
ANUGA Installation Guide

Release 1.0beta_7013

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Introduction

This document outlines the procedure for installing the Anuga toolbox. All components are licensed as open source and readily available from the net. It is assumed that the reader is familiar with the Python programming language and the process of downloading, installing and unpacking files into directories.

1.1 System requirements

To run ANUGA you will need a Windows PC (XP or Vista) or a Linux PC with at least 512MB RAM.

The viewer (Windows only) requires a graphics adapter that is OpenGL compatible. It has been tested with ATI FireGL X1 cards and the NVIDIA family. It may not work with other cards such as those from the Intel(R) 82915G Express chipset family.

1.2 Installation

Below are the install procedures for Windows XP, Windows Vista and Linux.

1.2.1 Quick install - Windows XP

This procedure assumes that you do not have python installed on the target machine. If you do have a python installed already then skip the installation of python as long as you have version 2.3 or later installed.

1. Install the support software. These packages are available from either:

- The supplied ANUGA distribution folder: `pre_requisites\2.5`. Install in order:
 - (a) Execute `python-2.5.msi` to install python.
 - (b) Execute `Numeric-23.8.2.win32-py2.5.exe` to install Numeric Python.
 - (c) Execute `ScientificPython-2.7.8.win32-py2.5.exe` to install Scientific Python.
 - (d) Execute `MinGW-5.1.4.exe` to install MinGW.

and then unpack `netcdf-3.6.1-win32dll.zip` into a folder that is available on the system path. We suggest unpacking it into `C:\bin`.

- The Internet. Install in order:
 - (a) <http://www.python.org/download/>. Click on the Python 2.5.x Windows installer link to get `python-2.5.x.msi`. Execute this file to install python.
 - (b) <http://sourcesup.cru.fr/frs/?group%5Fid=180>. Download `Numeric-23.8.2.win32-py2.5.exe` and execute it to install Numeric Python.

- (c) <http://sourcesup.cru.fr/frs/?group%5Fid=180>. Download ScientificPython-2.X.X.win32-py2.5.exe and execute it to install Scientific Python.
- (d) <http://sourceforge.net/project/showfiles.php?group%5Fid=2435>. Click on the Download link for the Automated MinGW Installer. Download and execute the file MinGW-5.X.X.exe to install the MinGW environment. Note that you need a working internet connection to install WinGW.
- (e) <http://www.unidata.ucar.edu/software/netcdf/binaries.html>. Click on the Windows DLL link in the NetCDF 3.6.1 section. This will download the file netcdf-3.6.1-win32.zip. Unpack this in a folder that is available on the system path. We suggest unpacking it into C:\bin.

2. Add the following to the PATH environment variable:

```
PATH=C:\Python25;C:\MingW\bin;C:\bin
```

For details on how to do this under Windows please refer to Appendix A.1.

Note that if you have another version of python installed, 2.4 say, you would replace any Python25 above with Python24. A similar replacement should be made in all following steps wherever you see Python25.

3. Unpack the ANUGA source code (anuga-1.0_xxxx.tgz)¹ in the python site-packages directory C:\Python25\Lib\site-packages. This is often done in Windows by double clicking on the .tgz file and then 'browse to' the destination directory.
4. In the ANUGA root directory (C:\Python25\Lib\site-packages\anuga), run the compilation script (either from the commandline or by running it in IDLE):

```
python compile_all.py
```

5. In the ANUGA root directory (C:\Python25\Lib\site-packages\anuga), run the test suite (either from the commandline or by running it in IDLE):

```
python test_all.py
```

ANUGA has been successfully installed if the tests pass.

6. To verify that ANUGA successfully reproduces a series of validation examples, go to the directory anuga_validation\automated_validation_tests under the ANUGA root directory where you can run:

```
python validate_all.py
```

This may take some time.

7. To install the ANUGA viewer:

- (a) Unpack the distribution (anuga_viewer_1.0.tgz) into:

```
C:\Program Files
```

- (b) Double click on the test file:

```
C:\Program Files\anuga_viewer\cylinders.sww
```

- (c) Associate .sww files with the executable:

```
C:\Program Files\anuga_viewer\animate.exe
```

For details on how to do this under Windows please refer to Appendix A.2.

¹Internet Explorer has the habit of renaming the .tgz files to .gz - the remedy is to rename them back or use another browser such as Firefox.

Try the demonstrations provided in the ANUGA directory `anuga_demos` (discussed in the ANUGA user manual at <http://datamining.anu.edu.au/%7Eole/anuga/user%5Fmanual/anuga%5Fuser%5Fmanual.pdf>) and view the resulting `.swm` files with the ANUGA viewer.

1.2.2 Quick install - Windows Vista

There has been one reported instance of ANUGA being installed successfully on Windows Vista. The following steps should be read in conjunction with the windows XP procedures above:

1. Install `python-2.5.msi`.
2. Add the directory `C:\Python25` to the `PATH` environment variable (appendix A.1).
3. Install `Numeric-23.8.2.win32-py2.5.exe` (as administrator).
4. Install `ScientificPython-2.7.8.win32-py2.5.exe` (as administrator).
5. Install `MinGW-5.1.4.exe` (as administrator). Use the default package selection. Don't use old packages and let it make fresh downloads.
6. Unpack `netcdf-3.6.1-beta1-win32dll.zip` into `C:\bin`.
7. Add the directory `C:\bin` to the `PATH` environment variable (appendix A.1).
8. Install `pysco-1.6.win32-py2.5.exe` (as administrator).
9. Install `matplotlib-0.91.2.win32-py2.5.exe` (as administrator).
10. Install `numpy-1.1.0-win32-superpack-python2.5.exe` (as administrator).
11. Check that the system variable `PATH` contains `C:\Python2.5;C:\Python25\DLLs;C:\bin;C:\MinGW\bin` (appendix A.1).
12. Now follow the Windows XP install steps from the ANUGA source code install step.

Some of the installed packages above are optional and may not be required, but this is the reported working install we have received.

1.2.3 Quick install - Linux

The procedure to install onto a Linux platform is targeted at a Debian-like Linux, such as Ubuntu. If you use another Linux the overall procedure should be followed, although the details will vary.

The steps below assume that you do not have python installed on the target machine. If you do have a python installed already then skip the installation of python as long as you have version 2.3 or later.

Note that even if you already have python installed you should still check if things like `python-dev` and `python-profiler` need to be installed.

- Install support software (in order):

1. Install python development environment, either through Synaptic or by:

```
sudo apt-get install python python-dev python-profiler
```

2. Install Numeric Python, either through Synaptic or by:

```
sudo apt-get install python-numeric
```

3. Install Scientific Python, either through Synaptic or by:

```
sudo apt-get install python-scientific
```

4. Install NetCDF, either through Synaptic or by:

```
sudo apt-get install python-netcdf
```

5. Install gcc and its development environment if you don't have it, either through Synaptic or by:

```
sudo apt-get install gcc libc6-dev
```

Ensure that `libc6-dev` is installed even if `gcc` is already installed.

- Get the ANUGA source from <http://sourceforge.net/projects/anuga> (anuga-1.0_5789.tgz say), and expand it into the python site-packages directory `/usr/lib/python2.5/site-packages`. In the unpacked ANUGA directory `/usr/lib/python2.5/site-packages/anuga` run the command:

```
sudo python compile_all.py
```

- In the ANUGA root directory (`/usr/lib/python2.5/site-packages/anuga`) run the test suite:

```
python test_all.py
```

ANUGA has been successfully installed if the tests pass.

- To verify that ANUGA successfully reproduces a series of validation examples, go to the directory `/usr/lib/python2.5/site-packages/anuga_validation/automated_validation_tests` where you can run validation tests to ensure the correct running of ANUGA:

```
python validate_all.py
```

This may take some time.

1.3 Optional but recommended software

This software is not required to run the ANUGA toolbox, but it is recommended.

- `psyco`. Speeds up ANUGA by about 30%. Under Ubuntu install either through Synaptic or by:

```
sudo apt-get install python-psyco
```

Under Windows install the file `psyco-1.6.win32-py25.exe` which you can find from the <http://psyco.sourceforge.net/download.html> page.

- `matplotlib`. For quality 2d plotting (moving towards mandatory requirement). Under Ubuntu install either through Synaptic or by:

```
sudo apt-get install python-matplotlib
```

Under Windows install the file `matplotlib-0.98.3.win32-py2.5.exe` which you can find from the <http://sourceforge.net/projects/matplotlib> page.

- `VTK`. The Visualization Toolkit. Under Ubuntu install either through Synaptic or by:

```
sudo apt-get install python-vtk
```

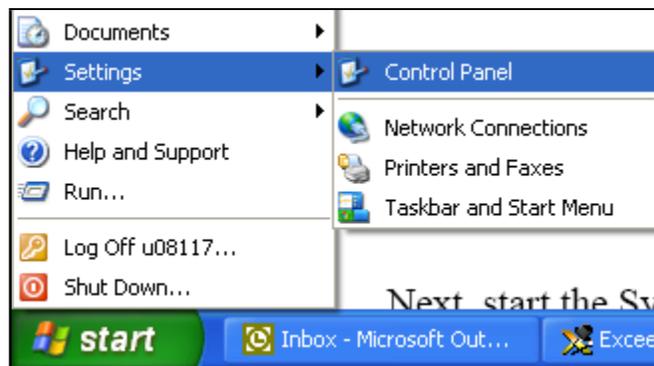
Under Windows install the file `vtk-5.2.0-win32.exe` from the <http://www.vtk.org/get-software.php> page.

Miscellaneous procedures

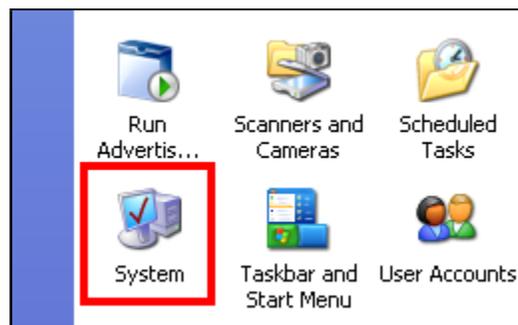
A.1 Setting the PATH on Windows

The method of setting the PATH environment variable for Windows XP is shown here. Setting the variable for Windows Vista should be similar.

First, open the Control Panel:



Next, start the System applet:



Select the Advanced tab in the System Properties window:

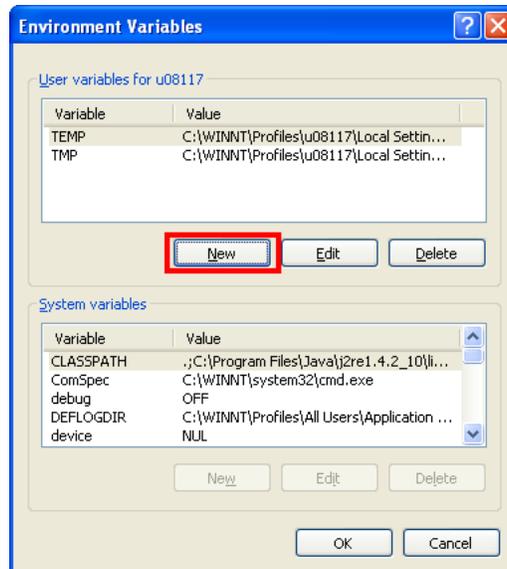


Press the Environment Variables button in the Advanced tab:



If the PATH variable is not defined in the 'User variables' or 'System variables' windows, press the New button in either of the two windows (for a personal machine, choose the 'System variables' window).

If PATH already exists in the 'User variable' or 'System variables' window, select the row with the PATH variable name in the appropriate window and press the Edit button next to the New button in that window:



You will be shown the editor window whichever button you pressed in the above step. If the Variable name box is empty type in the name PATH. In the Variable value box type the value you want the PATH variable to have. If there is already some text in the box, place your additional value at the front of the existing value, not forgetting to terminate your additional string with the ';' character. The final value string must be a series of directory names separated by ';' characters:



When you are finished, press the OK button and exit from the applet.

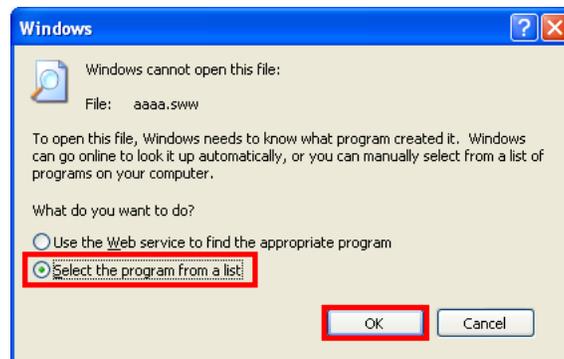
A.2 Associating animate.exe with a .sww file

The method of associating `animate.exe` with a `.sww` file is shown here for Windows XP. A similar process should work for Windows Vista.

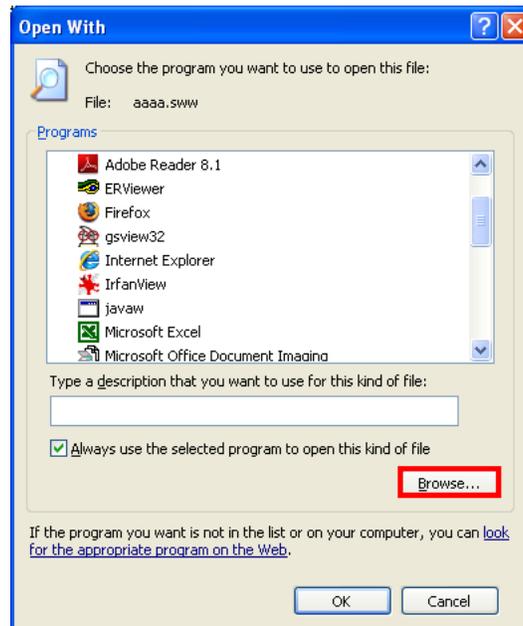
Double left-click on any `.sww` file. This brings up a dialog because Windows doesn't know how to open the file:



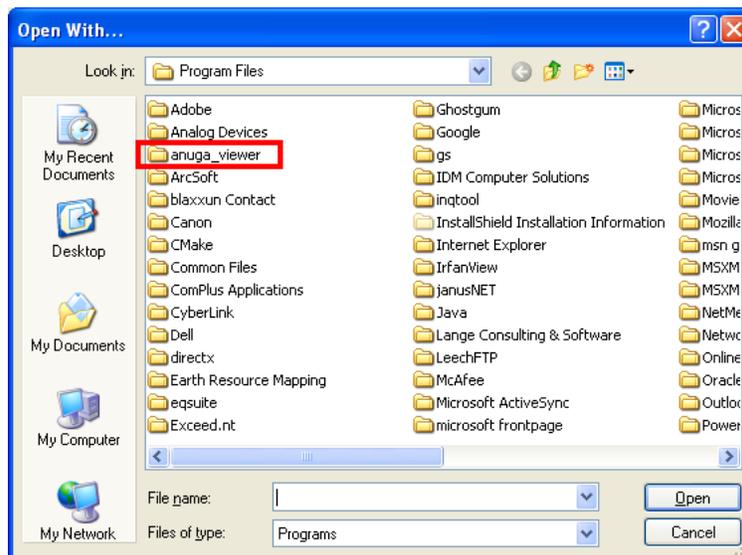
Select the "Select the program from a list" radiobutton and press the OK button:



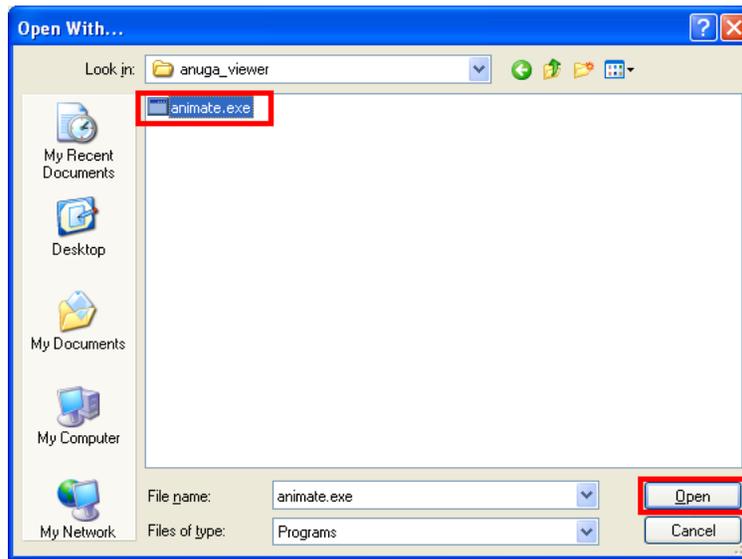
Press the Browse . . . button to find the animate . exe program:



Navigate to the C:\Program Files\anuga_viewer directory:



Select `animate.exe` and press the Open button:



Finally, press the OK button:

