R2CGGTTS v1304
User's Manual.

Written by P. Moussay / L. Tisserand
Technicians
BIPM Time Section

LT/TM.01 dated 22 September 2003

• Introduction

This program has been written to automate the conversion of RINEX data files in CGGTTS format files. It is important to know that the software is using the PC time and date as reference.
Therefore you need to set the PC time to UTC (within a few minutes) and verify the date is correct.

The conversion code itself was written by Pascale Defraigne (ORB), using the code version 3.4. This code generates the CGGTTS files in a MULTI-CHANNEL approach from RINEX files at a sampling rate of 30 seconds using broadcast orbits and P3 code

At the date J, it will process data from the date J-2 (files for J-1 are necessary).

The automation program runs the conversion code once a day at 1h00 (PC time).
The output files contains up to five days of data. A file ends on a standard date (MJD ending with 4 or 9). There is also possibility to choose the output files contains up to one day of data, this option must be selected in "output file period content".

It can also automatically transfer the completed files to a FTP server using the Microsoft FTP Client imbedded in Windows NT / 2000. (I don't know if it works also with Win 95 /98 .)

It is written in Microsoft Visual Basic 6.0 and has been tested under Windows 2000 and Windows NT4.0 SP6. It has also been tested under Windows 98.

• Installation

You can install the software on any PC which has access to the RINEX files either on a local drive or a network drive. The program runs at 1h00 (PC time) so please make sure the RINEX files are available to the software at that time.
I am afraid the installation wizard is in French but as it is a standard Windows setup program, it should not be too difficult to understand. Please install the program in the following folder:
c:\program files\r2cggtts

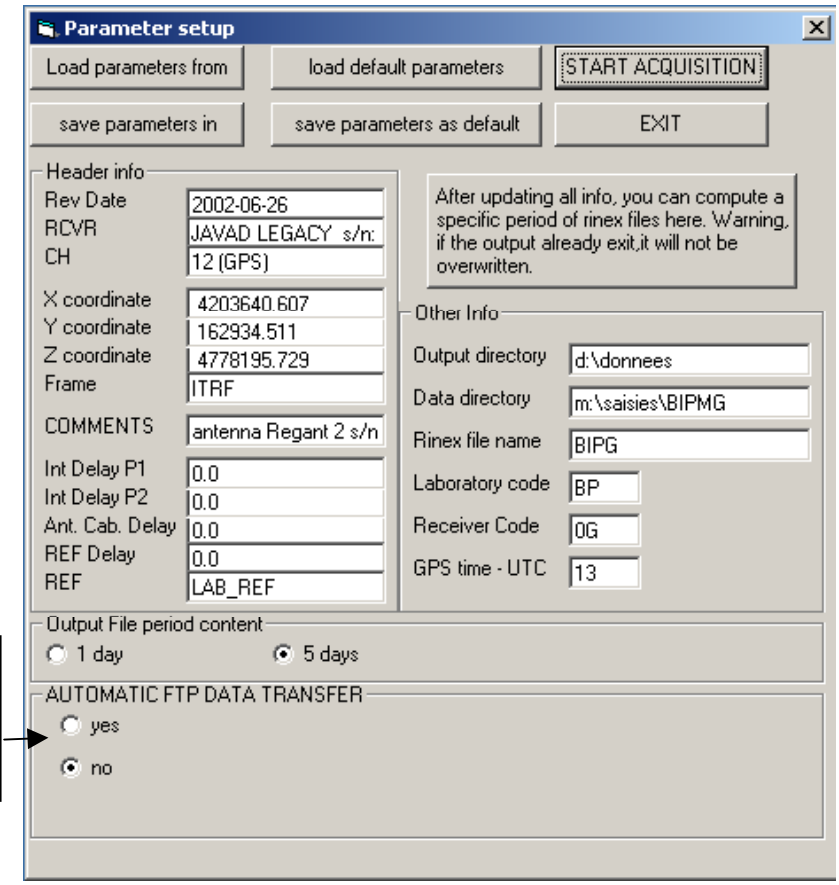
This is important since some files e.g. the default configuration file for the software, the conversion code are to be found there.
In this directory you will also find the log files for the FTP transfer.

A new shortcut will be created in your windows menu. You can start the program either through it or by double clicking on the R2CGGTTS.EXE file

❖ Program usage

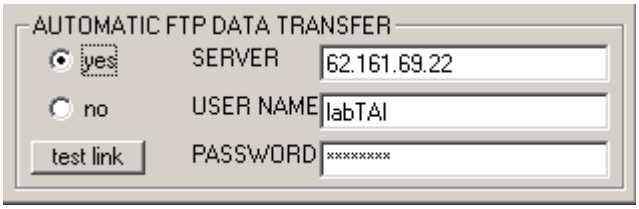
Run R2CGGTTS.EXE

- You should get this screen:



To activate the automatic FTP transfer, choose yes

If you choose to transfer the output data to a FTP site then this should appear

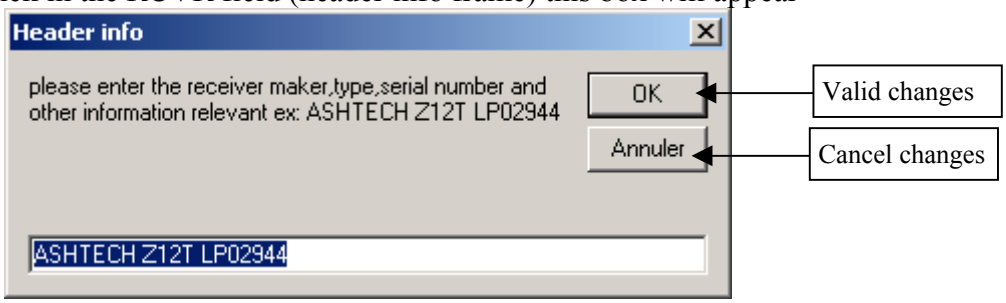


Note, as default the transfer is set for the upload data server of the BIPM Time Section.

To exit the program, press the **EXIT** button **do not** use the  symbol.

- UPDATE the parameter fields

You will have to update the parameters to suit your application. To do so click in the field you want to update, a new dialog box will appear with a short explanation of what should be in the field.
Example, if you click in the RCVR field (header info frame) this box will appear



As you can see a small paragraph describes what should appear in the field with an example.

Here is the list of the parameters and their meaning

HEADER INFO FRAME:

Field name	Description
Rev Date :	date of the latest update of any of the header info parameters. ex : 2002-05-28
RCVR :	receiver maker, type, serial number and other information relevant ex: ASHTECH Z12T LP02944
CH :	receiver number of channel and system ex: 12 (GPS), 1(GEO)
X coordinate	enter X coordinate of the antenna phase centre in Meters ex: 4203640.1300
Y coordinate	enter Y coordinate of the antenna phase centre in Meters ex: 162934.3540
Z coordinate	enter Z coordinate of the antenna phase centre in Meters ex: 4778196.4030
Frame	enter the frame in which the Coordinates are expressed ex: ITRF97
COMMENTS	enter any particular comments about the set-up ex: NO COMMENTS
Int Delay P1	enter the system(receiver + antenna) P1 internal delay (X_R+X_S) in ns ex: 301.3
Int Delay P2	enter the system(receiver + antenna) P2 internal delay (X_R+X_S) in ns ex: 313.7
Ant. Cab. Delay	enter the antenna cable delay (X_C) in ns ex: 128.33
REF Delay	enter the delay to Receiver reference (X_P+X_O) in ns ex: 34.8
REF	Identify the laboratory reference. ex: UTC(OP)

Please see ANNEX 1 “standard hardware setup” for more delay explanations.

OTHER INFO FRAME:

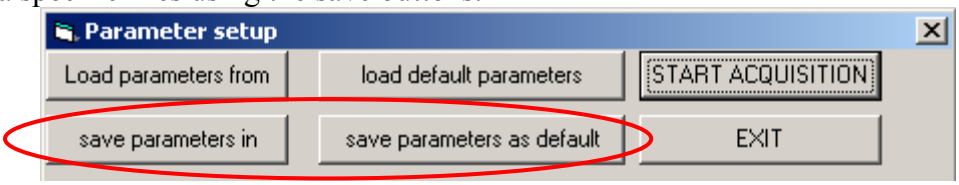
Field name	Description
Output directory	enter the data storage complete path name (restriction : no blank) ex: c:\data1
Data directory	enter the raw data complete path name ex: d:\data\bipmc
Rinex file name	enter the 4 character IGS station code ex: BIPD (files are BIPD1680.02O and BIPD1680.02N
Laboratory code	enter the 2 character laboratory code (to get from the BIPM) ex: BP
Receiver code	enter the 2 character receiver code (your choice but must start with a number ex: 01 or 0_ or 4D
[*GPS time – UTC*]	enter the current [*GPS time – UTC*] in seconds ex: 13

AUTOMATIC FTP DATA TRANSFER FRAME:

Field name	Description
SERVER	enter the FTP server identification ex: 62.161.69.22
USER NAME	enter the User name ex: labTAI
PASSWORD	enter the password

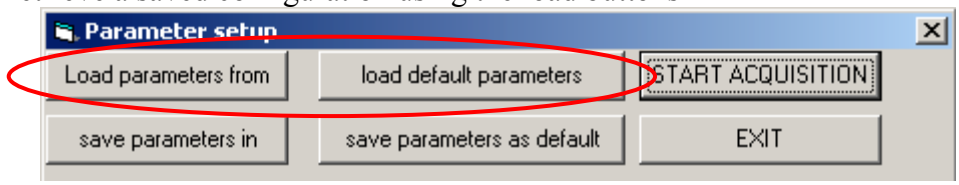
- SAVE your parameters

Once all parameters are updated, you can then either save your parameters as default or save them in a specific files using the save buttons.



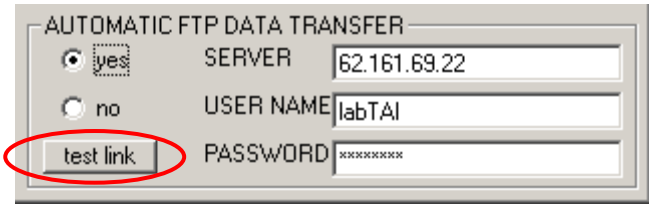
This is important because the software will always restore the default parameters at the startup.

You can retrieve a saved configuration using the load buttons

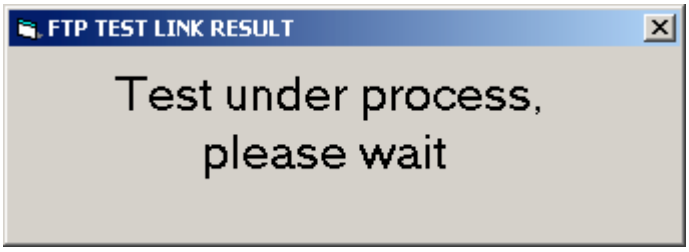


- Automatic FTP transfer.

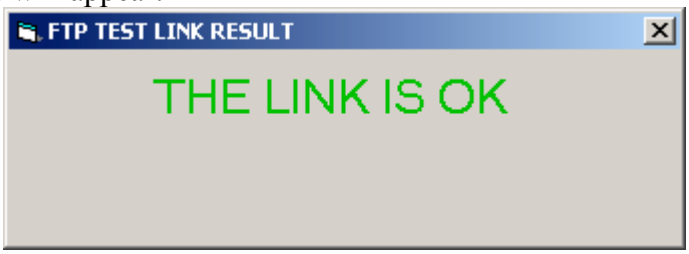
If you use the automatic FTP facility, Please verify the link with the test link button



The following window will appear:

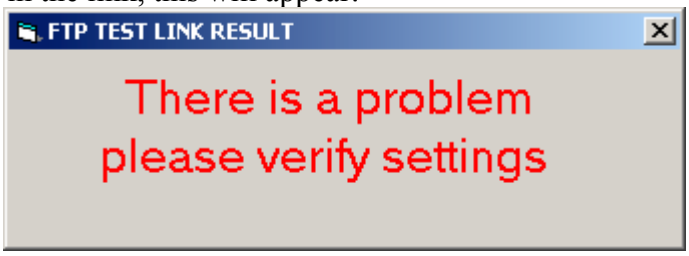


If the link is OK this will appear:



Close the window using the  in the top right corner of the window.

If there is a problem in the link, this will appear:

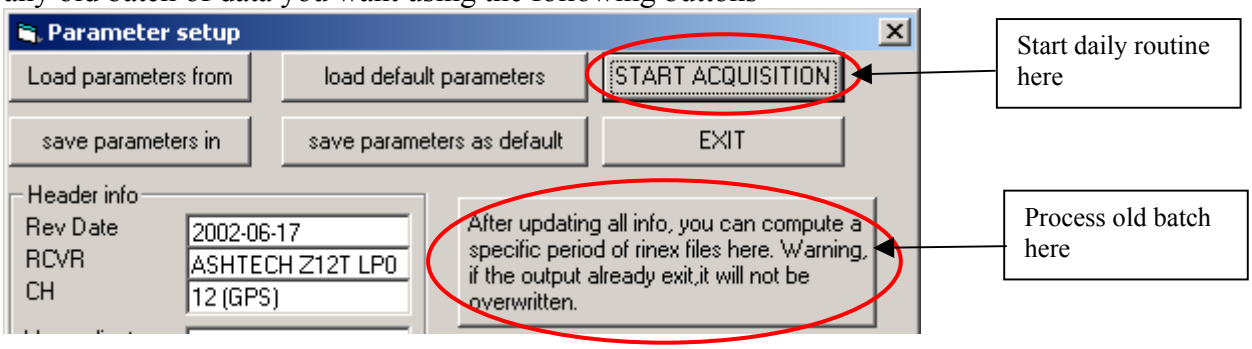


Close the window using the  in the top right corner of the window.
In this case, verify your communication parameters, the file “testftpXX. Log” in the application directory (XX is the two character Receiver Code). Verify if the default FTP program is the windows imbedded client one

When selected, it will transmit the output file after the computation of each standard date.

- Start processing

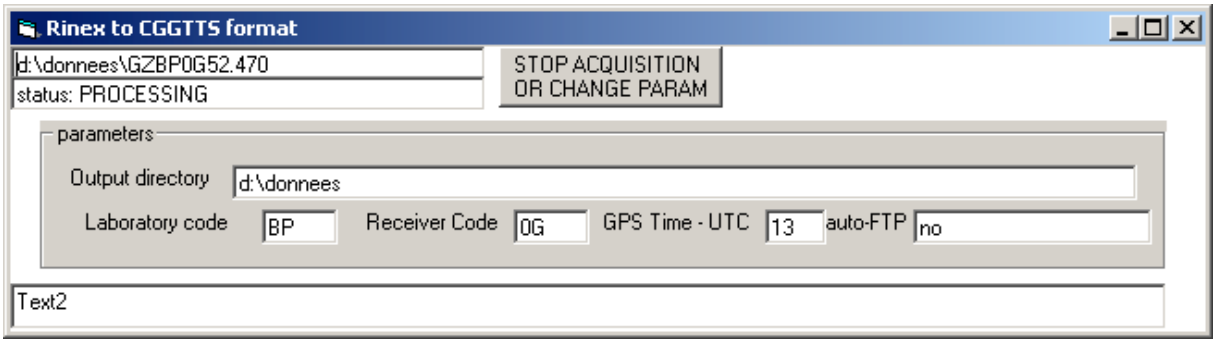
Once the parameters are updated and saved, you can either start the daily routine or process any old batch of data you want using the following buttons



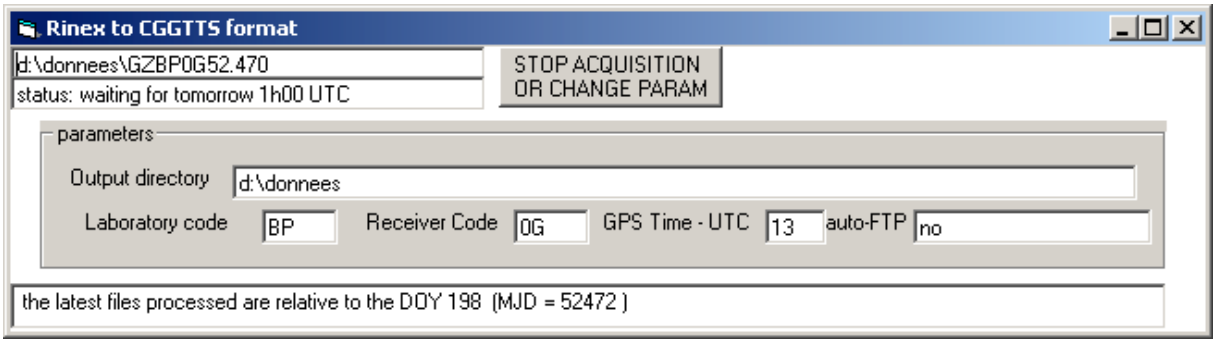
In both cases, if the automatic data transfer is activated, any complete file will be transferred.

- Batch processing:
  When processing an old batch, it would be wise to change the destination directory because if the output file already exist, the program will only ADD data posterior to the last data of the existing file. Reprocessed output files will be transferred by FTP if the option is activated.

- Daily automatic processing:
  If you "start acquisition" this screen will appear.



The program will try to process J-2 data if available.
At the end of the process, the status and the "text2" will be updated.



To exit, press the STOP button.

- ## Trouble shooting

  - **Known problems**
    - This version solves the “type incompatible” problem noticed in the previous version by WIN98 users.

If you have any problems please contact BIPM Time Section
ltisserand@bipm.org
Tel +33 1 45 07 70 45

ANNEX 1
"standard hardware set-up"

Delays Definitions

- X_P = Delay of the 1PPS-in to the laboratory reference
- X_O = Delay of the "internal reference" to the 1PPS-in
- X_R = receiver internal delay, measured from the "internal reference"
- X_C = antenna cable delay
- X_S = antenna delay

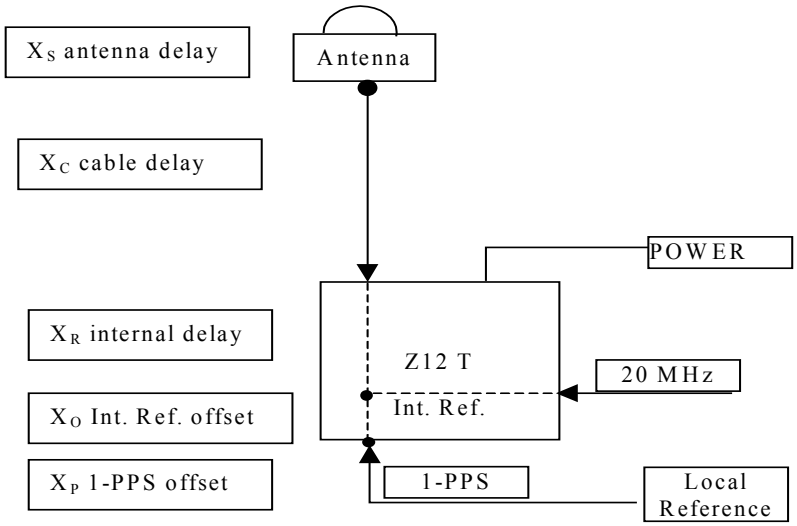


Figure 1: Definition of the different delays used in a typical set-up .

The precise definition the "internal reference", to which the GPS measurements are referred, is given in (Petit et al., Progresses in the calibration of geodetic like GPS receivers for accurate time comparisons, *Proc. 15th EFTF*, 2001, 164-166.).
The values of X_P, X_O, X_C are to be measured at each new set-up. The values of X_R and X_S are the calibration results.