing down on the left analog stick
- **BUTTON_STICK_RIGHT**
  The button input pressing down on the right analog stick
- **BUMPER_LEFT**
  The left bumper button at the back of the controller
- **BUMPER_RIGHT**
  The right bumper button at the back of the controller
- **BUTTON_START**
  The center button often labelled 'Start'
- **BUTTON_SELECT**
  The center button often labelled 'Select' or 'Back'
- **BUTTON_HOME**
  The button at the center of the controller, often showing a logo of the controller manufacturer or game console

Target ↑

The target value or property of the message.

When the configured input is detected on any of the enabled connections, the received numeric value of the input will be written to the target value or property selected here, after scaling and conversion has been applied.

The target can be one of the following types:

- **VALUE**
  One of the target control's value objects.
- **PROPERTY**
  One of the target control's properties.

Scaling ↑

The scaling to apply to the input value.

The input value will be scaled in the same way as other received message values according to the following formula, which is the inverse of the scaling that is applied to outgoing messages of all message types:

```
value = (input - min) / (max - min)
```

It's easiest to think of this inverse scaling this way: Setting `min` and `max` to the expected minimum and maximum input values received from the game controller, this transformation will produce a `value` ranging from `0` to `1`.

Conversion ↑

The type conversion to apply to the input value.

The conversion can be one of the following types:

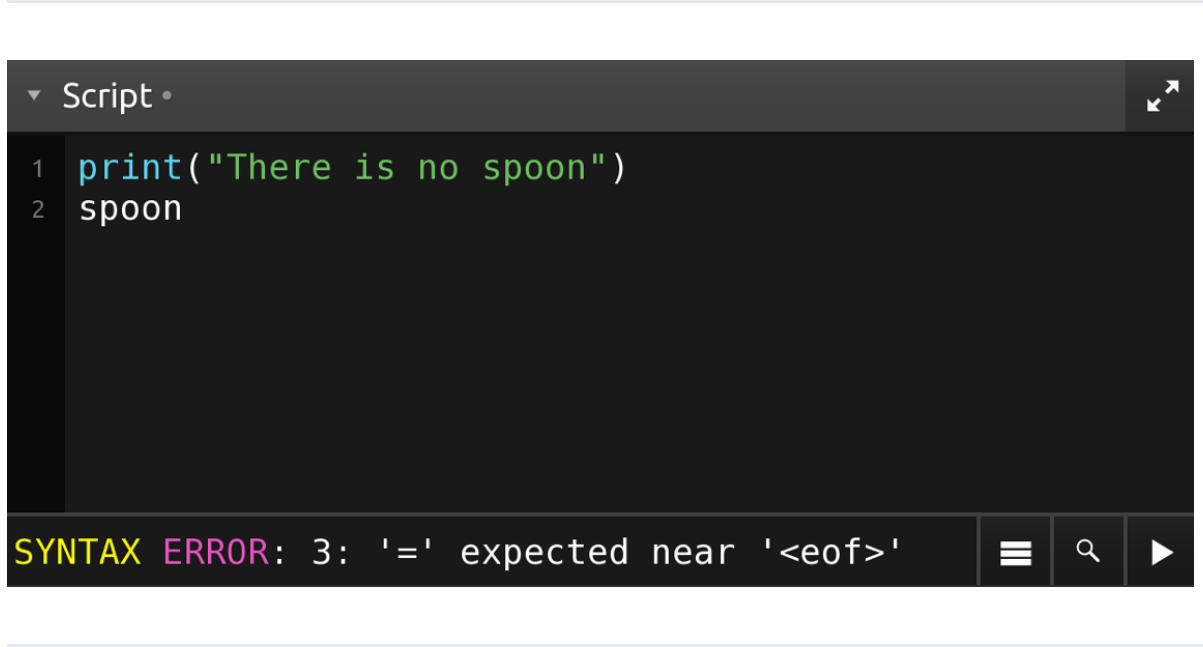
- BOOLEAN
- INTEGER
- FLOAT
- STRING

→ TouchOSC Manual

Editor · Script

The script editor UI for editing script source code. Please see the Scripting API section of the manual for details about the script language and available functions and objects.

- Editor
- Summary
- Log
- Find/Replace
- Run



Script

```
print("There is no spoon")
spoon
```

```
SYNTAX ERROR: 3: '=' expected near '<eof>'
```

Editor ↑

The text editor for editing script source code with syntax highlighting and completion.

Every time the text editor looses input focus, the script will be compiled and checked for errors, and if any, the error source line will be highlighted and a short error summary will be displayed in the summary display. For the full error message, open the log view.

The script will not be executed until either switching the editor to control surface mode, or the run button is pressed.

In the top right corner there is a button to maximize the editor and fill the area of the panel on the right for easier editing of longer scripts.

Summary ↑

A short summary of the error message when compiling the script source.

Log ↑

Open the application's log view and show the script messages page.

Find/Replace ↑

Toggle the editor's find/replace tools.

On desktop operating systems the standard keyboard shortcuts for find/replace can also be used to show these tools.

Run ↑

Compile and execute the script code immediately.

Script code is automatically compiled and checked for errors every time the text editor looses input focus, and all scripts will be executed when switching from editor to control surface mode.

The run button will compile and execute the script code **immediately**, making it possible to test and run scripts in the editor without switching to control surface mode.

→ TouchOSC Manual

Editor · Network

The application's editor network feature allows one instance of the application to act as editor server on the network and lets multiple other instances on the network connect as clients.

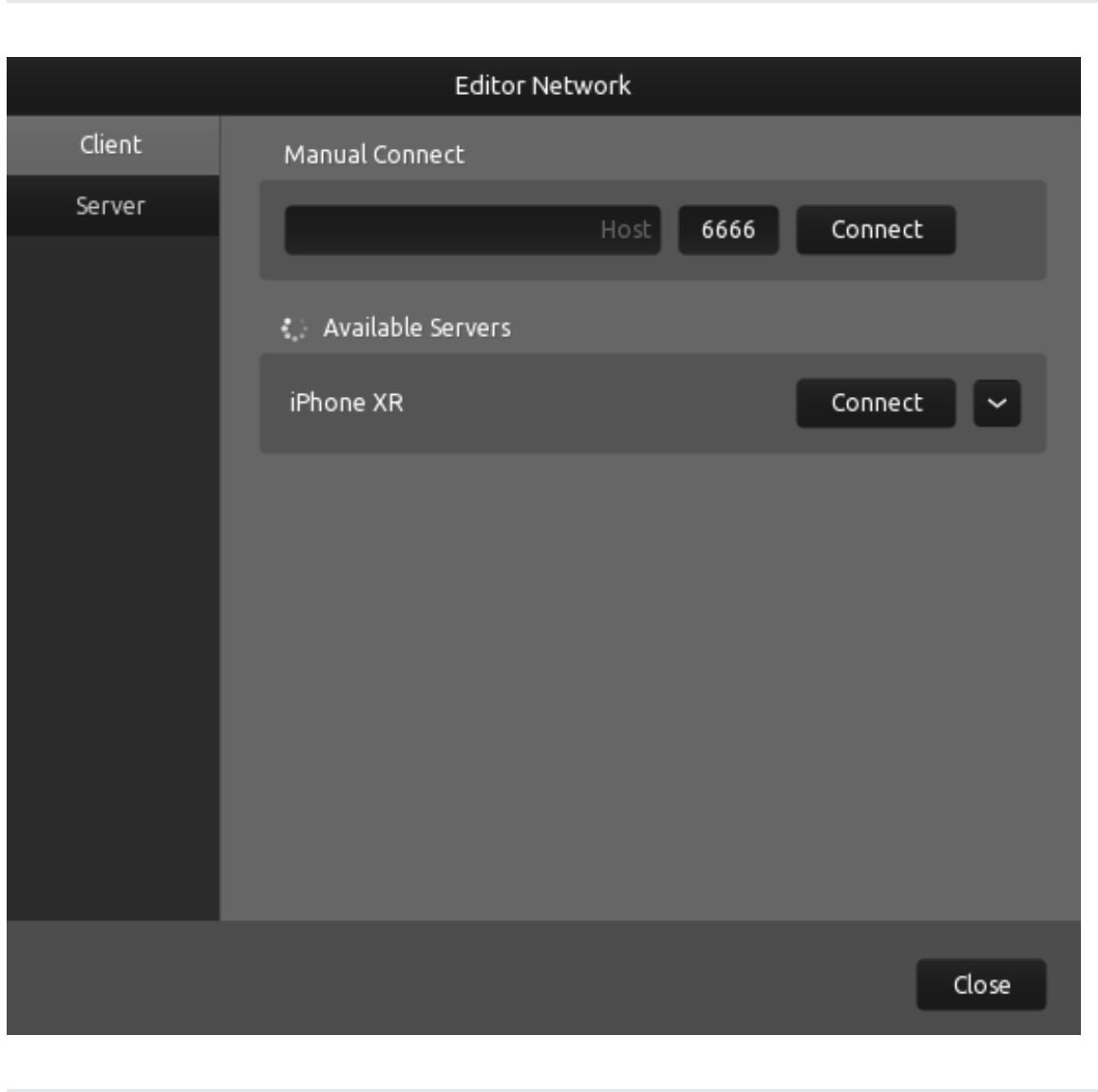
The editor server will broadcast the current document and all editor actions to all connected clients in real-time.

The editor clients will be locked into control surface mode and not be able to make any edits while connected to the server. Once disconnected from the server, the document can be edited and saved on the client.

Connected clients will still be able to use the control surface with all messages and scripts fully functional, making it possible to test the configuration of a control surface immediately, while making changes on the server.

NOTE that the current values of a control's value objects are only transmitted **once after the initial connect** or if **explicitly edited** on the server, as it would interfere with the ability to test a control surface's functionality and use, if value objects would be continually reset to the current state of the server document while connected.

- Client
  - Manual Connect
  - Available Servers
- Server
  - Enabled



Client ↑

Manual Connect ↑

Enter an editor server's IP address or host name and port number manually to connect. The pre-filled port number is set to the application's default port number for editor servers.

Available Servers ↑

The list of available servers will be populated with discovered hosts that have the server option enabled.

TouchOSC uses Zero-configuration networking (zeroconf) to discover editor network servers on the local network. If none can be found, please use the Manual Connect option to connect to an editor server.

Discovered editor hosts will be displayed with host name and a connect button to initiate the connection to the selected server.

If an editor server host is reachable via multiple network interfaces or IP addresses, a button will be displayed to expand details about the possible IP addresses to connect to and allow connection via each one individually.

Server ↑

Enabled ↑

Enables the editor network's server portion to listen for incoming client connections.

NOTE: For security reasons the state of this flag is currently not restored between application runs. We might change this behavior in the future and add additional security measures.

→ TouchOSC Manual

Connections

TouchOSC supports multiple connection types for messages to be sent and received on.

Each type of connection can have between four and ten separate, simultaneous connections configured, each with separate send and receive endpoints.

Each of these numbered connections can be enabled individually in a message's configuration.

- MIDI
- OSC
- Bridge
- Gamepad

MIDI ↑

MIDI connections can be used for sending and receiving messages according to the MIDI 1.0 protocol specification ↗.

We are planning to add support for the MIDI 2.0 protocol specification ↗ in the future, once more supporting

We are planning to add support for the MIDI 2.0 protocol specification in the future, once more supporting hardware and software is available.

See the section on MIDI connection configuration for details.

OSC ↑

OSC connections can be used for sending and receiving messages according to the Open Sound Control protocol.

See the section on OSC connection configuration for details.

Bridge ↑

Bridge connections act as virtual MIDI in/out ports that transmit MIDI messages over the network to and from a host on the local network running the TouchOSC Bridge application.

On iOS devices it is also possible to connect to an instance of the TouchOSC Bridge application using a USB cable connection.

Each of these configured connections can then be selected as input and output ports in the MIDI connection configuration.

See the section on Bridge connection configuration for details.

Gamepad ↑

Gamepad connections allow receiving input from connected game controllers.

See the section on Gamepad connection configuration for details.

→ TouchOSC Manual

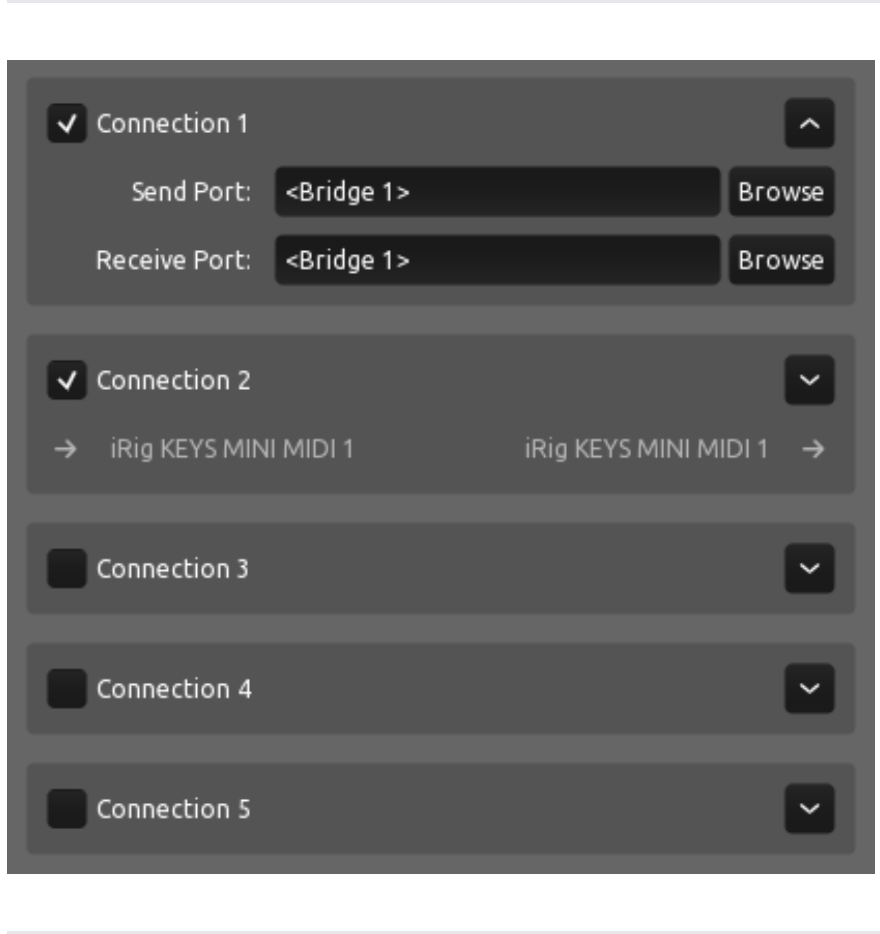
Connections · MIDI

TouchOSC allows to configure ten separate MIDI connections, each with freely assignable input and output ports. Each of these connections can be individually enabled for a control's MIDI messages to be sent and received on.

All enabled TouchOSC Bridge connections can also be configured here as input and output ports just like regular MIDI ports - with TouchOSC transparently handling the transport of MIDI messages over the network via these ports.

On macOS, iOS and Android operating systems there will be additional buttons at the top of this page, to switch to the TouchOSC Bridge connections configuration, and to open the configuration dialog for Bluetooth MIDI controllers.

- Enable
- Expand
- Send Port
- Receive Port
- Browse



Send Port: <Bridge 1>

Receive Port: <Bridge 1>

iRig KEYS MINI MIDI 1 → iRig KEYS MINI MIDI 1

Enable ↑

The checkbox at the top left toggles the enabled state of the connection. If a connection is not enabled it will not send or receive any messages.

Expand ↑

The arrow button in the top right toggles the display between editable details of the connection and a short, read-only summary.

Send Port ↑

The name of the MIDI output port to send messages on. This can be any name you enter into the text field or an existing port name found on the system using the Browse function.

If you leave this field empty or no MIDI output port by the specified name is found at runtime, no messages will be sent.

Receive Port ↑

The name of the MIDI input port to receive messages from. This can be any name you enter into the text field or an existing port name found on the system using the Browse function.

If you leave this field empty or no MIDI input port by the specified name is found at runtime, no messages will be received.

Browse ↑

The browse button will list all existing input and output ports currently found on the system, as well as all enabled TouchOSC Bridge connections for selection. Both lists are updated in real-time and will show any ports added while displaying.

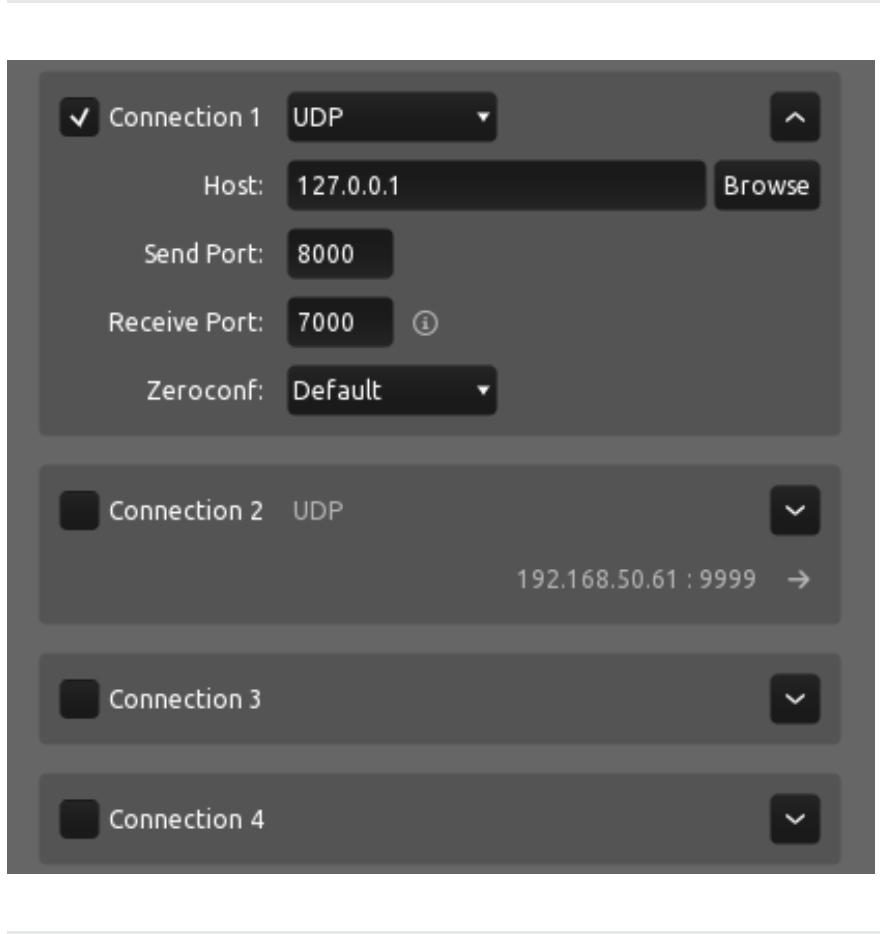
→ TouchOSC Manual

Connections · OSC

TouchOSC allows to configure ten separate OSC connections, each with freely assignable send destination and receive port. Each of these connections can be individually enabled for a control's configured OSC messages to be sent and received on.

Each connection's receive port can also be advertised on the network using the Zero Configuration Networking (Zeroconf) standard for other OSC enabled applications and devices to discover.

- Enable
- Expand
- Type
- Host
- Send Port
- Receive Port
- Network Info
- Zeroconf
- Browse



Connection 1: UDP

Host: 127.0.0.1

Send Port: 8000

Receive Port: 7000

Zeroconf: Default

Connection 2: UDP

192.168.50.61 : 9999

Enable ↑

The checkbox at the top left toggles the enabled state of the connection. If a connection is not enabled it will not send or receive any messages.

Expand ↑

The arrow button in the top right toggles the display between editable details of the connection and a short, read-only summary.

Type ↑

The type of OSC connection to establish. TouchOSC supports three connection types to transport OSC messages on:

- **UDP**
  A UDP/IP connection.
  The user datagram protocol (UDP) is the most common protocol for communication between OSC enabled applications and devices. If you are unsure which type of connection to choose, it is highly likely that this is the correct one.
- **TCP Client**
  A TCP/IP client connection to another host.
  If the connection to the other host fails for any reason, the connection will automatically attempt to re-connect periodically.
- **TCP Server**
  A TCP/IP server connection other clients can connect to.

When using one of the TCP/IP connection types, the **Framing** option will become available to choose one of the following message framing methods:

- **OSC 1.0**
  TouchOSC will use the simple message framing scheme (size-count-preamble) suggested by the OSC 1.0 specification:

  > *"...the stream should begin with an int32 giving the size of the first packet, followed by the contents of the first packet, followed by the size of the second packet, etc."*

- **OSC 1.1**
  TouchOSC will use the SLIP (RFC1055) with double END character encoding as required by the OSC 1.1 specification.

Host ↑

For the connection types **UDP** and **TCP Client** a host name or IP address can be entered as the destination for sent messages. To browse for other applications and devices that advertise their OSC receivers of the selected connection type, use the Browse function.

If you leave this field empty or the destination host is not found at runtime, no messages will be sent.

Send Port ↑

For the connection types **UDP** and **TCP Client** a port number can be entered as the destination for sent messages. This field will also be completed when selecting any of the discovered receivers using the Browse function.

If you leave this field empty no messages will be sent.

Receive Port ↑

For the connection types **UDP** and **TCP Server** a port number can be entered to listen for received messages or client connections respectively.

If you leave this field empty no messages will be received.

Network Info ↑

The small info icon next to the Receive Port input field will open a dialog listing all IP addresses of all available and active network interfaces of the current machine.

By default all IPv4 and IPv6 addresses are shown, to exclude IPv6 addresses, uncheck the **Include IPv6** checkbox.

To refresh the list manually, click the **Refresh** button to update the list.

Zeroconf ↑

If the Send Port field has a value, the option to advertise the connection's OSC receiver on the network using the Zeroconf standard becomes available with the following options:

- **Disabled**
  Disables the advertising of the connection's OSC receiver on the network.
- **Default**
  The application will use the local name of the device for advertising the connection's OSC receiver on the network.
- **Custom**
  Use a custom service name for advertising the connection's OSC receiver on the network.
- **LogicPad**
  Emulate TouchOSC Mk1's behaviour for advertising the connection's OSC receiver on the network for use with the included LogicPad layout.
- **LogicTouch**
  Emulate TouchOSC Mk1's behaviour for advertising the connection's OSC receiver on the network for use with the included LogicTouch layout.

Browse ↑

The browse button next to each connection's **Host** field will list all OSC receivers compatible with the connection's type found on the network using the Zeroconf standard.

Selecting any of the available results will fill in both the **Host** and **Send Port** fields for the connection. In case the discovered OSC receiver is advertised using multiple IP addresses, these will be listed in a sub-menu under the host's name for individual selection.

The list of results is updated in real-time and will show any additional receivers discovered while displaying.

→ TouchOSC Manual

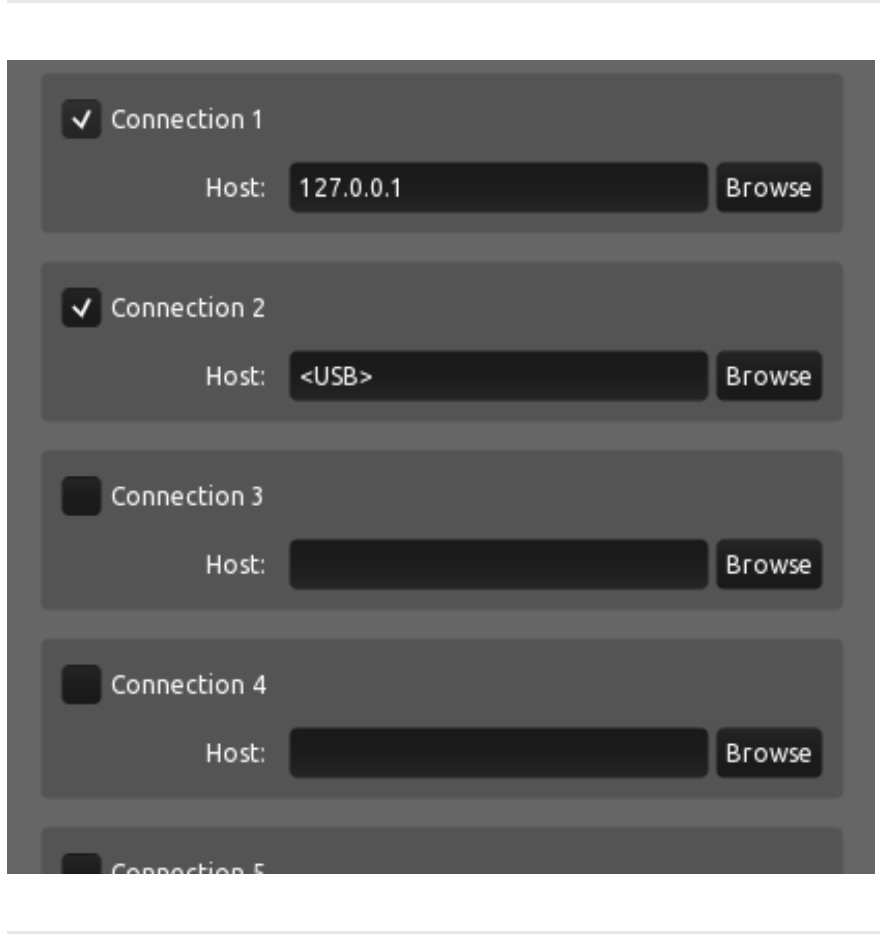
Connections · Bridge

TouchOSC allows to configure five separate connections to connect to instances of the TouchOSC Bridge application.

TouchOSC Bridge acts as a virtual MIDI interface, transparently transmitting MIDI messages to and from another host on the network, or using a USB cable connection on iOS devices.

Each enabled Bridge connection can be individually selected as MIDI input and output port in the MIDI connections configuration.

- Enable
- Host
- Browse



Connection 1 Host: 127.0.0.1

Connection 2 Host: <USB>

Enable ↑

The checkbox at the top left toggles the enabled state of the connection. If a connection is not enabled it will not send or receive any messages.

Host ↑

Enter a host name or IP address of the device running TouchOSC Bridge. To browse for available TouchOSC Bridge instances on the network, use the Browse function.

The reserved connection name **<USB>** can be used on iOS devices to connect to a TouchOSC Bridge instance running on a computer connected using a USB cable.

If you leave this field empty no messages will be sent or received.

Browse ↑

The browse button next to each connection's **Host** field will list all TouchOSC Bridge instances found on the network.

On iOS devices, an additional **<USB>** connection will be available to connect to a TouchOSC Bridge instance running on a computer connected using a USB cable.

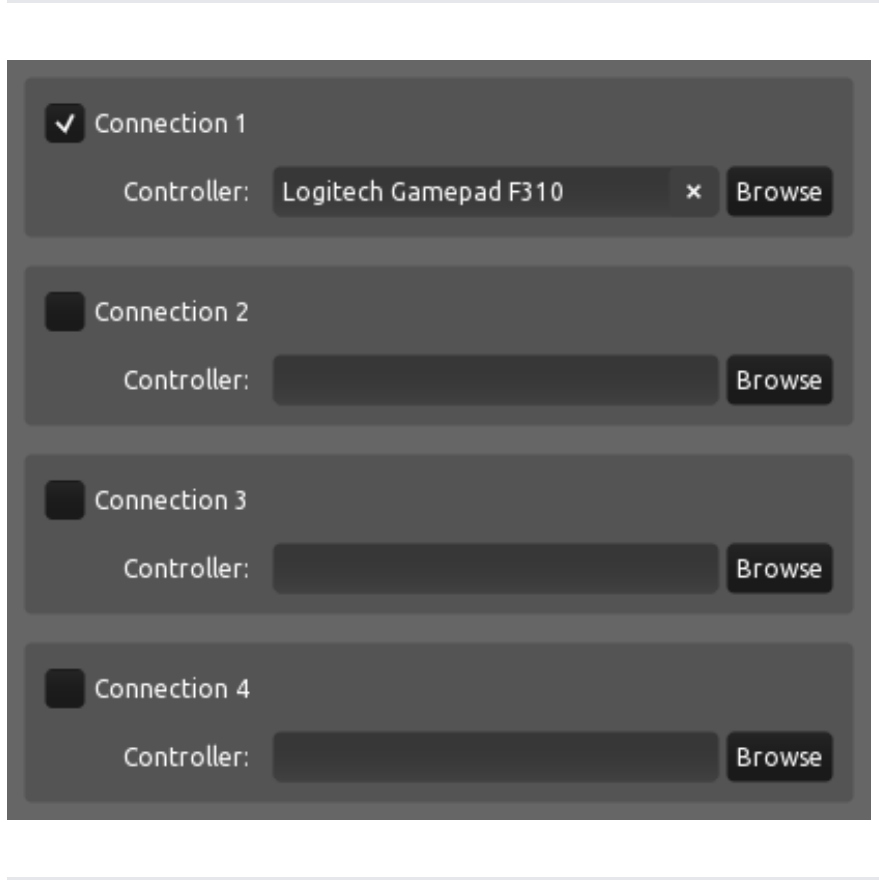
The list of results is updated in real-time and will show any additional instances discovered while displaying.

→ TouchOSC Manual

Connections · Gamepad

TouchOSC can be configured to receive inputs from four separate, connected game controllers. Each of these connections can be enabled for a control's Gamepad messages to receive input from.

- Enable
- Controller
- Browse



Connection 1 Controller: Logitech Gamepad F310

Enable ↑

The checkbox at the top left toggles the enabled state of the connection. If a connection is not enabled it will not receive any input.

Controller ↑

The name of the game controller to receive input from. Choose any of the currently connected game controllers found on the system using the Browse function.

The configured controller can be removed from the connection using the x button.

The configured controller's GUID will be saved to the configuration between application runs or when the selected controller is disconnected and later re-connected.

Browse ↑

The browse button will list all connected game controllers currently found on the system. The list will be updated in real-time and will reflect any controllers added or removed while displaying.

→ TouchOSC Manual

Preferences · General

- User interface scale
- Updates
- Show comments after loading
- Send anonymous usage statistics
- Enable debug logging

User interface scale ↑

Global scaling factor for all of TouchOSC's user interface. Needs a restart of the application to be applied.

Note: This is an experimental feature and maybe cause some user interface controls to behave or render unpredictably.

Updates ↑

Automatically contact the hexler.net website to check for an updated version of the application on startup, at most once a day.

The **Channel** menu allows for selecting either "Stable" or "Beta" update channels. Please note that beta releases are for previewing upcoming features before a wider release and are subject to change without notice and might not function as expected. Use at your own risk.

Note: No additional information other than the application version, operating system type and architecture will be transmitted to the website during this check.

Show comments after loading ↑

If a document has values for the "Creator" or "Comments" document properties, display these after loading has finished.

Send anonymous usage statistics ↑

This enables sending of anonymous usage statistics back to the hexler.net website.

This may include data about your system and use of the application, such as operating system, version and language, hardware specifics such as amount of RAM and number of CPU cores, type of GPU, graphics API and others.

We use this anonymous data to determine the future direction of the application's design and the viability of continued support for less popular hardware/software configurations. Therefore we strongly recommend leaving this setting enabled to help us make informed decisions about the application's future.

For more information see our Privacy Policy.

Enable debug logging ↑

This will cause the application to log a much larger amount of information about its internal operation.

Note: This will most certainly cause significant overhead and slow down, and is only encouraged when asked to do so by one of our developers or support staff and only while diagnosing a problem.

The **Show logs** button will open the operating system's file browser at the location of TouchOSC's log files.

→ TouchOSC Manual

Preferences · Editor

- Appearance
  - Show Grid
  - Snap to Grid
  - Show Rulers
- Behaviour
  - Create default MIDI messages
  - Create default OSC messages
  - Assign new names on copy/paste
  - Pager navigation only with ALT key
- Script
  - Font Size
  - Word Wrap
  - Code Highlighting
  - Code Completion

Appearance ↑

Show Grid

Toggle the rendering of a grid in the background of the editing surface and configure spacing, appearance and color.

Snap to Grid

Toggle whether controls will snap to the editor grid when being positioned.

Show Rulers

Toggle the rendering of rulers at the top and left edges of the editing surface.

Behaviour ↑

Create default MIDI messages

When creating a new control, automatically create and configure a suitable MIDI message as well.

Create default OSC messages

When creating a new control, automatically create and configure a suitable OSC message as well.

Assign new names on copy/paste

When copy/pasting a control, automatically assign a new name to the control.

Pager navigation only with ALT key

When editing a document, a Pager control's navigation bar is enabled by default and allows to switch between pages as one would when in control surface mode. This option enables this behaviour only when the ALT key is held down at the same time.

Note: This option is only available on desktop platforms.

Script ↑

Font Size

Font size used by the script editor.

Word Wrap

Enables word wrapping in the script editor.

Code Highlighting

Enables colored code highlighting in the script editor.

Code Completion

Enables code completion in the script editor.

→ TouchOSC Manual

Preferences · Control Surface

- Display
  - Orientation
  - Filter
  - Allow sleep
- Padding
- Back Button
  - Double-tap
  - Vertical
  - Horizontal

Display ↑

Orientation

Determine the rotation transformation the control surface will be rendered with.

NORTH is the default and will render the control surface the same as previewed in the editor.

AUTO will cause the orientation to be automatically chosen to maximize the space the control surface will occupy considering the available device screen size and rotation.

NOTE: This setting does not change your device's automatic rotation or rotation lock preferences in any way. Please use your device's native options for these settings in combination with this application setting to achieve the optimal rotation behaviour for your setup.

Filter

The filter selection allows an additional post-processing image filter to be applied to the control surface when rendering.

Allow sleep

Allow the device to sleep when in control surface mode.

The default is to keep the device and display on at all times when in control surface mode.

NOTE: This setting is only available on mobile devices.

Padding ↑

Configure the amount of space to reserve at the top, bottom, left and right edges of the screen when rendering the control surface view.

Back Button ↑

Options related to the back button for exiting the control surface view and returning to the editor view.

Double-tap

Configure the back button to require a double-tap instead of a single press.

Configure the back button to require a double-tap instead of a single press.

Vertical

Configure the vertical alignment of the back button.

Horizontal

Configure the horizontal alignment of the back button.

→ TouchOSC Manual

Preferences · Script

- Timeout
- Invalid API Usage

Timeout ↑

In Control Surface mode, long-running scripts will be terminated to prevent the application from stalling.

- **SHORT**
  The default setting, any one script is allowed to take up to ~200ms.
- **LONG**
  For older devices running complex layouts it might be helpful to extend the timeout to ~2000ms. Please use this setting with caution and only if absolutely necessary.

NOTE that in editor mode, the timeout will always be longer than either of these settings to allow for long-running, manually launched scripts to help with editing actions.

Invalid API Usage ↑

When invalid API usage is detected (e.g. accessing non-existent control properties or values, or calling API functions with wrong arguments) the following action will be taken:

- **ERROR**
  If the Log View is active an error message will be printed to the SCRIPT log and the script will be stopped.
- **WARN**
  If the Log View is active a warning message will be printed to the SCRIPT log and the script will continue to execute. If the API call in question expects a return value, `nil` will be returned.
- **IGNORE**
  No message will be printed in the SCRIPT log and the script will continue to execute. If the API call in question expects a return value, `nil` will be returned.

→ TouchOSC Manual

Preferences · Log View

- Font Size
- Keep log lines
- Display
  - Timestamps
  - Control name as path
  - Open in separate window

Font Size ↑

Font size used by the log view.

Keep log lines ↑

Number of log lines to keep in the scroll-back history.

Note: Setting this option to a large value may drastically impact performance.

Display ↑

Timestamps

Display a timestamp for each logged event.

Control name as path

Display a control's name as path, with all parent container names separated by a forward slash.

Open in separate window

Open the log view in a separate window instead of a split-view embedded in the main application window.

→ TouchOSC Manual

Preferences · Import

Options that apply to the import of `touchosc` files.

TouchOSC Mk1 defines some OSC messages that are either enabled globally in the application's OSC options or automatically enabled for all controls. To provide backwards compatibility some of the following preferences offer the option to generate these messages automatically on import.

- Appearance
  - Apply Classic Style
- Global OSC Messages
  - Ping
  - Accelerometer
  - Vibrate
- Control OSC Messages
  - Touch
  - Visibility
  - Position
  - Size
  - Color
- Control Key Messages
  - Convert to OSC messages

Appearance ↑

Apply Classic Style

This option will configure the properties of all imported controls to closely resemble the look of the original control rendering of the TouchOSC Mk1 app.

Global OSC Messages ↑

Ping

If enabled, will cause a script to be generated at document level to periodically send a `/ping` OSC message on all configured OSC connections.

Note: As the globally configured value for the delay of this message can not be read from the TouchOSC Mk1 app's preferences, please see the script source at the document level to manually change this value.

Accelerometer

If enabled, will cause a script to be generated at document level to send a `/accxyz` OSC message with three float parameters sampled from the device's accelerometer hardware (if any) on all configured OSC connections on each update.

Vibrate

If enabled, will cause a script to be generated at document level to receive a `/vibrate` OSC message and trigger a short vibration using the `vibrate` script function.

Control OSC Messages ↑

Touch

If enabled, will cause a send-only `/<control-path>/touch` OSC message to be generated that will send when the control's `touch` value changes.

Visibility

If enabled, will cause a receive-only `/<control-path>/visibility` OSC message to be generated that will apply the received value to the control's `visibility` property.

Position

If enabled, will cause receive-only `/<control-path>/position/x` and `/<control-path>/position/y` OSC messages to be generated that will apply the received value to the control frame's `x` and `y` properties respectively.

Size

If enabled, will cause receive-only `/<control-path>/size/w` and `/<control-path>/size/h` OSC messages to be generated that will apply the received value to the control frame's `w` and `h` properties respectively.

Color

If enabled, will cause a receive-only `/<control-path>/color` OSC message and an associated script to be generated that will apply the received string value to the control's `color` property. The script handles the conversion of TouchOSC Mk1's fixed color names to equivalent RGBA color values.

Control Key Messages ↑

Convert to OSC messages

If enabled, will convert all `key` messages found in the source layout to OSC messages.

These messages will be in the same format the TouchOSC Bridge expects, and therefore can be used to trigger the same key press and release events as TouchOSC Mk1.

→ TouchOSC Manual

Preferences · MIDI

- General
  - Read NOTE OFF message velocity
- Virtual Ports
  - Create MIDI input
  - Create MIDI output

General ↑

Read NOTE OFF message velocity

If enabled will forward all received NOTE OFF message velocity values unmodified. Otherwise, NOTE OFF message velocity values will be automatically set to zero upon reception.

Virtual Ports ↑

NOTE: These options are currently not available on Android.

Create MIDI input

Controls the creation of a virtual MIDI input port named `TouchOSC`.

Create MIDI output

Controls the creation of a virtual MIDI output port named `TouchOSC`.

→ TouchOSC Manual

Control Reference

In this overview we describe all properties and values that are specific to each control type. For a description of common properties and values that all types of controls share, please see Properties and Values.

All properties and values can also be accessed from within scripts. Please see the scripting API's Properties & Values section for information about the field names and types to use for script access.

- BOX
- BUTTON
- LABEL
- TEXT
- FADER
- XY
- RADIAL
- ENCODER
- RADAR
- RADIO
- GROUP
- PAGER
- GRID

BOX ↑

A box control is a simple shape with no behavior. It is meant to be efficient to render, for creating decorative elements and backgrounds or to be moved and positioned using messages and script.

Properties

Name	Description
Shape	The shape of the control

BUTTON ↑

A simple button control with properties to control the press/release behavior. As it uses a FLOAT value for its display, it can be also used as a simple LED display.

Properties

Name	Description
Shape	The shape of the control
Type	The type of button. • **Momentary** - A push button • **Toggle Release** - A toggle button, toggle on release • **Toggle Press** - A toggle button, toggle on press
Press	Enable the press event for this button.
Release	Enable the release event for this button.
Value Position	If this property is set to on, the button will use the position of the pointer event to calculate its value. The calculation will take the value of the Orientation property into account.

Values

Name	Type	Description
x	FLOAT	The amount of "pressure" on the button from fully released to fully pressed. The button will be rendered using this value as alpha value for the color of the button fill.

LABEL ↑

A single-line text display.

Properties

Name	Description
Font	The typeface for rendering the text. • **DEFAULT** - The default, variable-width font • **MONOSPACED** - A monospaced, fixed-width font
Size	The font size.
Length	The maximum length of the text.
Alignment	Horizontal and vertical alignment of the text inside the control.
Color	The text color.
Clip	Controls the clipping of the rendered text to the control's frame. **Note** that disabling this property can significantly improve rendering performance in certain cases.

Values

Name	Type	Description
text	STRING	The display text.

TEXT ↑

A multi-line text display.

Properties

Name	Description
Font	The typeface for rendering the text. • **DEFAULT** - The default, variable-width font • **MONOSPACED** - A monospaced, fixed-width font
Size	The font size.
Alignment	Horizontal and vertical alignment of the text inside the control.
Color	The text color.
Clip	Controls the clipping of the rendered text to the control's frame. **Note** that disabling this property can significantly improve rendering performance in certain cases.
Wrap	Controls the word wrapping of the rendered text to the control's frame.

Values

Name	Type	Description
text	STRING	The display text.

FADER ↑

A fader control.

Properties

Name	Description
Cursor	Show a cursor. • **ALWAYS** - Show always • **ACTIVE** - Show only if any active pointers • **INACTIVE** - Show only if no active pointers
Bar	Show a value bar. • **ALWAYS** - Show always • **ACTIVE** - Show only if any active pointers • **INACTIVE** - Show only if no active pointers
Centered	Render the value bar from the center.
Response	Type of response to pointer input • **ABSOLUTE** - Jump to pointer position • **RELATIVE** - Change relative to pointer position
Factor	Response factor for relative response, in percent of pointer position change.
Grid	Render grid lines and the number of grid lines to render.
Grid Color	The grid line color.

Values

Name	Type	Description
x	FLOAT	The value position.

XY ↑

A two-dimensional fader control.

Properties

Name	Description
Cursor	Show a cursor. • **ALWAYS** - Show always • **ACTIVE** - Show only if any active pointers • **INACTIVE** - Show only if no active pointers
Lines	Show value lines. • **ALWAYS** - Show always • **ACTIVE** - Show only if any active pointers • **INACTIVE** - Show only if no active pointers
Lock X	Lock the x value for pointer input. The value can still be changed through messages and script.
Lock Y	Lock the y value for pointer input. The value can still be changed through messages and script.
Response	Type of response to pointer input • **ABSOLUTE** - Jump to pointer position • **RELATIVE** - Change relative to pointer position
Factor	Response factor for relative response, in percent of pointer position change.
Grid X	Render horizontal grid lines and the number of grid lines to render.
Grid Y	Render vertical grid lines and the number of grid lines to render.
Grid Color	The grid line color.

Values

Name	Type	Description
x	FLOAT	The x value position.
y	FLOAT	The y value position.

RADIAL ↑

A rotary fader control.

Properties

Name	Description
Inverted	Invert the value range.
Centered	Display the value from the center of the value range.
Response	Type of response to pointer input • **ABSOLUTE** - Jump to pointer position • **RELATIVE** - Change relative to pointer position
Factor	Response factor for relative response, in percent of pointer position change.
Grid	Render grid lines and the number of grid lines to render.
Grid Color	The grid line color.

Values

Name	Type	Description
x	FLOAT	The value position.

ENCODER ↑

A circular encoder control.

Properties

Name	Description
Cursor	Show a cursor. • **ALWAYS** - Show always • **ACTIVE** - Show only if any active pointers • **INACTIVE** - Show only if no active pointers
Response	Type of response to pointer input • **ABSOLUTE** - Jump to pointer position • **RELATIVE** - Change relative to pointer position
Factor	Response factor for relative response, in percent of pointer position change.
Grid	Render grid lines and the number of grid lines to render.
Grid Color	The grid line color.

Values

Name	Type	Description
x	FLOAT	The value position.
y	FLOAT	The direction of change of the value position.

RADAR ↑

A circular XY control, measuring distance from center and angle.

Properties

Name	Description
Cursor	Show a cursor. • **ALWAYS** - Show always • **ACTIVE** - Show only if any active pointers • **INACTIVE** - Show only if no active pointers
Lines	Show lines for distance and angle. • **ALWAYS** - Show always • **ACTIVE** - Show only if any active pointers • **INACTIVE** - Show only if no active pointers
Lock X	Lock the x value for pointer input. The value can still be changed through messages and script.
Lock Y	Lock the y value for pointer input. The value can still be changed through messages and script.
Grid X	Render grid lines for distance and the number of grid lines to render.
Grid Y	Render grid lines for angle and the number of grid lines to render.
Grid Color	The grid line color.

Values

Name	Type	Description
x	FLOAT	The distance from the center.
y	FLOAT	The angle. The calculation will take the value of the Orientation property into account.

RADIO ↑

A single value selection from a number of discrete values.

Properties

Name	Description
Steps	The number of discrete values.
Type	The type of display • **Select** - Highlight only the active value • **Meter** - Highlight all values up to the active one

Values

Name	Type	Description

x	INTEGER	The selected value.

GROUP ↑

A simple container for child controls. A group will clip the rendering of any contained child controls to its display area.

PAGER ↑

A paged container for child controls. A pager contains a number of group child controls ("pages") and will display only the active one based on its **page** value. A pager control can be ungrouped to extract the individual page group child controls.

Properties

Name	Description
Bar	Display the pager tab bar.
Bar Size	The size of the pager tab bar.
Double Tap	Require a double tap on the tab bar instead of a single press to change the active page.
Labels	Display the value of each child page's **Label** property on the tab bar.
Text Size	Font size for labels on the tab bar, for both inactive page labels and the active page label.

Page Properties

Name	Description
Name	The name of the child group control.
Label	The text to display on the parent pager's tab bar for this page.
Background	The background color of the page group control.
Tab Color	The colors to use for the parent pager's tab bar button for this page, for both active and inactive states.
Text Color	The colors to use for the parent pager's tab bar button label for this page, for both active and inactive states.

Values

Name	Type	Description
page	INTEGER	The active page index.

GRID ↑

A container for a two-dimensional, uniform grid of child controls of the same type. A grid control can be ungrouped to extract the individual child controls. The editor will display the child control type's properties in addition to the grid control's own properties,

Properties

Name	Description
Type	The type of child control.
X	The number of columns in the grid.
Y	The number of rows in the grid.
Start	The corner of the grid to start from when creating the child controls.
Order	The direction in which to proceed first in the grid when creating the child controls.
Naming	The value to use when assigning the **Name** property of the created child controls.
Exclusive	Whenever a child control's value changes, reset all other child controls' values of the same name back to the default value.

→ TouchOSC Manual

Setup Examples

Examples, instructions and recipes on how to set up TouchOSC with other applications and hardware.

We'll be adding more of these in the future, so please check back again at a later time.

Getting Started

- Protokol / MIDI
- Protokol / OSC
- Ableton Live

How-to's

- Android USB MIDI
- Resolume Wire
- Steam Deck
- Traktor Pro
- Logic Pro

→ TouchOSC Manual

Setup · Android USB MIDI

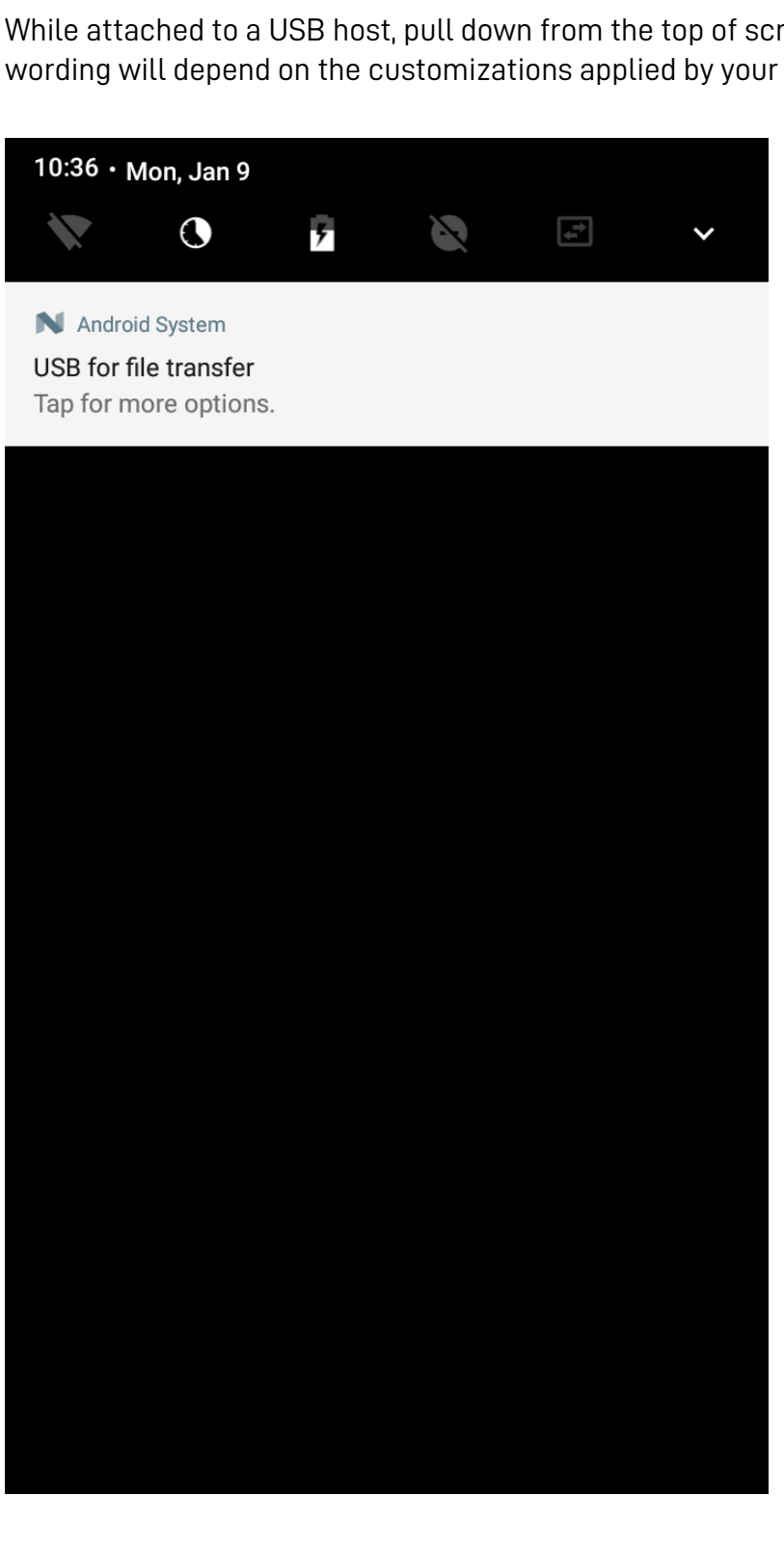
Beginning with the Android 6.0 (Marshmallow) release, device makers can enable optional MIDI support in the platform.

If your device manufacturer added support for the **USB peripheral mode**, please follow these steps to enable it and make your device appear as a MIDI device via the USB cable connection, which TouchOSC can then use to send and receive MIDI messages.

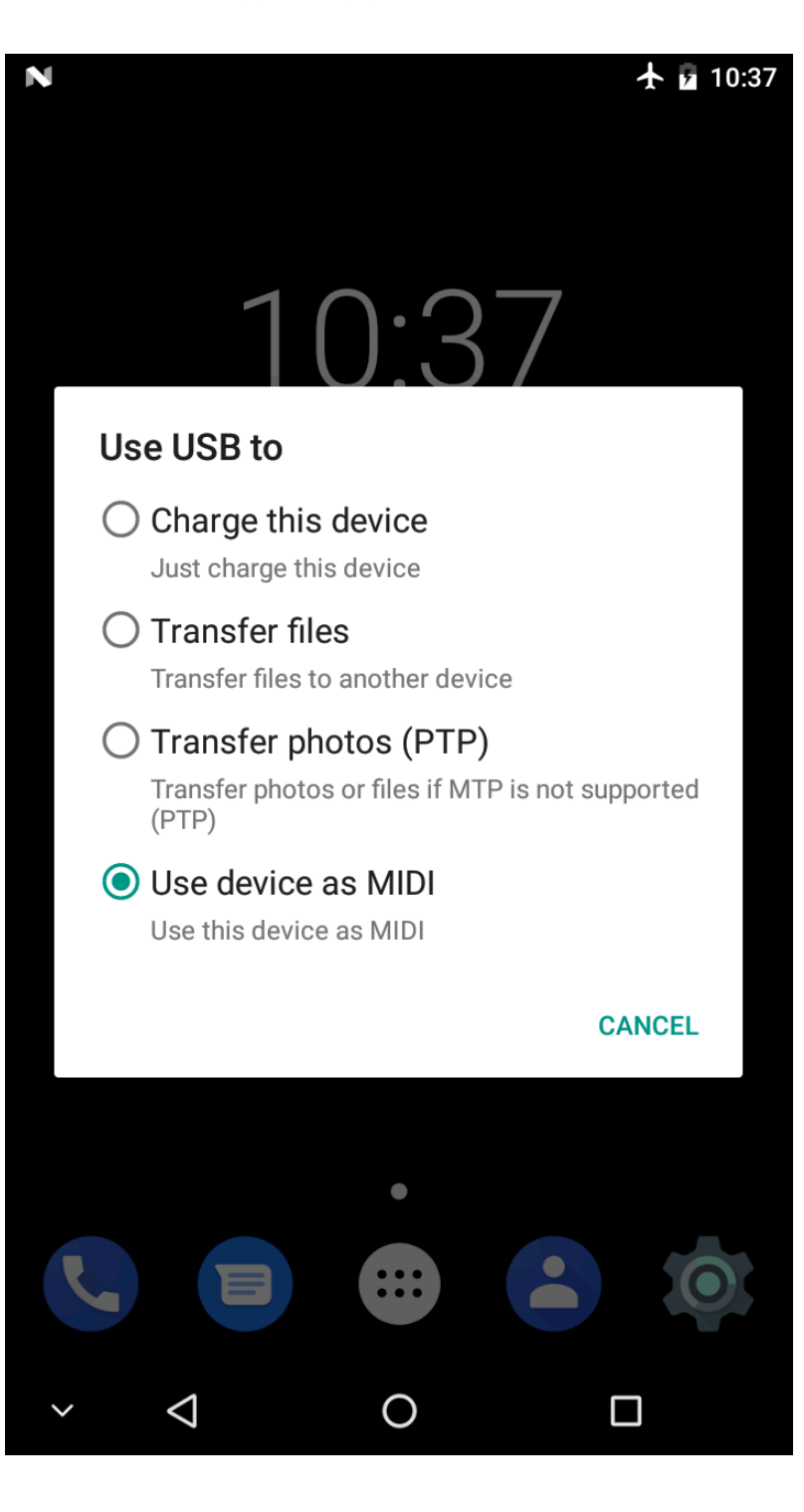
- Device Setup
- TouchOSC Setup
- Send MIDI messages

Device Setup ↑

While attached to a USB host, pull down from the top of screen and select the entry **USB for ...** or similar. The exact wording will depend on the customizations applied by your device manufacturer.


10:36 • Mon, Jan 9
Android System
USB for file transfer
Tap for more options.

From the list of options that appear, select **MIDI** or similar. Again, the exact wording will depend on the customizations applied by your device manufacturer.


10:37
10:37
CANCEL
Use USB to

○ Charge this device
Just charge this device

○ Transfer files
Transfer files to another device

○ Transfer photos (PTP)
Transfer photos or files if MTP is not supported (PTP)

● Use device as MIDI
Use this device as MIDI

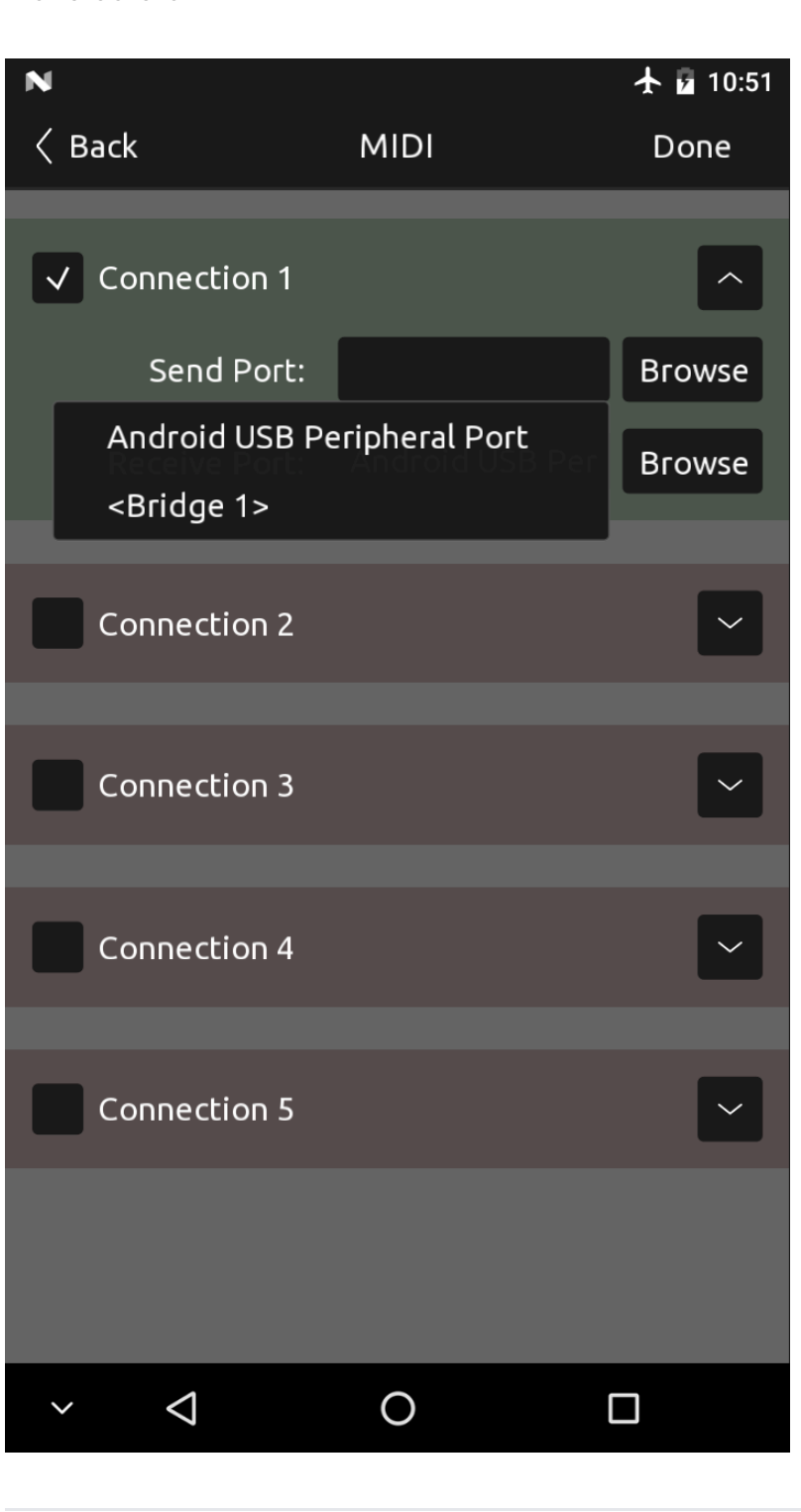
Alternatively these options can also be found in the Android Developer Options at **Settings > Developer options > Networking > Select USB Configuration**.

TouchOSC Setup ↑

By enabling the **USB peripheral mode** on your Android device, the OS will also create MIDI input and output ports that TouchOSC can use to send and receive MIDI messages via the USB cable connection.

In TouchOSC's MIDI connection configuration select the newly created **Android USB Peripheral Port** (or similar) for both the **Send Port** and **Receive Port** fields.

Sadly, again, the exact naming of these ports will depend on the customizations applied by your device manufacturer.


10:51
Back
MIDI
Done
Browse
Browse
☑ Connection 1
Send Port:
Android USB Peripheral Port
<Bridge 1>
☐ Connection 2
☐ Connection 3
☐ Connection 4
☐ Connection 5

Send MIDI messages ↑

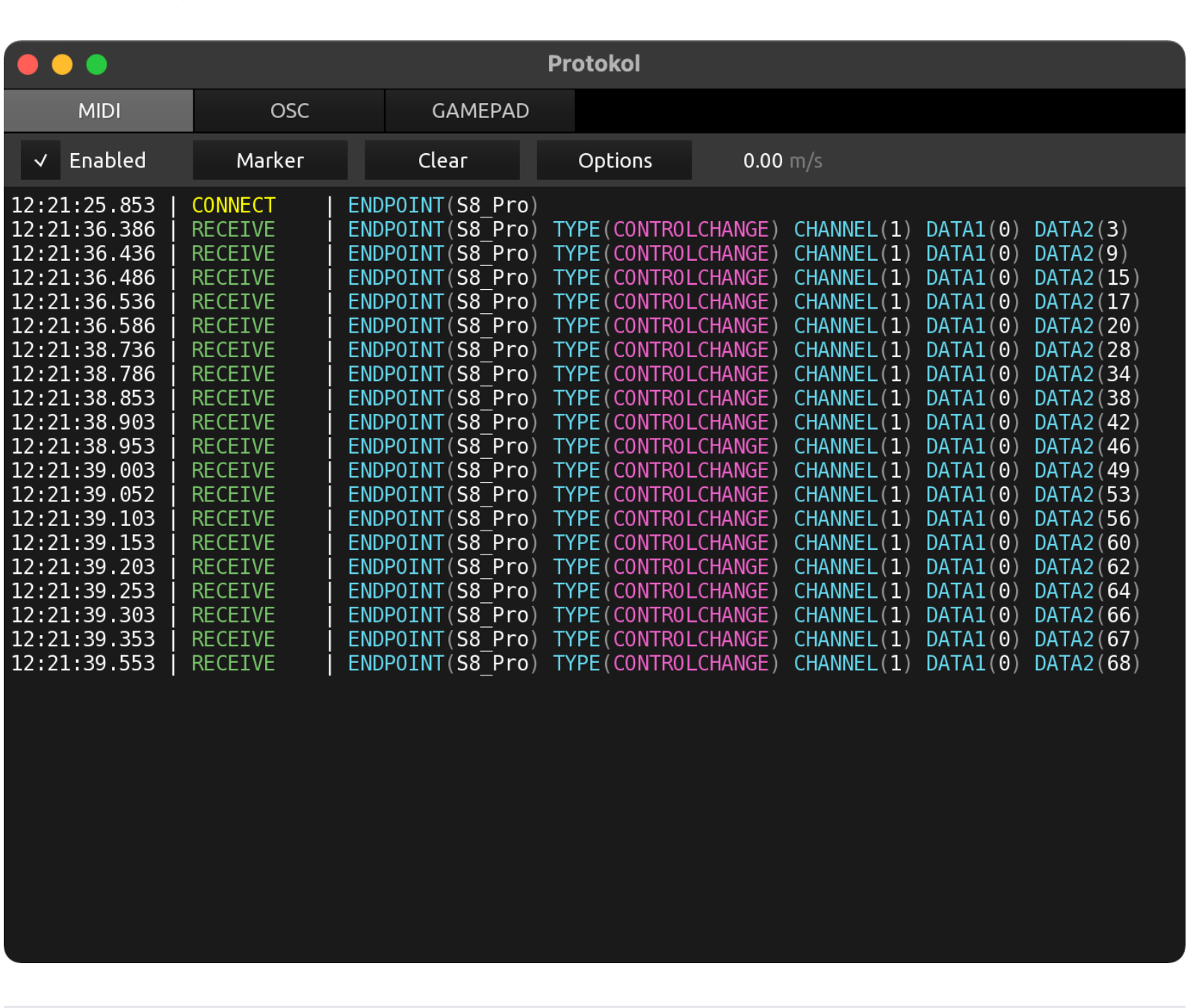
We'll use the Protokol application to confirm that the MIDI ports are visible to our USB host and that we can receive MIDI messages sent from TouchOSC.

Protokol is our free tool for testing OSC and MIDI connections and messages. This is the same utility we use in-house for testing our applications.

Launch the Protokol application, switch to the **MIDI** tab page, and check the checkbox next to **Enabled**

If all went well, you should see a connected MIDI endpoint in Protokol that is named similarly to your device, and MIDI messages sent from TouchOSC via the USB connection should be received by Protokol.

As you might have guessed, the exact names of the MIDI ports that your device creates depend on the customizations applied by your device manufacturer.


Protokol
MIDI
OSC
GAMEPAD
Marker
Clear
Options
☑ Enabled 0.00 m/s

```
12:21:25.853 | CONNECT   | ENDPOINT(S8_Pro)
12:21:36.386 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(3)
12:21:36.436 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(9)
12:21:36.486 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(15)
12:21:36.536 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(17)
12:21:36.586 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(20)
12:21:38.736 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(28)
12:21:38.786 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(34)
12:21:38.853 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(38)
12:21:38.903 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(42)
12:21:38.953 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(46)
12:21:39.003 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(49)
12:21:39.052 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(53)
12:21:39.103 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(56)
12:21:39.153 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(60)
12:21:39.203 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(62)
12:21:39.253 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(64)
12:21:39.303 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(66)
12:21:39.353 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(67)
12:21:39.553 | RECEIVE   | ENDPOINT(S8_Pro) TYPE(CONTROLCHANGE) CHANNEL(1) DATA1(0) DATA2(68)
```

→ TouchOSC Manual

Setup · Resolume Wire

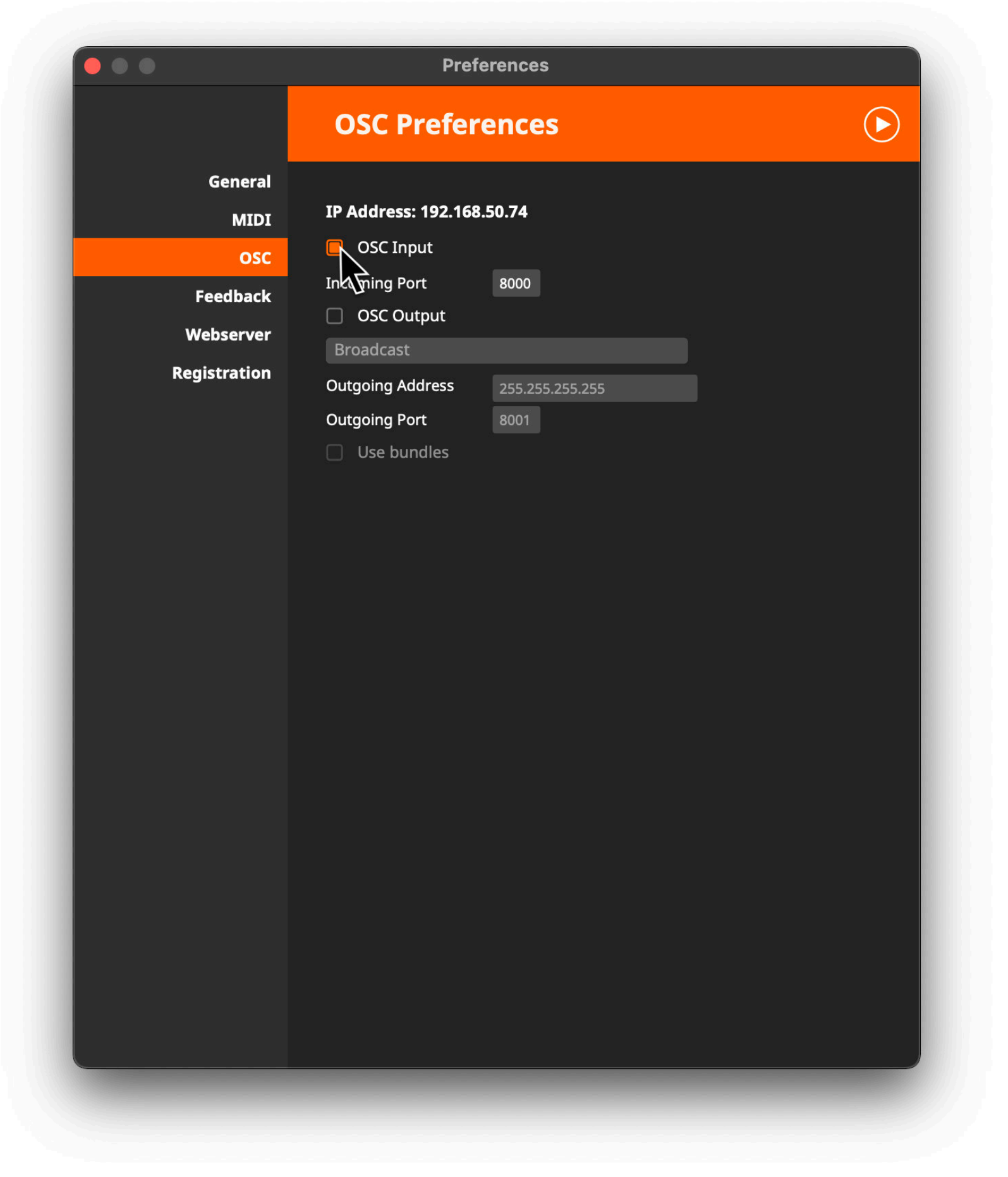
Resolume Wire is a modular node-based patching environment to create effects, mixers and video generators for Resolume Arena & Avenue.

Wire supports both MIDI and OSC control, but as OSC is the more flexible of the two and can be used both locally and over a network, we'll walk through integrating OSC control from TouchOSC into your Wire project.

- Enable OSC Input
- Configure TouchOSC
- Create OSC nodes
- Print OSC messages

Enable OSC Input ↑

Open the **Wire** preferences, switch to the **OSC** section on the left and enable the **OSC Input**.


Preferences
OSC Preferences
General
MIDI
OSC
Feedback
Webserver
Registration
IP Address: 192.168.50.74
☑ OSC Input
Incoming Port 8000
☐ OSC Output
Broadcast
Outgoing Address 255.255.255.255
Outgoing Port 8001
☐ Use bundles

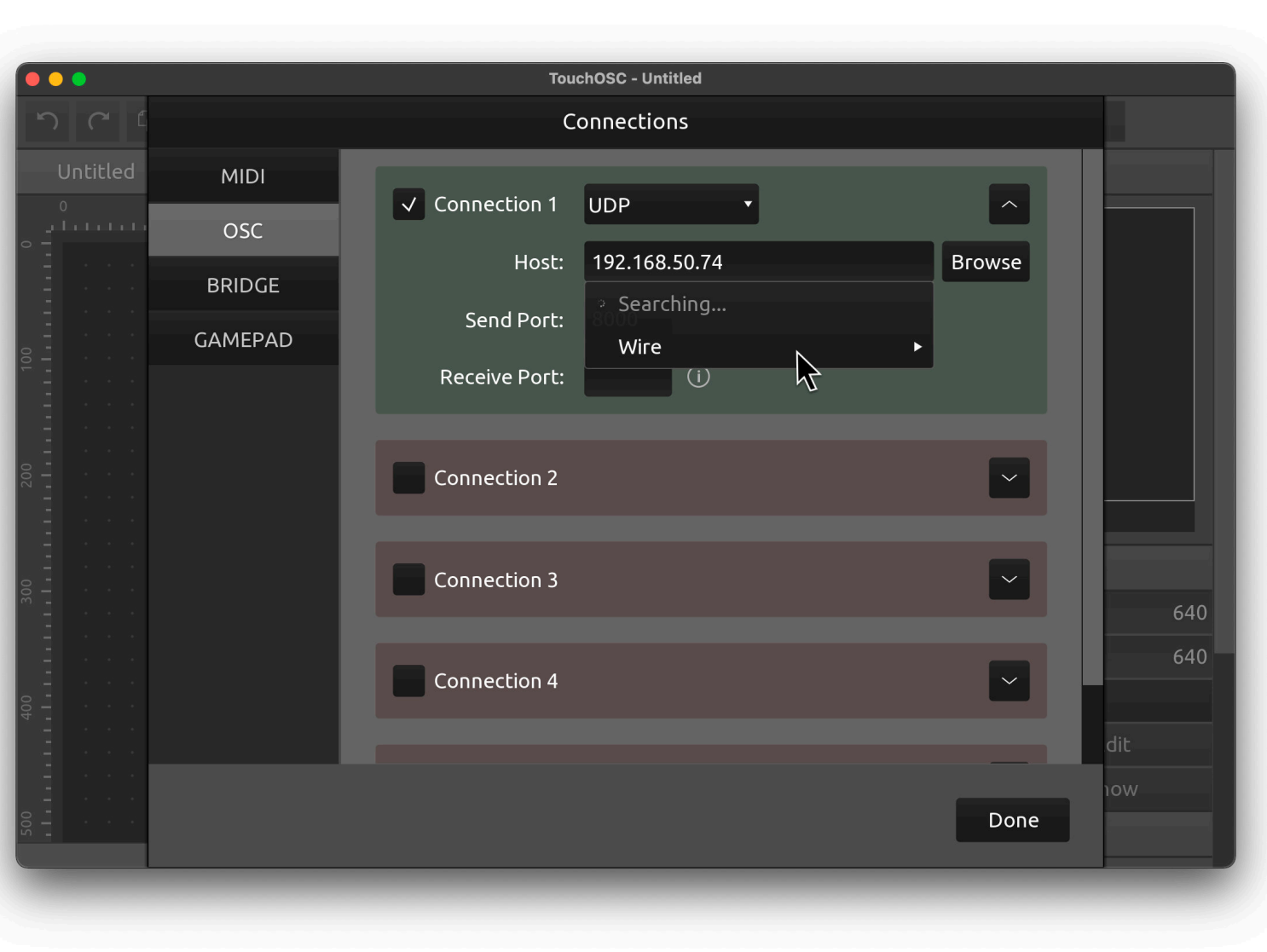
Wire is now listening for incoming OSC messages at the **IP Address** and **Incoming Port** number displayed here.

Configure TouchOSC ↑

Open **TouchOSC** and make sure that you are connected to the same network as the machine that is running **Wire**.

> ⚠ **If you are running the Windows operating system and choose to connect via a networked connection, please note that the Windows firewall can prevent this setup from working. Should you run into problems, please disable the Windows firewall temporarily and try again.**

Open TouchOSC's OSC connection settings.


TouchOSC - Untitled
Connections
Untitled
MIDI
OSC
BRIDGE
GAMEPAD
Browse
Done
☑ Connection 1 UDP
Host: 192.168.50.74
Send Port:
Searching...
Wire
Receive Port:
☐ Connection 2
☐ Connection 3
☐ Connection 4

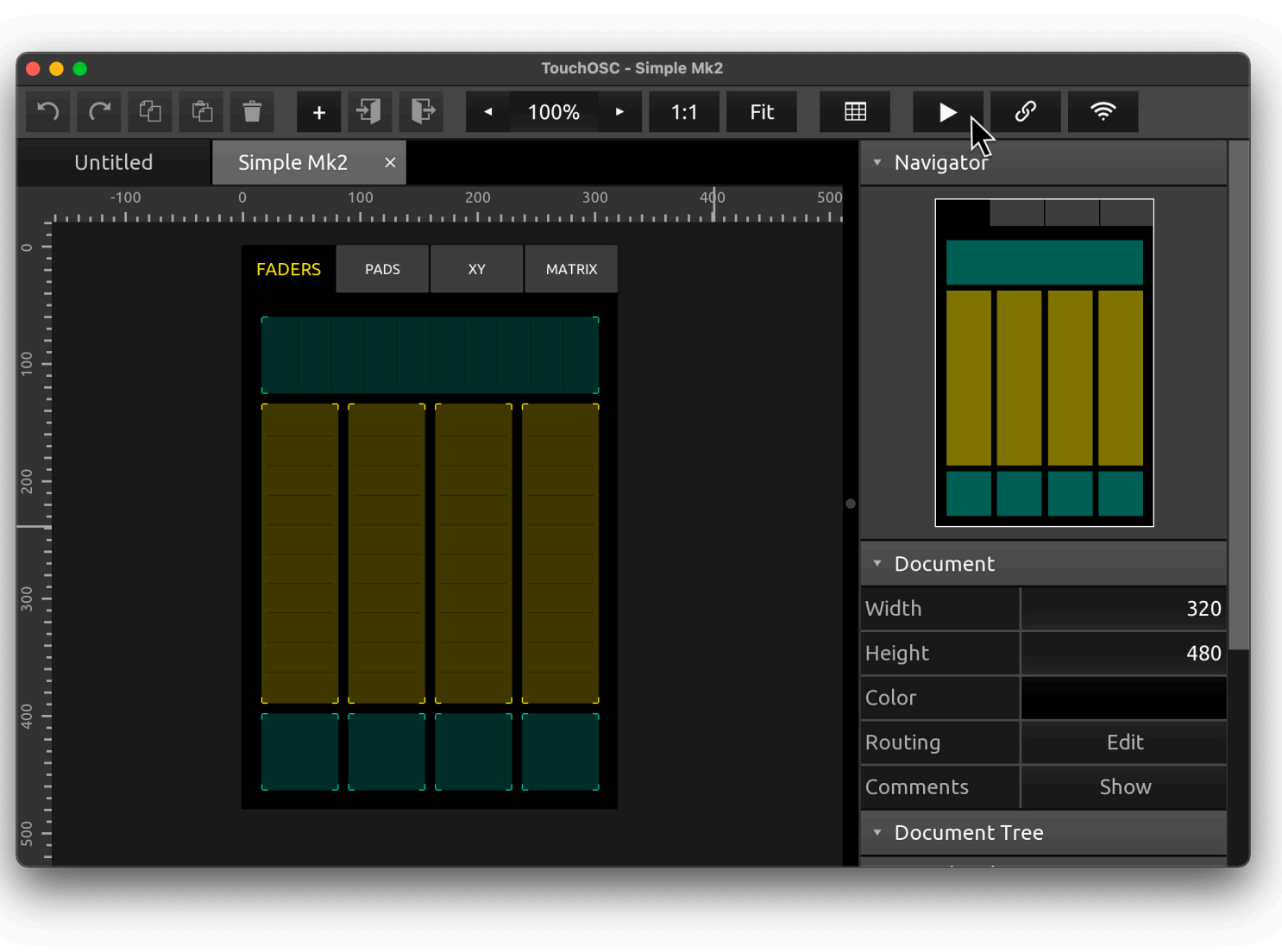
Make sure **Connection 1** is enabled and set to type **UDP**.

Use the **Browse** button to search for and select Wire's OSC input on the network and fill in the required values automatically.

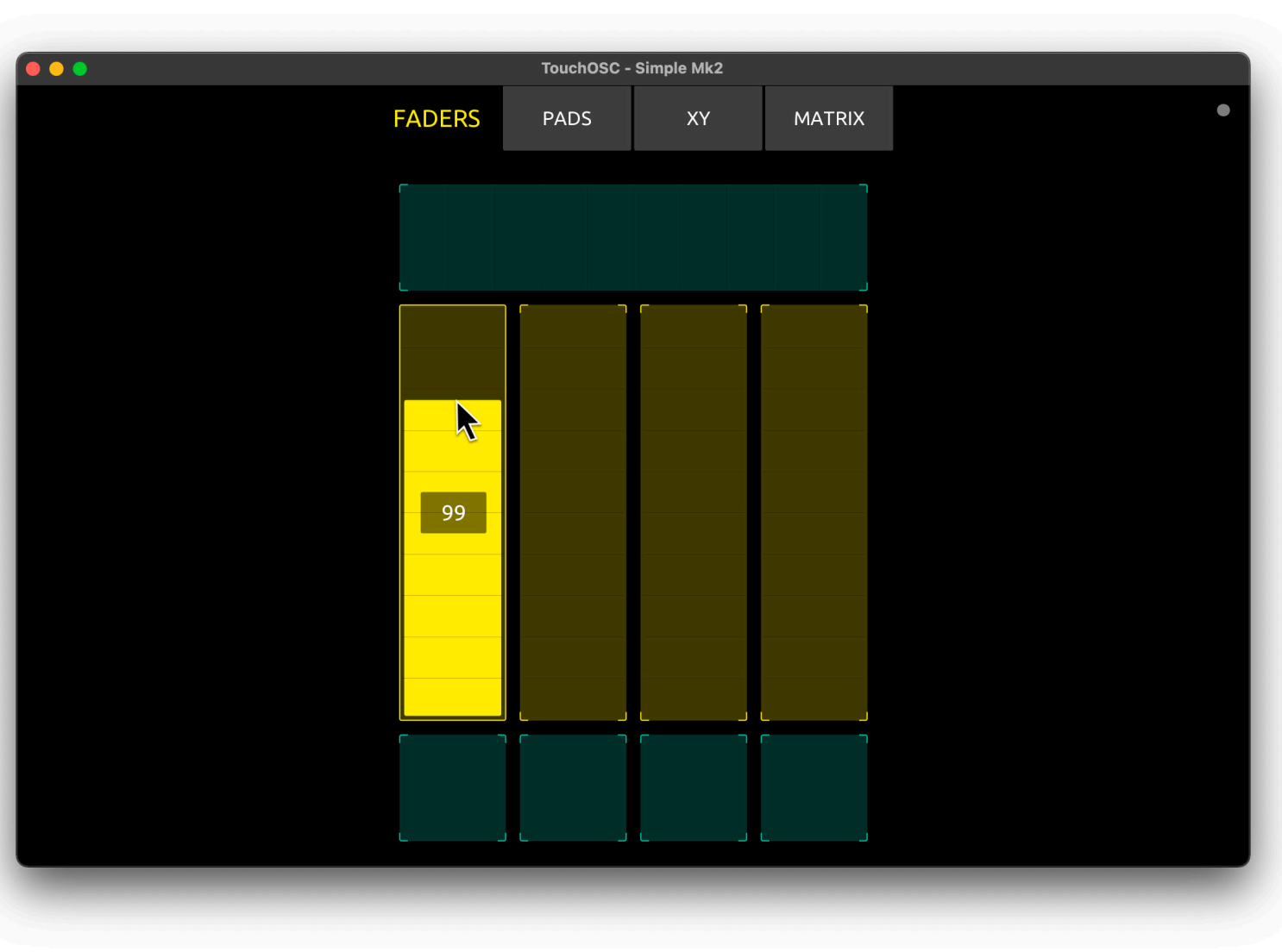
If the Wire receiver cannot be found, manually fill in the **IP Address** displayed in Wire's OSC preferences in the **Host** field, and the **Incoming Port** number into the **Send Port** field.

Close the dialog and open any document configured to send OSC messages, such as the included example layout **Simple Mk2**.

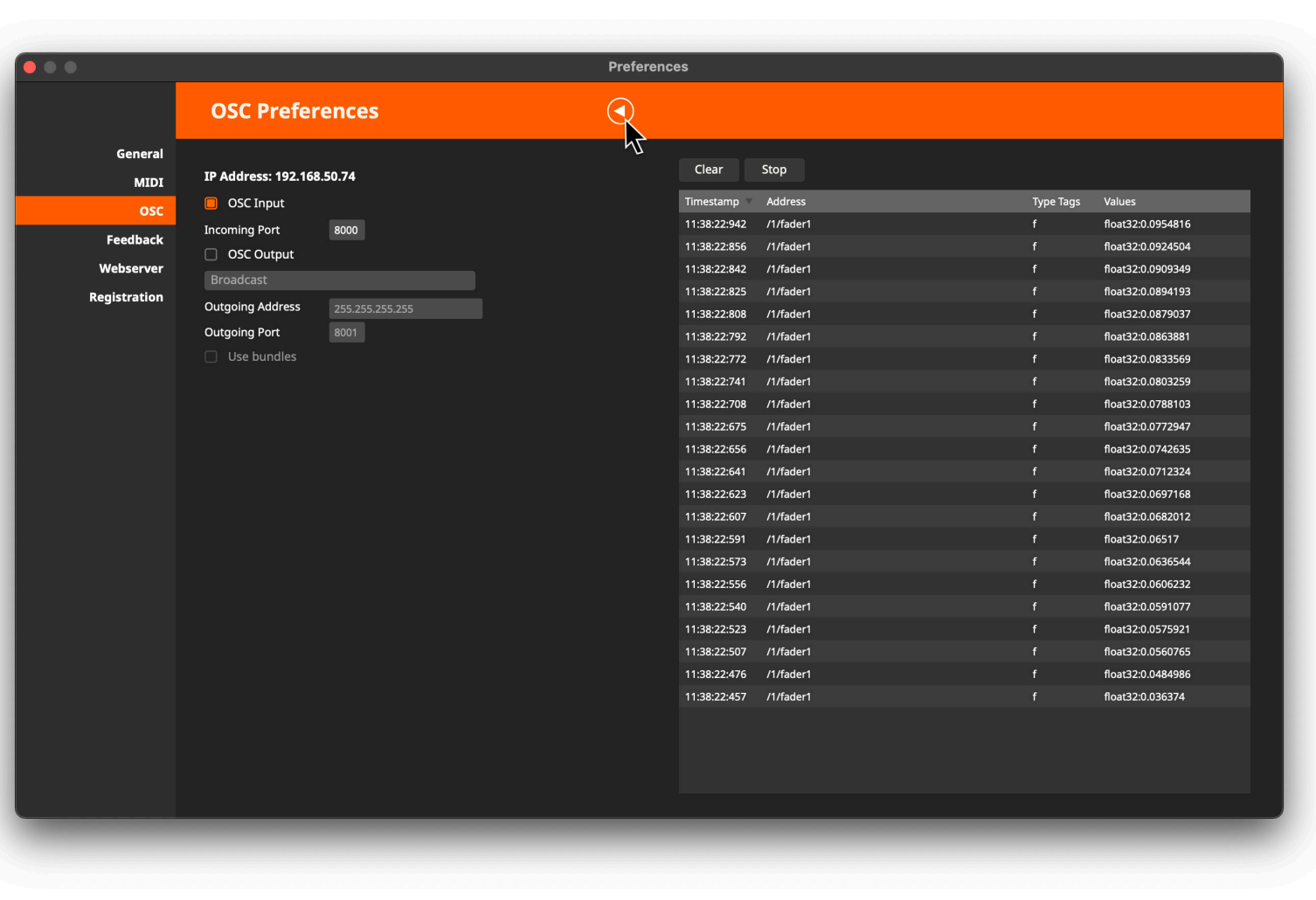
Switch to control surface mode using the **Play** button in the toolbar.


TouchOSC - Simple Mk2
100%
1:1
Fit
Untitled
Simple Mk2
Navigator
FADERS
PADS
XY
MATRIX
Document
Document Tree
Width 320
Height 480
Color
Routing Edit
Comments Show

Send a few OSC messages from TouchOSC to Wire by using any of the controls in the layout.


TouchOSC - Simple Mk2
FADERS
PADS
XY
MATRIX
99

In Wire, expand the OSC Input log by pressing the button with the arrow pointing to the right in the top right corner of the OSC preferences.

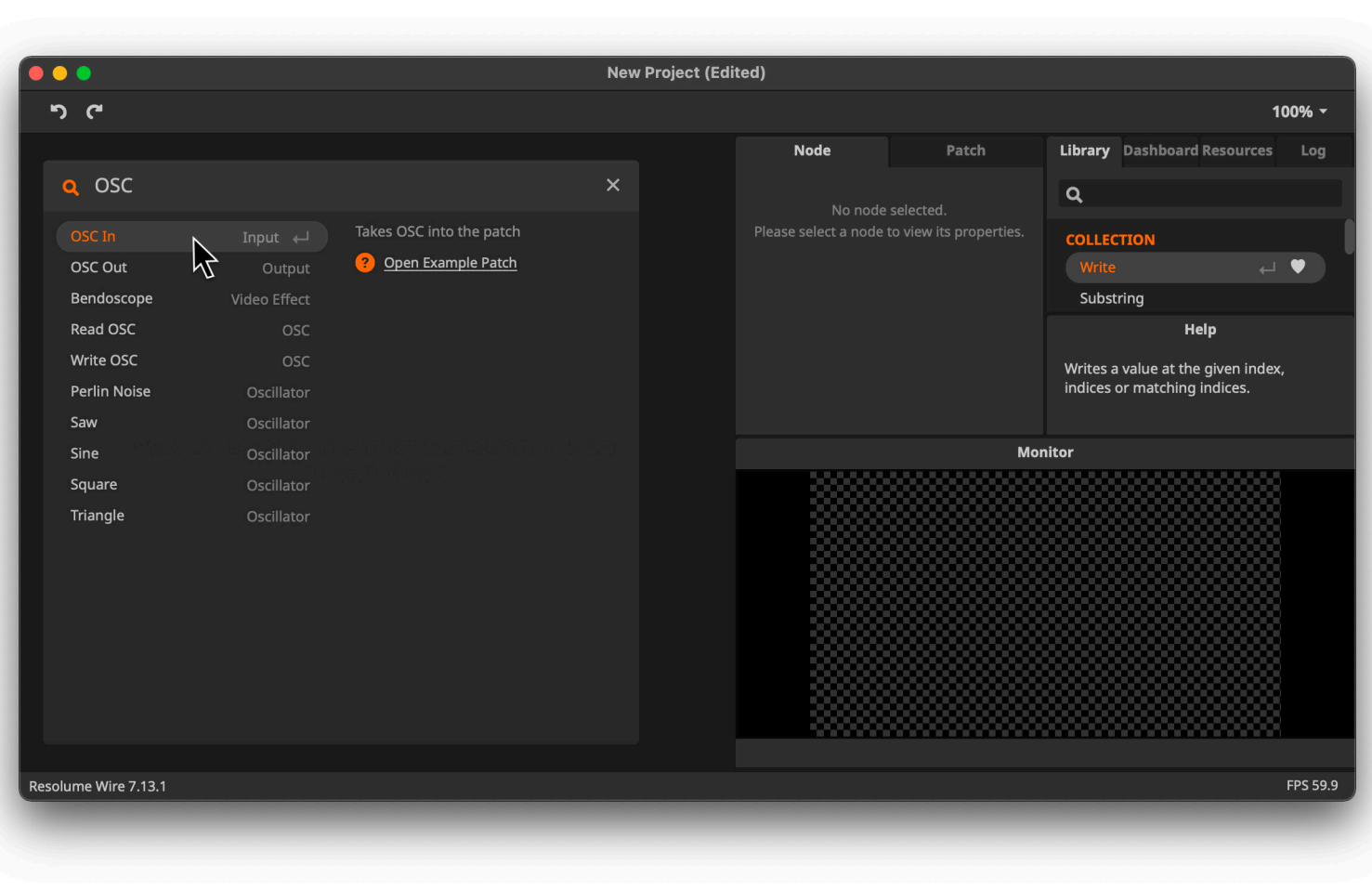

Preferences
OSC Preferences
Clear
Stop

If everything is working, you should see the OSC messages sent from TouchOSC to Wire appear in the OSC Input log and the basic configuration is complete.

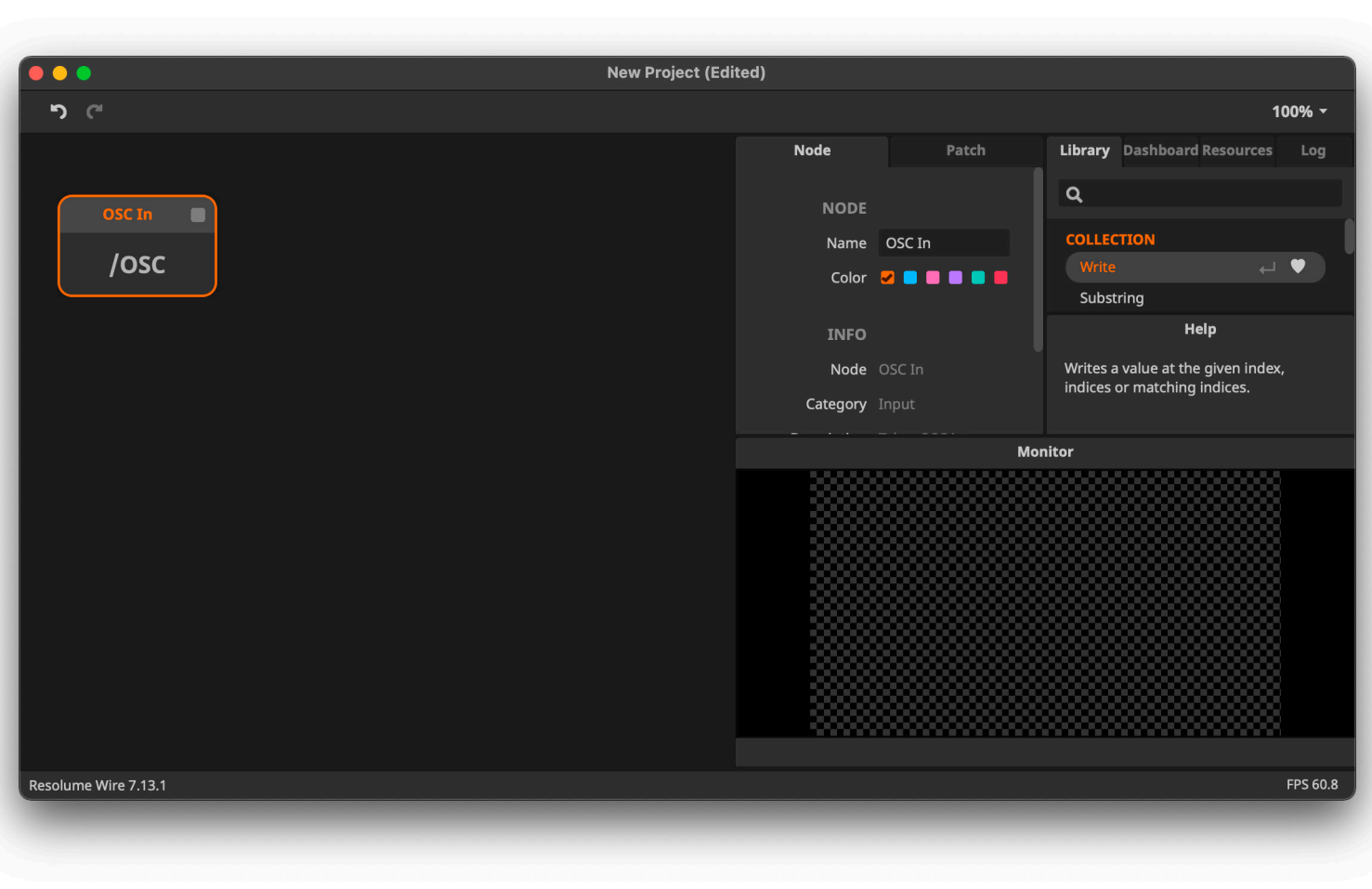
Create OSC nodes ↑

Create a new Wire project and double-click on the empty project's background to open the node search window.

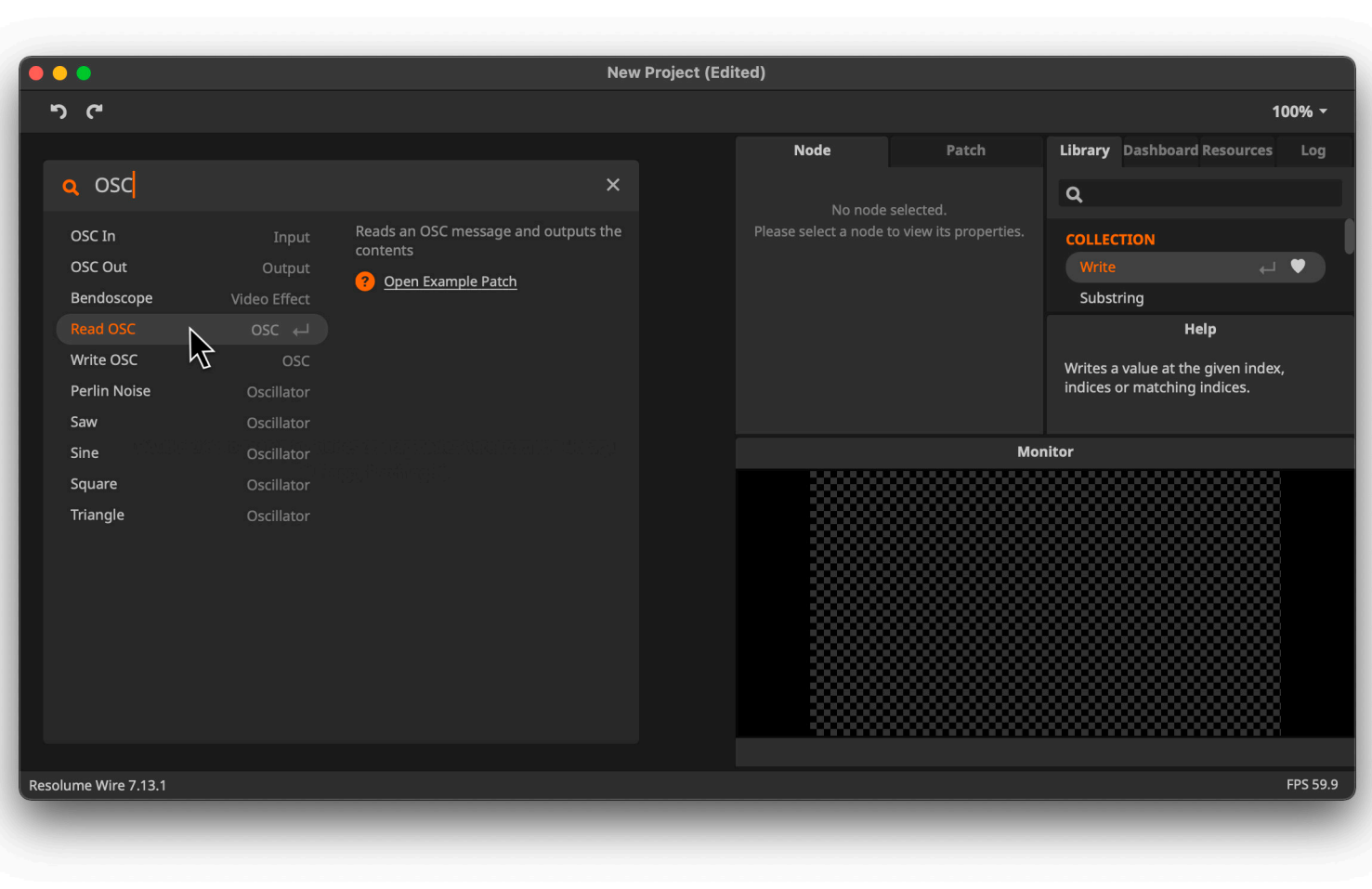
Enter **OSC** to filter all nodes related to OSC communication.


New Project (Edited)
100%
OSC
OSC In Input
OSC Out Output
Bendoscope Video Effect
Read OSC OSC
Write OSC OSC
Perlin Noise Oscillator
Saw Oscillator
Sine Oscillator
Square Oscillator
Triangle Oscillator
Takes OSC into the patch
Open Example Patch
Node
Patch
Library
Dashboard
Resources
Log
Monitor
Resolume Wire 7.13.1
FPS 59.9

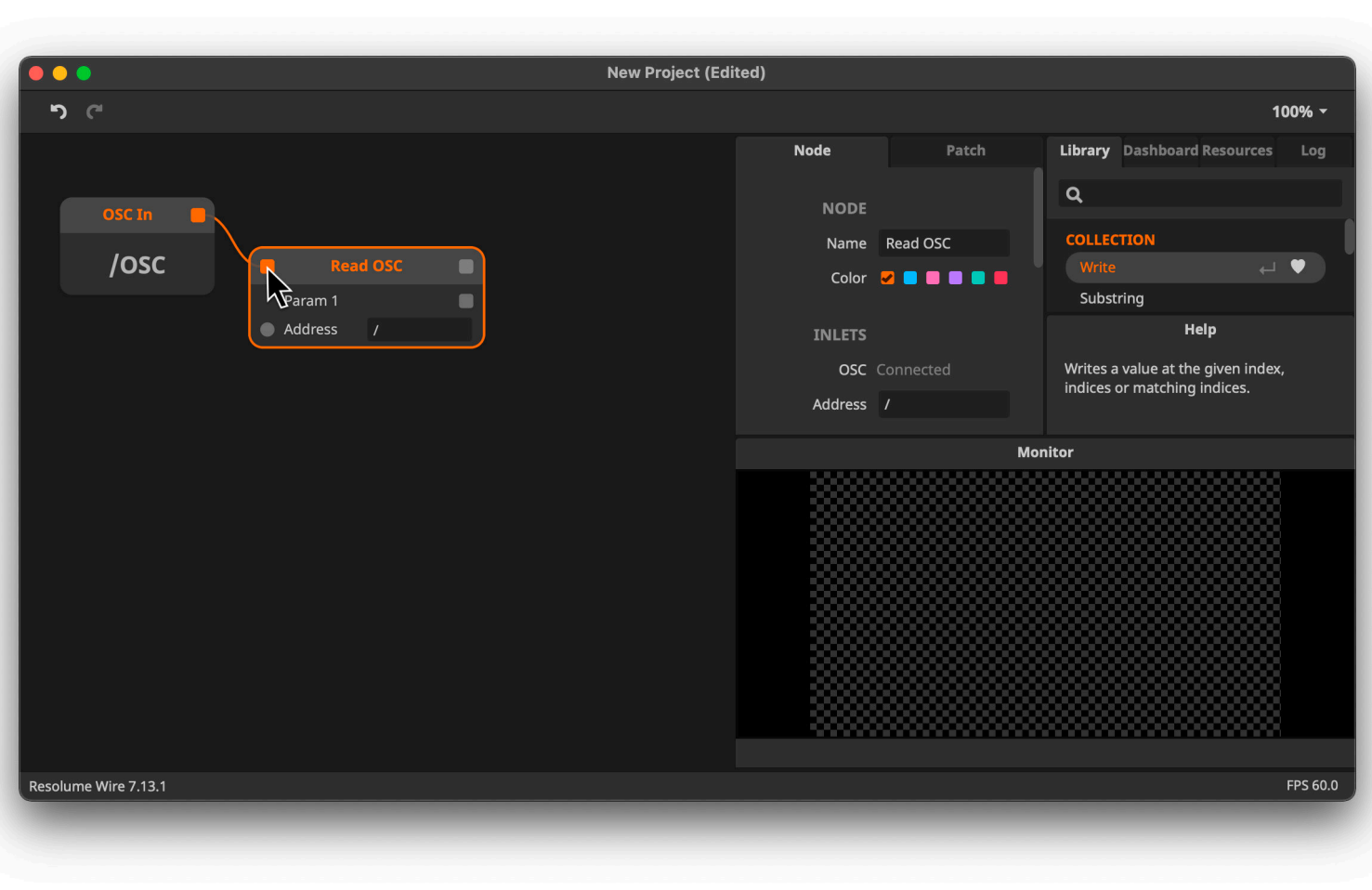
Select **OSC In** to create an OSC input node.


New Project (Edited)
OSC In
/OSC
Node
Patch
Monitor
Resolume Wire 7.13.1
FPS 60.8

Open the node search window again and create a **Read OSC** node.

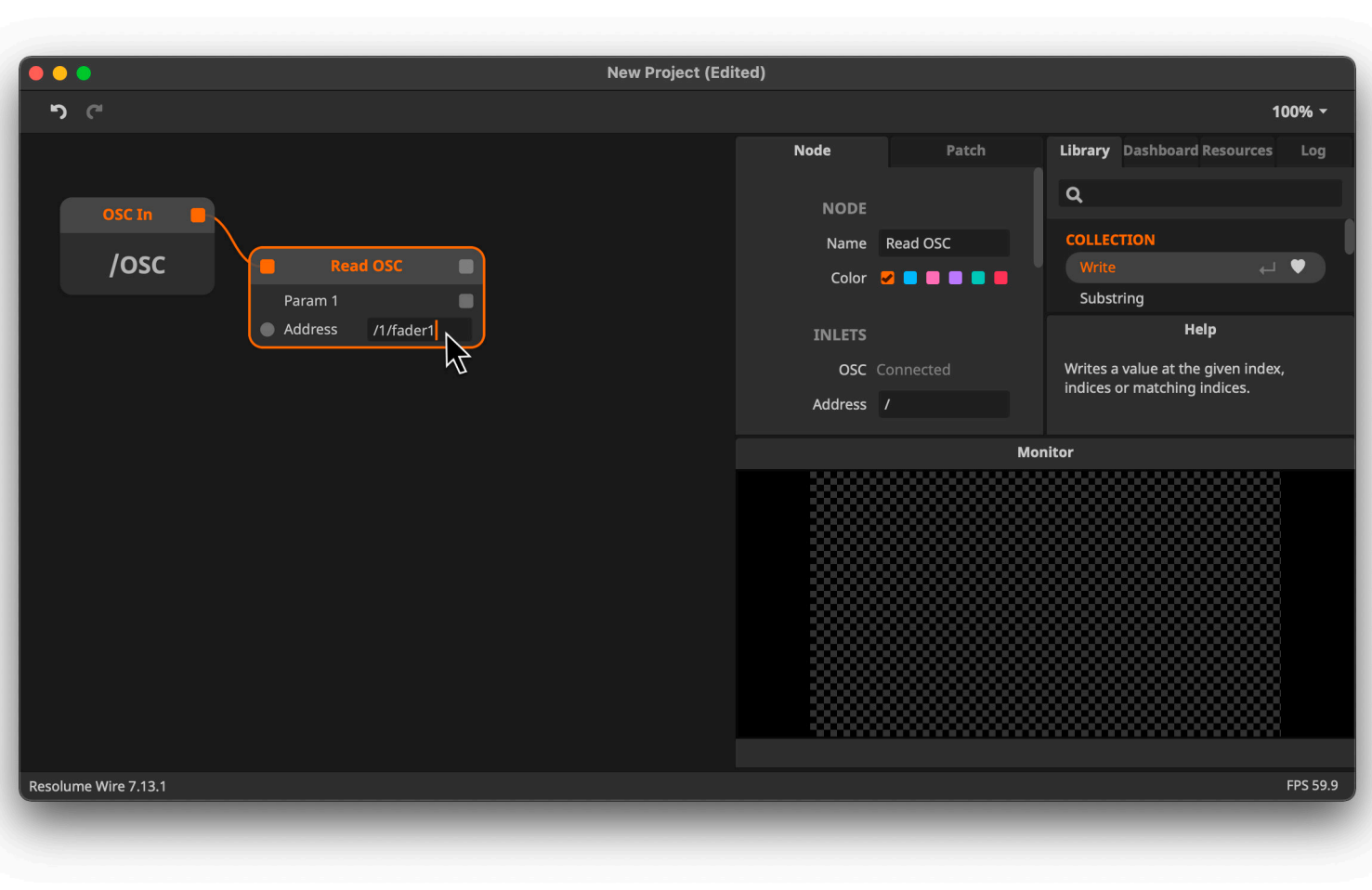

New Project (Edited)
OSC
OSC In Input
OSC Out Output
Bendoscope Video Effect
Read OSC OSC
Write OSC OSC
Perlin Noise Oscillator
Saw Oscillator
Sine Oscillator
Square Oscillator
Triangle Oscillator
Reads an OSC message and outputs the contents
Open Example Patch
Resolume Wire 7.13.1
FPS 59.9

Connect the output of the **OSC In** node to the input of the **Read OSC** node.

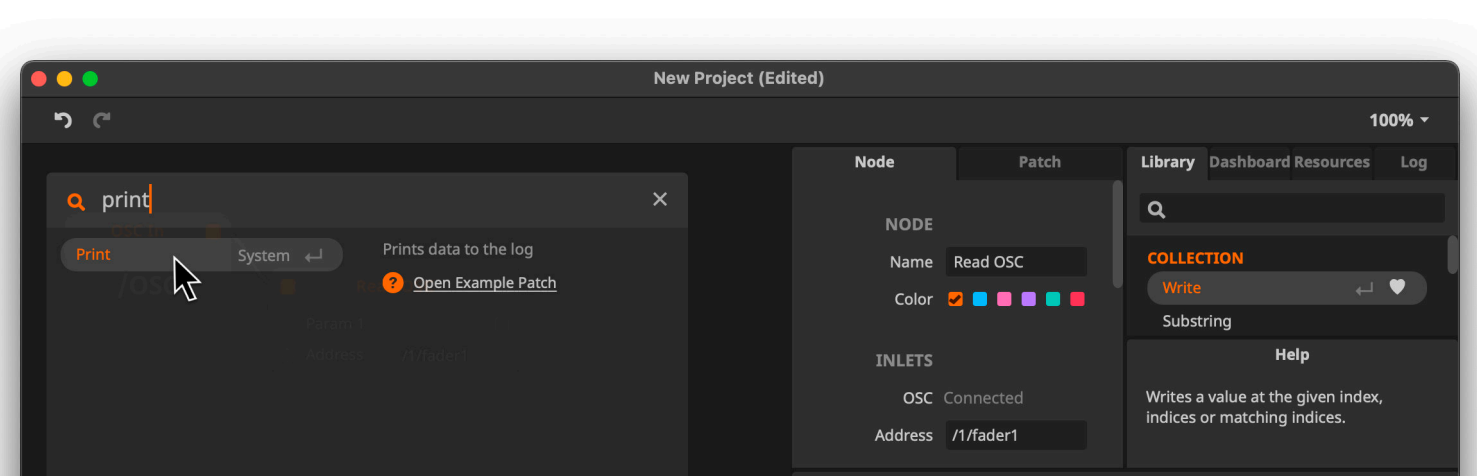

New Project (Edited)
OSC In
/OSC
Read OSC
Param 1
Address
Resolume Wire 7.13.1
FPS 60.0

In the **Read OSC** node's **Address** field, enter the OSC address that you want to receive.

If you've opened the **Simple Mk2** layout in the previous steps, enter `/1/fader1`.

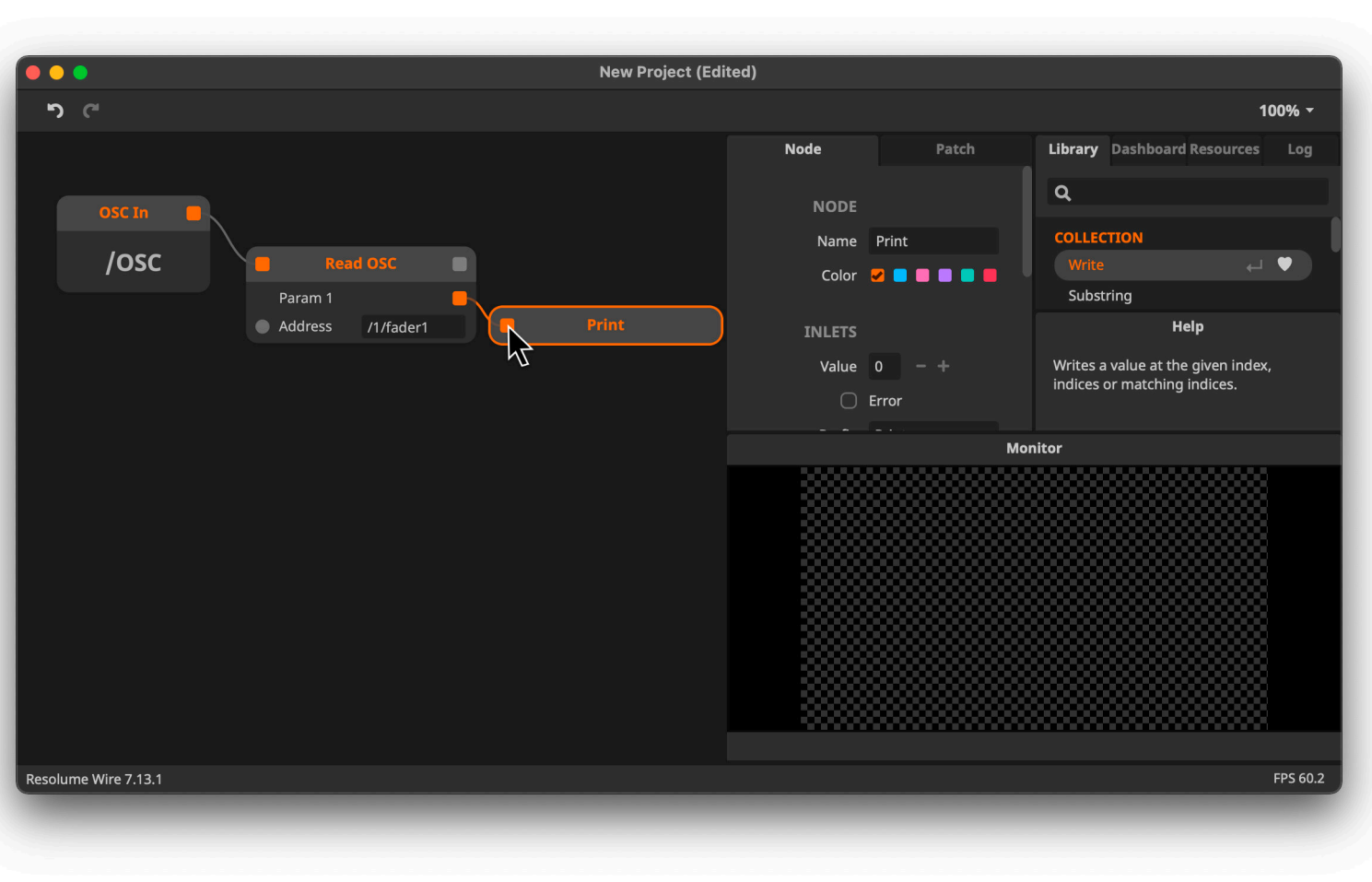

New Project (Edited)
OSC In
/OSC
Read OSC
Param 1
Address
/1/fader1
Resolume Wire 7.13.1
FPS 59.9

Open the node search window once again, search for **print** and create a **Print** node.


New Project (Edited)
print
Print System
Prints data to the log
Open Example Patch

Monitor
Resolume Wire 7.13.1
FPS 59.8

Connect the **Param 1** output of the **Read OSC** node to the input of the **Print** node.


New Project (Edited)
OSC In
/OSC
Read OSC
Param 1
Address /1/fader1
Print
Node
Patch
NODE
Name Print
Color
INLETS
Value 0
Error
Library
Dashboard Resources
Log
COLLECTION
Write
Substring
Help
Writes a value at the given index, indices or matching indices.
Monitor
Resolume Wire 7.13.1
FPS 60.2

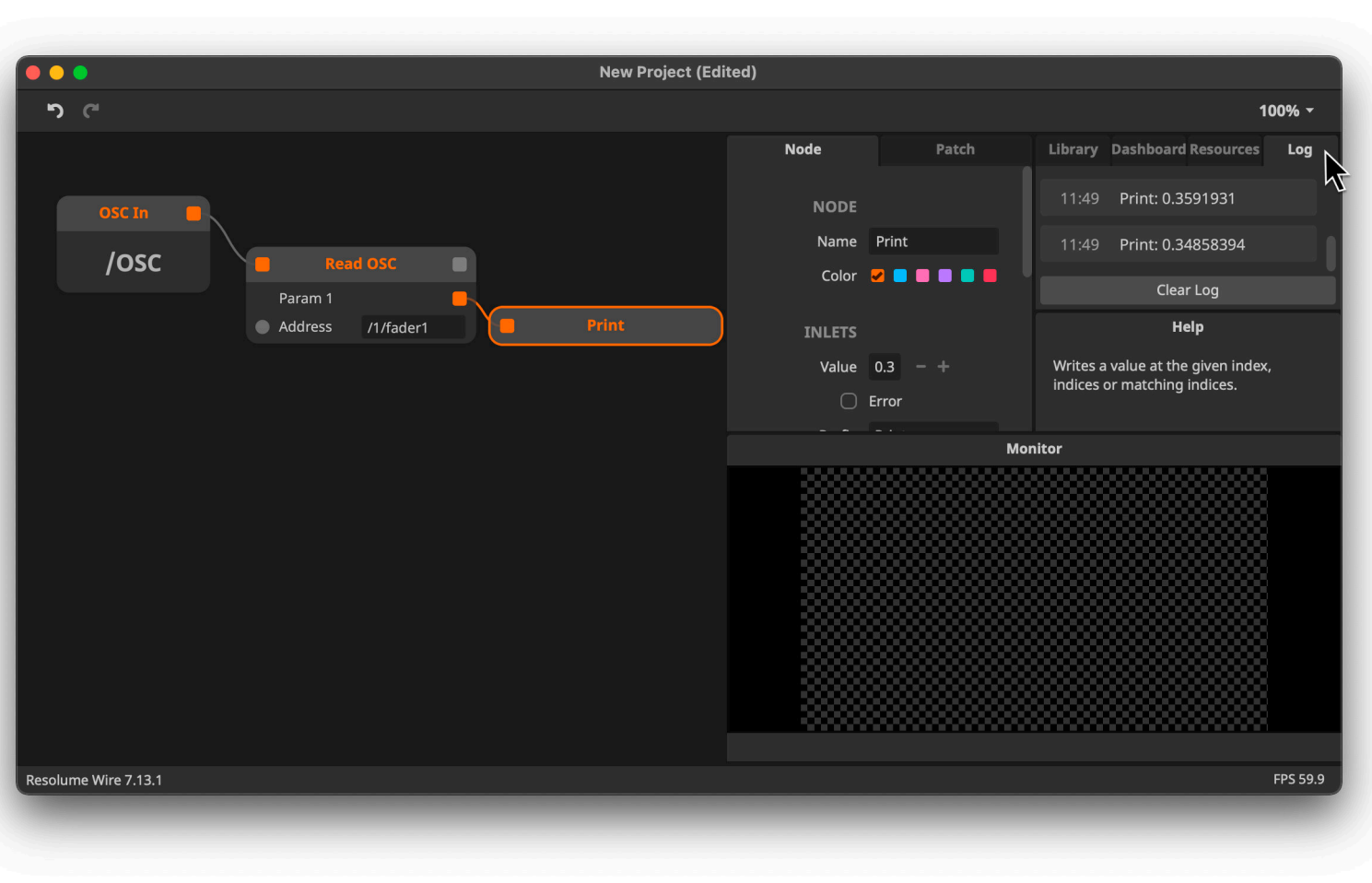
With this setup, the value of the first parameter of OSC messages with OSC address `/1/fader1` sent to Wire will be printed to the **Log**.

If you've opened the **Simple Mk2** layout in the previous steps, this will be a floating point value ranging from `0.0` to `1.0`.

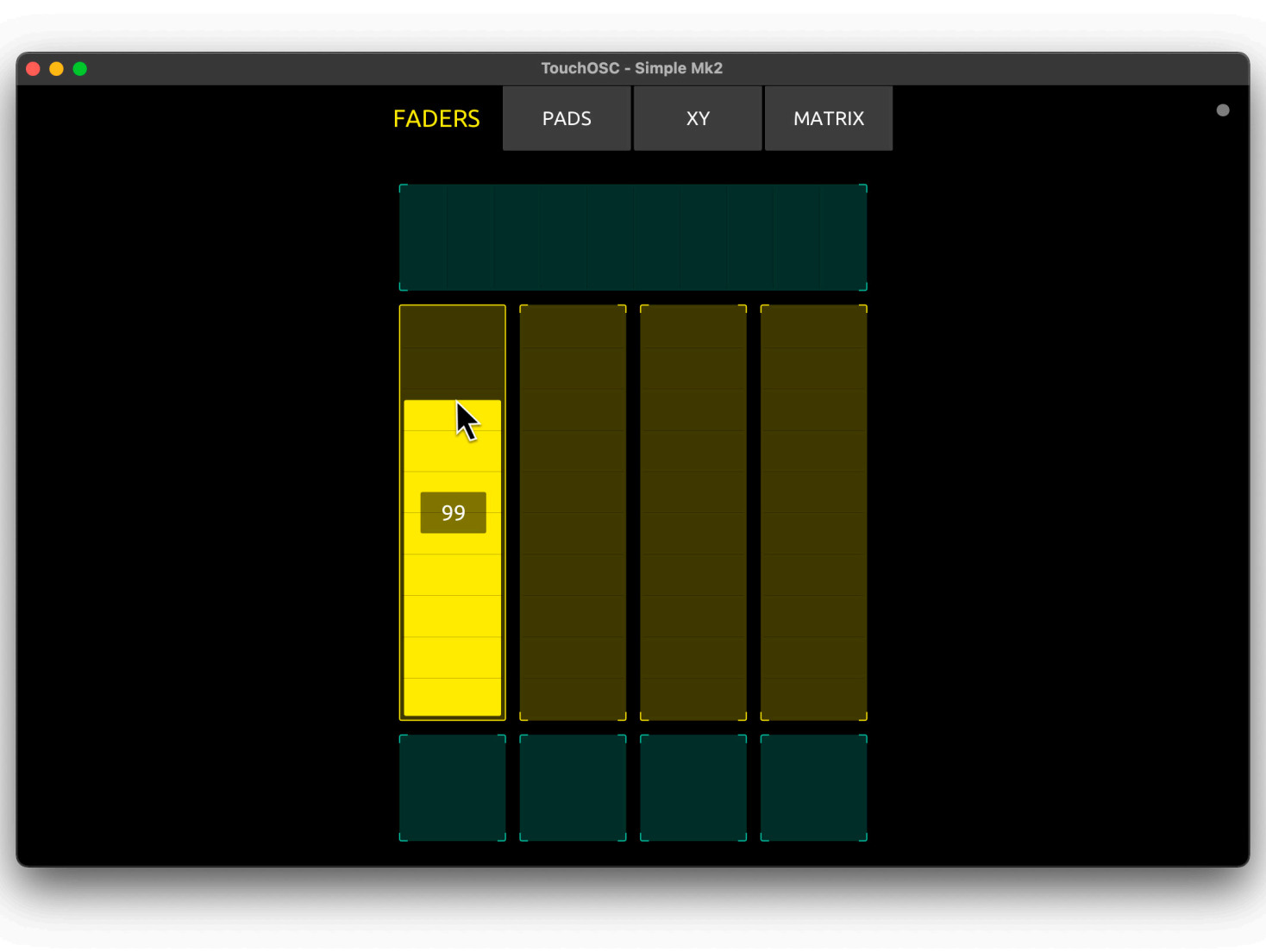
Print OSC messages ↑

With both the setup in TouchOSC and Wire now complete, let's open the **Log** view in Wire and confirm that the values are being printed.

The **Log** view in Wire can be found in the **Log** tab in the panel to the top right of the window.


```
11:49   Print: 0.3591931
11:49   Print: 0.34858394
```
New Project (Edited)
OSC In
/OSC
Read OSC
Param 1
Address /1/fader1
Print
Node
Patch
Value 0.3
Clear Log
Help
Writes a value at the given index, indices or matching indices.
Monitor
Resolume Wire 7.13.1
FPS 59.9

Send OSC messages from TouchOSC by using the fader control pictured below and you should see the received values printed in the **Log** view in **Wire**.


TouchOSC - Simple Mk2
FADERS
PADS
XY
MATRIX
99

Starting with this basic patch, it should be easy to use the values received from TouchOSC in your own compositions and visual effects.

Happy patching!

→ TouchOSC Manual

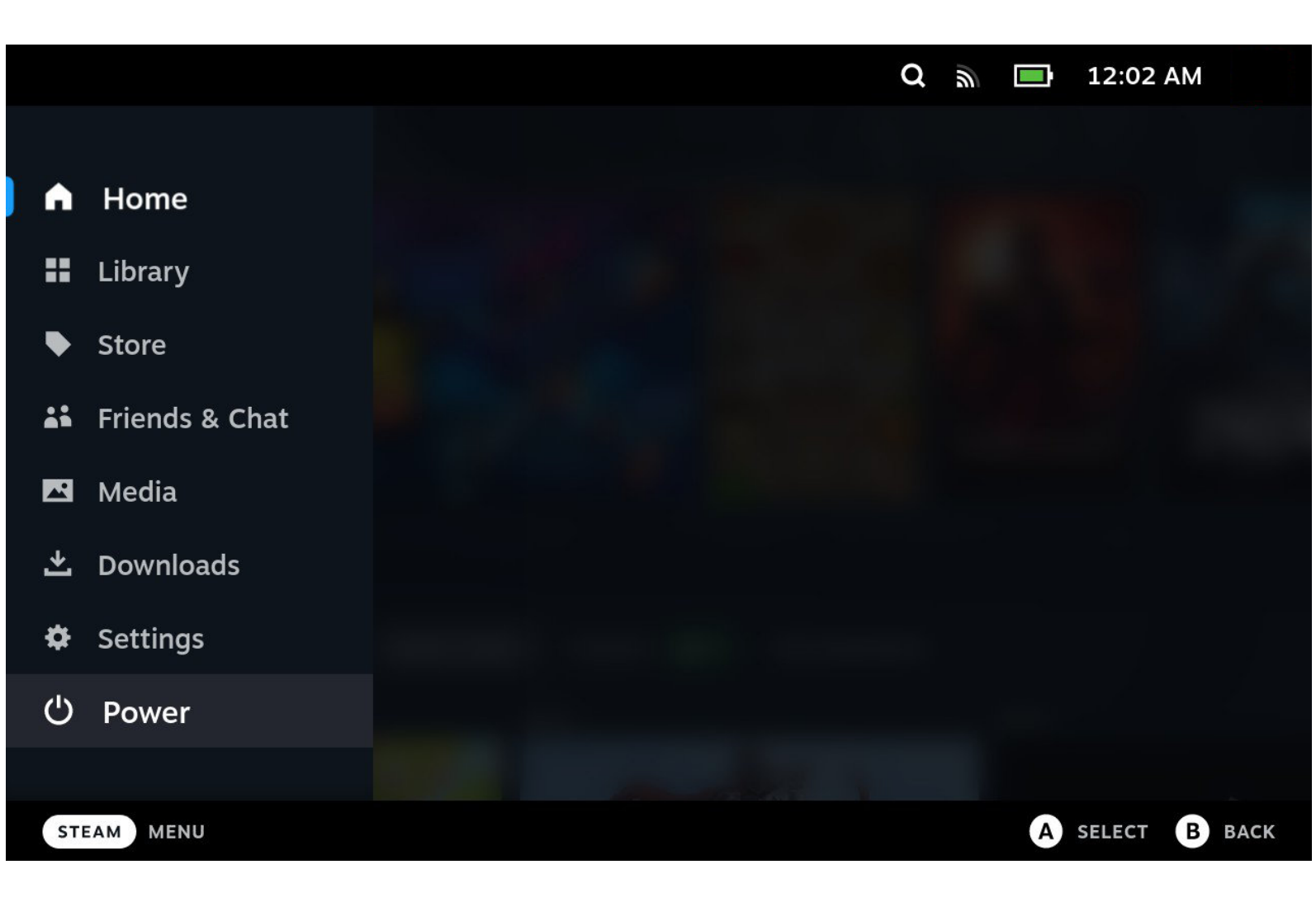
Setup · Steam Deck

Follow these steps to download, install and run TouchOSC on the Steam Deck.

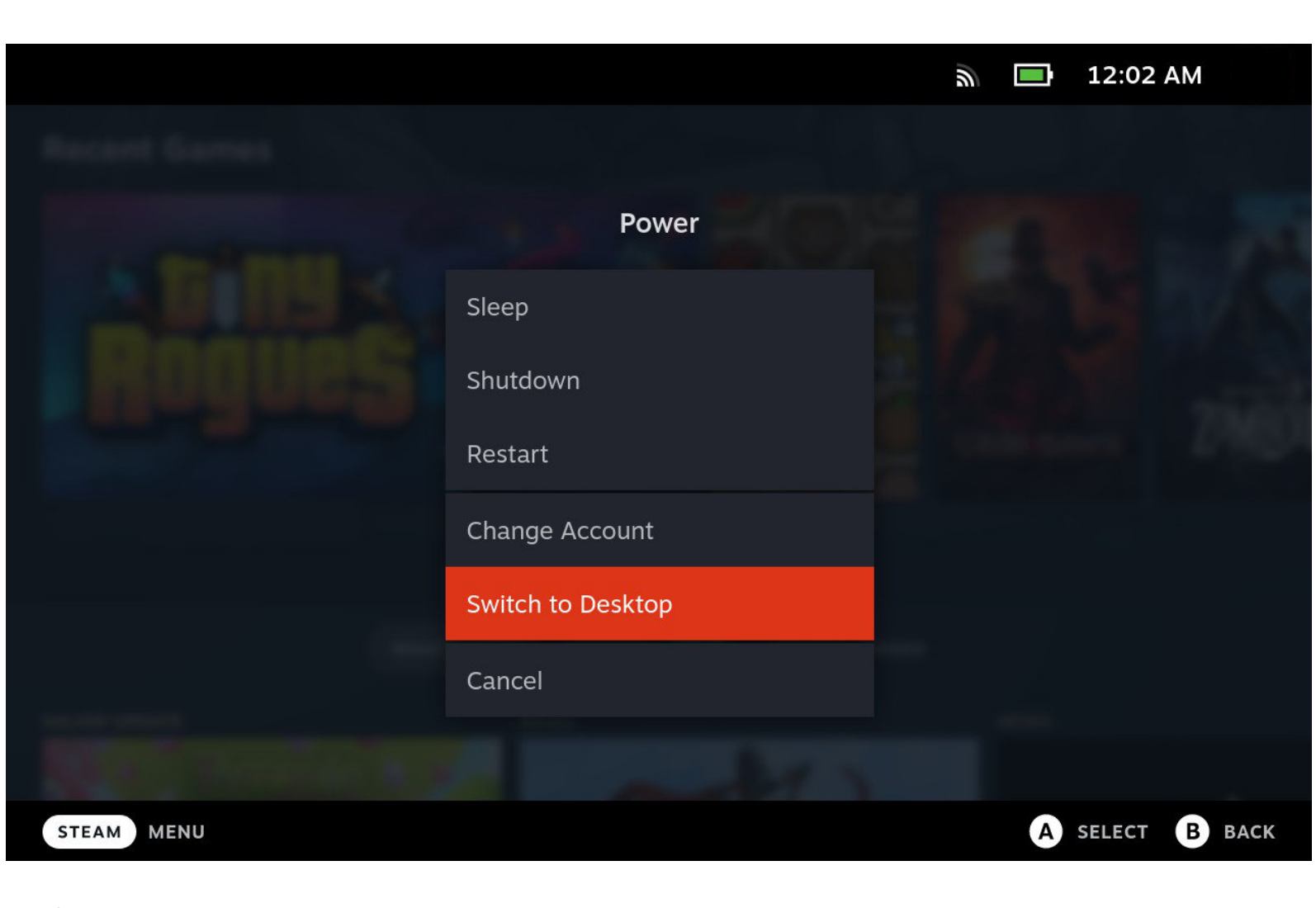
- Switch to Desktop Mode
- Download TouchOSC
- Extract TouchOSC
- Launch TouchOSC

Switch to Desktop Mode ↑

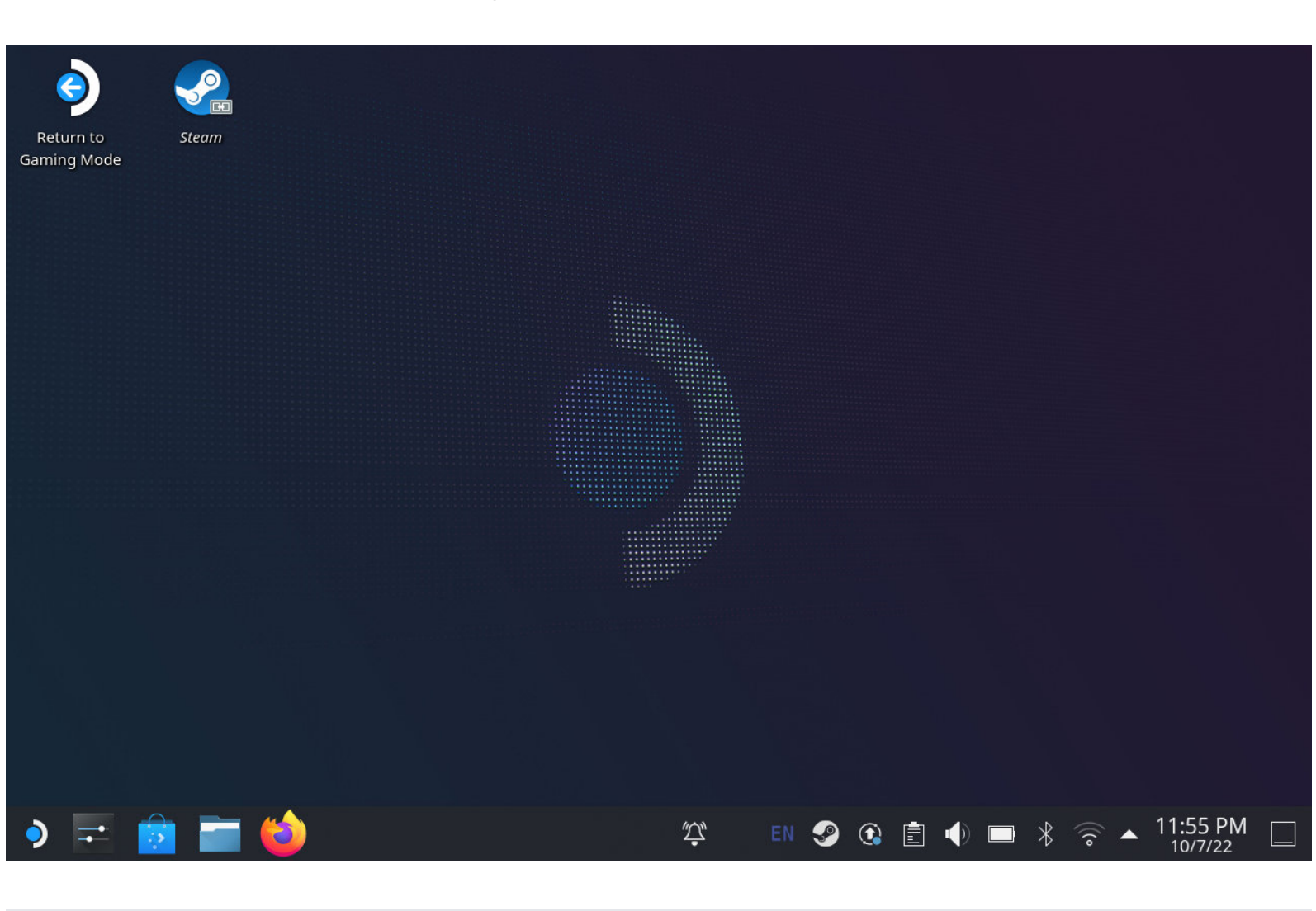
Open the **Steam Menu** using the **Steam Button** and select **Power**.


12:02 AM
Home
Library
Store
Friends & Chat
Media
Downloads
Settings
Power
STEAM MENU
A SELECT
B BACK

In the following dialog select **Switch to Desktop**.

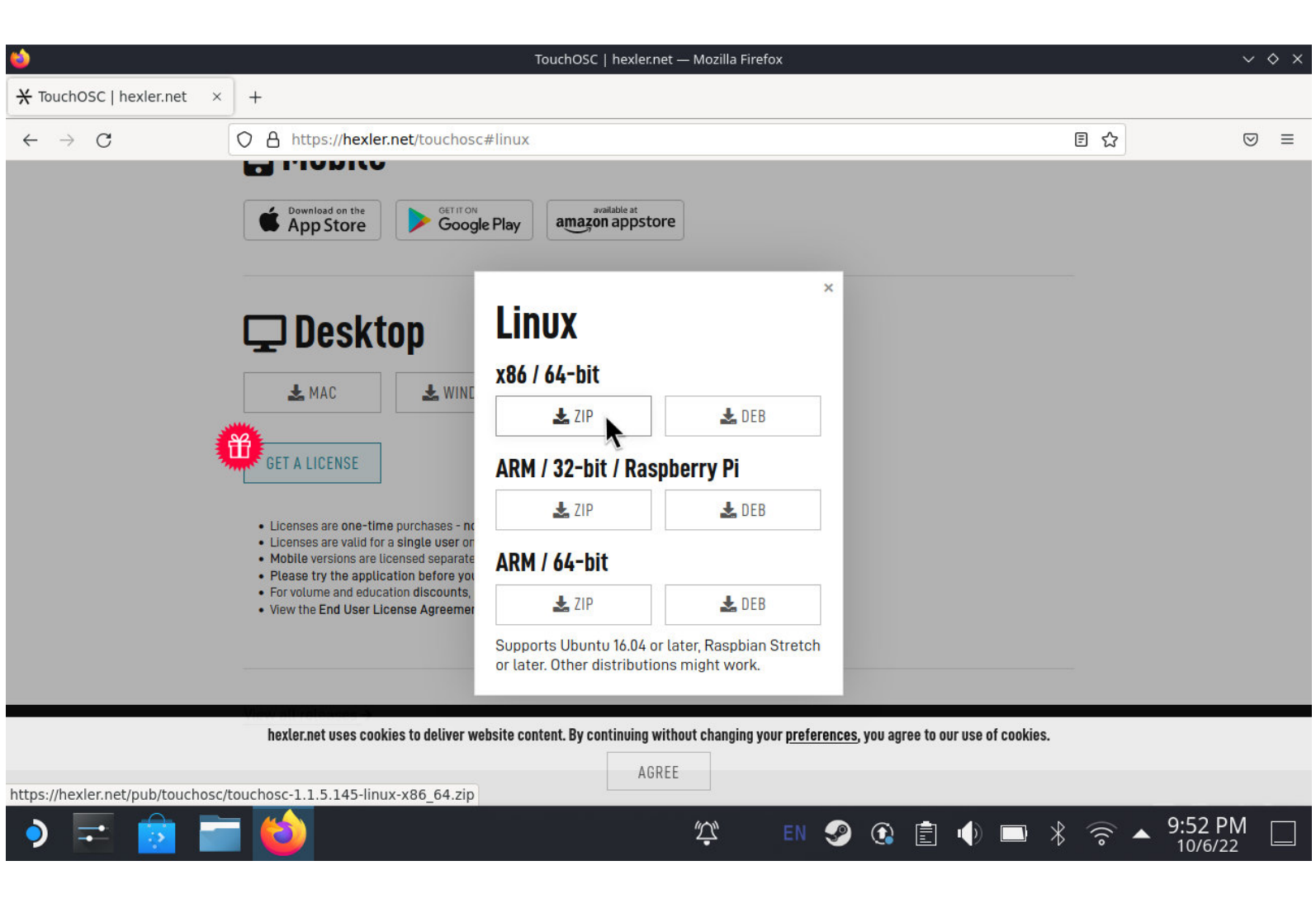

12:02 AM
Power
Sleep
Shutdown
Restart
Change Account
Switch to Desktop
Cancel
STEAM MENU
A SELECT
B BACK

The Steam Deck will now switch to **Desktop Mode**.


Return to Gaming Mode
Steam
11:55 PM
10/7/22

Download TouchOSC ↑

Start the **Firefox web browser** from the task bar at the bottom and navigate to the TouchOSC download section located at https://hexler.net/touchosc#get.


Supports Ubuntu 16.04 or later, Raspbian Stretch or later. Other distributions might work.

hexler.net uses cookies to deliver website content. By continuing without changing your preferences, you agree to our use of cookies.

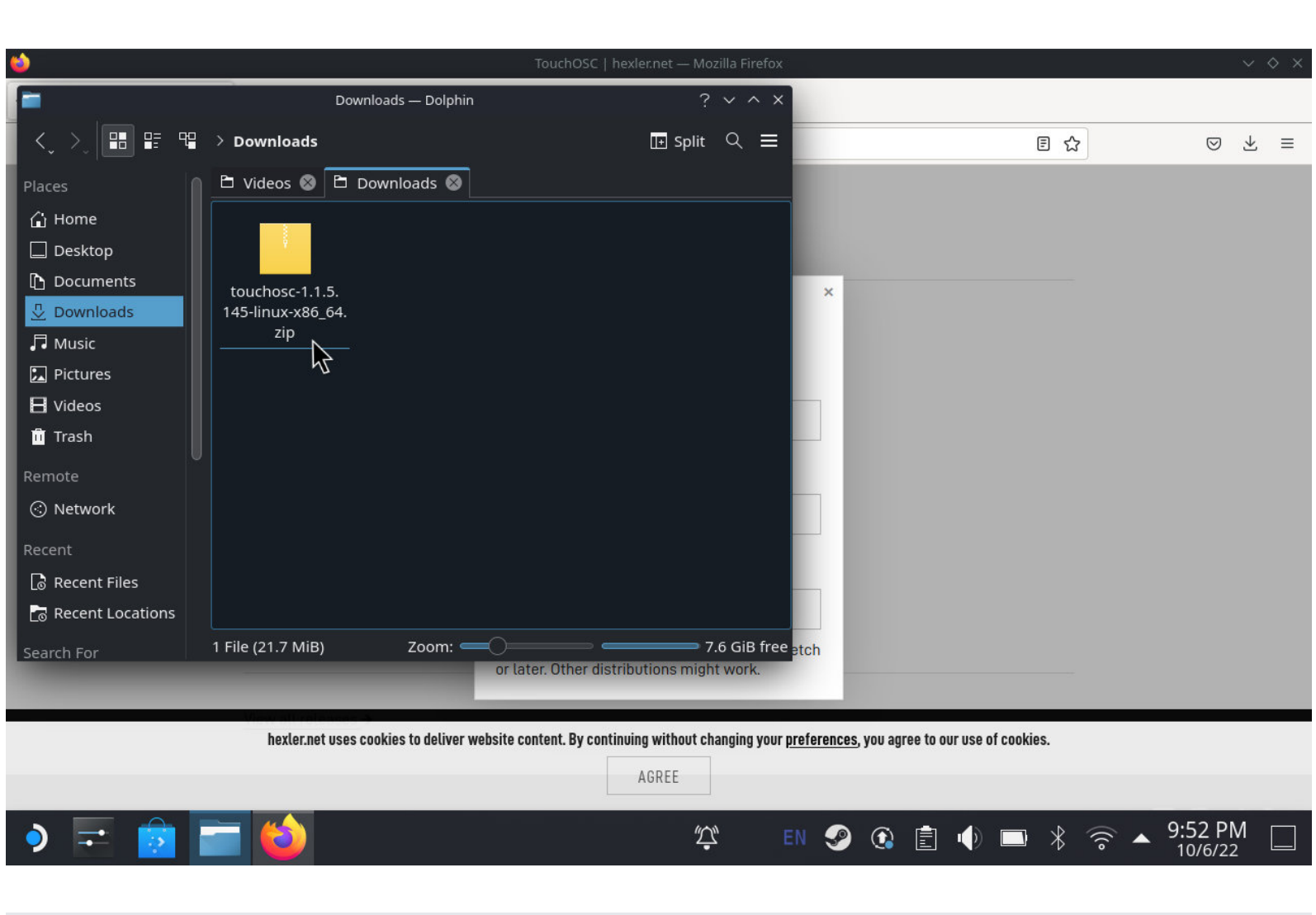
TouchOSC | hexler.net — Mozilla Firefox
https://hexler.net/touchosc#linux
App Store
Google Play
amazon appstore
Desktop
MAC
GET A LICENSE
Linux
x86 / 64-bit
ZIP
DEB
ARM / 32-bit / Raspberry Pi
ZIP
DEB
ARM / 64-bit
ZIP
DEB
AGREE
https://hexler.net/pub/touchosc/touchosc-1.1.5.145-linux-x86_64.zip
9:52 PM
10/6/22

In the **Desktop** section of the downloads, click the button labelled **LINUX**.

A pop-up dialog with all available versions for Linux will appear. Click the button labelled **ZIP** in the section **x86 / 64-bit**.

The zip file will be downloaded to your **Downloads** folder.

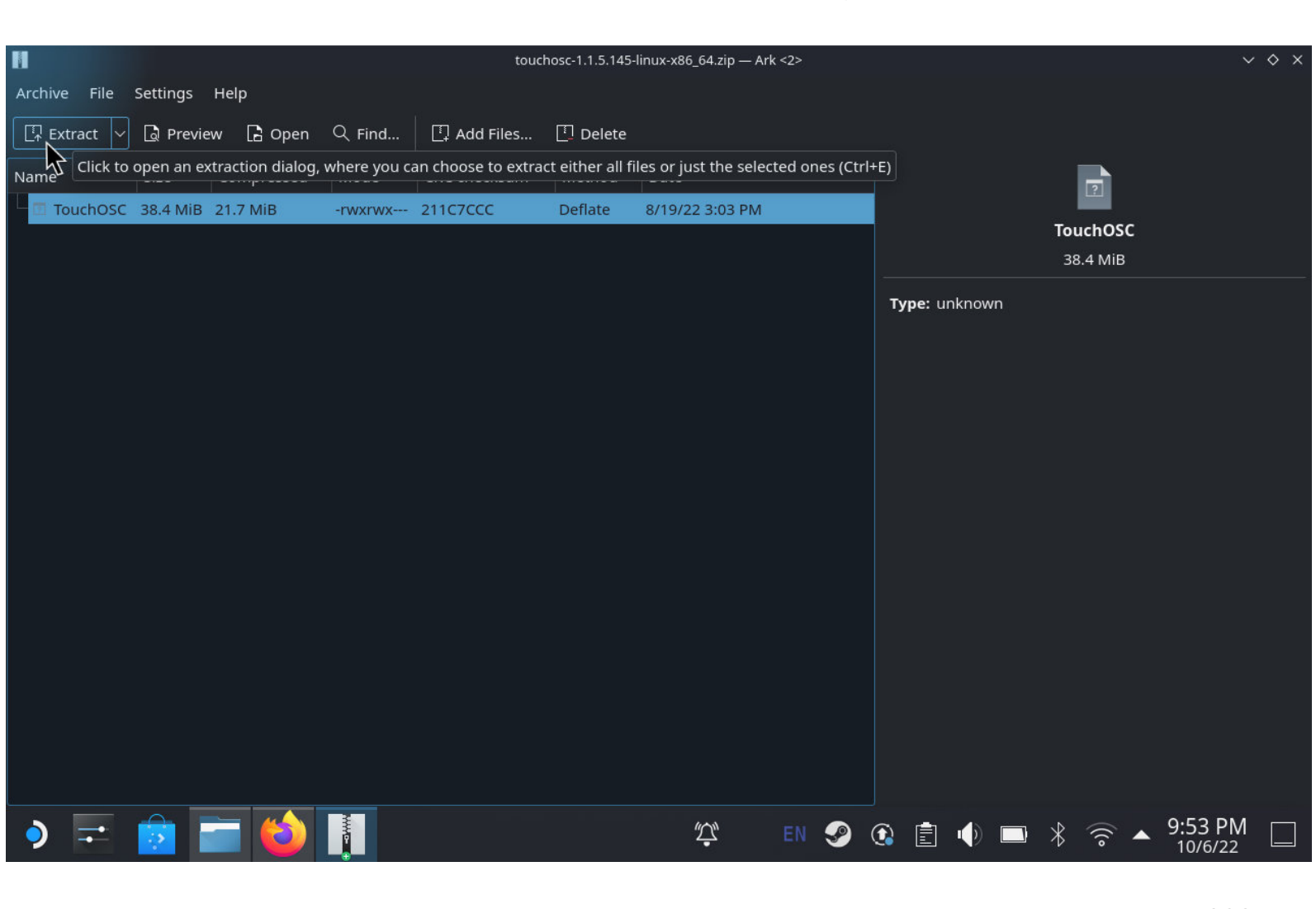
Open the **file browser** from the task bar at the bottom (or the downloads menu in Firefox) and select **Downloads** in the list of **Places** on the left.


Downloads — Dolphin
Downloads
Split
Videos
Downloads
Places
Home
Desktop
Documents
Downloads
Music
Pictures
Videos
Trash
Remote
Network
Recent
Recent Files
Recent Locations
Search For
touchosc-1.1.5.145-linux-x86_64.zip
1 File (21.7 MiB)
Zoom:
7.6 GiB free
AGREE
9:52 PM
10/6/22

Extract TouchOSC ↑

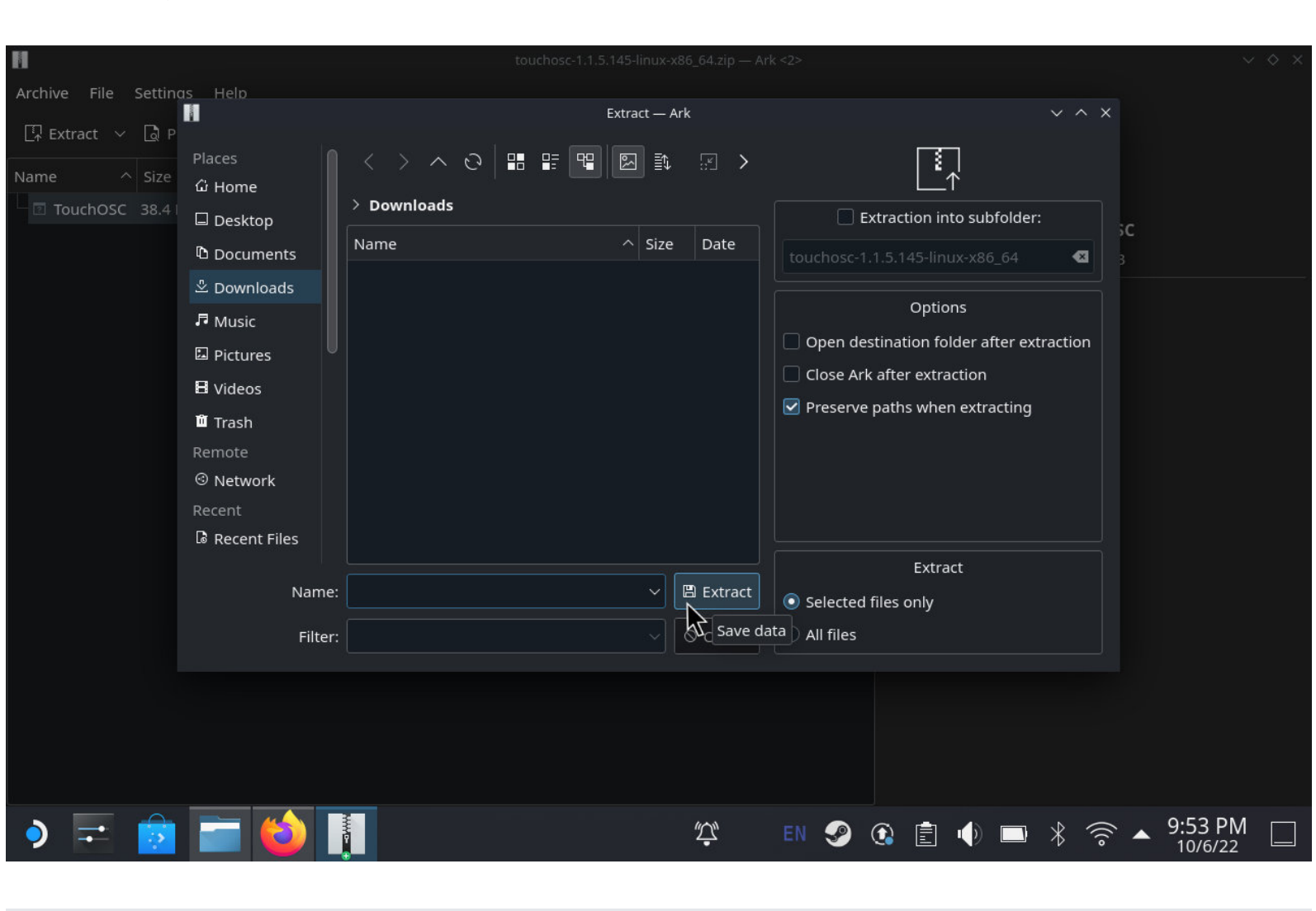
In the file browser **double-click or tap the downloaded zip file** and the archiving tool will launch and display the contents of the zip archive.

Select the line that reads **TouchOSC** and click the **Extract** button in the top left.


Click to open an extraction dialog, where you can choose to extract either all files or just the selected ones (Ctrl+E)

touchosc-1.1.5.145-linux-x86_64.zip — Ark <2>
Archive
File
Settings
Help
Extract
Preview
Open
Find...
Add Files...
Delete
Name
TouchOSC 38.4 MiB 21.7 MiB -rwxrwx--- 211C7CCC Deflate 8/19/22 3:03 PM
TouchOSC
38.4 MiB
Type: unknown
9:53 PM
10/6/22

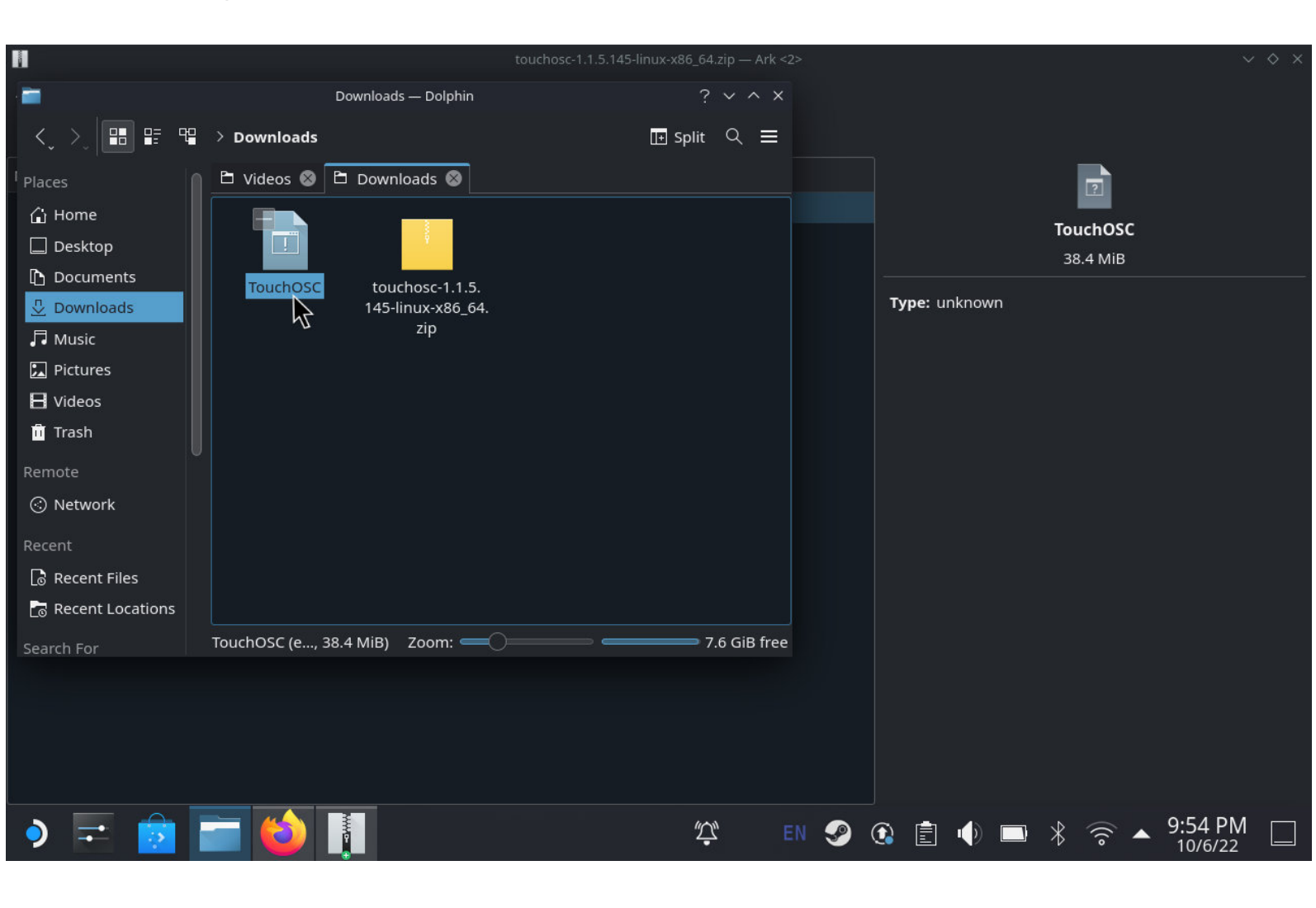
In the dialog that appears there's no need to change anything, just click **Extract** again to unpack the TouchOSC executable to your **Downloads** folder.


Extract — Ark
Downloads
Name
Size
Date
Extraction into subfolder:
touchosc-1.1.5.145-linux-x86_64
Options
Open destination folder after extraction
Close Ark after extraction
Preserve paths when extracting
Extract
Selected files only
All files
Name:
Filter:
Extract
Save data
9:53 PM
10/6/22

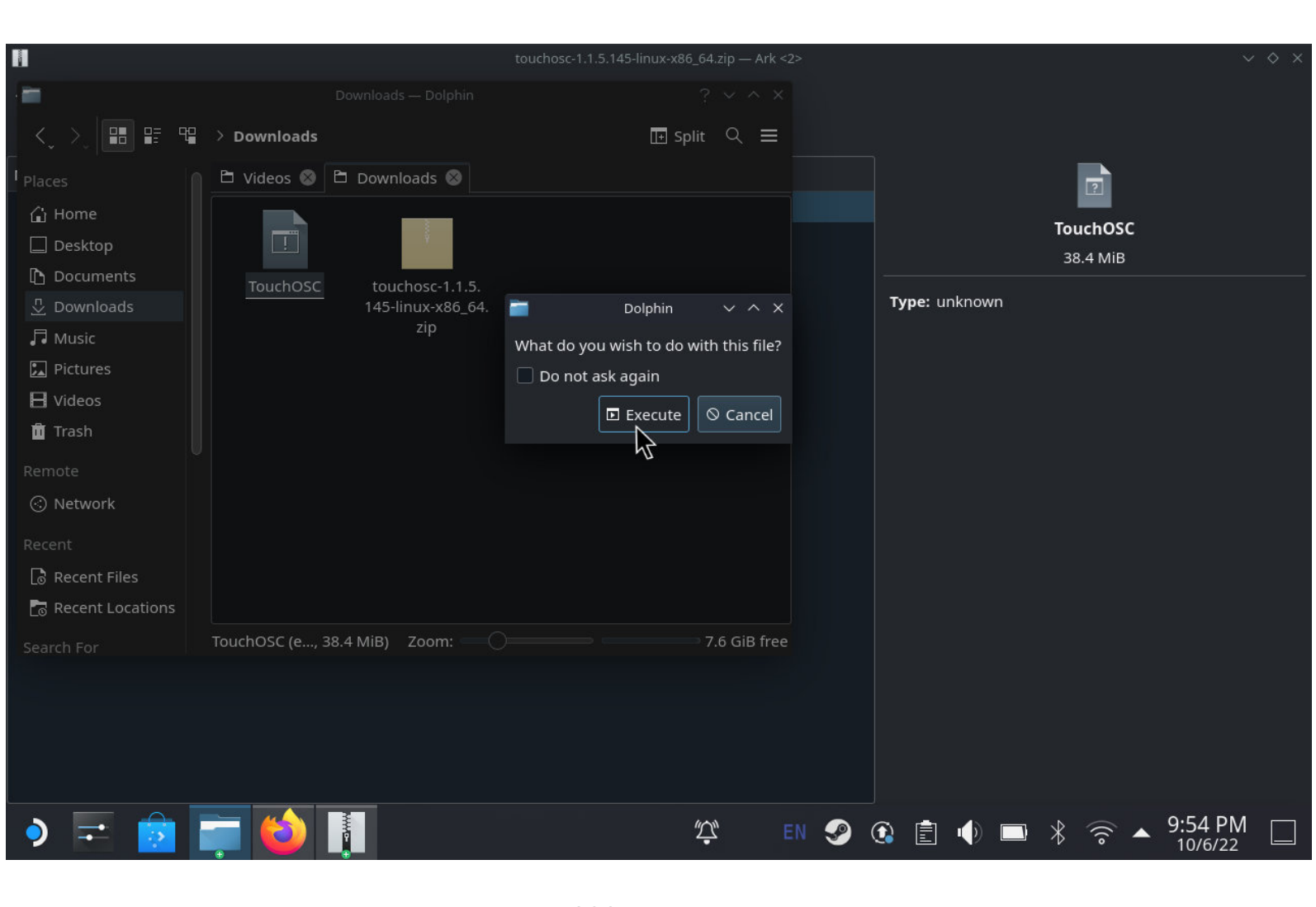
Launch TouchOSC ↑

Back in the **Downloads** folder in the file browser there is now a new file named **TouchOSC**.

Double-click or tap this file.


Downloads — Dolphin
TouchOSC
touchosc-1.1.5.145-linux-x86_64.zip
TouchOSC (e..., 38.4 MiB)
7.6 GiB free
TouchOSC
38.4 MiB
Type: unknown
9:54 PM
10/6/22

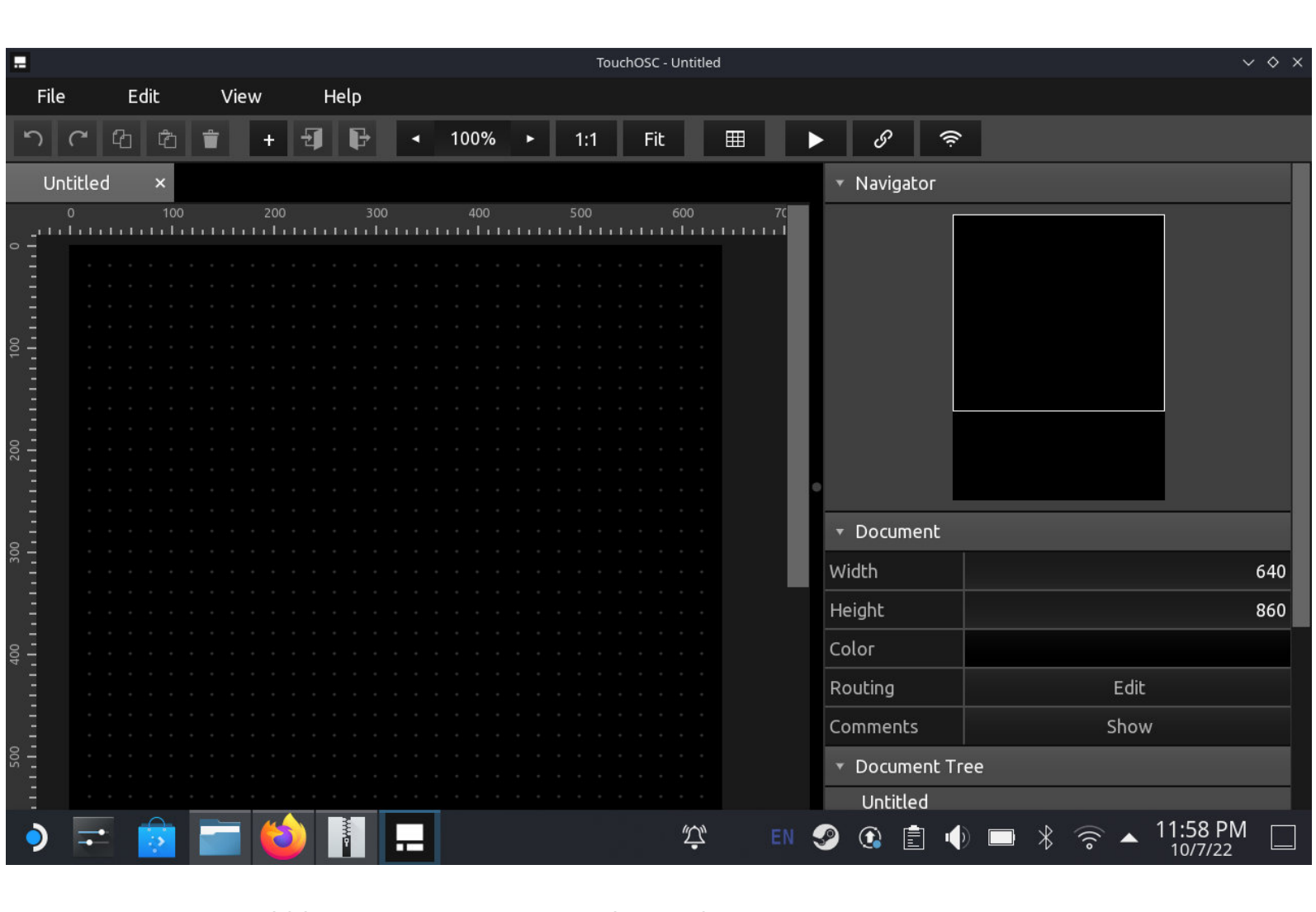
In the dialog prompting **"What do you wish to do with this file?"** choose **Execute**.


What do you wish to do with this file?

☐ Do not ask again

Dolphin
Execute
Cancel
9:54 PM
10/6/22

The application should launch and the main TouchOSC window should appear - ready for some **portable control surface action**!


TouchOSC - Untitled
File
Edit
View
Help
100%
1:1
Fit
Untitled
Navigator
Document
Width 640
Height 860
Color
Routing Edit
Comments Show
Document Tree
Untitled
11:58 PM
10/7/22

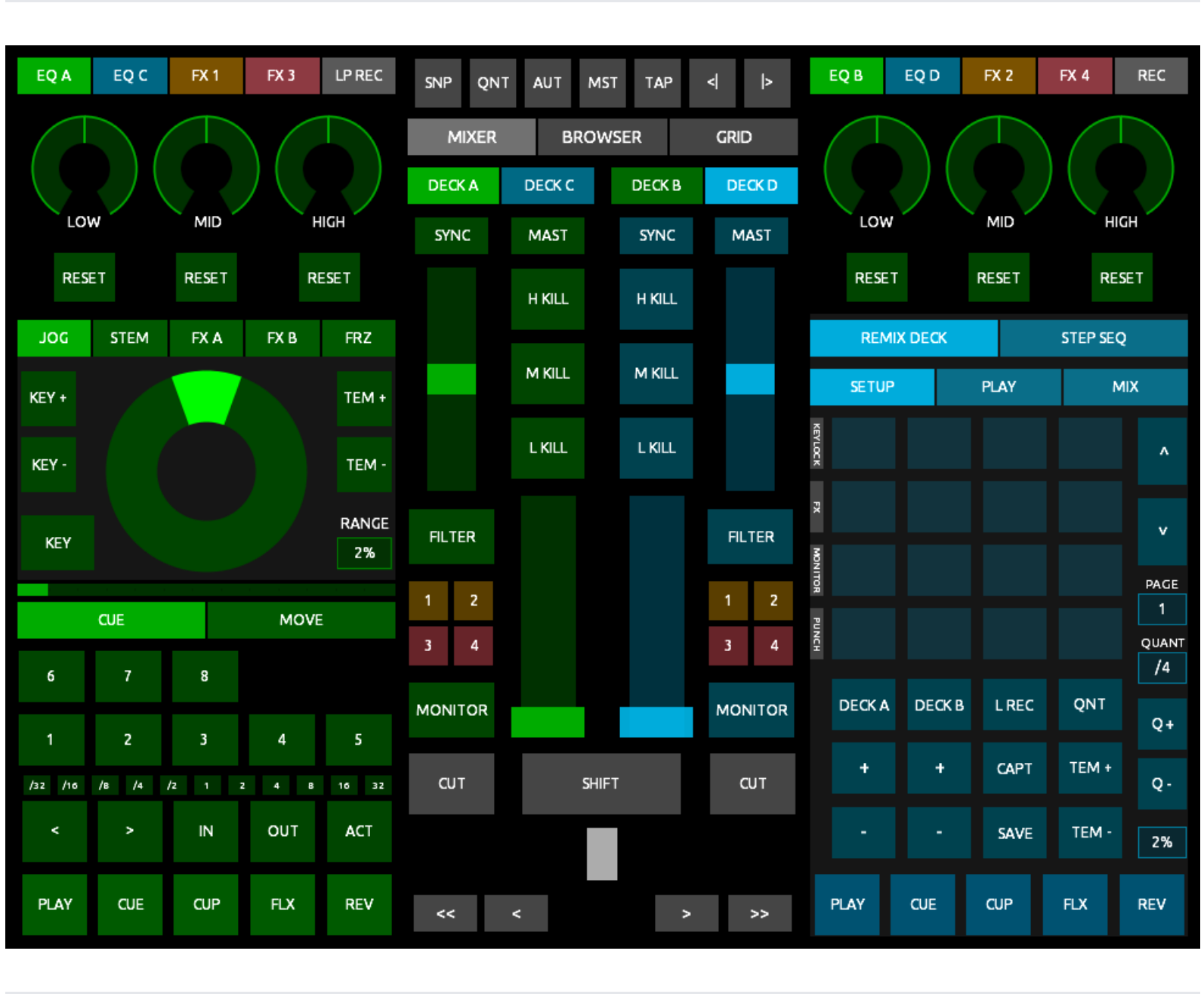
If you are new to TouchOSC please have a look at our Getting Started section.

If you are running into any problems following these steps, please do not hesitate to contact us ✉ and let us know!

→ TouchOSC Manual

Setup · Traktor

For the next generation of TouchOSC, Traktor wizard Andrew Norris has created the follow-up to his legendary Jog-On layout.


EQ A
EQ C
FX 1
FX 3
LP REC
SNP
QNT
AUT
MST
TAP
EQ B
EQ D
FX 2
FX 4
REC
MIXER
BROWSER
GRID
DECK A
DECK C
DECK B
DECK D
LOW
MID
HIGH
RESET
SYNC
MAST
H KILL
M KILL
L KILL
JOG
STEM
FX A
FX B
FRZ
REMIX DECK
STEP SEQ
SETUP
PLAY
MIX
KEY +
KEY -
KEY
TEM +
TEM -
RANGE
2%
FILTER
CUE
MOVE
MONITOR
PAGE
QUANT
/4
CUT
SHIFT
L REC
CAPT
SAVE
IN
OUT
ACT
PLAY
CUE
CUP
FLX
REV

Jog-On 2 is the essential control surface for Native Instruments' Traktor Pro software and is included with TouchOSC and ready to go.

Downloads

Download the detailed manual and Traktor setup file below. The layout itself is included with the application on all platforms.

PDF MANUAL   TRAKTOR TSI

Updates

v2.1 - 04 Mar 2024

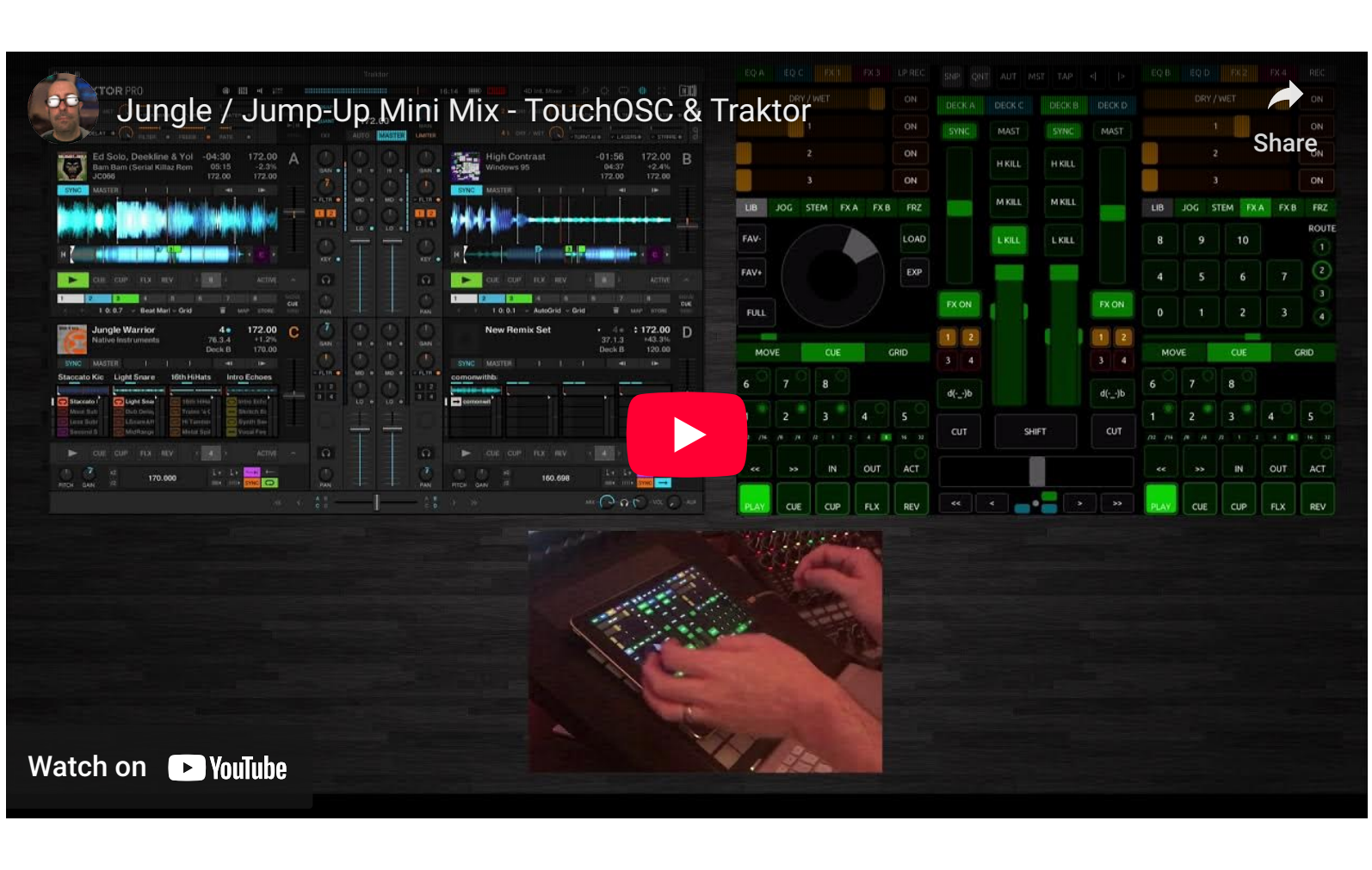
- Stem Decks: volume, filter, or FX sends for all four individual Stem Tracks can now be controlled together without having to switch between pages/tabs.
- Added volume level meters for each individual Stem Track.
- All volume level meters on all Decks now display individual L/R volume levels rather than L/R summed to mono.
- All volume level meters on all Decks now display 'warning' colour change when volume level approaches peak.

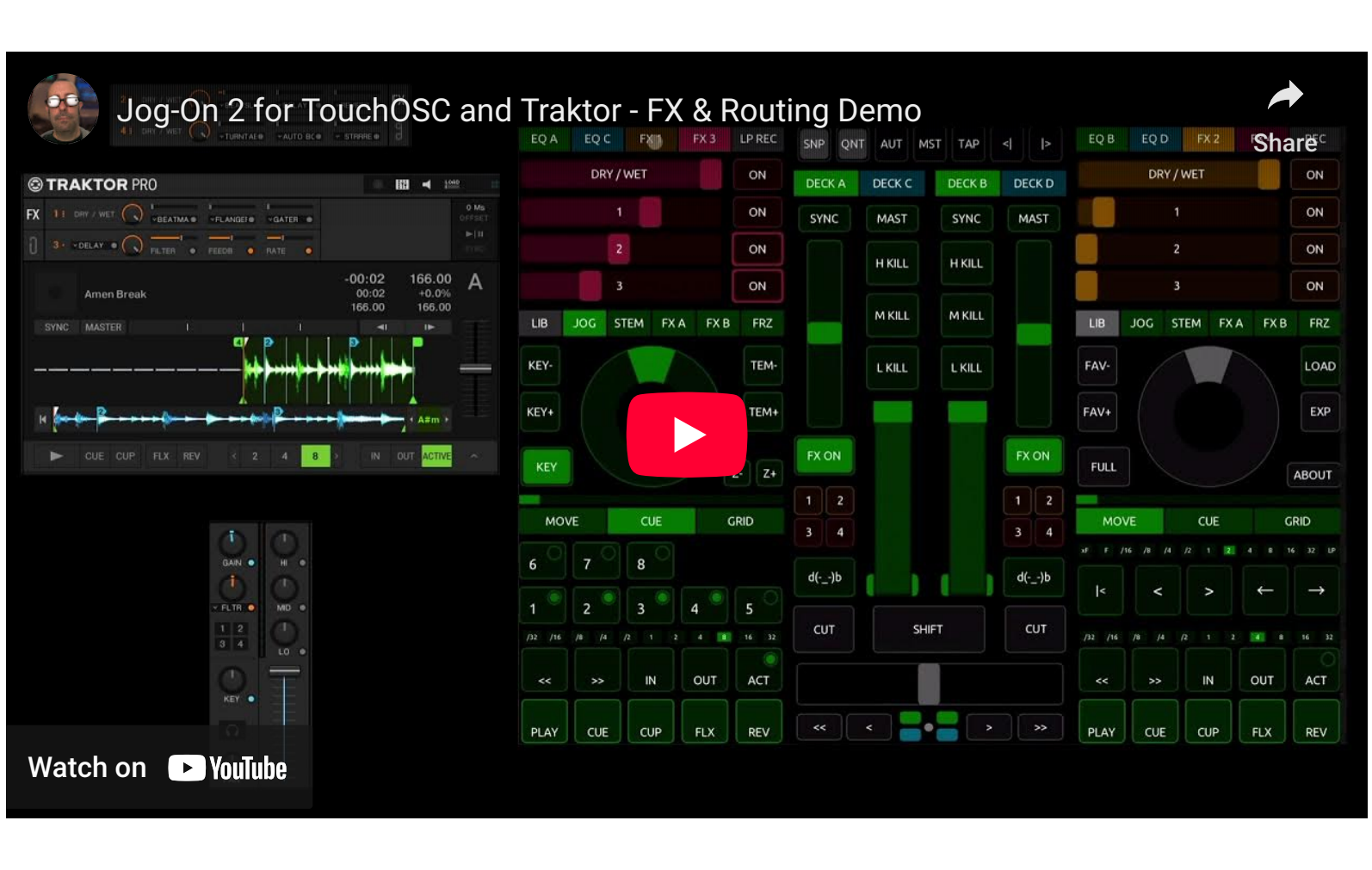
v2.0 - 06 Jun 2021

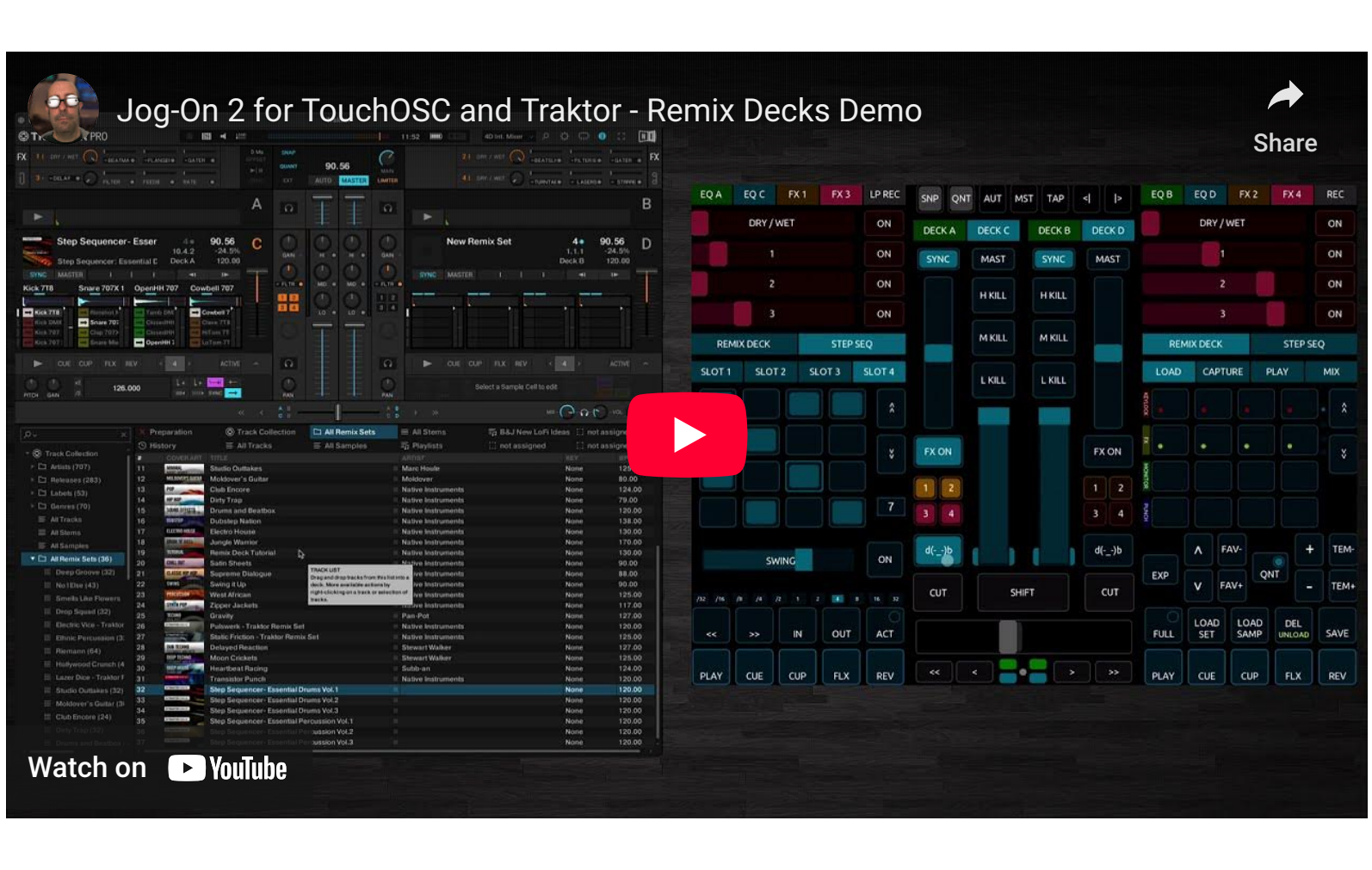
- Complete redesign of the original Jog-On layout for TouchOSC.

Videos

A selection of videos by Andrew demonstrating and explaining the inner workings of the layout.


Jungle / Jump-Up Mini Mix - TouchOSC & Traktor
Share
Watch on YouTube


Jog-On 2 for TouchOSC and Traktor - FX & Routing Demo
Share
Watch on YouTube


Jog-On 2 for TouchOSC and Traktor - Remix Decks Demo
Share
Watch on YouTube

→ TouchOSC Manual

Setup · Logic Pro

Minimum required versions

- Logic Pro 9.1.2 or higher

Note: Make sure your computer and all mobile devices are on the same wireless network.

Adding TouchOSC as Control Surface in Logic

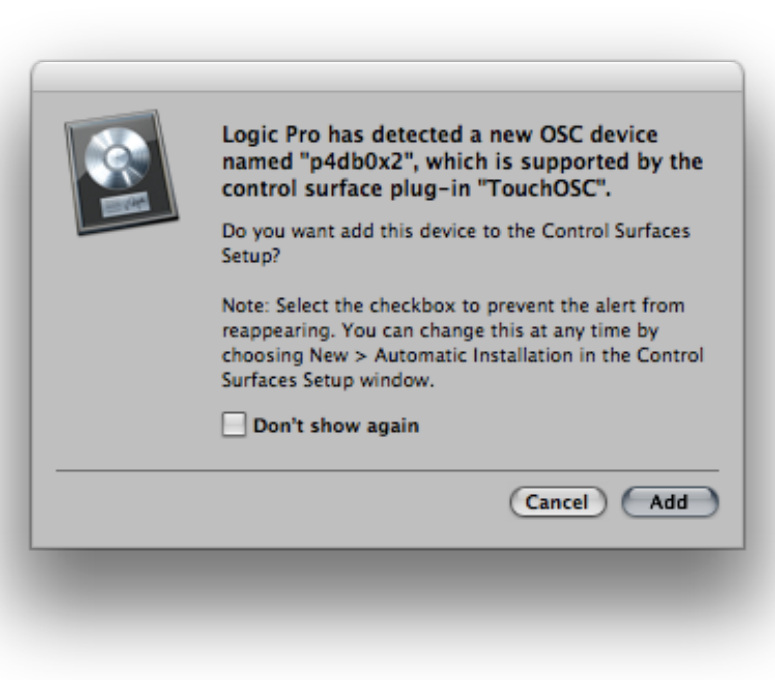
- Start Logic 9.1.2 or higher.
- Start TouchOSC and configure an OSC Connection as follows:
  Enable a connection and set **Type** to **UDP**.

  Click the **Browse** button and select the name of the computer running Logic. The **Host** and **Send Port** fields should now be filled in.

  Enter a port number in the **Receive Port** field (ie 7000).

  Set the **Zeroconf** option to **LogicPad** or **LogicTouch**, depending on which of these two layouts you plan to use.

  Click **Done** to apply the connections settings.
- Logic will display the following alert:


Logic Pro has detected a new OSC device named "p4db0x2", which is supported by the control surface plug-in "TouchOSC".

Do you want add this device to the Control Surfaces Setup?

Note: Select the checkbox to prevent the alert from reappearing. You can change this at any time by choosing New > Automatic Installation in the Control Surfaces Setup window.

☐ Don't show again

- Click the **Add** button. Logic will add the device as a control surface and open the Control Surfaces Setup window.

Note: If you share the wireless network with other Logic systems, you may want to select the **Don't show again** check-box when adding your last TouchOSC device. This will prevent the dialog from appearing whenever other users start their TouchOSC devices. You can reset this alert suppression by re-enabling **New > Automatic Installation** in the Control Surfaces Setup window.

Note: If the macOS software firewall is enabled, an alert will come up when sending the first OSC message. You will need to confirm the alert so that Logic can communicate with the OSC device.

Note: It is not possible at this time to use customized Layouts or to learn OSC commands. However, authorized 3rd party developers can create Logic CS plug-ins which can use OSC-based communication.

→ TouchOSC Manual

Scripting API

TouchOSC's scripting API is based on the Lua 5.1 language and virtual machine with custom additions and modifications.

Scripts can be added to all controls in a document and at the document root level. Each control's script will be executed in its own Lua context.

- Lua Functions
- Global Functions
  - Utility

  - Message
  - JSON
- Objects
  - Control
  - Messages
  - Rectangle
  - Color
  - Vectors
- Enumerations
- Constants
- Properties & Values
- Examples

→ TouchOSC Manual

Script · Lua Functions

The following Lua standard library functions are available.

base

Only the following Lua base library functions are available:

```
error
ipairs
next
pairs
print
select
tonumber
tostring
unpack
type
```

string

All standard Lua string library functions are available.

table

All standard Lua table library functions are available plus the following additions:

```
table.pack(...)
```

Returns a new sequential table created from the elements provided.

```
table.unpack(...)
```

Same as the Lua base library function `unpack`.

math

All standard Lua math library functions are available plus the following additions:

```
math.clamp(number, number, number)
```

Returns `min(max(x, minVal), maxVal)` where `x` is the first parameter and `minVal` and `maxVal` the second and third parameters.

os

since 1.3.8.222

Only the following Lua os library functions are available:

```
clock
date
difftime
time
```

bit32

since 1.1.7.154

Support for bitwise operations has been back-ported from Lua 5.2. All functions are available inside the table `bit32`.

utf8

since 1.3.0.202

Basic support for UTF-8 encoding has been back-ported from Lua 5.3. All functions are available inside the table `utf8`.

→ TouchOSC Manual

Script · Global Functions

TouchOSC provides the following global functions.

- Utility Functions
  - getVersion
  - getMillis
  - getDate
  - hasAccelerometer
  - getAccelerometer
  - hasGyroscope
  - getGyroscope
  - getBatteryLevel
  - bytesToInt
  - bytesToFloat
  - vibrate
- Message Functions
  - MIDI Messages
  - Simple OSC Messages
  - Complex OSC Messages
  - Bundled OSC Messages
- JSON Functions
  - json.fromTable
  - json.toTable

Utility Functions ↑

```
function getVersion()


-- example
local t = getVersion()
print(table.unpack(t))
> 1 2 5 183 -- major minor patch build
```

Returns a list containing the application's version as `major` `minor` `patch` `build` number values.

```
function getMillis()


-- example
local n = getMillis()
print(n)
> 576970.847
```

Returns the number of milliseconds since application start.

```
function getDate()


-- example
local t = getDate()
print(table.unpack(t))
> 2023 10 31 32400 -- year month day tzd
```

Returns a list with the current local date's `year` `month` `day` `tzd` number values. `tzd` refers to the timezone differential in seconds.

```
function getTime()


-- example
local t = getTime()
print(table.unpack(t))
> 10 11 37 893 -- hour minute second millisecond
```

Returns a list with the current local time's `hour` `minute` `second` `millisecond` number values.

```
function hasAccelerometer()


-- example
local b = hasAccelerometer()
print(b)
> true
```

Returns `true` if the host device provides an accelerometer sensor, `false` otherwise.

```
function getAccelerometer()


-- example
local t = getAccelerometer()
print(table.unpack(t))
> -8.925 0.134 4.078 -- x y z
```

Returns a list of three number values that are sampled from the host device's accelerometer sensor. If no accelerometer sensor is available, the values will be all zero.

```
function hasGyroscope()


-- example
local b = hasGyroscope()
print(b)
> true
```

Returns `true` if the host device provides a gyroscope sensor, `false` otherwise.

```
function getGyroscope()


-- example
local t = getGyroscope()
print(table.unpack(t))
> -8.925 0.134 4.078 -- x y z
```

Returns a list of three number values that are sampled from the host device's gyroscope sensor. If no gyroscope sensor is available, the values will be all zero.

```
function getBatteryLevel()


-- example
local n = getBatteryLevel()
print(n)
> 0.84
```

Returns the current battery charge level as a number ranging from `0.0` to `1.0` on mobile devices, `1.0` otherwise.

```
function bytesToInt(number, number, number, number)


-- example
local i = bytesToInt(0x4D,0x01,0x00,0x00)
print(i)
> 333
```

Returns a number that is the 32-bit integer representation created from the four byte number parameter values given.

```
function bytesToFloat(number, number, number, number)


-- example
local f = bytesToFloat(0x00,0x00,0x99,0x42)
print(f)
> 76.5
```

Returns a number that is the 32-bit floating point representation created from the four byte number parameter values.

```
function vibrate()


-- example
vibrate()
```

since 1.4.0.230

On devices that support it, a short vibration will be triggered. Has no effect otherwise.

Message Functions ↑

TouchOSC provides the following functions to send MIDI and OSC messages.

MIDI Messages ↑

```
function sendMIDI(table [, table])


-- example
sendMIDI({ 176, 0, 102 })            -- control change
sendMIDI({ 0xF0, 0x00, 0x01, 0xF7 }) -- system exclusive
```

Send a MIDI message on one or multiple configured connections.

The first argument `table` is a list of byte values that make up the MIDI message.

Starting with version `1.2.1.171` the function will process byte data for multiple messages and continue until either the end of the list or an invalid MIDI message is encountered.

The optional second argument `table` is a list of boolean values that specify which connections to send the message on. If the argument is omitted, the default is to broadcast the message on all configured connections. If the list has fewer elements than the number of connections, the omitted elements default to `false`.

For more usage examples see the Sending MIDI Messages example.

Simple OSC Messages ↑

```
function sendOSC(string [, ... [, table]])


-- example
sendOSC('/1/fader1', 0.5)
sendOSC('/3/xy1', 0.25, 0.75)
sendOSC('/hello', 'world')
```

Send an OSC message on one or multiple configured connections.

`string` is the path of the OSC message to be sent.

The optional argument values `...` will be auto-converted to `boolean`, `float` or `string` OSC types and added to the OSC message as arguments.

Note that argument values are never auto-converted to `integer` OSC types as scripts do not treat floating point and integer numbers as separate types. Use the complex OSC message send function instead.

The optional last argument `table` is a list of boolean values that specify which connections to send the message on. If the argument is omitted, the default is to broadcast the message on all configured connections. If the list has fewer elements than the number of connections, the omitted elements default to `false`.

For more usage examples see the Sending OSC Messages example.

Complex OSC Messages ↑

```
function sendOSC(table [, table])


-- example
sendOSC(
  {
    '/complex',
    {
      { tag = 'i', value = 42 },                    -- int
      { tag = 'f', value = 3.14159 },               -- float
      { tag = 's', value = 'Goodbye Cruel World' } -- string
    }
  }
)
```

Sends an OSC message on one or multiple configured connections.

The first argument `table` is a list that represents the OSC message to be sent, where the first element is the path string of the message, and the second element is a list of argument tables with `tag` and `value` keys for each argument:

```
{
    path,
    {
        { tag = 'argumentTypeTag', value = argumentValue },
        { tag = 'argumentTypeTag', value = argumentValue },
        { tag = 'argumentTypeTag', value = argumentValue },
        ...
    }
}
```

Each argument `value` will be converted to an OSC type according to the type `tag` provided:

Tag	OSC Type	
`T`	Boolean true	
`F`	Boolean false	
`N`	Nil	
`I`	Infinitum	
`i`	int32	
`h`	int64	since 1.1.3.141
`f`	float32	
`d`	double	since 1.1.3.141
`s`	string	
`S`	symbol	since 1.3.9.226
`c`	ASCII character	since 1.3.9.226
`r`	32 bit RGBA color	since 1.3.9.226
`m`	4 byte MIDI message	since 1.3.9.226
`b`	blob	

If the `tag` key is omitted, the `value` will be auto-converted the same way as when sending simple OSC messages.

The `T` `F` `N` and `I` types do not need a value to be specified.

The `b` OSC blob type expects the `value` to be a list of byte values making up the blob data.

The optional second argument `table` is a list of boolean values that specify which connections to send the message on. If the argument is omitted, the default is to broadcast the message on all configured connections. If the list has fewer elements than the number of connections, the omitted elements default to `false`.

For more usage examples see the Sending OSC Messages example.

Bundled OSC Messages ↑

```
function sendOSCBundle(table [, table])


-- example
sendOSCBundle(
  {
    { '/message1', { { tag = 'i', value = 1337 } } },
    { '/message2', { { tag = 'f', value = 2.71828 } } },
    { '/message3', { { tag = 's', value = 'Hello World' } } }
  }
)
```

since 1.3.7.218

Sends one or more OSC messages as a bundle on one or multiple configured connections.

The first argument `table` is a list of one or more OSC messages to be sent. The messages are in the same format as described in Complex OSC Messages above.

The optional second argument `table` is a list of boolean values that specify which connections to send the message on. If the argument is omitted, the default is to broadcast the message on all configured connections. If the list has fewer elements than the number of connections, the omitted elements default to `false`.

For more usage examples see the Sending OSC Messages example.

JSON Functions ↑

TouchOSC provides the following functions to convert Lua tables to and from JSON encoded strings. All JSON functions are provided inside the global table `json`.

```
function json.fromTable(table)


-- example
local t = { a = 123, b = 'hey', c = false, d = json.null }
local str = json.fromTable(t)
```

since 1.1.8.157

Convert a Lua table to a JSON encoded string. The special value `json.null` can be used to store a `null` value in the Lua table.

The input table should either be a sequential list of values, which will be converted to the JSON `array` type, or a list of key/value pairs, which will be converted to the JSON `object` type.

```
function json.toTable(string)


-- example
local str = '{ "a":123, "b":"hey", "c":false, "d":null }'
local t = json.toTable(str)
```

since 1.1.8.157

Parse a JSON encoded string and return the result as a Lua table. The JSON `null` value will be written to the output table as the special value `json.null`.

→ TouchOSC Manual

Script · Objects

TouchOSC defines the following objects to represent its internal and native types.

- Control
- Messages
- Rectangle
- Color
- Vectors

→ TouchOSC Manual

Script · Objects · Control

A control object represents a reference to a single control contained within a TouchOSC document.

Using this reference most of a control's properties and values can be queried and set. From within a control's script, the `self` reference can be used to refer to the control's own fields and functions, the `root` reference (since 1.0.5.109) can be used to refer to the document's root control.

Each control is assigned a unique **ID** on creation that remains unchanged during and between application runs, document save/load and editor network transfer.

All controls live in a document tree hierarchy starting at the document root. All controls except for the root have a reference to a **parent** control, and some control types are containers for **child** controls.

During compilation each script will be checked for the definitions of any of the callback functions listed below, which serve as the main customization points during the various stages of TouchOSC's processing of an application frame.

- Fields
  - ID
  - type
  - index
  - parent
  - children
  - properties
  - values
  - messages
  - pointers
- Functions
  - getValueField
  - setValueField
  - getValueProperty
  - setValueProperty
  - notify
  - findByID
  - findByType
  - findAllByType
  - findByProperty
  - findAllByProperty
  - findByName
  - findAllByName
- Callback Functions
  - init
  - update
  - onValueChanged
  - onPointer
  - onReceiveMIDI
  - onReceiveOSC
  - onReceiveGamepad
  - onReceiveNotify

Fields ↑

```
control.ID


-- example
local myID = self.ID
local parentID = self.parent.ID
print(myID == parentID)
> false
```

A unique ID string, generated when the control is created. It remains unchanged over a control's lifetime, during document load/save and during editor network transmission.

```
control.type


-- example
local myType = self.type
print(myType == ControlType.BUTTON)
> true
```

Control type numeric constant, one of the `ControlType` enumeration values.

```
control.index


-- example
local myIndex = self.index
local parentIndex = self.parent.index
```

The control's position in its parent list of child controls, `1 to n` for regular controls, `0` for the document root.

```
control.parent


-- example
local myParentControl = self.parent
local noParentControl = root.parent -- will be nil, root has no parent
```

A reference to the control's parent `Control` object, or `nil` for the document root.

```
control.children


-- example
self.children.button1.visible = false -- set 'visible' property on child 'button1'
self.children['button1'].visible = false -- same as the previous line
local firstChild = self.children[1] -- first child control
local secondChild = self.children[2] -- second child control
print(#self.children) -- print the number of child controls
```

A list of the control's child `Control` objects. The list can be indexed by control name (a string) or index (a number). Control names are user assignable and **not** unique.

Usage	Description
`control.children.name` `control.children[name]`	Returns the first child control with name `name` or `nil` if none is found. Indexing by name is equivalent to calling `control:findByName(name)`.
`control.children[1 to n]`	Returns the child control at index `1 to n` or `nil` if none is found.
`#control.children`	Returns the number of child controls.

```
control.properties


-- example
self.properties.name = 'new_name'
self.properties['name'] = 'new_name' -- same as the previous line
self.name = 'new_name' -- same as the previous line
self.frame.x = 10
self.color = Color(1,0,0)
self.color.r = 0
print(#self.properties) -- print the number of properties
```

A list of the control's properties. The list can be indexed by property name (a string) or index (a number). Property names are unique.

Usage	Description
`control.properties.name` `control.properties[name]`	Returns the current value of the property with name `name` or `nil` if none is found.
`control.properties[1 to n]`	Returns the current value of the property at index `1 to n` or `nil` if none is found. Since version 1.2.6.185 the list is always ordered alphabetically by property name. Earlier versions do not guarantee any particular order.
`control.properties.keys`	Returns a list of all property names for the control in alphabetical order.
`#control.properties`	Returns the number of properties in the list.

NOTE For convenience, indexing a control reference directly using `control.name` or `control[name]`, where name is not one of the field or function names listed here, will implicitly index the control's property list with `control.properties[name]`.

Therefore `control.color` and `control.properties.color` will refer to the same property value.

See Control Properties and Values for a list of possible properties for each control type.

```
control.values


-- example
self.values.x = 1
self.values['x'] = 1 -- same as the previous line
print(#self.values) -- print the number of values
```

A list of the control's values. The list can be indexed by value name (a string) or index (a number). Value names are unique.

Usage	Description
`control.values.name` `control.values[name]`	Returns the current value of the control value with name `name` or `nil` if none is found.
`control.values[1 to n]`	Returns the current value of the value at index `1 to n` or `nil` if none is found. Since version 1.2.6.185 the list is always ordered alphabetically by value name, with the value named `touch` always at the end of the list. Earlier versions do not guarantee any particular order.
`control.values.keys`	Returns a list of all value names for the control in alphabetical order with the value name `touch` always at the end of the list.
`#control.values`	Returns the number of values in the list.

See Control Properties and Values for a list of possible values for each control type.

```
control.messages


-- example
local midiMessages = self.messages.MIDI -- same as: self.messages[1]
local oscMessages = self.messages.OSC -- same as: self.messages[2]
local localMessages = self.messages.LOCAL -- same as: self.messages[3]
local gamepadMessages = self.messages.GAMEPAD -- same: as self.messages[4]
print(#self.messages)
> 4
```

since 1.2.6.185

A list of the control's messages, containing separate lists for each message type. The list can be indexed by

- message type name (a string): `MIDI, OSC, LOCAL, GAMEPAD`
- index (a number): `1 - 4`

The messages in each of the lists will be in the same order as they are displayed in the editor UI.

See Script · Objects · Messages for a description of the four message object types.

```
control.pointers


-- example
local pointer = self.pointers[1]
print(pointer.ID,
      pointer.x, pointer.y,
      pointer.state,
      pointer.created, pointer.modified)
> 0 33.285 20.393 1 1836924.838 1836914.867
```

A list containing one table for each pointer currently associated with the control during the current frame with the following table keys per pointer:

Key	Description
`ID`	The numeric ID of the pointer. Constant during the pointers' lifetime.
`x`	The x position of the pointer.
`y`	The y position of the pointer.
`state`	The current state of the pointer, one of the possible values of the `PointerState` enumeration.
`created`	The time the pointer event began, in milliseconds as returned by the `getMillis` global function.
`modified`	The time of the last modification of this pointer, in milliseconds as returned by the `getMillis` global function.

Each pointer progresses through the states in the `PointerState` enumeration during its lifetime:

- After being created the pointer will be in state `PointerState.BEGIN` for one frame.
- During its lifetime the pointer will be either in state `PointerState.ACTIVE` or `PointerState.MOVE` depending on whether the pointer's position has changed since the last frame.
- When the pointer event ends it will be in state `PointerState.END` for one frame and will then be removed from the list of pointers.

See Control Callback Functions for more pointer example use.

Functions ↑

```
function getValueField(string, field)


-- example
self:getValueField('x', ValueField.CURRENT) -- same as: self.values.x
self:getValueField('x', ValueField.DEFAULT)
```

Returns a value field of the control value with name `string`, or `nil` if none is found.

The parameter `field` can be one of the possible values of the `ValueField` enumeration and determines which value is returned:

- `ValueField.CURRENT` - Returns the current value.
- `ValueField.LAST` - Returns the value before the last change.
- `ValueField.DEFAULT` - Returns the default value.

Invoking the function with `field` parameter `ValueField.CURRENT` is equivalent to referencing `control.values[string]`.

See Control Properties and Values for a list of possible values for each control type.

```
function setValueField(string, field, value)


-- example
self:setValueField('x', ValueField.CURRENT, 1.0) -- same as: self.values.x = 1.0
self:setValueField('x', ValueField.DEFAULT, 0.5)
```

since 1.0.5.109

Set a value field of the control value with name `string`.

The parameter `field` can be one of the following values of the `ValueField` enumeration, and determines which value field will be set:

- `ValueField.CURRENT` - Set the current value.
- `ValueField.DEFAULT` - Set the default value.

Invoking the function with `field` parameter `ValueField.CURRENT` is equivalent to calling `control.values[string] = value`.

```
function getValueProperty(string, property)


-- example
local valueLocked = self:getValueProperty('x', ValueProperty.LOCKED)
local valueType = self:getValueProperty('x', ValueProperty.TYPE)
print(valueType == ValueType.FLOAT)
> true
```

Returns the value of the property `property` of the control value with name `string`, or `nil` if none is found.

The parameter `property` can be one of the possible values of the `ValueProperty` enumeration and determines which property value is returned:

- `ValueProperty.TYPE` - The type of the value, one of the possible values of the `ValueType` enumeration
- `ValueProperty.LOCKED` - Locked state of the value, a boolean value
- `ValueProperty.LOCKED_DEFAULT_CURRENT` - Default and current value locked state, a boolean value
- `ValueProperty.DEFAULT_PULL` - Default pull of the value, an integer value ranging from `0` to `100`

See Control Properties and Values for a list of possible values for each control type.

```
function setValueProperty(string, property, value)


-- example
self:setValueProperty('x', ValueProperty.LOCKED, false)
self:setValueProperty('x', ValueProperty.DEFAULT_PULL, 50)
```

Set the value of the property `property` of the control value with name `string`.

The parameter `property` can be one of the possible values of the `ValueProperty` enumeration with the exception of `ValueProperty.TYPE` and determines which property value is set.

See the `getValueProperty` function above for a description of the possible value properties.

See Control Properties and Values for a list of possible values for each control type.

```
function notify(string [, value])


-- example
self.parent:notify('hello parent')
self.children.button1:notify('hello child', self.name)
self.children.button2:notify('hello child', 1.5)
```

Invokes the `onReceiveNotify` callback function on another control.

The parameter `string` and an optional parameter `value` will be copied to the receiving control's Lua context and passed to the `onReceiveNotify` callback function, only if that callback function is defined in the receiving control's script. Calling the function on `self` has no effect.

The optional parameter `value` can be of type `boolean`, `number`, `string`, `table` or any of TouchOSC's object types.

Please note that because the parameter values have to be copied between Lua execution contexts and because this introduces overhead, it is advisable not to invoke the `notify` function from inside the `update` function every frame.

```
function findByID(string [, boolean])


-- example
local buttonID = self.children.button1.ID
local childButton = self:findByID(buttonID)
```

Returns the child `Control` object with ID `string` or `nil` if none is found. The optional `boolean` parameter determines if the search will be recursive and descend the child control hierarchy, defaults to `false`.

```
function findByType(controltype [, boolean])


-- example
local firstChildButton = self:findByType(ControlType.BUTTON)
local firstChildFader = self:findByType(ControlType.FADER)
```

since 1.0.2.98

Returns the first child `Control` object whose type matches `controltype` or `nil` if none is found. The `controltype` parameter can be any of the ControlType enumeration values. The optional `boolean` parameter determines if the search will be recursive and descend the child control hierarchy, defaults to `false`.

```
function findAllByType(controltype [, boolean])


-- example
local allChildButtons = self:findAllByType(ControlType.BUTTON)
local allChildFaders = self:findAllByType(ControlType.FADER)
```

since 1.0.2.98

Returns a list of child `Control` objects whose types match `controltype` or an empty list if none are found. The `controltype` parameter can be any of the ControlType enumeration values. The optional `boolean` parameter determines if the search will be recursive and descend the child control hierarchy, defaults to `false`.

```
function findByProperty(string, value [, boolean])


-- example
local firstRedControl = self:findByProperty('color', Color(1,0,0))
local firstHiddenControl = self:findByProperty('visible', false)
```

since 1.0.2.98

Returns the first child `Control` object whose current value of the property named `string` matches the provided `value` or `nil` if none is found. The optional `boolean` parameter determines if the search will be recursive and descend the child control hierarchy, defaults to `false`.

```
function findAllByProperty(string, value [, boolean])


-- example
local allRedControls = self:findAllByProperty('color', Color(1,0,0))
local allHiddenControls = self:findAllByProperty('visible', false)
```

since 1.0.2.98

Returns a list of child `Control` objects whose current values of the property named `string` matches the provided `value` or an empty list if none are found. The optional `boolean` parameter determines if the search will be recursive and descend the child control hierarchy, defaults to `false`.

```
function findByName(string [, boolean])


-- example
local childButton1 = self:findByName('button1') -- same as: self.children.button1
local childFader1 = self:findByName('fader1') -- same as: self.children.fader1
```

Equivalent to calling `findByProperty('name', string [, boolean])`.

```
function findAllByName(string [, boolean])


-- example
local allChildrenNamedA = self:findAllByName('A')
```

Equivalent to calling `findAllByProperty('name', string [, boolean])`.

Callback Functions ↑

If any of the following functions are defined in a control's script, these callback functions are invoked during the various stages of processing of an application frame.

When considering a script function for registration as a callback, the parameter declarations are optional and the function will be called regardless of the parameters being omitted or not.

See Control Callback Functions for example implementations.

```
function init()


-- example
function init()
  print("init")
end
```

since 1.0.8.122

Called once when the application transitions from editing mode to control surface mode.

Note that this function might be called again under certain conditions:

- When the application comes back to the foreground after being suspended on a mobile device
- When the application is running as editor network client and receives updates from the server that significantly change the structure of the local document

```
function update()


-- example
function update()
  print("Elapsed ms:", getMillis())
end
```

Called once per application frame **after** all processing of user input and received messages has completed.

```
function onValueChanged(string)


-- example
function onValueChanged(valueName)
  print("Value of ", valueName, "has changed to", self.values[valueName])
end
```

Called **after** any of the control's values have changed, once for each changed value, and **before** any further processing as a result of the change.

The parameter `string` is the name of the value that has changed. It is valid to set the changed value again from inside the callback, but note that the callback will **not** be invoked again as a result.

Returning `true` from this callback will end any further processing TouchOSC would normally do as a result of the change (ie sending of messages).

```
function onPointer(table)


-- example
function onPointer(pointers)
  print('onPointer')
  for i=1,#pointers do
    local pointer = pointers[i]
    print('\t', pointer.ID,
          pointer.x, pointer.y,
          pointer.state,
          pointer.created, pointer.modified)
  end
end
```

Called **after** processing of user input is complete and all active pointers (mouse cursor or touch input) have been mapped and assigned to any controls, and **before** any further processing of the pointer state and internal control behavior in response to the pointer input is evaluated.

Will only be invoked if there are any pointers associated with the control during the current frame.

The `table` passed as parameter to the callback contains a list of one or more pointers that have been selected as the *significant* event input according to the control's configuration and do not necessarily include **all** pointers currently associated with the control.

For example, a `button` type control will commonly only be interested in a single *significant* touch input, which will be selected by the application and passed to the control for processing based on the control's configuration.

To access **all** pointers currently associated with a control access the `control.pointers` field.

Returning `true` from this callback will end any further processing TouchOSC would normally do for the current control as a result of the input (ie changing a control's values).

For a description of the pointer table format and pointer states see the `control.pointers` field.

```
function onReceiveMIDI(message, connections)


-- example
function onReceiveMIDI(message, connections)
  print('onReceiveMIDI')
  print('\t message     =', table.unpack(message))
  print('\t connections =', table.unpack(connections))
end
```

Called **after** receiving a MIDI message and determining that the control should be a receiver of the message according to the routing table, and **before** any further evaluation or processing of potential changes to a control's values or properties.

Returning `true` from this callback will end any further processing TouchOSC would normally do for the current control as a result of receiving the message (ie changing a control's values or properties).

NOTE If it is defined, the document root's `onReceiveMIDI` callback function will always be invoked first, and if `true` is returned from that callback, processing of the message will end, it will not be passed along to any other controls in the routing table and no further callbacks will be invoked.

For the format of the `message` and `connections` parameters see the sendMIDI function.

```
function onReceiveOSC(message, connections)


-- example
function onReceiveOSC(message, connections)
  print('onReceiveOSC')
  local path = message[1]
  local arguments = message[2]
  print('\t path        =', path)
  for i=1,#arguments do
    print('\t argument    =', arguments[i].tag, arguments[i].value)
  end
  print('\t connections =', table.unpack(connections))
end
```

Called **after** receiving an OSC message and determining that the control should be a receiver of the message according to the routing table, and **before** any further evaluation or processing of potential changes to a control's values or properties.

Returning `true` from this callback will end any further processing TouchOSC would normally do for the current control as a result of receiving the message (ie changing a control's values or properties).

NOTE If it is defined, the document root's `onReceiveOSC` callback function will always be invoked first, and if `true` is returned from that callback, processing of the message will end, it will not be passed along to any other controls in the routing table and no further callbacks will be invoked.

For the format of the `message` and `connections` parameters see the sendOSC function for complex messages.

```
function onReceiveGamepad(input, value, connections)


-- example
function onReceiveGamepad(input, value, connections)
  print('onReceiveGamepad')
  print('\t input       =', input) -- one of the GamepadInput enumeration values
  print('\t value       =', value)
  print('\t connections =', table.unpack(connections))
end
```

since 1.1.0.132

Called **after** receiving input from a connected game controller and determining that the control should be a receiver of the input according to the routing table, and **before** any further evaluation or processing of potential changes to a control's values or properties.

Returning `true` from this callback will end any further processing TouchOSC would normally do for the current control as a result of receiving the input (ie changing a control's values or properties).

NOTE If it is defined, the document root's `onReceiveGamepad` callback function will always be invoked first, and if `true` is returned from that callback, processing of the message will end, it will not be passed along to any other controls in the routing table and no further callbacks will be invoked.

The first parameter `input` will be one of the possible values of the GamepadInput enumeration.

The second parameter `value` will be the raw, numeric value as received by the game controller.

See the Control Callback Functions sample script for an example of how to handle game controller messages.

```
function onReceiveNotify(string [, value])


-- example
function onReceiveNotify(key, value)
  print('onReceiveNotify')
  print('\t key   =', key)
  print('\t value =', value)
end
```

Called as a result of the control's `notify` function being called by another control.

The parameters `string` and an optional `value` will be copied from the calling control's Lua context to the receiving control's Lua context and passed as parameters to the callback function.

Please note that because the parameter values have to be copied between Lua execution contexts and because this introduces overhead, it is advisable not to invoke the `notify` function from inside the `update` function every frame.

→ TouchOSC Manual

Script · Objects · Messages

Script objects representing the different types of messages associated with a control.

The objects representing the different message types described here can be accessed via a control's `messages` field.

- MIDIMessage
  - Fields
    - enabled
    - send
    - receive
    - feedback
    - noDuplicates
    - connections
  - Functions
    - trigger
    - data
- OSCMessage
  - Fields
    - enabled
    - send
    - receive
    - feedback
    - noDuplicates
    - connections
  - Functions
    - trigger
    - data
- LocalMessage
  - Fields
    - enabled
  - Functions
    - trigger
- GamePadMessage
  - Fields
    - enabled
    - connections

MIDIMessage ↑

An object representing a single MIDI message in a control's list of MIDI messages.

Fields ↑

The following fields allow to dynamically configure some of the same properties that are available in the editor UI.

```
message.enabled


-- example
self.messages.MIDI[1].enabled = false
```

since 1.2.6.185

A boolean value. Enable or disable the message.

See Editor · Messages · MIDI.

```
message.send


-- example
self.messages.MIDI[1].send = false
```

since 1.2.6.185

A boolean value. Enable or disable the sending of the message.

See Editor · Messages · MIDI.

```
message.receive


-- example
self.messages.MIDI[1].receive = false
```

since 1.2.6.185

A boolean value. Enable or disable the receiving of the message.

See Editor · Messages · MIDI.

```
message.feedback


-- example
self.messages.MIDI[1].feedback = false
```

since 1.2.6.185

A boolean value. Enable or disable allowing message feedback (sending) immediately after receiving.

See Editor · Messages · MIDI.

```
message.noDuplicates


-- example
self.messages.MIDI[1].noDuplicates = true
```

since 1.3.5.212

A boolean value. Enable or disable allowing identical messages to be sent in succession.

See Editor · Messages · MIDI.

```
message.connections


-- example
local firstMessage = self.messages.MIDI[1]
firstMessage.connections[1] = false
firstMessage.connections[3] = true
print(#firstMessage.connections)
> 5
```

since 1.2.6.185

A list of boolean values for each of the connections the message should be sent or received on.

This list currently has ten entries, but the number is subject to change in a future release and will always be the same number as connections available in the MIDI connection configuration.

See Editor · Messages · MIDI.

Functions ↑

```
message:trigger()


-- example
self.messages.MIDI[1]:trigger()
```

since 1.2.9.200

Trigger and potentially send the message.

Process the message in the same way as if one of its configured triggers had been set. If both the `Enabled` and `Send` fields of the message are enabled, the message will be sent on its configured connections.

Note that the `No Duplicates` flag might still prevent the sending of the message.

See Editor · Messages · MIDI.

```
message:data()


-- example
local message_data = self.messages.MIDI[1]:data()
sendMIDI(message_data) -- send on all connections
sendMIDI(message_data, {true, false, false, false, false}) -- send on first connection
sendMIDI(message_data, self.messages.MIDI[1].connections) -- send on message's configured con
```

since 1.2.9.200

Return the message data prepared for sending.

Process the message based on its current configuration and return the message data in the format used by the `sendMIDI` and `onReceiveMIDI` functions (ie a list of byte values making up the MIDI message).

Note: The `Enabled` and `Send` fields will not be considered.

See Script · Global Functions · MIDI Messages.

OSCMessage ↑

An object representing a single OSC message in a control's list of OSC messages.

Fields ↑

The following fields allow to dynamically configure some of the same properties that are available in the editor UI.

```
message.enabled


-- example
self.messages.OSC[1].enabled = false
```

since 1.2.6.185

A boolean value. Enable or disable the message.

See Editor · Messages · OSC.

```
message.send


-- example
self.messages.OSC[1].send = false
```

since 1.2.6.185

A boolean value. Enable or disable the sending of the message.

See Editor · Messages · OSC.

```
message.receive


-- example
self.messages.OSC[1].receive = false
```

since 1.2.6.185

A boolean value. Enable or disable the receiving of the message.

See Editor · Messages · OSC.

```
message.feedback


-- example
self.messages.OSC[1].feedback = false
```

since 1.2.6.185

A boolean value. Enable or disable allowing message feedback (sending) immediately after receiving.

See Editor · Messages · OSC.

```
message.noDuplicates


-- example
self.messages.OSC[1].noDuplicates = true
```

since 1.3.5.212

A boolean value. Enable or disable allowing identical messages to be sent in succession.

See Editor · Messages · OSC.

```
message.connections


-- example
local firstMessage = self.messages.OSC[1]
firstMessage.connections[1] = false
firstMessage.connections[3] = true
print(#firstMessage.connections)
> 5
```

since 1.2.6.185

A list of boolean values for each of the connections the message should be sent or received on.

This list currently has ten entries, but the number is subject to change in a future release and will always be the same number as connections available in the OSC connection configuration.

See Editor · Messages · OSC.

Functions ↑

```
message:trigger()


-- example
self.messages.OSC[1]:trigger()
```

since 1.2.9.200

Trigger and potentially send the message.

Process the message in the same way as if one of its configured triggers had been set. If both the `Enabled` and `Send` fields of the message are enabled, the message will be sent on its configured connections.

Note that the `No Duplicates` flag might still prevent the sending of the message.

See Editor · Messages · OSC.

```
message:data()


-- example
local message_data = self.messages.OSC[1]:data()
sendOSC(message_data) -- send on all connections
sendOSC(message_data, {true, false, false, false, false}) -- send on first connection
sendOSC(message_data, self.messages.OSC[1].connections) -- send on message's configured conne
```

since 1.2.9.200

Return the message data prepared for sending.

Process the message based on its current configuration and return the message data in the format used by the `sendOSC` and `onReceiveOSC` functions.

Note: The `Enabled` and `Send` fields will not be considered.

See Script · Global Functions · OSC Messages.

LocalMessage ↑

An object representing a single Local message in a control's list of Local messages.

Fields ↑

The following fields allow to dynamically configure some of the same properties that are available in the editor UI.

```
message.enabled


-- example
self.messages.LOCAL[1].enabled = false
```

since 1.2.6.185

A boolean value. Enable or disable the message.

See Editor · Messages · Local.

Functions ↑

```
message:trigger()


-- example
self.messages.LOCAL[1]:trigger()
```

since 1.2.9.200

Trigger and potentially send the message.

Process the message in the same way as if one of its configured triggers had been set. If the `Enabled` field of the message is enabled, the message will be sent.

See Editor · Messages · LOCAL.

GamePadMessage ↑

An object representing a single Gamepad message in a control's list of Gamepad messages.

The following fields allow to dynamically configure some of the same properties that are available in the editor UI.

```
message.enabled


-- example
self.messages.GAMEPAD[1].enabled = false
```

since 1.2.6.185

A boolean value. Enable or disable the message.

See Editor · Messages · Gamepad.

```
message.connections


-- example
local firstMessage = self.messages.GAMEPAD[1]
firstMessage.connections[1] = false
firstMessage.connections[3] = true
print(#firstMessage.connections)
> 4
```

since 1.2.6.185

A list of boolean values for each of the connections the message received on.

This list currently has four entries, but the number is subject to change in a future release and will always be the same number as connections available in the Gamepad connection configuration.

See Editor · Messages · Gamepad.

→ TouchOSC Manual

Script · Objects · Rectangle

A rectangle object native to TouchOSC. Will be returned and can be passed anywhere a rectangle is required.

- Fields
- Constructor Functions
- Functions

Fields ↑

```
rectangle.x
```

The x position of the rectangle.

```
rectangle.y
```

The y position of the rectangle.

```
rectangle.w
```

The width of the rectangle.

```
rectangle.h
```

The height of the rectangle.

Constructor Functions ↑

```
function Rectangle()                                -- [1]
function Rectangle(rectangle)                       -- [2]
function Rectangle(number, number)                  -- [3]
function Rectangle(number, number, number, number) -- [4]
```

Returns a new rectangle object with

1. position and size set to `(0,0)`.
2. position and size copied from another `Rectangle` object.
3. position set to `(0,0)` and size set to the two numbers.
4. position set to the first pair of numbers and size set to the second two numbers.

Functions ↑

```
function contains(number, number)


-- example
local r = Rectangle(10,10,50,50)
local b = r:contains(20,20)
print(b)
> true
```

Tests if the point at position `(number, number)` is contained within the rectangle and returns a boolean value.

→ TouchOSC Manual

Script · Objects · Color

A color object native to TouchOSC. Will be returned and can be passed anywhere a color is required. Color components are stored as floating point values ranging from `0.0` to `1.0`.

- Fields
- Constructor Functions
- Static Functions
- Operators

Fields ↑

```
color.r
```

The red component of the color.

```
color.g
```

The green component of the color.

```
color.b
```

The blue component of the color.

```
color.a
```

The alpha component of the color.

Constructor Functions ↑

```
function Color()                                -- [1]
function Color(color)                           -- [2]
function Color(number)                          -- [3]
function Color(number, number)                  -- [4]
function Color(number, number, number)          -- [5]
function Color(number, number, number, number) -- [6]
```

Returns a new color object with

1. all components initialized with `0.0`.
2. all components copied from another `Color` object.
3. all components initialized with number.
4. `rgb` components initialized with the first number, the `a` component initialized with the second number.
5. `rgb` components initialized with the three numbers, the `a` component initialized with `1.0`
6. `rgba` components initialized with the four numbers provided.

Static functions ↑

```
function Color.toHexString(color)


-- example
local redColor = Color(1,0,0)
print(Color.toHexString(redColor))
> FF0000FF
```

Returns a hexadecimal string representation of the color in the format `RRGGBBAA`.

```
function Color.fromHexString(string)


-- example
local red = Color.fromHexString('FF0000FF')
local blue = cColor.fromHexString('0000FF')
local grayAlpha = Color.fromHexString('FF80');
local gray = Color.fromHexString('80');
```

Returns a color object created from the hexadecimal string representation. The string can be in one of the following formats: `RRGGBBAA`, `RRGGBB`, `GGAA`, `GG`, with the latter two forms creating a grayscale color from the `GG` value.

Operators ↑

```
-- multiplication
color * color
color * number

-- division
color / color
color / number

-- addition
color + color
color + number

-- subtraction
color - color
color - number
```

All operators operate component-wise and return a new color object.

→ TouchOSC Manual

Script · Objects · Vectors

TouchOSC provides 2,3 and 4 component vector types as `Vec2` `Vec3` `Vec4` objects.

- Fields
- Constructor Functions
- Functions
- Operators

Fields ↑

```
vec2.x
vec3.x
vec4.x
```

The x component of the vector.

```
vec2.y
vec3.y
vec4.y
```

The y component of the vector.

```
vec3.z
vec4.z
```

The z component of the vector.

```
vec4.w
```

The w component of the vector.

Constructor Functions ↑

```
function Vec2()                                 -- [1]
function Vec2(vec2)                             -- [2]
function Vec2(number)                           -- [3]
function Vec2(number, number)                   -- [4]

function Vec3()                                 -- [1]
function Vec3(vec3)                             -- [2]
function Vec3(number)                           -- [3]
function Vec3(number, number, number)           -- [4]

function Vec4()                                 -- [1]
function Vec4(vec4)                             -- [2]
function Vec4(number)                           -- [3]
function Vec4(number, number, number, number)  -- [4]
```

Returns a new vector object with

1. all components initialized with `0.0`.
2. all components copied from another vector object.
3. all components initialized with number.
4. each component initialized with the numbers provided.

Functions ↑

```
function length()


-- example
local v = Vec2(1,0)
local l = v:length()
print(l)
> 1
```

Returns the length of the vector

```
function normalize()


-- example
local v = Vec2(1,1)
local n = v:normalize()
```

Returns a new vector that is the normalized vector

Operators ↑

```
-- multiplication
vector * vector
vector * number

-- division
vector / vector
vector / number

-- addition
vector + vector
vector + number

-- subtraction
vector - vector
vector - number
```

All operators operate component-wise and return a new vector object.

→ TouchOSC Manual

Script · Enumerations

- AlignH
- AlignV
- ButtonType
- ControlType
- CursorDisplay
- Font
- GamepadInput
- MIDIMessageType
- Orientation
- OutlineStyle
- PointerPriority
- PointerState
- RadioType
- Response
- Shape
- ValueField
- ValueProperty
- ValueType

AlignH ↑

Possible values for a `Control` object's `textAlignH` property.

- `AlignH.LEFT`
- `AlignH.CENTER`
- `AlignH.RIGHT`

AlignV ↑

Possible values for a `Control` object's `textAlignV` property.

- `AlignV.TOP`
- `AlignV.MIDDLE`
- `AlignV.BOTTOM`

ButtonType ↑

Possible values for a `Control` object's `buttonType` property.

- `ButtonType.MOMENTARY`
- `ButtonType.TOGGLE_RELEASE`
- `ButtonType.TOGGLE_PRESS`

ControlType ↑

Possible values for a `Control` object's `type` field.

- `ControlType.BOX`
- `ControlType.BUTTON`
- `ControlType.LABEL`
- `ControlType.TEXT`
- `ControlType.FADER`
- `ControlType.XY`
- `ControlType.RADIAL`
- `ControlType.ENCODER`
- `ControlType.RADAR`
- `ControlType.RADIO`
- `ControlType.GROUP`
- `ControlType.PAGER`
- `ControlType.GRID`

CursorDisplay ↑

- `CursorDisplay.ALWAYS`
- `CursorDisplay.ACTIVE`
- `CursorDisplay.INACTIVE`

Font ↑

since 1.0.4.106

Possible values for a `Control` object's `font` property.

- `Font.DEFAULT`
- `Font.MONOSPACED`

GamepadInput ↑

since 1.1.0.132

- `GamepadInput.STICK_LEFT_X`
- `GamepadInput.STICK_LEFT_Y`
- `GamepadInput.STICK_RIGHT_X`
- `GamepadInput.STICK_RIGHT_Y`
- `GamepadInput.TRIGGER_LEFT`
- `GamepadInput.TRIGGER_RIGHT`
- `GamepadInput.BUTTON_UP`
- `GamepadInput.BUTTON_DOWN`
- `GamepadInput.BUTTON_LEFT`
- `GamepadInput.BUTTON_RIGHT`
- `GamepadInput.BUTTON_A`
- `GamepadInput.BUTTON_B`
- `GamepadInput.BUTTON_X`
- `GamepadInput.BUTTON_Y`
- `GamepadInput.BUTTON_STICK_LEFT`
- `GamepadInput.BUTTON_STICK_RIGHT`
- `GamepadInput.BUMPER_LEFT`
- `GamepadInput.BUMPER_RIGHT`
- `GamepadInput.BUTTON_START`
- `GamepadInput.BUTTON_SELECT`
- `GamepadInput.BUTTON_HOME`

MIDIMessageType

- `MIDIMessageType.NOTE_OFF`
- `MIDIMessageType.NOTE_ON`
- `MIDIMessageType.POLYPRESSURE`
- `MIDIMessageType.CONTROLCHANGE`
- `MIDIMessageType.PROGRAMCHANGE`
- `MIDIMessageType.CHANNELPRESSURE`
- `MIDIMessageType.PITCHBEND`
- `MIDIMessageType.SYSTEMEXCLUSIVE`
- `MIDIMessageType.QUARTERFRAME`
- `MIDIMessageType.SONGPOSITION`
- `MIDIMessageType.SONGSELECT`
- `MIDIMessageType.CLOCK`
- `MIDIMessageType.START`
- `MIDIMessageType.CONTINUE`
- `MIDIMessageType.STOP`
- `MIDIMessageType.ACTIVESENSING`
- `MIDIMessageType.SYSTEMRESET`

Orientation ↑

Possible values for a `Control` object's `orientation` property.

- `Orientation.NORTH`
- `Orientation.EAST`
- `Orientation.SOUTH`
- `Orientation.WEST`

OutlineStyle ↑

Possible values for a `Control` object's `outlineStyle` property.

- `OutlineStyle.FULL`
- `OutlineStyle.CORNERS`
- `OutlineStyle.EDGES`

PointerPriority ↑

- `PointerPriority.OLDEST`
- `PointerPriority.NEWEST`

PointerState ↑

- `PointerState.BEGIN`
- `PointerState.ACTIVE`
- `PointerState.MOVE`
- `PointerState.END`

RadioType ↑

Possible values for a `Control` object's `radioType` property.

- `RadioType.SELECT`
- `RadioType.METER`

Response ↑

Possible values for a `Control` object's `response` property.

- `Response.ABSOLUTE`
- `Response.RELATIVE`

Shape ↑

Possible values for a `Control` object's `shape` property.

- `Shape.RECTANGLE`
- `Shape.CIRCLE`
- `Shape.TRIANGLE`
- `Shape.DIAMOND`
- `Shape.PENTAGON`
- `Shape.HEXAGON`

ValueField ↑

- `ValueField.CURRENT`
- `ValueField.LAST`
- `ValueField.DEFAULT`

ValueProperty ↑

- `ValueProperty.TYPE`
- `ValueProperty.LOCKED`
- `ValueProperty.LOCKED_DEFAULT_CURRENT`
- `ValueProperty.DEFAULT_PULL`

ValueType ↑

- `ValueType.BOOLEAN`
- `ValueType.INTEGER`
- `ValueType.FLOAT`
- `ValueType.STRING`

→ TouchOSC Manual

Script · Constants

Colors

- `Colors.clear`
- `Colors.black`
- `Colors.white`
- `Colors.red`
- `Colors.green`
- `Colors.blue`
- `Colors.orange`
- `Colors.yellow`
- `Colors.cyan`
- `Colors.purple`
- `Colors.violet`
- `Colors.gray`
- `Colors.darkGray`
- `Colors.lightGray`

→ TouchOSC Manual

Script · Properties and Values

In this reference we list the names and types of the properties and values for each control type, for access from control scripts.

For a description of the meaning and effects of each property and value, please see the Properties, Values and Control Reference sections.

- Common
- BOX
- BUTTON
- LABEL
- TEXT
- FADER
- XY
- RADIAL
- ENCODER
- RADAR
- RADIO
- PAGER

Common ↑

Properties and values that are common to all controls, independent of their type. Not all control types will utilize the value of these properties.

Properties

Name	Description	Since
`name`	A user-editable string.	
`tag`	A user-editable string.	1.0.2.98
`frame`	A `Rectangle` object.	
`color`	A `Color` object.	
`visible`	A boolean value.	
`interactive`	A boolean value.	
`background`	A boolean value.	
`outline`	A boolean value.	
`outlineStyle`	One of the possible values of the `OutlineStyle` enumeration.	
`grabFocus`	A boolean value.	
`pointerPriority`	One of the possible values of the `PointerPriority` enumeration.	
`cornerRadius`	An integer number value ranging from `0` to `10`	
`orientation`	One of the possible values of the `Orientation` enumeration.	
`script`	A string value. The control's script source code.	

Values

Name	Description
`touch`	A boolean value. `true` if any pointers are associated with the control in the current frame, `false` otherwise. For a control to be able to be associated with a pointer, its `visible` and `interactive` properties have to both be `true`

BOX ↑

Properties

Name	Description
`shape`	One of the possible values of the `Shape` enumeration

BUTTON ↑

Properties

Name	Type
`shape`	One of the possible values of the `Shape` enumeration.
`buttonType`	One of the possible values of the `ButtonType` enumeration.
`press`	A boolean value.
`release`	A boolean value.
`valuePosition`	A boolean value.

Values

Name	Description
`x`	A floating point value ranging from `0.0` to `1.0`.

LABEL ↑

Properties

Name	Type	Since
`font`	One of the possible values of the `Font` enumeration.	1.0.4.106
`textSize`	An integer value.	
`textLength`	An integer value.	
`textAlignH`	One of the possible values of the `AlignH` enumeration.	
`textAlignV`	One of the possible values of the `AlignV` enumeration.	
`textColor`	A `Color` object.	
`textClip`	A boolean value.	

Values

Name	Description
`text`	A string value.

TEXT ↑

Properties

Name	Type	Since
`font`	One of the possible values of the `Font` enumeration.	1.0.4.106
`textSize`	An integer value.	
`textAlignH`	One of the possible values of the `AlignH` enumeration.	1.0.4.106
`textAlignV`	One of the possible values of the `AlignV` enumeration.	1.2.1.171
`textColor`	A `Color` object.	
`textClip`	A boolean value.	1.2.1.171
`textWrap`	A boolean value.	1.2.1.171

Values

Name	Description
`text`	A string value.

FADER ↑

Properties

Name	Type	Since
`cursor`	A boolean value.	
`cursorDisplay`	One of the possible values of the `CursorDisplay` enumeration.	
`bar`	A boolean value.	
`barDisplay`	One of the possible values of the `CursorDisplay` enumeration.	
`centered`	A boolean value.	
`response`	One of the possible values of the `Response` enumeration.	
`responseFactor`	An integer value ranging from `1` to `100`.	
`grid`	A boolean value.	
`gridSteps`	An integer value.	
`gridColor`	A `Color` object.	1.2.0.166

Values

Name	Description
`x`	A floating point value ranging from `0.0` to `1.0`.

XY ↑

Properties

Name	Type	Since
`cursor`	A boolean value.	
`cursorDisplay`	One of the possible values of the `CursorDisplay` enumeration.	

`lines`	A boolean value.	
`linesDisplay`	One of the possible values of the `CursorDisplay` enumeration.	
`lockX`	A boolean value.	
`lockY`	A boolean value.	
`response`	One of the possible values of the `Response` enumeration.	
`responseFactor`	An integer value ranging from `1` to `100`.	
`gridX`	A boolean value.	
`gridY`	A boolean value.	
`gridStepsX`	An integer value.	
`gridStepsY`	An integer value.	
`gridColor`	A `Color` object.	1.2.0.166

Values

Name	Description
`x`	A floating point value ranging from `0.0` to `1.0`.
`y`	A floating point value ranging from `0.0` to `1.0`.

RADIAL ↑

Properties

Name	Type	Since
`inverted`	A boolean value.	
`centered`	A boolean value.	
`response`	One of the possible values of the `Response` enumeration.	
`responseFactor`	An integer value ranging from `1` to `100`.	
`grid`	A boolean value.	
`gridSteps`	An integer value.	
`gridColor`	A `Color` object.	1.2.0.166

Values

Name	Description
`x`	A floating point value ranging from `0.0` to `1.0`.

ENCODER ↑

Properties

Name	Type	Since
`cursor`	A boolean value.	
`cursorDisplay`	One of the possible values of the `CursorDisplay` enumeration.	
`response`	One of the possible values of the `Response` enumeration.	
`responseFactor`	An integer value ranging from `1` to `100`.	
`grid`	A boolean value.	
`gridSteps`	An integer value.	
`gridColor`	A `Color` object.	1.2.0.166

Values

Name	Description
`x`	A floating point value ranging from `0.0` to `1.0`.
`y`	A floating point value ranging from `0.0` to `1.0`.

RADAR ↑

Properties

Name	Type	Since
`cursor`	A boolean value.	
`cursorDisplay`	One of the possible values of the `CursorDisplay` enumeration.	
`lines`	A boolean value.	
`linesDisplay`	One of the possible values of the `CursorDisplay` enumeration.	
`lockX`	A boolean value.	
`lockY`	A boolean value.	
`gridX`	A boolean value.	
`gridY`	A boolean value.	
`gridStepsX`	An integer value.	
`gridStepsY`	An integer value.	
`gridColor`	A `Color` object.	1.2.0.166

Values

Name	Description
`x`	A floating point value ranging from `0.0` to `1.0`.
`y`	A floating point value ranging from `0.0` to `1.0`.

RADIO ↑

Properties

Name	Type
`steps`	An integer value.
`radioType`	One of the possible values of the `RadioType` enumeration.

Values

Name	Description
`x`	An integer value ranging from `0` to the value of the `steps` property minus one.

PAGER ↑

Properties

Name	Type
`tabbar`	A boolean value.
`tabbarSize`	An integer value ranging from `10` to `300`.
`tabbarDoubleTap`	A boolean value.
`tabLabels`	A boolean value.
`textSizeOff`	An integer value.
`textSizeOn`	An integer value.

Page Properties

Name	Type
`tabLabel`	A string value.
`tabColorOff`	A `Color` object.
`tabColorOn`	A `Color` object.
`textColorOff`	A `Color` object.
`textColorOn`	A `Color` object.

Values

Name	Description
`page`	An integer value ranging from `0` to the number of pages minus one.

→ TouchOSC Manual

Script · Examples

- Control Callback Functions
- Sending MIDI Messages
- Sending OSC Messages
- Control "Double-tap"
- Send Periodic Message
- Send Accelerometer Data
- Snap Fader to Grid

Control Callback Functions ↑

The following script demonstrates all possible callback handlers during TouchOSC's processing of an application frame and all associated events.

As the root level of a document will always be called first if it defines any of the following callback functions (except for the `onReceiveNotify` callback), when getting started with the scripting API, we recommend setting this script at the root level, in order to see all possible events being handled and printed to the log view.

```
function init()
  print('init')
end

function update()
  print('update')
end

function onPointer(pointers)
  print('onPointer')
  for i=1,#pointers do
    local pointer = pointers[i]
    print('\t', pointer.ID, pointer.x, pointer.y, pointer.state, pointer.created, pointer.modi
  end
end

function onValueChanged(key)
  print('onValueChanged')
  print('\t', key, '=', self.values[key])
end

function onReceiveMIDI(message, connections)
  print('onReceiveMIDI')
  print('\t message     =', table.unpack(message))
  print('\t connections =', table.unpack(connections))
end

function onReceiveOSC(message, connections)
  print('onReceiveOSC')
  local path = message[1]
  local arguments = message[2]
  print('\t path        =', path)
  for i=1,#arguments do
    print('\t argument    =', arguments[i].tag, arguments[i].value)
  end
  print('\t connections =', table.unpack(connections))
end

function onReceiveGamepad(input, value, connections)
  print('onReceiveGamepad')
  print('\t input       =', input) -- one of the GamepadInput enumeration values
  print('\t value       =', value)
  print('\t connections =', table.unpack(connections))
end

function onReceiveNotify(key, value)
  print('onReceiveNotify')
  print('\t key   =', key)
  print('\t value =', value)
end
```

Sending MIDI Messages ↑

Send MIDI messages on one or multiple connections.

For more information see the MIDI Messages script documentation.

```
-- control change, controller 0, channel 1
-- send on all configured connections
sendMIDI({ 176, 0, 102 })
sendMIDI({ MIDIMessageType.CONTROLCHANGE, 0, 102 })

-- control change, controller 0, channel 2
-- send on all configured connections
sendMIDI({ 177, 0, 103 })
sendMIDI({ MIDIMessageType.CONTROLCHANGE + 1, 0, 103 })

-- control change, controller 2, channel 6
-- send on all configured connections
sendMIDI({ 181, 2, 104 })
sendMIDI({ MIDIMessageType.CONTROLCHANGE + 5, 2, 104 })

-- send only on connections 1 and 2
sendMIDI({ MIDIMessageType.NOTE_ON, 12, 88 }, { true, true })
sendMIDI({ MIDIMessageType.NOTE_OFF, 12, 0 }, { true, true })

-- send only on connections 1 and 3
sendMIDI({ MIDIMessageType.NOTE_ON, 13, 88 }, { true, false, true })
sendMIDI({ MIDIMessageType.NOTE_OFF, 13, 0 }, { true, false, true })

-- send only on connections 1 and 5
sendMIDI({ MIDIMessageType.NOTE_ON, 14, 88 }, { true, false, false, false, true })
sendMIDI({ MIDIMessageType.NOTE_OFF, 14, 0 }, { true, false, false, false, true })

-- send system exlusive
sendMIDI({ 0xF0, 0x00, 0x01, 0xF7 })
sendMIDI({ MIDIMessageType.SYSTEMEXCLUSIVE, 0x00, 0x0D, 0xF7 })
```

Sending OSC Messages ↑

Send OSC messages on one or multiple connections.

Messages can either be sent using a simple format, where TouchOSC will auto-convert parameter types, or using a complex format, where each parameter type can be specified using OSC protocol type-tags.

For more information see the Simple OSC Messages and Complex OSC Messages script documentation.

```
-- ----------------------------------------
-- Send simple OSC messages
--
-- arguments are auto-converted to
-- boolean, float or string (not integer!)
-- ----------------------------------------

-- send on all configured connections
sendOSC('/simple')
sendOSC('/ping', 'pong')
sendOSC('/on', true)
sendOSC('/1/fader1', 0.5)
sendOSC('/3/xy1', 0.25, 0.75)
sendOSC('/mixedarguments', 'Hello', 1, true, 'World')

-- send only on connections 1 and 2
sendOSC('/1/fader1', 0.5, { true, true })

-- send only on connections 1 and 3
sendOSC('/3/xy1', 0.25, 0.75, { true, false, true })

-- send only on connections 1 and 5
sendOSC('/mixedarguments', 'Hello', 1, true, 'World', { true, false, false, false, true })

-- ----------------------------------------
-- Send complex OSC messages
-- with argument type tags
-- ----------------------------------------

sendOSC(
  -- message
  {
    -- path
    '/complex',

    -- argument list
    {
      { tag = 'T' },                                        -- true
      { tag = 'F' },                                        -- false
      { tag = 'N' },                                        -- nil
      { tag = 'I' },                                        -- infinitum
      { tag = 'i', value = 42 },                            -- int32
      { tag = 'h', value = 1337 },                          -- int64
      { tag = 'f', value = 3.14159 },                       -- float32
      { tag = 'd', value = 3.14159265358979 },              -- double
      { tag = 's', value = 'Goodbye Cruel World' },         -- string
      { tag = 'b', value = { 0xC0, 0x00, 0x10, 0xFF } }  -- blob
    }
  },
  -- connections
  {
    true, -- 1
    true, -- 2
    true, -- 3
    true, -- 4
    true, -- 5
    true, -- 6
    true, -- 7
    true, -- 8
    true, -- 9
    true  -- 10
  }
)
```

Control "Double-tap" ↑

Detect a "double-tap" on a control, with a certain maximum time passing between the taps.

```
local delay = 300 -- the maximum elapsed time between taps
local last = 0

function onValueChanged()
  if(not self.values.touch) then
    local now = getMillis()
    if(now - last < delay) then
      print('double tap!')
      last = 0
    else
      last = now
    end
  end
end
```

Send a Periodic Message ↑

Repeatedly send an OSC message, in this example once every second.

```
local delay = 1000 -- every 1000ms = 1s
local last = 0

function update()
  local now = getMillis()
  if(now - last > delay) then
    last = now
    sendOSC('/ping')
  end
end
```

Send Accelerometer Sensor Data ↑

Read data from the host device's accelerometer sensor (if available) and send as OSC message.

For more information see the documentation for the `getAccelerometer` utitlity function.

```
function update()
  local values = getAccelerometer()
  sendOSC('/accxyz', table.unpack(values))
end
```

Snap Fader to Grid ↑

Snap a fader's values to the configured grid line interval. Works for any control with a value of type FLOAT and a grid steps property.

```
function onValueChanged(key)
  if(key ~= 'touch') then
    local steps = self.gridSteps - 1;
    self.values[key] =
      math.floor(steps * self.values[key] + .5) / steps
  end
end
```

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