

# TetraMAPS and OSC WiFi Setup

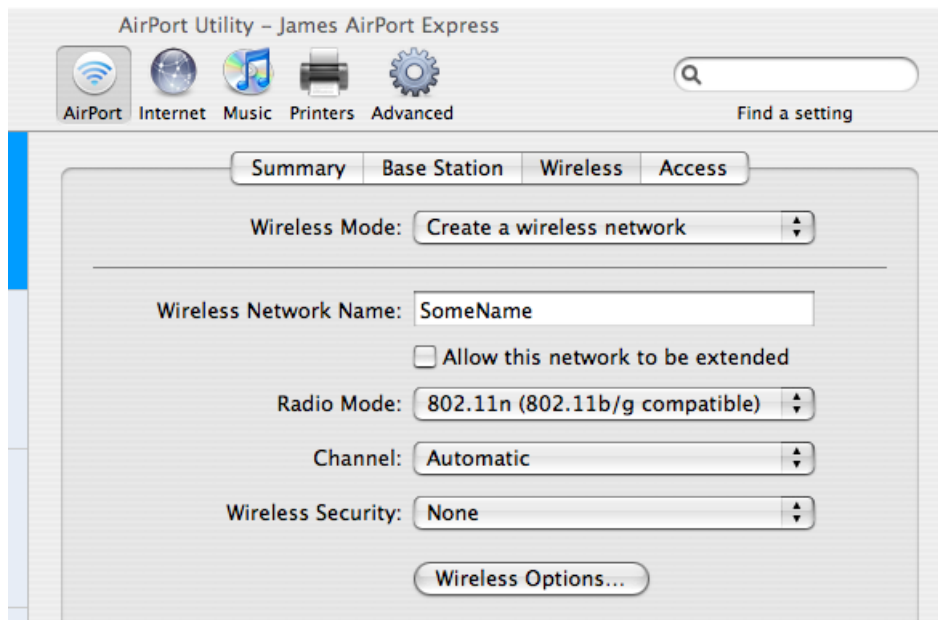
The Signal Arts TetraMAPS Sequencer communicates OSC via wired Ethernet connection. A wired connection is most reliable but to communicate with your wireless mobile device, a WiFi Bridge Router is required.

While generic WiFi bridge routers should work, the TetraMAPS has been thoroughly tested using Apple's "Airport Express" router, configured in "Bridge" mode.

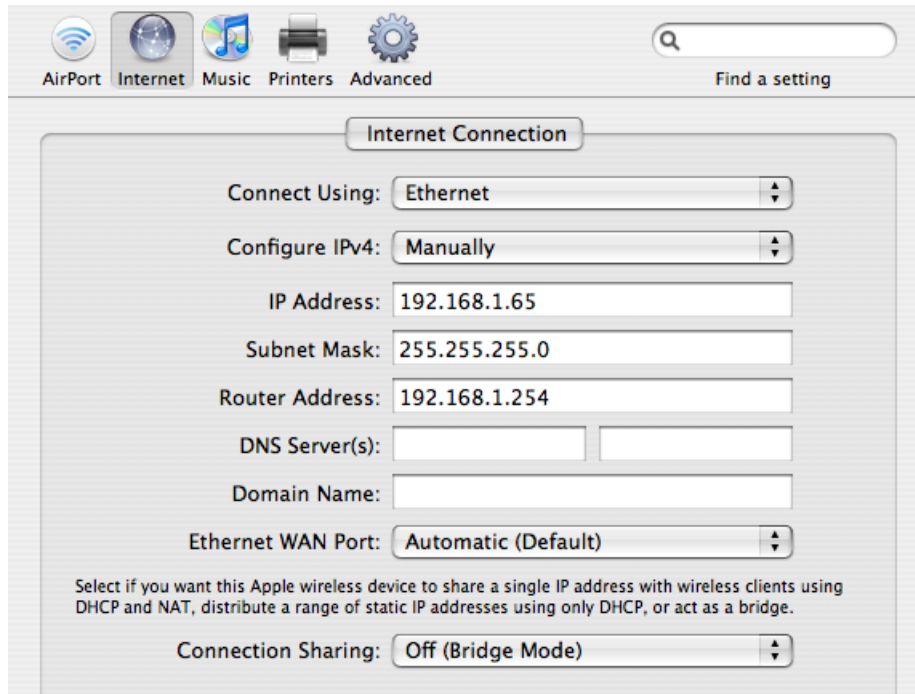
## Configure Airport Express for Bridge mode

On your MAC computer turn AirPort ON. Use the AirPort Utility on your computer to discover your AirPort Express device.

Click *Manual Setup* and under the *AirPort* setup menu, select *Wireless*. Under the *Wireless Mode* option, select "Create a wireless network". Give your wireless network a name. Select "None" for *Wireless Security*.



Under the *Internet* setup menu, select "Ethernet" for *Connect Using*. For *Configure IPv4*: select "Manually" and enter an *IP Address* such as 192.168.1.65, and a *Subnet Mask* 255.255.255.0. Select the all-important "Off (Bridge Mode)" for *Connection Sharing*:



*AirTunes* and printer sharing should be turned off. It may be useful to save your configuration as a named *Profile*.

## OSC App Setup with Custom Templates

Hexler TouchOSC and Liine Lemur apps are available on Apple's App store. Install the desired app(s) onto your mobile device.

Download and install the TouchOSC or Lemur Editor on to your personal computer. TouchOSC Editor is available from "hexler.net". Lemur Editor is available from "liine.net".

Download the TetraMAPS TouchOSC or Lemur templates from "signalarts.ca/satproducts.html" to your computer and open the appropriate one in its editor. Or, create your own template in the editor, using the addresses and data formats as predefined under *Tetra Custom Template Defines* in this document.

**USB Sync using iTunes File Sharing:** Connect your mobile device to your computer's USB. iTunes will open. Select your mobile device in iTunes and click on the *Applications* tab. Scroll down to your app and click on it. A list of template files should appear from which you can add-to and manage your device's files. Click on *Sync* and the listed files should appear on your device.

**Or WiFi Sync:** First create an ad-hoc WiFi network on your computer and give it a name, like "My OSC". Connect your mobile device to the same network. Your computer's firewall must be disabled for TouchOSC sync to work: *MAC System Preferences – Security – Firewall – Stop*. Open TouchOSC on your mobile device. Press the *Sync* button on the menu of the TouchOSC editor and follow the onscreen instructions to add the layout. The new template should now appear under the *Layout* selection in TouchOSC on your mobile device.

Lemur templates may be similarly WiFi synced through the Lemur editor. Name your computer's ad-hoc network "Lemur" and connect your mobile device to the same network. Open Lemur on your mobile device. Click on the Lemur editor connect icon. Wait for your device to appear and

then select *connect*. Using this method has Lemur's added advantage of viewing editing on your mobile device.

## Mobile Device Network Setup

The AirPort Express may be connected to the TetraMAPS either directly or via a router.

An Ethernet Router connected between the AirPort Express and the TetraMAPS must be 100Mbps. Connections to the router from each device are made using (blue) CAT5 cables. A direct connection between the AirPort Express and the TetraMAPS is made using a cross-over (orange) CAT5 cable.

Plug in the AirPort Express. Wait a minute for the AirPort to boot. Its light will turn from solid amber to flashing amber. Power the TetraMAPS and observe that "Link Established" is displayed and the AirPort Express light turns green.

If any subsequent Ethernet configuration changes are made in the TetraMAPS, they must be activated by the TetraMAPS *Apply to Connection – yes* menu. Refer to the TetraMAPS Manual for further details on Ethernet setup for the sequencer. A persistent flashing amber light on the AirPort Express may indicate a configuration error. Check the cable connection and try re-powering the TetraMAPS first.



### Device Network Setup

Go to *Settings* on your mobile device. Select *Wi-Fi* and *Choose a Network...* the one you have named in your AirPort Express bridge configuration should be listed. Select this network and click the blue ">" arrow next to your network.

Press the *Static* button for IP Address and set the *IP Address* to an arbitrary number (using the prefix 192.168...) to match the number set for the TetraMAPS Ethernet *IP Remote Peer Addr*. Set the *Subnet Mask* to 255.255.255.0. Leave *Auto-Join*, *Router*, *DNS* and *Search Domains* blank. Leave *HTTP Proxy Off*.

## OSC App Network Setup

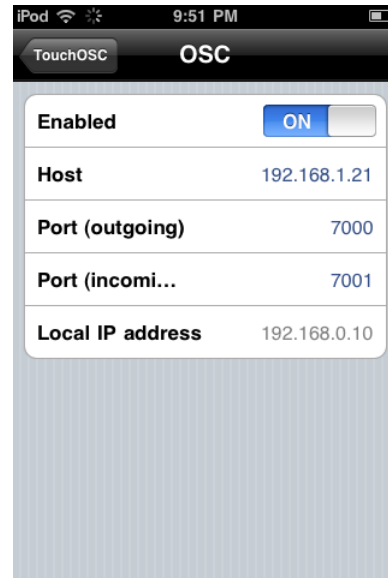
### TouchOSC

Open TouchOSC on your mobile device and press the “>” arrow under *Network* [settings]. Set *Host* to a number (with prefix 192.168...) matching the number set for the TetraMAPS Ethernet IP *Host Address*. *Searching...* will be active; that is OK.

Set the send and receive *Port* numbers to correspond with the numbers setup in the TetraMAPS Ethernet *PORTS* menu.

TouchOSC *Send z messages* option should be turned off.

You may want to turn on the *Stay connected* option in TouchOSC that maintains a connection, over link interruptions, every minute.



### Lemur

Open Lemur on your mobile device and press the settings gear--wheel at the top-right corner. Set the *OSC Targets*, *OSC 0 Host*: to a number (with prefix 192.168...) matching the number set for the TetraMAPS Ethernet IP *Host Address*.

Set the Lemur *Port*: number to the TetraMAPS Ethernet *Receive Port* number. The Lemur app receives on port 8000. Therefore if Lemur objects in your template require OSC targets, set the TetraMAPS *Send Port* to 8000. This will be true for monitor (tempo number) and LED objects.

Select your project and then press *Done*.

Again, if any subsequent Ethernet configuration changes are made, they must be re-activated by the TetraMAPS *Apply to Connection – yes* menu.

Once all of the settings are saved, a connection will be automatic upon the next power-up. However, when using a direct Ethernet (orange cross-over) connection between the TetraMAPS and the AirPort Express, the TetraMAPS must be powered AFTER the AirPort light turns to steady amber. Alternatively, the TetraMAPS may be re-powered once the AirPort Express light is green to achieve an active link.

## Notes

### For Live Performance

- 1) Turn Notifications OFF on your mobile device.
- 2) When using an iPhone, turn Airplane Mode ON and then turn WiFi ON to avoid outside interruptions.

### Choosing an App

TouchOSC is an excellent all-purpose control panel interface. It is responsive, simple and easy to use, with good support for display feedback like text. With regards to control panel use, the Lemur's approach makes some feedback elements (such as text display) more challenging to implement in its templates.

However, Lemur is great in its ability to do some amazing control automation with simulated "physics" and user-programmable script control. TetraMAPS functions are controllable (scriptable) using these features of Lemur to produce a whole new level of super-automated control, never before available to step sequencing. IOS 5.0 even allows multiple apps to run concurrently with some restrictions.

### TouchOSC for Android Users

The initial release of TouchOSC for Android does not allow custom OSC messages. Your OSC app should allow custom OSC messages: message address strings and data formats. (See *Tetra Custom Template Defines*) However, certain stock templates may be used to control the sequencer by setting TetraMAPS user-programmable addresses to match the template buttons and sliders, etc.

## Tetra Custom Template Defines

To create TouchOSC and Lemur templates to control the TetraMAPS, the following receive and transmit "Preset" addresses must be used for the defined Tetra functions.

Address formats may include a special suffix character as replaceable parameters for track numbers and bank letters, etc. The '%' and '?' characters are used as replaceable parameters in addresses for numeric and alpha-numeric digits, respectively.

For example, the percent suffix in the address, "/trig%" represents the addresses: /trig1, /trig2, /trig3, etc. A double percent (%%) suffix in "/step%%" represents double-digit addresses: /step14, /step15, /step16, etc. The question-mark suffix in "/set?" represents the alpha-numeric for: /setA, /setB, /setC, etc.

Therefore, when building a template in the TouchOSC or Lemur Editors, the respective addresses must end with an explicit "1 to 9", "1 to 16" or "A to X" (upper-case only) suffix character. Please refer to the down-loadable Signal Arts TouchOSC and Lemur template examples.

All data float values are fractions in the range 0.0 to 1.0.

**Preset Receive Addresses and data format:**

Set	= "/set?"	boolean float
Bank	= "/bank?"	boolean float
Seq	= "/seq%"	boolean float
Bank Stop	= "/bankstop?"	boolean float
/bankstopA	= bank stop	
/bankstopB	= exclusive bank stop (stop all but current bank)	
Stop All	= "/stop"	boolean float
Clear	= "/clear"	boolean float
Data Restore	= "/restore"	boolean float
Tempo	= "/fader/tempo"	float
Step View	= "/stepview%"	boolean float
Track View	= "/trackview%"	boolean float
Step Fader	= "/fader/step/%%"	float
Track Fader	= "/fader/track/%"	float
Root	= "/root?"	boolean float
/rootA	= note C	
/rootB	= note C# ...	
Chord Off	= "/ftsoff"	boolean float
Chord	= "/chord?"	boolean float
/chordA	= chord off	
/chordB	= major	
/chordC	= minor	
/chordD	= dom 7	
/chordE	= minor 7	
/chordF	= o - diminished	
/chordG	= o7 - half-diminished	
/chordH	= x - augmented	
/chordI	= b9	
/chordJ	= minor b9	
Track Stop	= "/trackstop%"	boolean float
Trig XY	= "/xy/trig%"	float, float
Patch	= "/patch%"	boolean float
Patch Reset	= "/patchreset"	boolean float
Virtual Keyboard trigger	= "/1/vkbd%%"	boolean float
Virtual Keyboard modX	= "/2/vkbd%%"	boolean float
Midi in Keyboard Controller Assignment / Trigger Mode		
/kbdinput?	= "/kbdinput?"	boolean float
/kbdinputA	= Thru (track 1)	keyboard through on trigger receive channel 01
/kbdinputB	= Multiple	multiple iteration
/kbdinputC	= MultipleArp	multiple iteration arpeggiation
/kbdinputD	= Single	single iteration transposition
/kbdinputE	= DurationFollow	follow note duration
/kbdinputF	= LoopHold	loop duration follows note duration
/kbdinputG	= RunStop	run and stop mode
/kbdinputH	= RunStopArp	run stop arpeggiation
/kbdinputI	= SeqReset	reset seq to start step
/kbdinputJ	= Release	envelope generator mode
/kbdinputK	= StepPlay	single step play
/kbdinputL	= StepRecord	single step record
/kbdinputM	= StepRandomize	single step randomize
/kbdinputN	= ChordInterp	chord recognition

**Preset Transmit Addresses and data format:**

Track Led	= "/led%"	boolean float
Step Fader	= "/fader/step/%"	float
Track Fader	= "/fader/track/%"	float
Step View	= "/lbl/stepview"	string
Track View	= "/lbl/trackview"	string
Step Value	= "/lbl/stepvalue"	string
Track Value	= "/lbl/trackvalue"	string
Set:Bank:Seq	= "/lbl/sbs"	string
Generic Value	= "/lbl/value"	string
Generic Text	= "/lbl/mssg"	string
Tempo Value	= "/lbl/tempo"	string
Tempo Fader	= "/fader/tempo"	float
Chord Window 1	= "/lbl/chord1"	string
Chord Window 2	= "/lbl/chord2"	string
Chord Window 3	= "/lbl/chord3"	string
Chord Window 4	= "/lbl/chord4"	string

**User-programmable Default Receive Addresses and data format:**

Trigger	= "/trig%"	boolean float OR boolean int OR midi
Modulation X	= "/fader/modx/%"	float OR int
Modulation Y	= "/fader/mody/%"	float OR int
Modulation XY	= "/xy/mod/%"	float, float
Text Receive	= "/text"	string

**User-programmable Default Transmit Addresses and data format:**

Midi	= "/midi"	midi
Step Value	= "/"	float
Text Send	= "/lbl/mssg"	string