

# **How to install and run AIRES - Air Shower Simulations Program in Microsoft® Windows Environment**

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## **Introduction**

The **AIRES** application has been created in Departamento de Fisica, Universidad Nacional de La Plata in Argentina, by [S. J. Sciutto](#). For more info visit the appropriate web page at: <http://www.fisica.unlp.edu.ar/auger/aires/>

It is a set of programs and subroutines which simulate particle showers, produced after the incidence of high energy cosmic rays on the Earth's atmosphere, and manage all the related output data. **AIRES** is currently being used by many universities and institutions worldwide. One of them is the University of Athens, Department of Physics.

This manual focuses on the installation of **AIRES** in **Windows®** Operating System. **AIRES** has been written for **LINUX** based computers, but it can run under **Windows** via **Cygwin** as other scientific tools can e.x. **GEANT4**.

What is **Cygwin**?

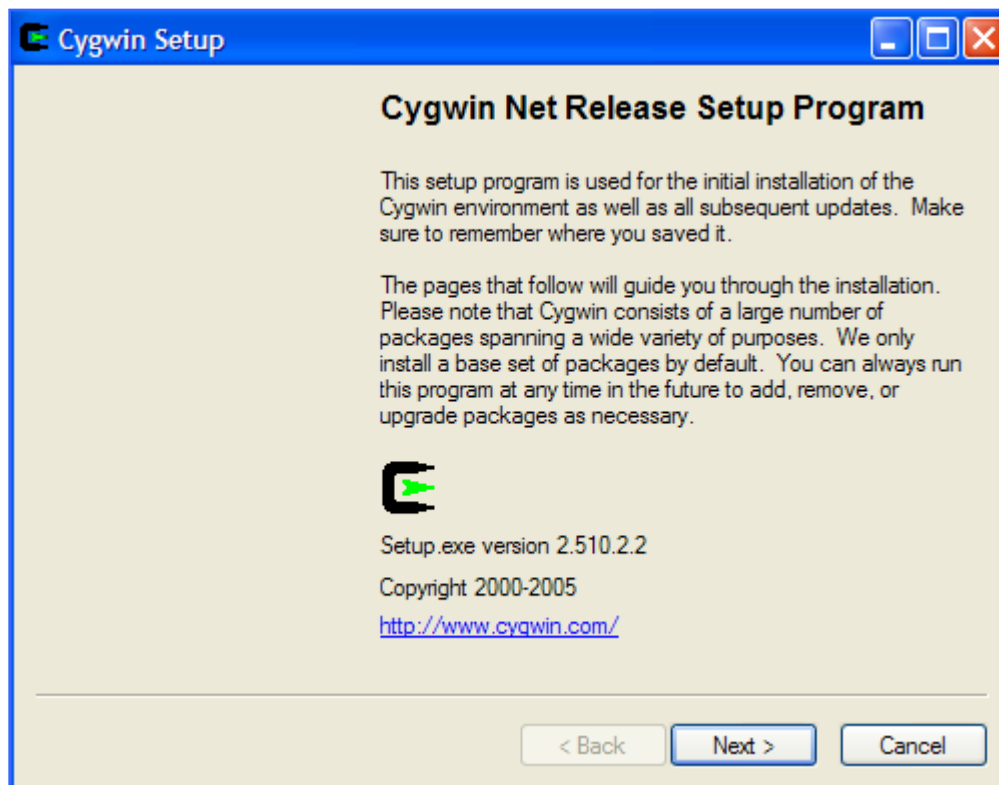
**Cygwin** is a Linux-like environment for Windows. It consists of two parts:

- A DLL (cygwin1.dll) which acts as a Linux API emulation layer providing substantial Linux API functionality.
- A collection of tools, which provide Linux look and feel.

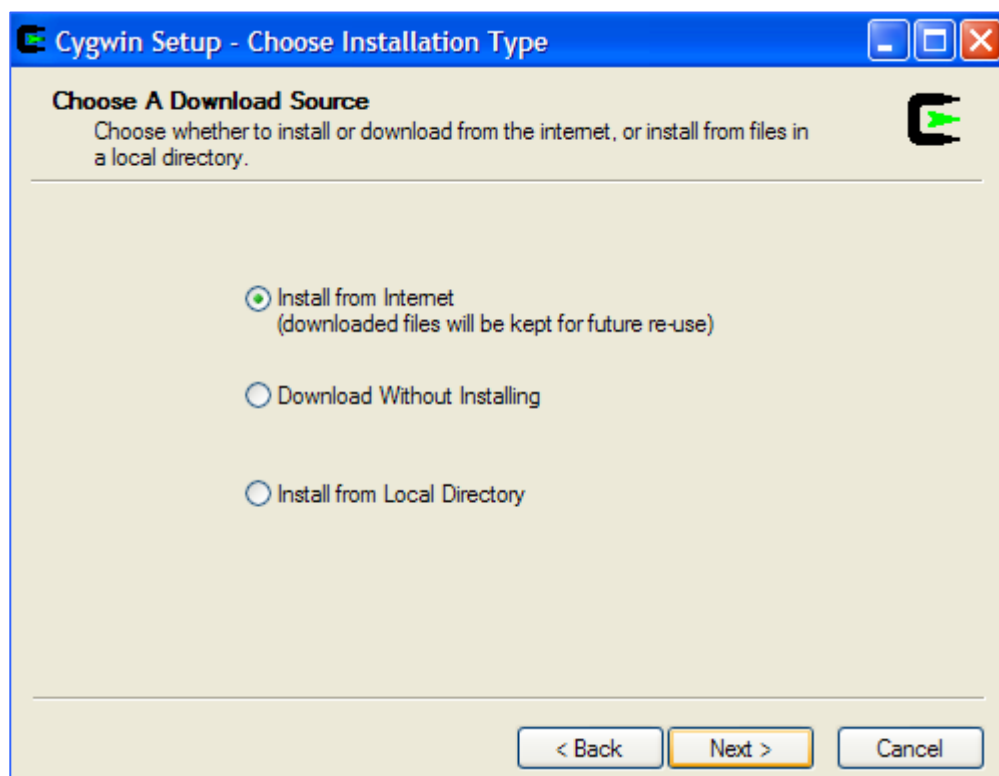
## **Installing Cygwin**

In order to install Cygwin visit <http://www.cygwin.com> . Download the installation program by saving it to your computer. After downloading it, double-click on it to run. The installation wizard is currently called: setup.exe

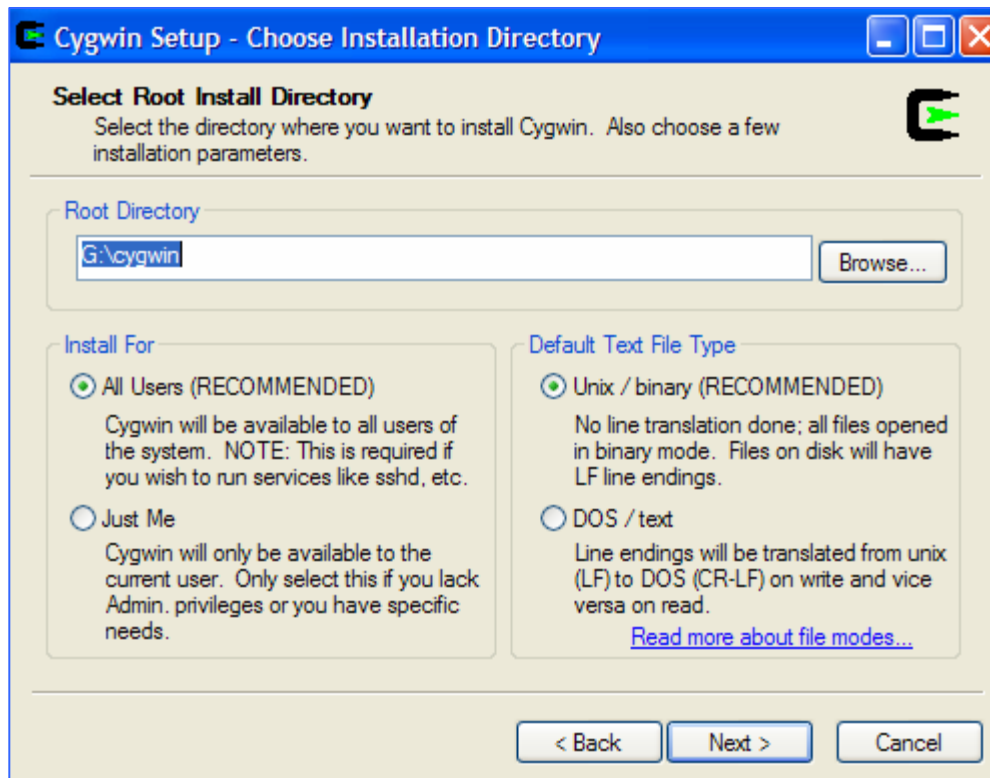
The 1<sup>st</sup> form is the one bellow:



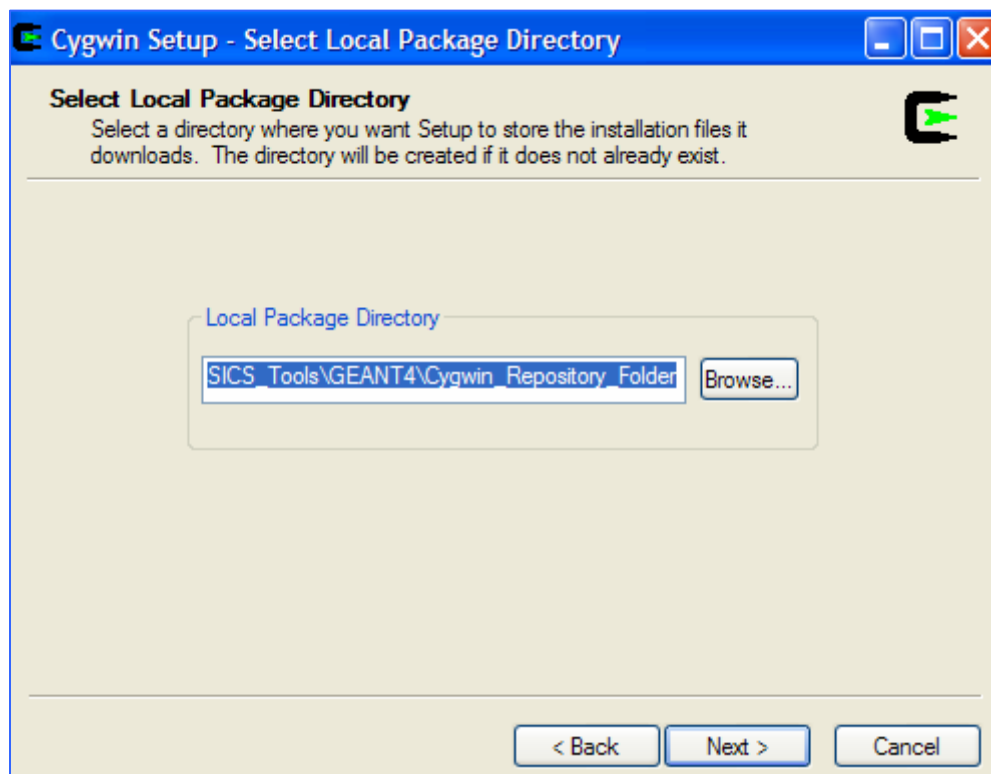
Click next to continue.



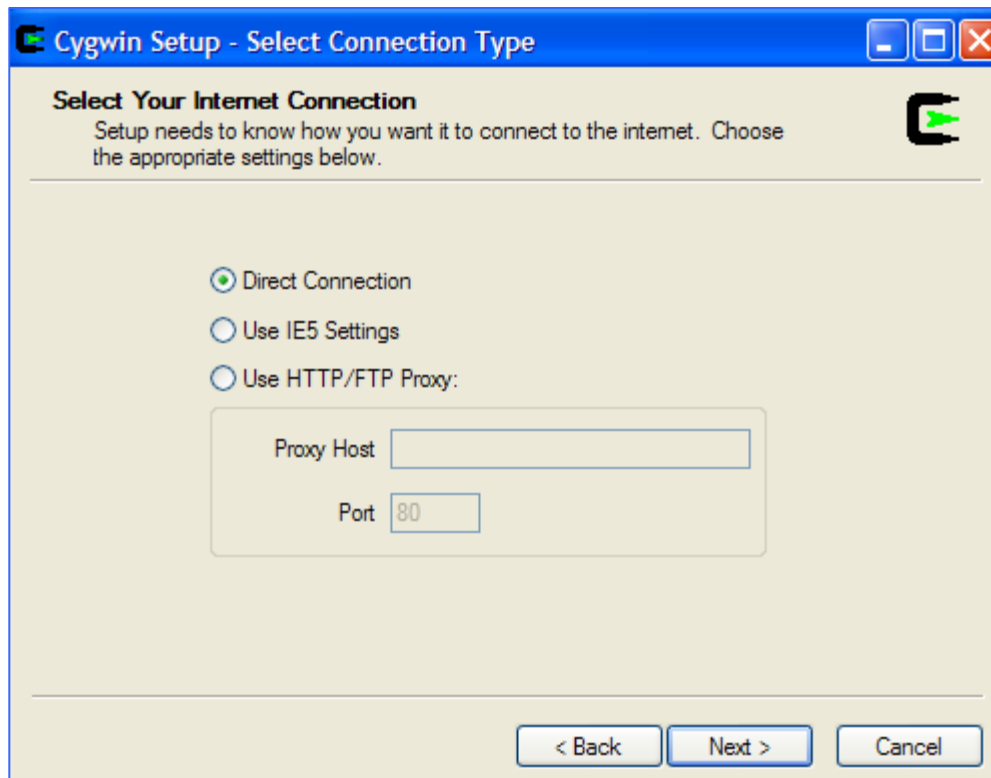
Click Next but before that select to install from Internet or Local Directory. I suggest you save it to Local Directory and keep the cabinet file for other installations in the future (copy it to a CD-ROM).



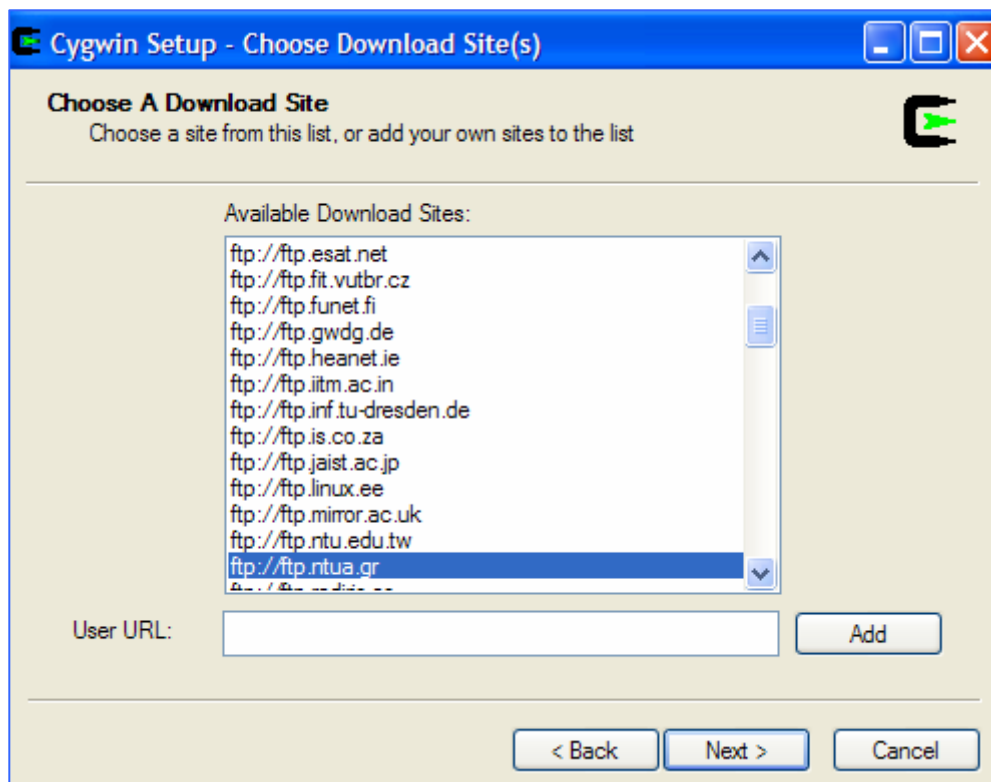
Here you do not – usually – change anything. It is better to keep the default installation folders.



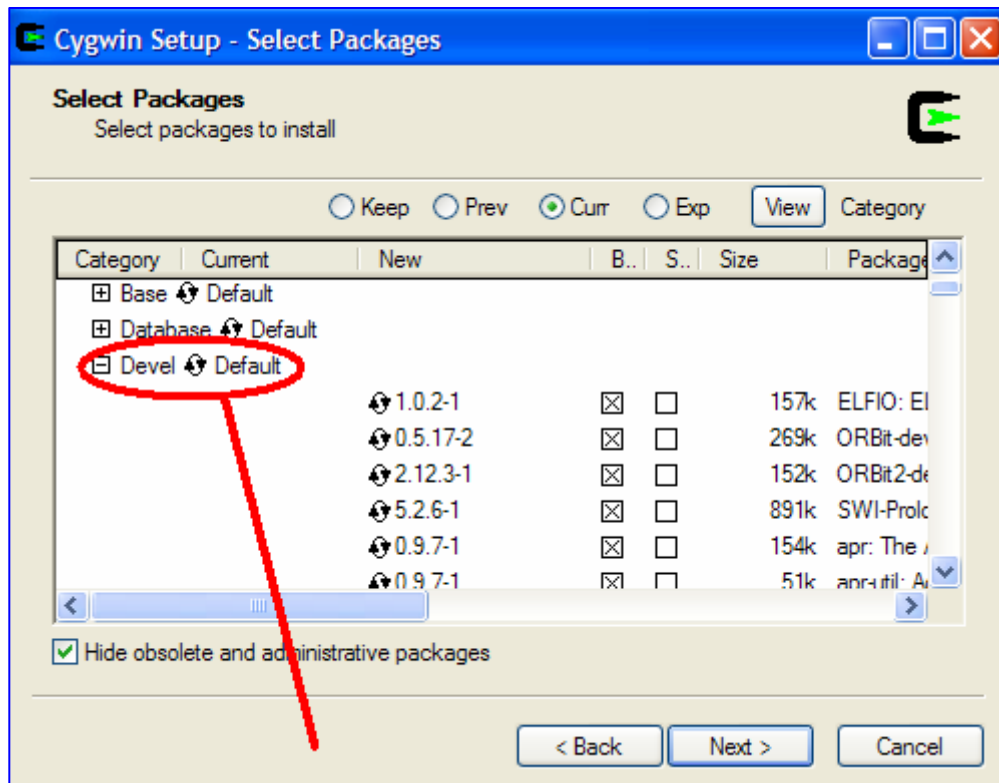
Here you set the folder where the Cygwin cabinet files will be stored.



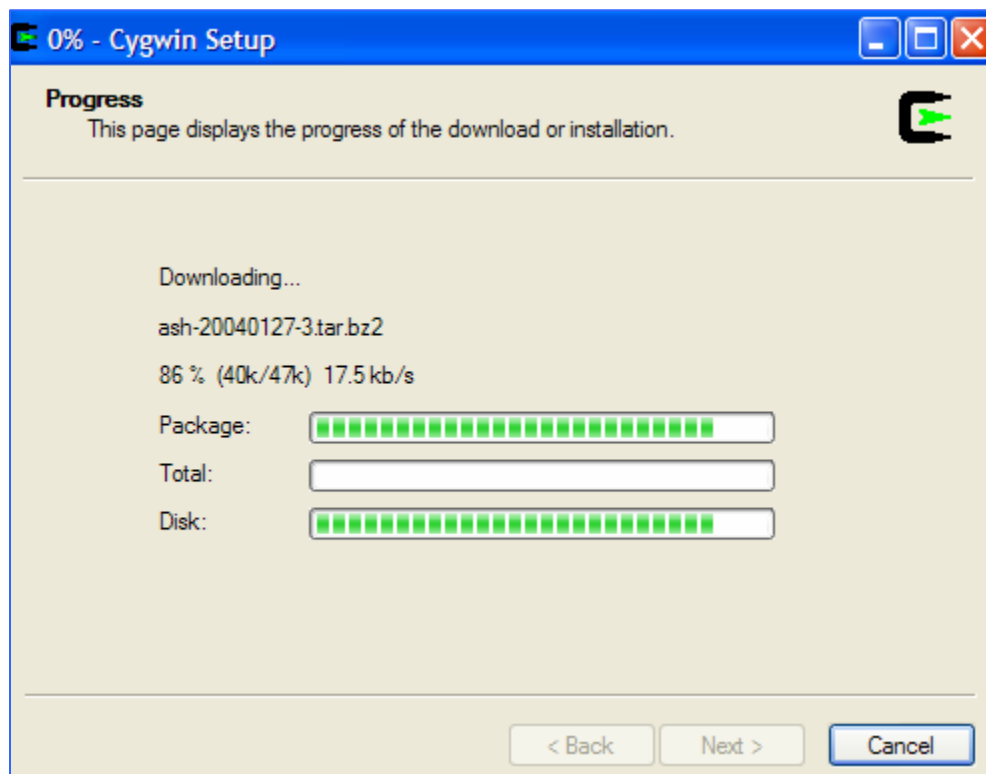
If you have a simple connection choose “Direct Connection” and click Next.



Cygwin installation wizard will now show you a list of mirror sites. Servers where Cygwin cabinet files are stored. Choose one of them. Try to find one in your country *e.x. for Greece I suggest the NTUA server of National Technical Univeristy of Athens*. Then click Next.



Now select the **Cygwin** components you want to install. Pull down the Tree-View control of “**Devel**” option and check everything. If something is missing the **AIRES \*.f** files may not be compiled successfully afterwards.



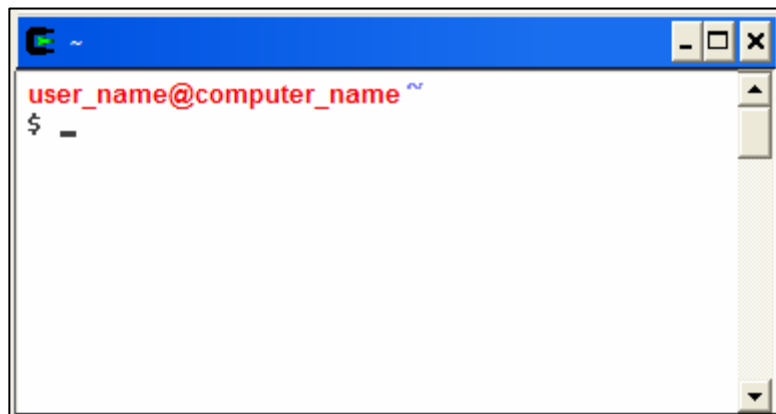
When the progress bars are completed the Cygwin will have been installed.

## Installing AIRES

Visit the AIRES homepage to download the 2.8.2 Version, which is the current one (if you find a newer feel free to download it) at:

<http://www.fisica.unlp.edu.ar/auger/aires>

Open the folder `G:\cygwin\home\user_name` from your windows explorer, where `user_name` is the name of the folder found in `G:\cygwin\home\`. Then copy the `Aires.2-8-2.tar.gz` file - that you have downloaded from the **AIRES** web site - in it. Double click on the **Cygwin** shortcut on your desktop to run the **Cygwin Linux-type** terminal.



Type `g77` and then hit `Enter`. If you see a message like “`g77: no input files`” this means tha Fortran Compiler is installed. If you see any other message like “`Command not found`” then you will have to re-install **Cygwin** and select the **Fortran** Tools from the “**Devel**” Tree-View Control (that’s why I suggested you select all the tools contained there).

Now you have to get in `G:\cygwin\home\user_name` folder to unzip the **AIRES** zipped file. Insert the following command:

```
tar -zxvf Aires.2-8-2.tar.gz
```

**Cygwin** will unzip **AIRES** in a folder named **2-8-2**. Get in this folder by typing

```
cd 2-8-2
```

From the windows explorer get in folder: `C:\cygwin\home\user_name\2-8-2` and open the file “**Config**” with your text editor. Go to the 40<sup>th</sup> line of the text and remone the `#` symbol in front of the phrase: `Platform=Linux`. This will enable **AIRES** to be correctly installed in LINUX-type **Cygwin** environment. Then save the file and return to **Cygwin** terminal. Now insert the following command to install AIRES:

`./doinstall 0`

If everything is ok the wizard will end with a message confirming the current installation.

Now we have to make **AIRES** runnable from every Cygwin folder. Go to [C:\cygwin](#) with windows explorer and open the file "[cygwin.bat](#)" with your text editor. Add the following line before the phrase: `bash __ login -i`

`set PATH=C:\cygwin\home\user_name\aires\2-8-2\bin`

Save the file and exit the editor. Go back to **Cygwin** terminal and type:

**Aires**

If everything is ok you will see the following message:

```
>>>>
>>>> This is AIRES version 2.8.2 (01/Nov/2005)
>>>> (Compiled by user_name@computer_name, date: date of comp.) **
>>>> USER: , HOST: computer_name, DATE: current_date
>>>>
```

```
> current_date current_time. Reading data from standard input unit
```

This means that **AIRES** has been correctly installed. Go to **AIRES Manual** and run the 1<sup>st</sup> example program to be sure that the application responds in the way it should. The manual can be downloaded in PDF format from the same web site with [Aires.2-8-2.tar.gz](#)

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**End of document**