Using MidiShare Tools with PatchWork

In the folder "Midishare™1.68:MidiShare Suite", you'll find a set of cooperative tools that work in the MidiShare environment. These tools are very simple to use and shortly documented in their "About" window. Two of them are of particular interest when using PatchWork : **msConnect** and **OpenShare**.

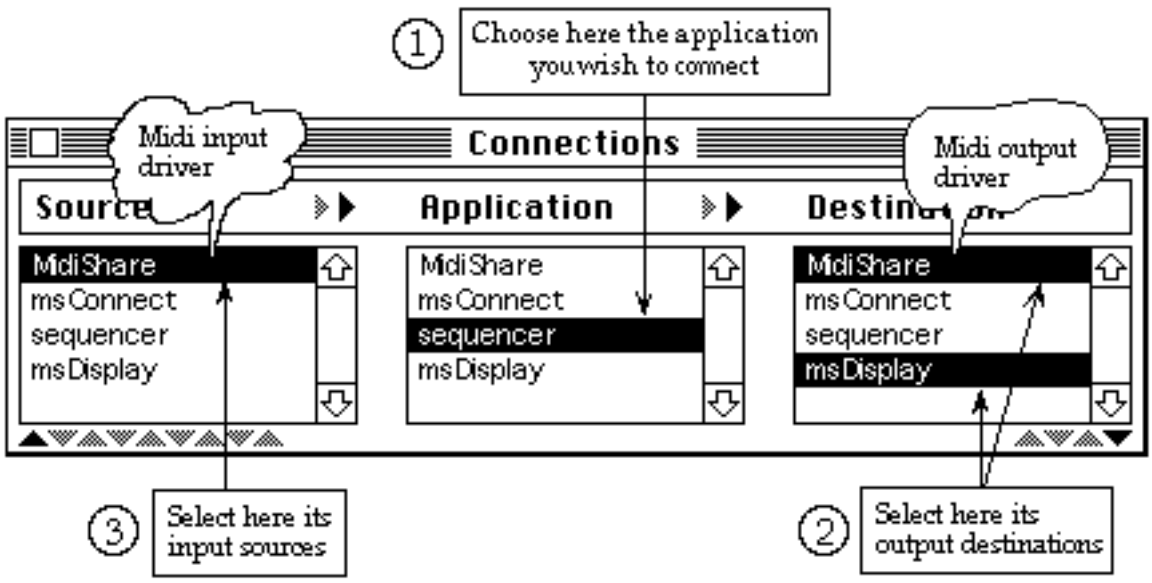
msConnect is useful for interconnecting applications that are MidiShare (or OMS, see OpenShare) aware. For instance, you may interconnect all the MidiShare tools using msConnect. Or you may connect PatchWork to a MidiShare tool. Or, in combination with OpenShare, you will connect PatchWork to an OMS application.

OpenShare will make PatchWork work in an OMS environment.

You may find the complete set of documentation for MidiShare and MidiShare Application, as well as the MidiShare Development Kit, at http://www.grame.fr. Interfaces for several languages, including Common Lisp, are available.

msConnect

msConnect is a MidiShare tool which allows to manage inter-applications communication. It is a key concept of MidiShare. Applications can be considered as "black box" receiving an input events stream and producing an output events stream. These input/output are usually real MIDI input/output, but the connection/deconnection mecanism allows to make internal connections between applications themselves and not only with external devices.



Currently opened MidiShare applications are displayed in three lists. The middle one allows to select one of the applications and visualize its sources (that is applications which from it receives MIDI events) and its destinations (that is applications where MIDI events are sent). A mouse clic in the "Source" or Destination" column will connect or disconnect the corresponding application. The application named MidiShare represents the MIDI input/output drivers.

msConnect is automatically updated when the global context of MidiShare applications changes that is, when names of applications or connections change, when applications are opened or closed. All current connections remains when msConnect is closed. The "Ports" menu allows to reserve physical Modem or Printer port for Midi connunications. (A marked port is reserved for MIDI communication).

msConnect window can grow when one pull in the bottom right corner of the window.

OpenShare

Sharing the computer critical resources is actualy a problem in the musical field, due to the multiple musical operating systems that runs on a same station. For this reason, we developed "Open Share", an application that allows different systems to collaborate. Open Share aims to the following points:

-allowing to share the input/output ports between clients of different musical operating systems;
-providing homogeneous communication services to all the client applications of these systems.

MidiShare is the basis of Open Share and client systems are:

- OMS version 1.2.1, developed by Opcode Systems, Inc.;
- MIDI Manager version 2.0.2, developed by Apple Computer, Inc.

This means that all the musical applications (OMS, MIDI Manager or MidiShare applications) can simultaneously run on the same station, can share the input/output ports and communicate using the MidiShare communication manager.

* Using Open Share

Before lauching Open Share, take care that MidiShare is using the Time Manager (launch the MidiShare Control Panel to verify it) and that no OMS or MIDI Manager application is running.
OpenShare 1.22 switches automatically MidiShare to Time Manager mode.

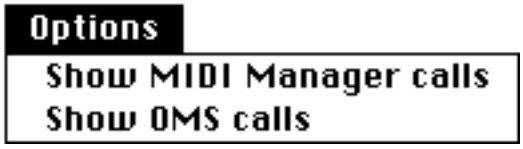
When you quit Open Share, take care that they are no more client application running (OMS or MIDI Manager applications).

o Preferences

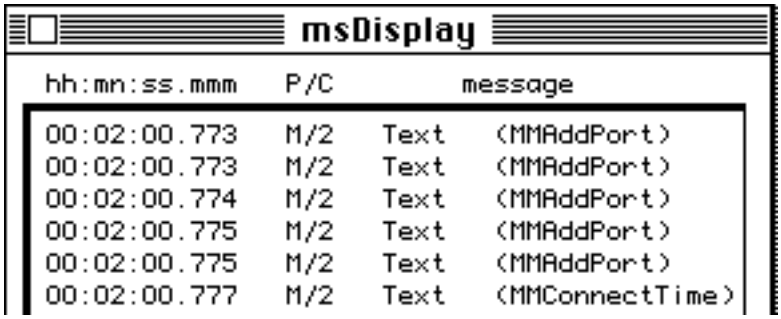
You can open the Preferences dialog using the Edit menu.

The Preferences dialog allows you to supress the startup alert, or to emulate just one of the OMS and MIDI Manager systems.

o "Options" menu



Useful to track the different systems call. When the corresponding option is checked and for every function call, Open Share create a text event containing the function name, and send it using the MidiShare account. Every client application connected to MidiShare will receive these events. One can record them using a sequencer, or display them using msDisplay.



o Inter-applications connections

Every Open Share client application becomes a MidiShare client application and so as, will appears in msConnect and can be connected to all the other client applications. OMS and MIDI Manager applications can benefit from the MidiShare communication services, including real-time Ethernet communication. The following example shows several OMS, MIDI Manager and MidiShare applications running on the same station and inter-connected.

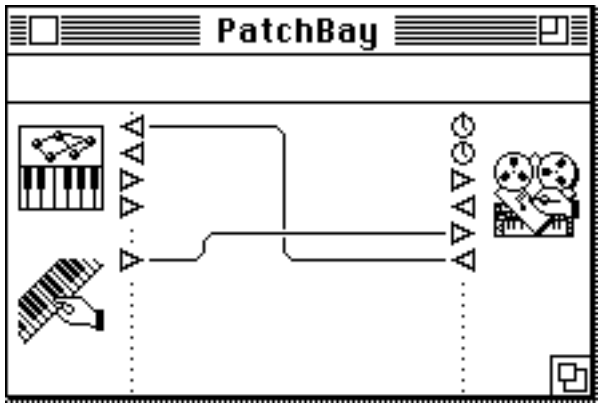
*** Open Share and OMS**

Open Share takes care of the studio setup created using OMS Setup. It plays the MIDI events using their original ports, like OMS do. If you use a multi-ports interface Midi Time Piece compatible, select then the Use Midi Time Piece mode using the MidiShare control panel (MidiShare manage up to 256 ports).

We recommend to setup your studio without Open Share. The current implemented OMS version is 1.2.1, you need to use the corresponding `OMS Setup' application when Open Share is running.

*** Open Share and MIDI Manager**

Open Share takes care of the connections made using PatchBay, including the inter-application synchronization using time ports. When Open Share is running, PatchBay looks like as follow:



Apple and/or OMS drivers are replaced by the MidiShare drivers. Inter-applications connections can be done using equaly PatchBay or msConnect. The two tools will always display the same state with this difference that PatchBay only displays MIDI Manager applications.

*** Limitations**

Limitations are essentialy due to the time sharing. On the Macintosh, there are two ways to get a real time clock:

- direct programming of the timer: the most precise and efficient way;
- programming the timer using the Time Manager.

Of course, the system won't work if MidiShare and Open Share client applications directly use the timer. Nevertheless, even if MidiShare uses the Time Manager, its time can be disturbed when client applications manage twice MIDI and audio streams. Then it seems that the Time Manager is slowed down by the DSP cards interrupts.

*** Requirements**

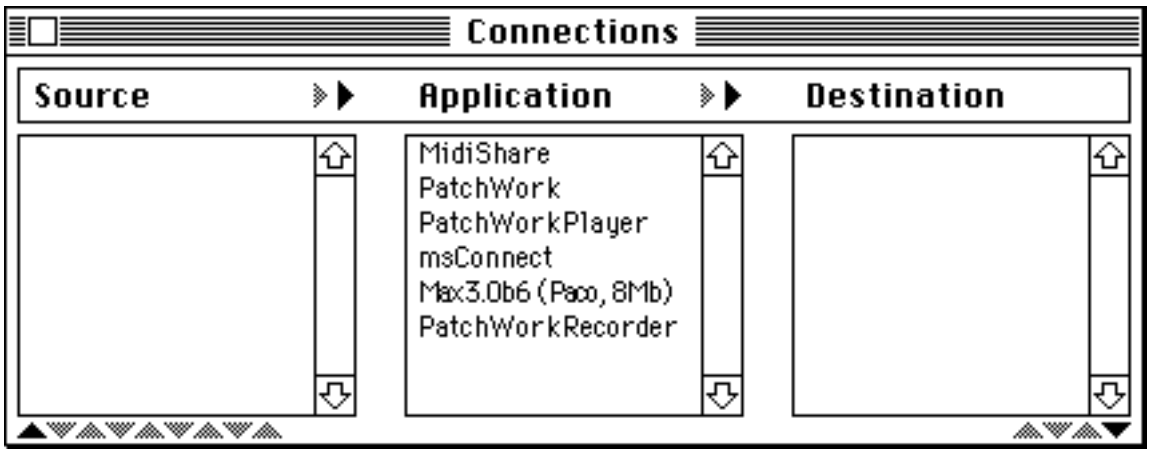
You need to install the MidiShare control panel to use Open Share.

You need to install MIDI Manager so that MIDI Manager applications become Open Share client applications.

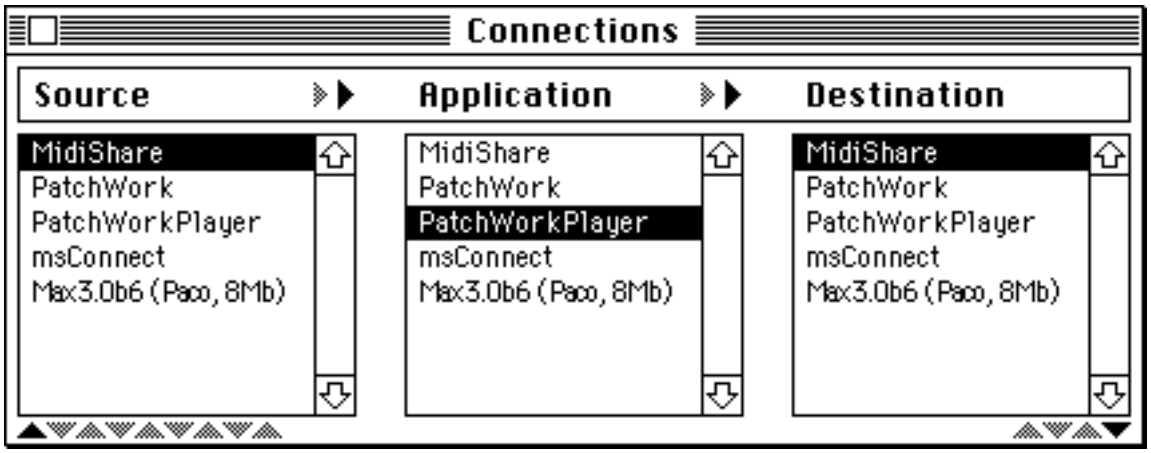
You need to install OMS so that OMS applications become Open Share client applications.

Examples with PatchWork

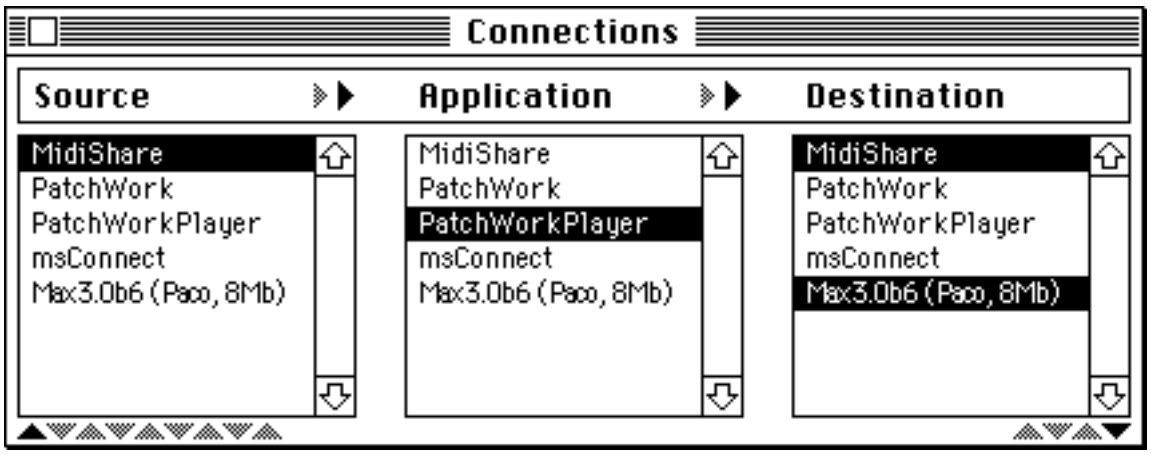
This is what you see if you launch msConnect after PatchWork and Max (Max is an OMS application so you must have Launched OpenShare before everything). The part of PatchWork that is responsible for playing Midi appears as "PatchWorkPlayer". You'll never touch to the "PatchWork" part itself.



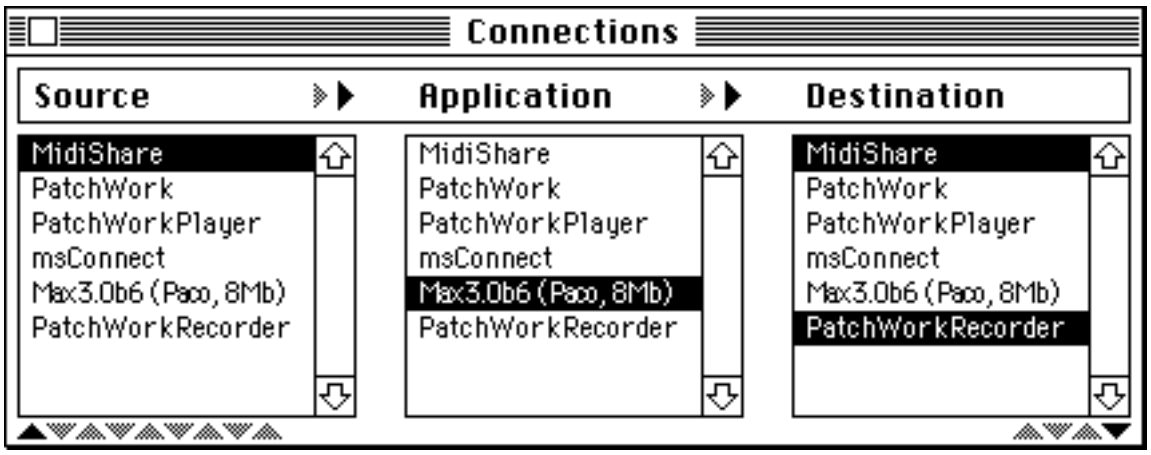
By default, PatchWorkPlayer is simply connected to the MidiDriver, that is MidiShare.



But you may also connect PatchWorkPlayer to another application, like Max. Here, the Midi output of PatchWork is send to both the modem port and to Max.



When you use a 'midi-record' box in PatchWork, a new part appears in msConnect : PatchWorkRecorder. Here, we have connected the ouput of Max to PatchWorkRecorder so PatchWork will records what Max plays.



To end with, we have connected the output of PatchWorkPlayer to the input of PatchWorkRecorder, so PatchWork is recording itself (you play in one PatchWork box and you record in another PatchWork box). Not very useful, but it's fun.