Install Cygnus IPF Generic for PC Win 95/98/NT4/2000

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A. Set up a Cygwin Console on PC running W95/98/NT4/2000:

1. Create a directory **C:\gnu**.

NOTE: [If you do not have an "unzip" utility, copy the file, "freezip.exe" to your system and install it by double-clicking the filename, "freezip.exe"].

2. Copy the full package **Cygnus_IPF-3.27.18generic_W95-98-NT.zip** to the newly created package directory **C:\gnu**, and unzip it.

3. Click **Start | Run C:\gnu\full.exe**. Accept **C:\cygnus** as the installation directory.

4. C: and D: are the assumed names of the hard disk and CD-ROM drive on your PC. If drives "C" and "D" are used differently on your PC, you need to make the appropriate changes while installing IPF on your PC, and creating the following directories. Correponding modifications need to be made in your "cygnus.bat" file, as indicated in Step-B.2, below.

Create five directories on the hard disk of your PC (e. g. using Windows Explorer):
C:\bin C:\tmp C:\basecase C:\shr
C:\home (the assumed directory where you will perform IPF studies)

5. Copy the file **sh.exe** from directory C:\cygnus\cygwin-b20\H-i586-cygwin32\bin to directory **C:\bin**. (e. g. using Windows Explorer):

6. Copy the file **egcs-1_1_1-cygb20_tar.tar** (located in C:\gnu) to directory **C:\cygnus\cygwin-b20**.

6a. If you are running Windows 95/98, you must increase the Environment Space for Cygwin B20. Do this by right-clicking on the Cygwin B20 Shortcut Icon that appears when you access it with **Start | Programs | Cygnus Solutions | . When you right-click the shortcut icon, select Properties | Memory Tab. Then, under Conventional Memory there is an "Initial Environment" drop-down box which was set to "Auto" by default. You must change it to a high fixed value, such as : 1280.** This will eliminate the "Out of Environment Space" error that will occur if you do not make this change.

7. Bring up a Cygwin console window by clicking **Start | Programs | Cygnus Solutions | Cygwin B20**. In this window, invoke the following bash command (**keying with lower case**).

```
$ cd /cygnus/cygwin-b20
$ tar zxvf egcs-1_1_1-cygb20_tar.tar
```

8. **When you right-click the shortcut icon, select "Create Shortcut". Drag and drop the "Cygnus" shortcut to your desktop.**

9. Close this Cygwin console window by typing "exit". You now have completed the Cygnus phase of the installation.

B. User Executables - Installation Instructions for IPF version 3.27

(installing the IPF executables and setting up configuration files)

1. Copy all of the **IPF executable files** (located in the directory C:\gnu\ipf_executables) into the directory C:\bin.

1a. Future **Updated Executables** will be available for download as a "ZIP" file package from the IPF Web Site, http://www.interactivepowerflow.com or on CDROM. If you like, first make a backup copy of all the older executables. Copy the ZIP file to the C:\bin directory, unzip it, and overwrite the older executable files.

2. Copy the file **cygnus.bat** from C:\gnu to C:\cygnus\cygwin-b20. It should have the following contents:

```
@ECHO OFF
SET MAKE_MODE=UNIX
SET PATH=c:\cygnus\CYGWIN~1\H-I586~1\bin;%PATH%;c:\bin
SET HOME=//c/home
SET IPFSRV_CF=ipfsrv
SET RUN_IPFSRV=ipfsrv
SET IPFDIRS=//c/basecase/
SET BASECASE_DIR=//c/basecase/
SET IPF_SOCK_PATH=/tmp/
SET IPFROOTDIR=//c/shr/ipf-3.27
SET CYGNUSROOTDIR=//c/cygnus/cygwin-b20/H-i586-cygwin32/i586-cygwin32/lib
@ECHO OFF
bash
```

NOTE: Make editing changes to the above file, "cygnus.bat", to adjust for the correct drive letters, C or D, etc., on your particular computer system.

3. Copy the master postscript plotting file, **pfmaster.post**, from C:\gnu\ to C:\basecase

C. Developer installation instructions for IPF version 3.27

(building the IPF executables from source code)

1. Copy the IPF source code, **ipf-3.27.18.tar.gz**, into the directory C:\shr.

2. Bring up a Cygwin console window via **Start | Programs | Cygnus Solutions | Cygwin B20**.
In this window, invoke the following bash commands.

```
$ cd //c/shr
$ ls -al
$ gunzip ipf-3.27.tar.gz
$ tar -xvf ipf-3.27.tar
```

```
$ cd ipf-3.27
$ make
```

If all goes well, the "make" script will compile and build all executables, and automatically copy those executables into the C:\bin directory.

3. To install updates, available for download as files such as: **1-April-2001.tar.gz,** copy the update file to the directory C:\shr. Open a Cygwin console window and change to the C:\shr directory. type "gunzip 1-April-2001.tar.gz", to unzip the file, and "tar –xvf 1-April-2001.tar" to untar it. Change to the /1-April-2001 directory and type "make". The "make" script will compile and build all executables, and automatically copy the updated executables into the C:\bin directory.

D. Installing Miscellaneous Accessory Programs

1. If you already have **Winzip** program, skip this step. Otherwise, install Winzip via

Start | Run C:\gnu\miscel\winzip95.exe

2. If you already have freeware Programmer's File Editor (**PFE32**), skip this step. Otherwise, install this very useful editor by first unzipping C:\gnu\miscel\pfe0702i.zip, then right-click on the executable "Pfe32.exe" file and select "create shortcut". Drag and drop the shortcut to your desktop.

A template file **netdat.tpl** has been created using PFE32 to assist data input for IPF fixed-format network data (.net) and powerflow control (.pfc) files. Copy it from C:\gnu\ipf_executables to the directory where you unzipped PFE32 (such as: C:\unzipped\pfe0702i).

3. Utilize the template file **netdat.tpl** under **PFE32** editor to modify IPF Input Data:
   a) Open a new or existing IPF data text file that you plan to edit.

   b) Click on **Options | Preferences**, then **Template** under **Category**, then type **C:\gnu\miscel** under Auto-attach directory on the right hand side.

   c) Click on **Template | Attach** , and enter/click on **C:\gnu\ipf_executables\netdat.tpl** or **C:\unzipped\pfe0702i\netdat.tpl** as the attached template file. Click **Open.**

   d) Then, Click on **Template | Insert**, and pick the specific Data Sub-Template you would like to use.

4. Install freeware **GSview** and **GhostScript** (useful for viewing Postscript files on screen) via

Start | Run C:\gnu\miscel\gsv27550.exe -- (or better yet, see the next NOTE)

NOTE: A newer version of this freeware is also available which includes an enhancement of converting postscript files to PDF format. However, there is a "nag screen" appears every time when you use this tool and ask for your support. By clicking "OK" you are allowed to proceed with the use and not pay any fee. If you don't mind this "nag screen" , you can install this newer version via:

a) Start | Run C:\gnu\miscel\gs650w32.exe [YOU MUST INSTALL IN THIS ORDER]
b) Start | Run C:\gnu\miscel\gsv36w32.exe

5. Install freeware Graphic Difference Program **Vdifmrgs**. This is an extremely versatile program for identifying the differences between two nearly similar files. Install it by first unzipping C:\gnu\miscel \Vdifmrg2.zip , then right-click on the executable " Vdifmrg.exe" file and select "create shortcut". Drag and drop the shortcut to your desktop.

6. If you already have Adobe Acrobat Reader 4.05 program, skip this step. Otherwise install it via:

Start | Run C:\gnu\miscel\ar405eng.exe

The electronic form of the IPF user manuals (ipfbat.pdf, ipfadv.pdf, cflow.pdf and ipfgui.pdf) which are located in directory C:\gnu\docs can be viewed and printed using this Adobe PDF Reader.

You now have installed the Cygnus version of the IPF version 3.27 (GUI is not included yet).

7. Install FTP Program WSftp95-LE. Double-click on the "ws_ftple.exe" executable in C:\gnu\miscel, and follow the prompts to install it. Right-click on the executable " Vdifmrg.exe" file and select "create shortcut". Drag and drop the shortcut to your desktop.

E. IPF execution on PC using the Cygnus Operating Environment:

Running IPF on PC:

Copy sample data files **j01cy00.net** and **j01cy00.pfc** from C:\gnu\dat\ to **c:/home**. The following command sequence will generate a binary base case from the ASCII network data file.

- Invoke a Cygnus console window by clicking

Start | Programs | Cygnus Solutions | Cygwin B20 | Cygwin B20

Within this Cygnus console window, all commands are in **lower case**. The Cygnus console can address any file which the Windows NT Explorer can, but the conventions have slightly different but easy to remember conventions. This can easily be demonstrated by an example:

A file in an NT console -- **C:\basecase\j01cy00.bse** would be referenced as :

//c/basecase/j01cy99.bse in a Cygnus console.

- In the Cygnus console window, the bash shell prompt **bash-2.02$** appears**.** Now type the following commands:

cd //c/home (change directory to c:\home), and
ipf.bash **(** start the execution of ipf ; this emulates much of the look and feel of the IPF commands on VMS user interface.)
1, 3 (select Batch Poweflow BPF, Interactive IPF)
j01cy00.pfc (enter powerflow control (.pfc) data file name)

Note: you cannot log out of Windows NT until you close all Cygnus windows by typing "exit".

F. Helpful tips on Cygnus commands

1. When invoking commands within the Cygnus console window, the bash shell is trying to interpret your intentions. If in a general command you are entering a file name, you need to only enter a few leading characters in push the <TAB> key to let bash complete the command. If nothing happens, push <TAB> twice to see all the ambiguous file options available.

2. **C:\home** and **C:\basecase** are the two assumed directories from which you will perform your IPF studies. However, you can choose any other directories to run your IPF studies. To do so, just remember to edit the following lines in C:\cygnus\cygwin-b20\cygnus.bat file: have **home** and **basecase** changed to the directories that you choose:

SET HOME=//c/home
SET IPFDIRS=//c/basecase/
SET BASECASE_DIR=//c/basecase/

Note the syntax very carefully: the closing slash "/" should be included in the second and third lines but not the first.

Both environment variables **IPFDIRS** and **BASECASE_DIR** should refer to same directory, **C:\basecase**. Also note that if a different drive is used, e.g., **D:** drive, change **//c/...** in the above statements to **//d/..**)

Any changes made to the **cygnus.bat** file do not become effective until you exit and bring up a new Cygnus console window.

G. Comparison of Cygnus commands to the VAX VMS Equivalents:

Sample list of Cygnus Commands versus those of VAX Equivalent Commands:

Function	VAX/VMS command	Cygnus command
Directory	$ DIRECTORY	> ls
Find a file in the directory	$ DIRECTORY […]file	> find . -name file
List all files in current directory	$ DIRECTORY/FULL	> ls -al
Show root/home directory	$ SHOW DEFAULT	> pwd

Descend into subdirectory	$ set def [.new]	> cd new
Ascend into parent directory	$ set def [-]	> cd ..
Go to the default directory	$ home	> cd ~
Go to IPF_Demo directory	$ cd c:\home\ipf_demo	> cd /Home/IPF_Demo
Create a directory	$ CREAT/DIR [.dirname]	> mkdir dirname
Execute a command ipf.bash	$ @ipf.bash	> ipf.bash
Run a program	$ RUN program	> program
Copy files	$ COPY file1 file2	> cp file1 file2
Delete a file	$ DELETE filename	> rm filename
Find differences between files	$ DIFF file1 file2	> diff -c file1 file2
Rename a file to a new name	$ RENAME file1 file2	> mv file1 file2
Search for “pattern” from a file	$ SEARCH file “pattern”	> grep pattern file
Set parent dir to be home dir	$ SET DEFAULT [-]	> cd ..
Set a sub dir to be home dir	$ SET DEFAULT [.dir.name]	> cd dir/name

Note that Cygnus commands and file names are cases sensitive. All Cygnus commands are in lower case.