

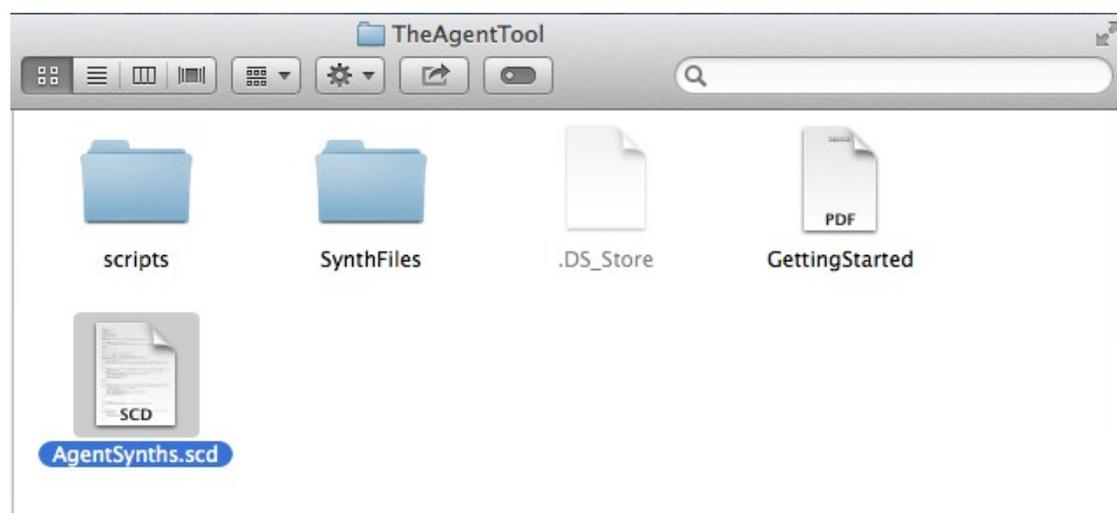
The Agent Tool V1.01

Getting Started Guide

The Agent Tool is designed to allow the scripting of Agents to control and manipulate external synthesis and sequencing environments via. Open Sound Control (OSC). Due to the architecture that the Agent Tool utilises it is recommended that it should be used with audio programming environment SuperCollider. Consequently, the software ships with a collection of binary synth files which SuperCollider can utilise. These can be found on the accompanying submission DVD. Alternatively, once the Agent Tool has been installed on your computer, it will create a folder in the current users home directory called "TheAgentTool". Within this folder you will find a copy of this guide; a SuperCollider SCD file which containing a collection of SuperCollider code which you can edit and execute; a folder containing precompiled binary synthesisers (in the folder titled SynthFiles) and a folder containing a collection of example Agent scripts.

Caution

In version 1.01 you MUST spawn a new Agent before commencing playback of the system. Due to OpenCV compatibility issues, usage of live camera input on Mac OSX is not recommended.

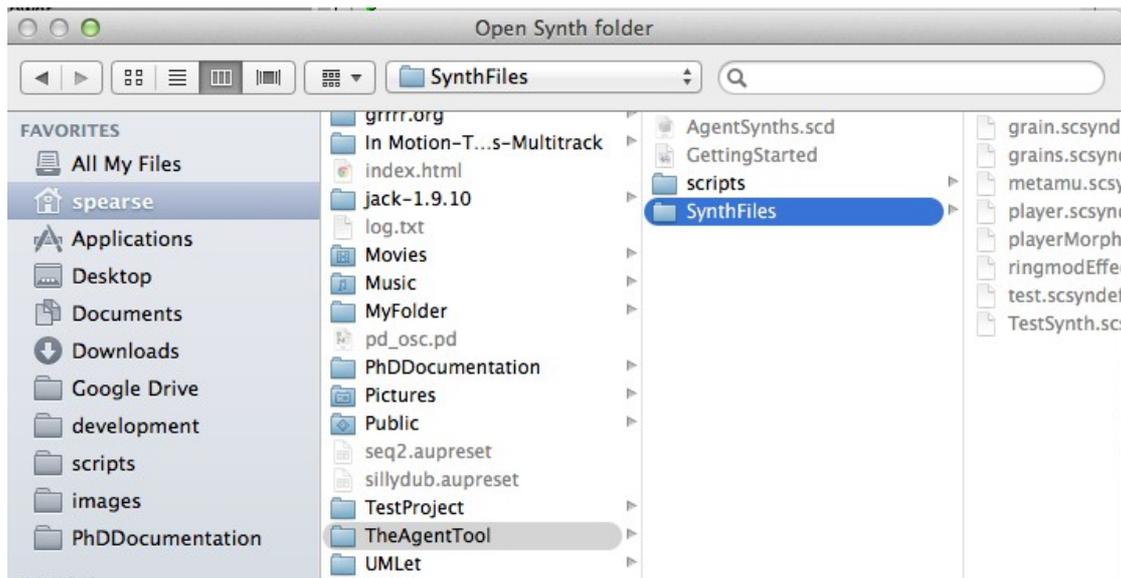


For usage with SuperCollider, simply open SuperCollider and boot the scsynth server. By default, the scsynth server has an OSC handler on port 57110 which the Agent Tool will emit its data to. From within the Agent Tool you can edit the outgoing OSC IP Address and port number to connect to remote instances or alternative software packages.



The SuperCollider Toolbar

The Agent Tool can remotely load a collection of binary synthesiser files into SuperCollider. To do this, in the “SuperCollider Tools” toolbar click on “Setup Synth Directly” and in the folder dialogue presented, locate the folder containing a collection of binary files which you wish to utilise. It is advised that initially, you point this to the SynthFiles folder found accompanying the installation.



Once this location has been set, click on the Load SynthDef button found within the SuperCollider toolbar. From this point on, whenever the Agent Tool starts up, these synth files will be loaded by SuperCollider. The Agent Tool also allows the user to load sound files graphically into SuperCollider. Upon selecting a sound file, you will be prompted to input a buffer number, which you wish to load the sound file into.

Invoking and Playing Agents

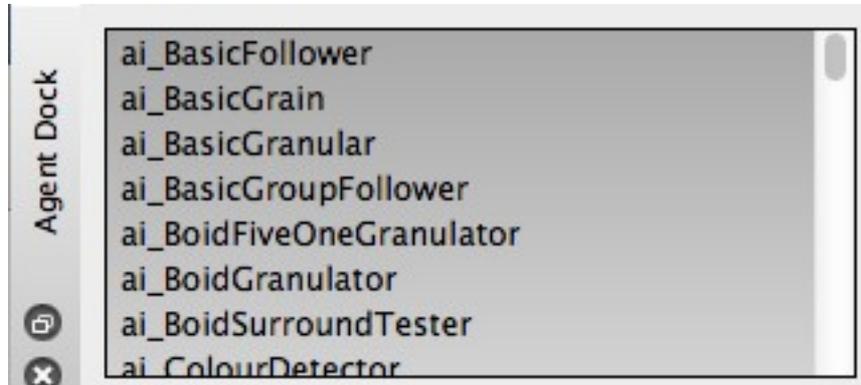
Upon a clean install of the software, only one Agent will exist for the user to spawn and interact with. Within the Playback tool bar, you will find the “Append Lua Script” button.



Playback Toolbar

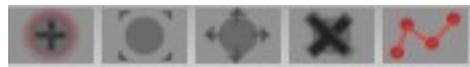
Triggering this will allow you to load in Lua Agent script files and will have the option to load this script by default upon booting the software. If there are any syntactic errors within the file that are trying to be loaded, you will be

prompted with a warning message indicating the line number and the errors found.



The Agent Dock

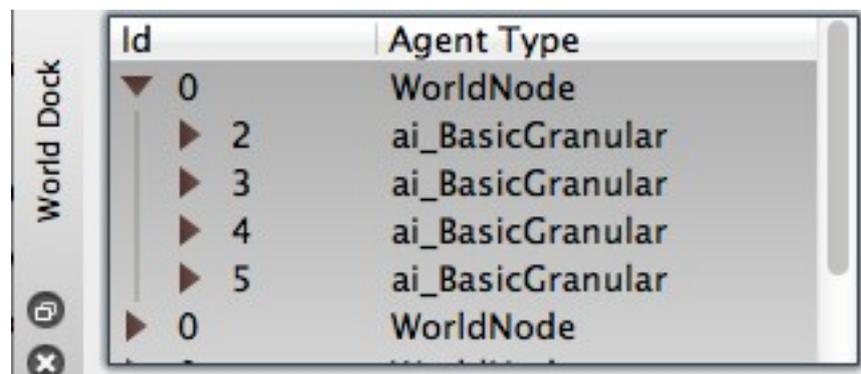
The Agent Dock (which is presented in the top left-hand corner by default) consequently allows you to select which Agent (from the loaded scripts) you wish to spawn into the world.



The Interaction Toolbar

The interaction toolbar allows you to select the way in which the mouse is utilised within the world. By default clicking within the world will spawn an instance of the currently selected Agent. You can also select, move and delete Agents with the mouse providing the correct interaction model is selected. From this tool bar, you can also turn on interaction with paths within the World. In this instance, clicking close to an existing path point will allow you to grab and frag the point in real time. All of these mouse modes are mapped have keyboard shortcuts mapped to numbers 1 through to 5.

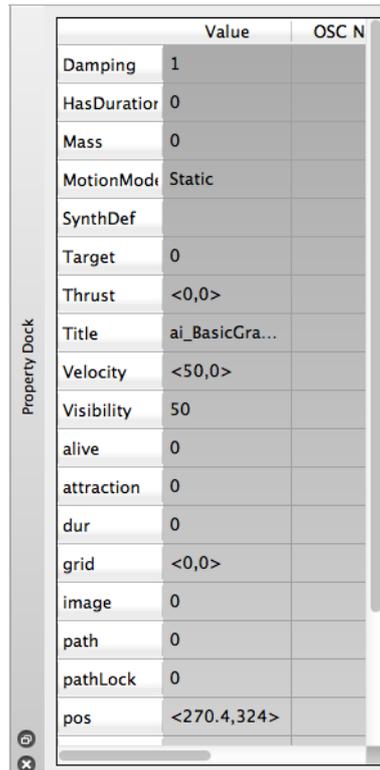
Selecting Active Agents



The World Dock

The current state of the world can be viewed as a tree model in the world dock. Upon selecting an Agent within the world, that Agents properties will become visible in the property panel found within the property dock. Here you can monitor and manipulate the value and OSC path for each property. Values can be altered via text input. In the case of numbers and vectors, users can click on the value and drag to alter the value. If the shift key is held down during this process, the resolution of the drag is increased for greater accuracy.

Due to the high refresh rate of the system, the property values will only update when a user selects the Agent or moves the mouse over a value.



The screenshot shows a 'Property Dock' window containing a table of agent properties. The table has three columns: the property name, the current value, and the OSC path. The values are displayed in a light gray background, and some are highlighted with a darker gray background. The OSC path column is currently empty for all properties.

| | Value | OSC N |
|-------------|----------------|-------|
| Damping | 1 | |
| HasDuration | 0 | |
| Mass | 0 | |
| MotionMode | Static | |
| SynthDef | | |
| Target | 0 | |
| Thrust | <0,0> | |
| Title | ai_BasicGra... | |
| Velocity | <50,0> | |
| Visibility | 50 | |
| alive | 0 | |
| attraction | 0 | |
| dur | 0 | |
| grid | <0,0> | |
| image | 0 | |
| path | 0 | |
| pathLock | 0 | |
| pos | <270.4,324> | |

The Property Panel

The Path System

All paths within the system are indexed with a unique identifier. When a path exists, points can be added, moved or removed (via a control/command click) after enabling path tool in the interaction bar (keyboard shortcut "5"). The path dock lets you explicitly add or remove paths.



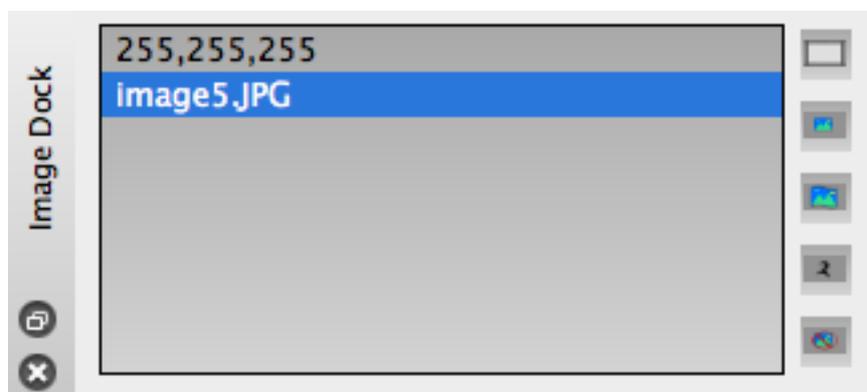
The Path Dock

Image Tools



The Image Toolbar

The image toolbar allows a user to create image screens quickly from static colours, imagery, Avi video files or live camera input. It is **recommended** that you not use live camera input on Mac OSX due OpenCV compatibility problems. The image dock allows a user to see quickly what screens are currently loaded into a system. They can then select a screen to be currently active. Each screen has its unique identifier that Agents can use. The scripting API allows Agents to obtain the data from any screen if its ID is known. If an Agent requests the data for a screen with the index -1 it will use the currently selected screen.



The Image Dock

Introduction to Scripting Agents

To begin scripting Agents simply create a text file with the file extension “.lua”. The Agent Tool utilises an extended version of the [Lua scripting framework](#). In the accompanying folder, you can find a full reference guide as a pdf or as an interactive web page.

To create a script you must define a function with the prefix “ai_” and immediately call the function “initai” which will ensure that the Agent is correctly constructed when initialised.

```
function ai.HelloWorld()
    initai()
    addP("freq",220)
    addP("amp",0.8)
    setP("SynthDef","default")
    pause(1)
    die()
end
```

Basic functions such as addP, setP and getP allow you to add, set and get properties of different data types. This includes a two-dimensional vector class (Vec2) and a class for managing raw pixel data (RGBA). To create instances of either a Vec2 or an RGBA you **MUST** invoke them via “pos = Vec2.new(x,y)” or “col = RGBA.new(r,g,b,a)”. Functions can then be invoked on these via the colon operator, for example, “vert = pos:x()”.

All properties that are created can be altered and remapped from within the Graphical User Interface via the property panel, which can be found in the property panel.

Up to date documentation for the Lua API can be found online at <http://stephenpearse.co.uk/AgentApi/> and as a Pdf alongside the software in the installation package.