CASMI under Microsoft Windows

Installation Guide for CASMI using Cygwin

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- **Please follow the steps in this guide carefully for a successful installation!**
- **All input is case-sensitive.**
- **The complete installation needs about 800 MB free disk space and about 1 hour of installation time – depending on your internet connection.**

Introduction note

The stress map plotting tool CASMI only runs under Unix-like environments. The software Cygwin provides easy-to-install Unix emulation for Windows. As "a Linux-like environment" (www.cygwin.com) it is well suited to make CASMI run on your Windows machine. The following installation guide is deliberately designed for people who are not familiar with Unix systems, therefore it is quite comprehensive. It describes the installation of CASMI using Cygwin with its integrated X Window System (an X system is needed for graphical output under Unix). Three consecutive steps lead to a successful installation of CASMI under Windows: (1) the installation of Cygwin, (2) the installation of GMT (the Generic Mapping Tools), and (3) the setup of CASMI. This installation needs about 800 MB free disk space due to the setup of the Cygwin environment, which can subsequently be used to install more Unix programs or as a starting point for getting used to Unix systems.

1. Installation of Cygwin

- Download the *setup.exe* installation file from http://www.cygwin.com.
- Run the Cygwin installer by executing the *setup.exe* file:
  - Select *Install from internet*.
  - Follow the instructions; remember the **Root Install Directory** for future actions.
  - In the **Select Packages** dialog window install the following packages:

Category	**Package name**
Devel	gcc-core gcc-g++ gcc-g77 make
Editors	nedit
Graphics	ImageMagick (Note the capital letters!) ghostscript
Shells	tcsh
Utils	bzip2 util-linux
X11	perl-Tk (Note the capital letter!) xorg-x11-base

Note:

Take care of the correct package name – there are some packages with similar names. In order to install a package click on the *Skip* field and make it switch to the latest version number, like, e.g., 3.*4.4-3*. Some packages may already be selected; *Keep* them.

After selecting the packages these are downloaded and installed; this will take several minutes.

- Test your installation by starting Cygwin (from the Start Menu or by the Desktop icon):
  - Within the Cygwin terminal, to retrieve your current working directory, type:

    pwd

    Your **Cygwin home directory** is shown: */home/<username>*.
  - Open a Windows explorer and go to the same folder: *<Root Install Directory>\home\<username>*.
  - Within the Cygwin terminal, type:

    touch Testfile

    In the Windows explorer, refresh the view: *Testfile* was generated.

> **Note**
>
> In Cygwin the abbreviation ~/ can be used for your Cygwin home directory */home/<username>*.
> In Windows your Cygwin home directory is *<Root Install Directory>\home\<username>*.

  - **Start Cygwin's X system** by running:

    `startxwin.sh`

    An X terminal should pop up when X has been started.

> **Trouble-shooting**
>
> Please read the Cygwin documentation on http://www.cygwin.com when problems occur.

2. Installation of GMT (the Generic Mapping Tools)

- Go to http://gmt.soest.hawaii.edu.
- In the *Download* section, go to the *INSTALL FORM* for Unix users:
  - Download the *install_gmt* script from ftp://ftp.soest.hawaii.edu/gmt/install_gmt into your Cygwin home directory (see above).
  - Follow the instructions to fill out the form.
  - You can keep the default settings except:
    - At the **NetCDF Setup**, select *Please get and install the latest netCDF*.
    - When you **Select the components you want**, select all *GSHHS Coastlines* components.
  - Press the *GET PARAMETERS* button and save the *GMTparam.txt* file into your Cygwin home directory.

> **Note**
>
> After pressing the *GET PARAMETERS* button you probably have to right-click into your web browser window showing the text file and select *Frame > Save Frame As ...*

- Open a Cygwin terminal, and in your home directory type:

  `dos2unix install_gmt`

```
dos2unix GMTparam.txt
sh install_gmt GMTparam.txt
```

The GMT components are downloaded and installed; this will take several minutes.

- **Note the instructions** at the end of the GMT installation, and write down the following three lines **adapted to the instruction lines that look similar**:

```
export NETCDFHOME=/home/<username>/netcdf-3.6.2
export PATH=/home/<username>/GMT4.2.1/bin:$PATH
export MANPATH=/home/<username>/GMT4.2.1/man:$MANPATH
```

Take care of the correct version numbers and your <*username*>!

- Then execute

```
export DISPLAY=localhost:0.0
nedit ~/.bashrc
```

in Cygwin (the X system must be running, see above). The last command should have opened the *.bashrc* file in a text editor. Append the three lines that you have just written down at the end of this file. Keep the editor window open.

Trouble-shooting

The *install_gmt* script will try to download the required files for GMT automatically via FTP. It may happen (probably due to Windows firewall settings) that these files cannot be downloaded automatically and the GMT installation stops after a short period of time. When this happens (and only then), please do the following:

- Go to http://www.unidata.ucar.edu/downloads/netcdf/ and download the latest *NetCDF C/C++/Fortran Stable Release* – namely the file *netcdf.tar.Z* – into your Cygwin home directory.
- Go to ftp://ftp.soest.hawaii.edu/gmt/ and download the GMT files into your Cygwin home directory. (*REQUIRED*: *GMT_src.tar.bz2*, *GMT_share.tar.bz2*, and *GSHHS_coast.tar.bz2*)
- Repeat **all** the steps above for the installation of GMT, but this time in the install form select *I already have the netcdf.tar.Z archive, just install it for me* and *No FTP, archives already obtained*. When you **Select the components you want** in the install form, select only those that you have downloaded manually, e.g. only the three *REQUIRED* components when you have downloaded only the three files listed above. Overwrite the old by the new *GMTparam.txt* file.

You can test your GMT installation in Cygwin by typing:

```
minmax <<EOF
1 5
0 4
2 3
EOF
```

The minimum and maximum values for each column of your input should be output, like:

```
<stdin>: N = 3  <0/2>   <3/5>
```

If this does not work, or if other problems occur, please ask an experienced Unix user or your system administrator for support.

3. Setup of CASMI

- Extract the *casmi* software folder into your Cygwin home directory.
- In Cygwin, re-edit your *.bashrc* file by changing your recently added line

  `export PATH=/home/<username>/GMT<X.X.X>/bin:$PATH`

  to:

  `export PATH=/home/<username>/GMT<X.X.X>/bin:$HOME/casmi:$PATH`

  Additionally, append the following line to this file:

  `export DISPLAY=localhost:0.0`

  Save the file and close the editor.
- Create or edit your *.cshrc* file:

  `nedit ~/.cshrc`

  Add the single line:

  `set path = ($HOME/casmi $path)`

  Save the file and close the editor.
- Open a **new** Cygwin terminal.
- **To run CASMI**, X must be running (`startxwin.sh`), then in Cygwin just type:

  `casmi`

Trouble-shooting

Data smoothing is *not* working under Cygwin.

To make the Help and the Info button work under Cygwin, run the *configure_cygwin* script:

```
cd ~/casmi
./configure_cygwin
```

If other problems occur, please ask an experienced Unix user or your system administrator for support.

Additional notes

- You can use other X server software for Windows instead of Cygwin's integrated X system.
- After the Cygwin installation has been completed, you can remove the folder containing the package installation files located in Cygwin's Local Package Directory (its name is *ftp%...*).