File Transfer Verification in NBEMS with fldigi and flwrap

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You can send or receive a file and verify that it was copied 100% using fldigi and flwrap.

Our guidelines and tips

- Send text only. We do not have the bandwidth to send large binary files. Remember a 2 kb file takes 2 minutes to transmit using MT63-2000. This is a typical repeater timeout period.
- Work with your Served Agency ahead of time to set their expectations for our capabilities. You do not want them to be surprised during a drill or an actual disaster.
- If handed a Word file, try to export to "Plain Text" or copy-and-paste the contents of the document into Notepad.
- Export Excel spreadsheets as "CSV (comma delimited)" before wrapping.
- To make life a little simpler, place a shortcut to flwrap in your WRAP\recv folder.
- To more easily find the most recent incoming wrap file, change the view of your WRAP\recv folder to Detailed with **View->Details**.

How it works

flwrap embeds the name of the original file and a checksum into a new file that is transmitted. The receiving station runs flwrap to extract the original file and the embedded checksum. A checksum calculation is then run against the incoming data. If this checksum is identical to the embedded checksum, we can be 100% certain that the file was received without error.

Original file:

This is a CSV file of a shelter roster that was exported from an Excel spreadsheet.

```
Wrist Band ID,Last Name,# of family @ shelter,# of family unaccounted for
02-004,Duncan,1,1
01-002,Duncan,1,1
01-001,Boston,3,0
02-003,Clarkin,3,0
06-001,Charnock,1,0
```

Wrapped file:

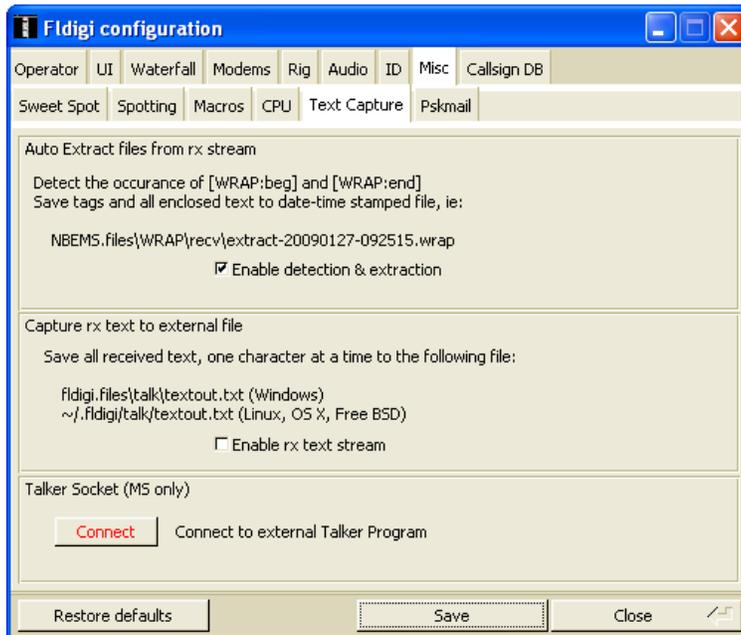This is the same shelter roster CSV file after being processed by flwrap.

```
[WRAP:beg][WRAP:crlf][WRAP:fn Shelter Data.csv]Wrist Band ID,Last Name,# of family @ shelter,# of family unaccounted for
02-004,Duncan,1,1
01-002,Duncan,1,1
01-001,Boston,3,0
02-003,Clarkin,3,0
06-001,Charnock,1,0
[WRAP:chksum 4162][WRAP:end]
```

Configure fldigi and install flwrap

1) Configure fldigi to capture incoming wrap files:

   Configure->Misc->Text Capture

   Check the top checkbox for "**Enable detection & extraction**".

2) Install flwrap:

   Download flwrap from http://www.w1hkj.com.

   Double click on the installer and go through the install process.

   When finished, you will have an flwrap icon on your desktop.

To send a file using fldigi and flwrap

1) Create your file using either a text editor or exporting a spreadsheet in CSV format
2) Drag and release this file over the flwrap icon on your desktop. A file with a flwrap checksum embedded in it will be created in the same directory as your original file. You will see a pop-up window indicating that the file was wrapped.
3) Drag this "wrapped" file into your fldigi transmit window pane. By default this is the lower large pane and is blue.
4) Hit the TX macro key followed by the RX key.

To receive a file using fldigi and flwrap

1) Watch the incoming data for the [WRAP:end] designator. You'll also see an indication at the bottom of your fldigi screen that a file is being extracted.
2) Go to the folder that contains incoming wrap files:

   In fldigi:

   File->Folders->NBEMS files…

   Double click on the **WRAP** folder.

   Double click on the **recv** folder.
3) fldigi saves extracted wrap files using the naming convention "extract-yyyymmdd-hhmmss".

   Find the most recent extract file.

   Drag and drop it over the flwrap icon you created previously.

   You will see a message indicating success or failure of checksum verification. If the checksum was verified, the original file that was transmitted will appear in the recv folder.