

Installation worksheet for the Neighbour-Sensing simulation program

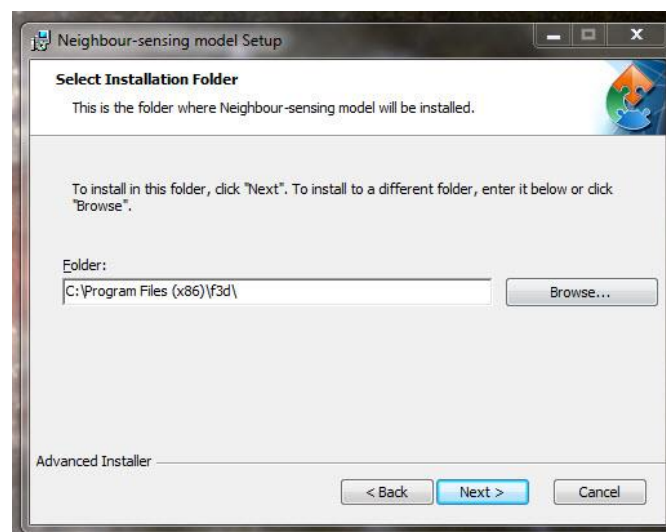
Installation

Download the .msi file named **nsm_only.msi**. Then navigate (in *File Explorer*) to the folder in which this file was saved and double-click on the file name [**OR** right-click on the **nsm_only.msi** file name and choose '**Install**' from the menu that appears].

The installation file will display this announcement in the centre of your screen:



When you click '**Next**', this screen appears:

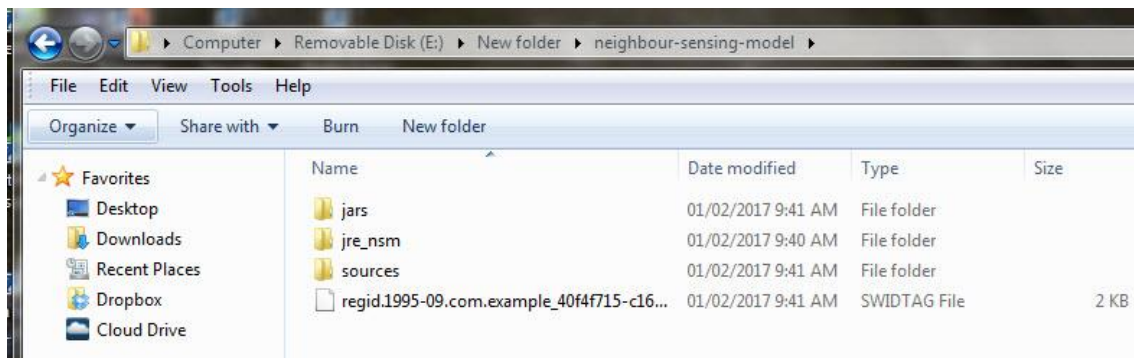


You can accept that offer to install the package into your existing '**C:\Program Files (x86)**' folder, or click on the '**Browse...**' button to find somewhere else. **BUT** as we've suggested already, we recommend downloading and installing on a USB flash drive, so we expect you

are running the **nsm_only.msi** file from a flash drive in a USB port on your machine. The little window that currently shows **C:\Program Files (x86)\f3d** is actually a text edit window, so you can position your cursor in it and start typing the address of the place you want to install the *neighbour-sensing-model*. I'll assume your USB drive will be drive E: (you may have to **Browse** to use File Explorer to confirm that) and suggest you type **E:\neighbour-sensing-model** into that edit window. With that done, click on the '**Next >**' button and the Installer will do everything for you. It will keep you informed of progress and announce when it's finished.

- You'll note that I've not accepted the invitation to install into a folder called **\f3d**, preferring my own name **\neighbour-sensing-model**. I've done that for two reasons: one is to show you that the program doesn't mind which folder it's installed into (and will eventually run from), *but* don't mess with the names of the other folders the **.msi** file installs! The second reason is that I like to know explicitly what my folders contain.

When the installation is complete, use File Explorer to *Browse* to, and look inside, the folder you've just created (**\neighbour-sensing-model**) and you'll find it contains:



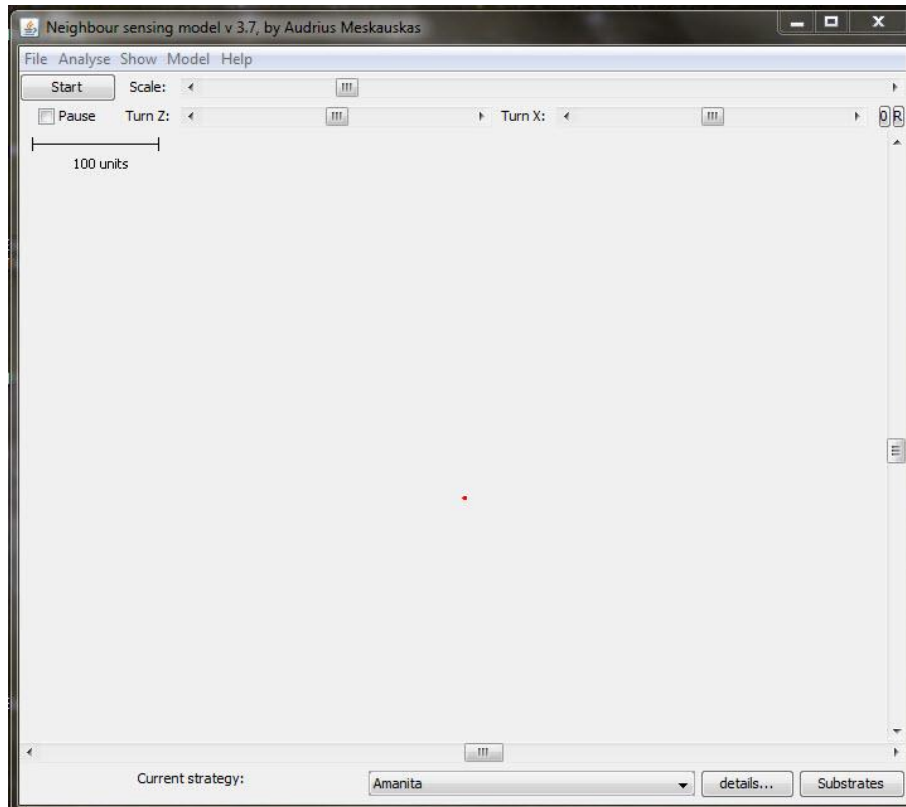
The SWIDTAG (software identification tag) is a management file that need not concern you. It is an XML-format file that identifies the software to Windows. The file folder called **sources** is an archive containing a ZIP file (**apex.zip**), which holds all the .java files for the program, and a **.txt** copy of the **GNU General Public License** [<https://www.gnu.org/licenses/gpl.html>] under which this software is distributed. The file folder called **jre_nsm** contains all the working components of the program.

The folder you need to look at is the one called **jars**; have a look in that and you'll see that it contains a single file called **neighbour-sensing_model.jar**, which is an 'executable jar file' that will launch the *Neighbour-Sensing modelling program*.

- Before you do launch the program here's another recommendation: create a *shortcut to neighbour-sensing_model.jar* to save yourself the hassle of navigating through all these folders to launch it. Like this: settle your cursor on **neighbour-sensing_model.jar** to highlight it in the folder window, then **right-click** and choose '**Create shortcut**' from the menu that appears. The shortcut will appear in the same window beneath **neighbour-sensing_model.jar**, and you can then drag-and-drop the newly created shortcut from that folder window to your **Desktop**, where it will acquire a glitzy 'cup of steaming java' icon.

Launch the Neighbour-Sensing modelling program

Launch the program with a double-click either on your new shortcut to neighbour-sensing_model.jar or directly on neighbour-sensing_model.jar in its own folder. The following view will appear in a new window (which you may want to resize to suit your preferences):



IF THIS WINDOW DOESN'T APPEAR when you double-click neighbour-sensing_model.jar, it's because you don't have Java™ installed. This is quick and easy (and free) to do. Go to the download section of the **Java.com** website [at <https://java.com/en/download/manual.jsp>] and choose the flavour of **Java** appropriate to your browser and operating system; download and install. [The only limitation you might meet is that the Windows 10 '**Edge**' browser does not support plug-ins and will, therefore, not find and install **Java**. **Internet Explorer 11** and **Firefox** will run **Java** on **Windows 10**, and **will** therefore, select and install the most appropriate version of Java for Windows 10. Our programs do not require a browser to run, so **once Java is installed** these browser preferences are not relevant to us.]

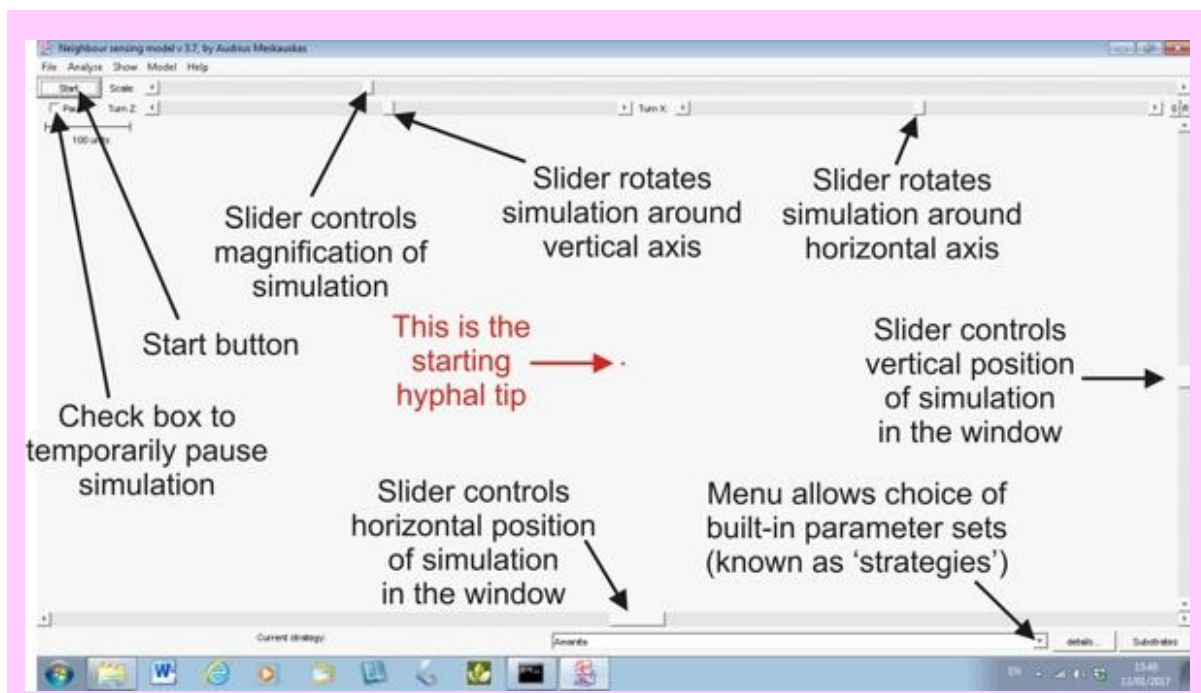
Starting the program simulation

Now, let's get back to that start-up screen. Most of the screen is occupied by your view of the (currently almost empty) data space in which the modelling program will create the simulation when you set the parameters you want the program to use and 'press' the **Start** button.

In order to allow maximum screen space to the simulation, it is started in a window that is empty except for controls around the frame and the *one starting hyphal tip*, which should be in the centre of the window (coloured *red*).

Think of the starting hyphal tip as a spore waiting to germinate. It exists in a large three-dimensional data space, and the on-screen view is literally a window onto this data space. Your view of that data space can be moved up and down with a slider control on the right frame, and from side to side with a slider control on the bottom frame; and, along the top frame, there is a slider that zooms your view, and so controls the magnification of the simulation under observation.

The simulation is started using the **Start** button in the top left corner of the frame, and immediately beneath that start button is a **Pause** switch in the form of a check-button. Click on that to temporarily pause the simulation (so you can inspect it, maybe change the view, or even change the parameters) and then click on the *Pause* check-button again to resume the simulation. A view of the *Neighbour-Sensing modelling window* is shown below, with some of its main features labelled.



Our website offers for download a short video (it runs for just under two minutes) showing a **Neighbour-Sensing simulation being produced**.

You can also download a *complete operating manual* as a PDF file.

The rest is up to you.