




Ramonville, 23rd February 2006


NS/NT/GC 06.013

Reports reading with eLocust2

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1 Introduction

This document specifies how to read the reports sent with the eLocust2 application, and how to convert these reports to the format of the FAO database. The eLocust2 application offers three ways of collecting data:

- by sending a report over satellite to the Novacom website. The website can then automatically send an email with these data to predefined addresses;
- by saving a report on the Wescor (the small computer with which a survey officer enters his observations on the ground) and then downloading it later on a PC;
- by downloading the data received on the website.

Only the first two procedures are used with the FAO eLocust2 application. Thus, the third way of collecting data is not described in this document.

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2 The Novacom platform

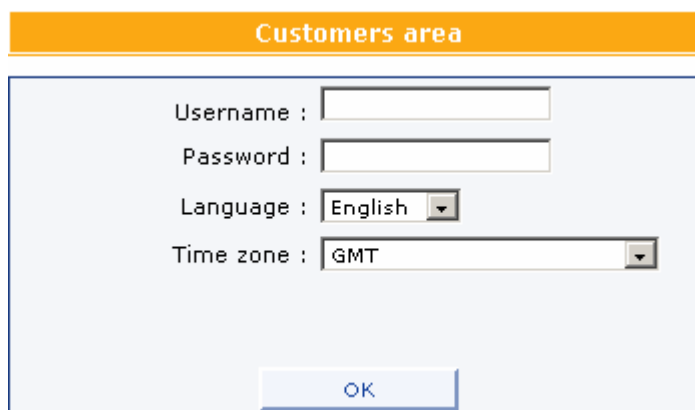
The Novacom platform is a website which collects and processes the data emitted by the assets on the ground. It allows a user to view easily the reports sent over satellite by the locust survey officers, and to view on a map the position of sending of these reports.

2.1 Connection to the platform

Connect a PC with web access to the following URL:

<http://www.novacom-services.com>

Then click on *Accès client*. A login window appears:



Select the *English* language. Log in with the identity delivered by the FAO, specific to your country. Then validate by clicking on *OK*. The startup page appears, with the last report sent by each asset.



Menu

Main screen

| | Date / Time | Asset | FAO Report | % kill | Adult behaviour | Adult breeding | Adult maturity | Adult phase | Adults seen | Area info |
|-------------------------------------|---------------------|-------------|------------|--------|-----------------|----------------|-----------------|-------------|-------------|-----------|
| <input checked="" type="checkbox"/> | 20/02/2006 14:56:12 | LOCUST TEST | 25 | 100 | Groups | Laying | Maturing Mature | Gregarious | 999 | 999 |
| <input checked="" type="checkbox"/> | 02/02/2006 10:30:32 | FAO 02 | 3 | | Isolated | | Immature | Solitary | | 12 |

Date and time are displayed with respect to the GMT time zone.

On the left of the screen are the menus. By clicking on an orange item of a menu, you can display a submenu. If you click on a submenu, its content appears in the main screen.

2.2 Definition of an asset

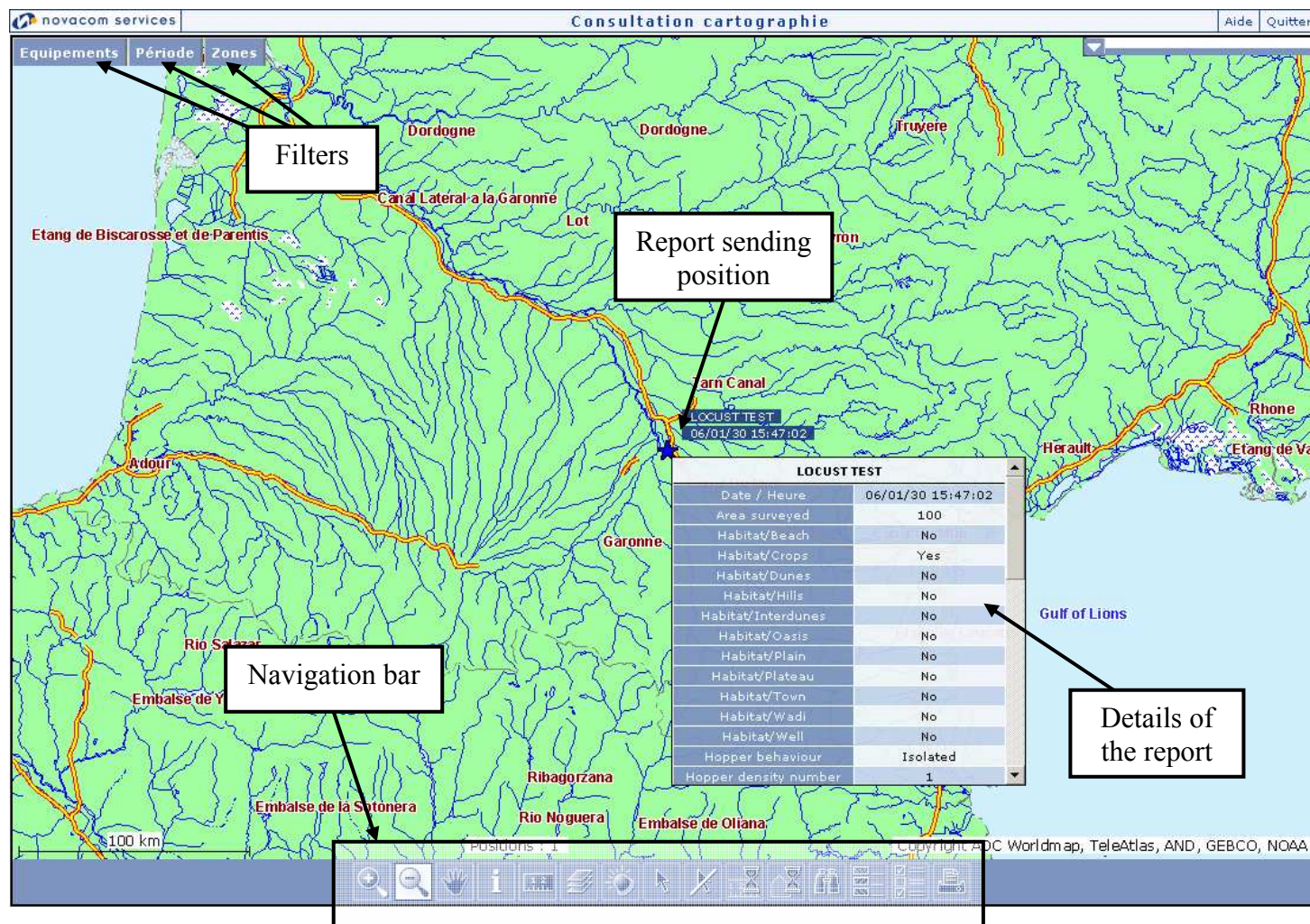
An asset is a complete unit for the storage and the transmission of locust reports. An asset is mobile and belongs to one locust survey officer. An asset is composed of a Wescor (the small screen used by the locust survey officer to enter data) and a SAT-201 (the antenna that gets the GPS position and transmits reports over satellite).

An asset can either be activated or deactivated. While activated, an asset can send data over satellite. While deactivated, it can only save data on the Wescor and download it on a PC. Both activated and deactivated assets are visible on the platform. The person in charge of the activation and deactivation process at the FAO is Keith Cressman. To activate or deactivate an asset, send a mail to keith.cressman@fao.org.

Each country holds a given number of assets. These assets and the reports sent with these assets are visible on the Novacom platform. On the platform, you can consult the data of all the assets belonging to your country, and only these ones (not the ones belonging to the other countries).

2.3 Map

The map displays the positions of sending of the different reports. To show the map, click on *Mapping*, in the menu *Consultation*.

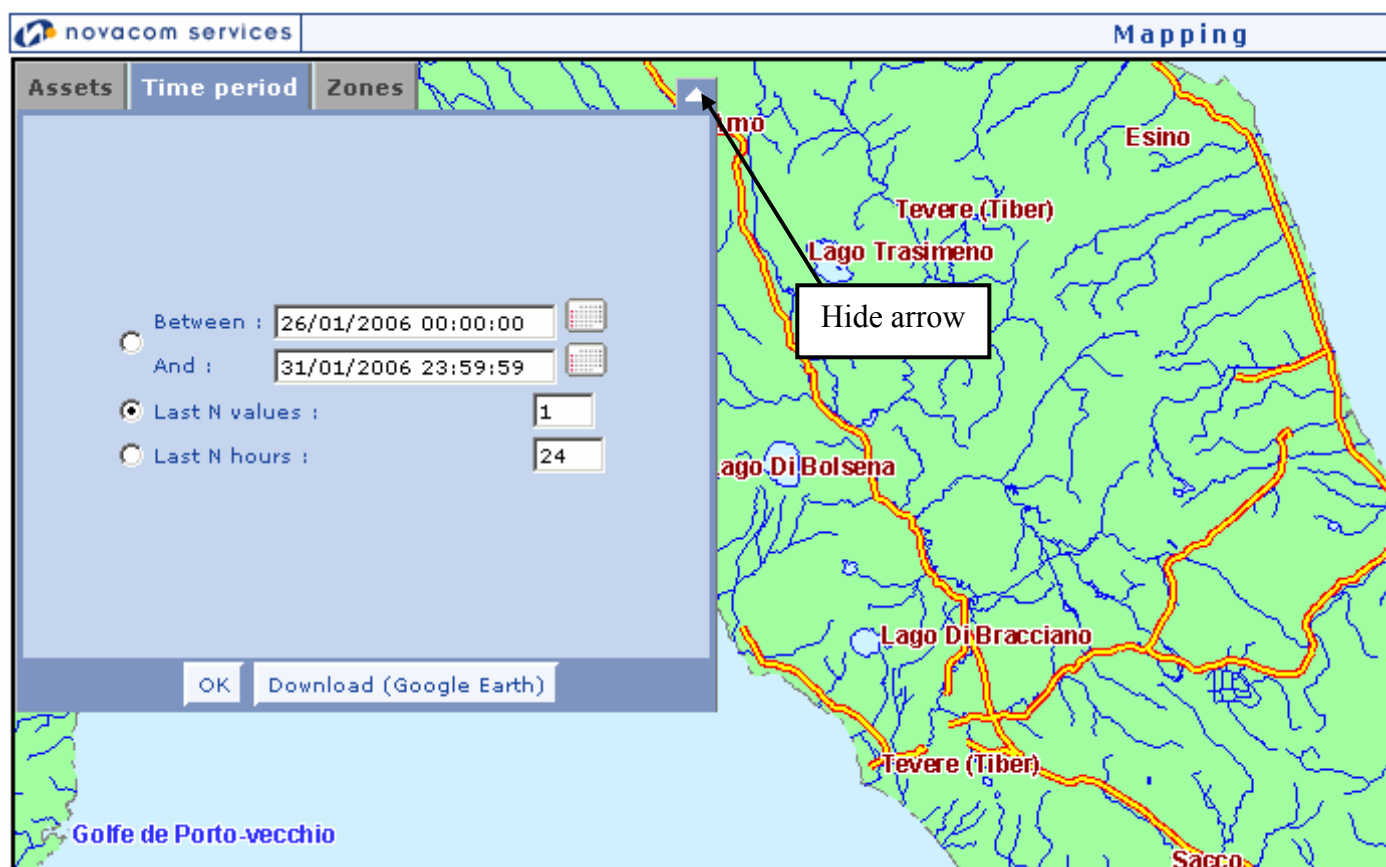


Use the icons on the bottom of the map to navigate through it (scroll, zoom, etc.).

The stars on the map are the most recent positions received for each asset. The name of the asset and the date of reception of the report are displayed next to each position. If you drag the mouse above a star, the details of the data associated to the report are displayed on the map.

The small dots are former positions of the assets. They are linked to indicate the path followed by the asset.

The three tabs in the top left corner are filters on the displayed positions. Drag the mouse above one of these tabs to open a menu where you can specify limitations concerning the reports to display on the map (you can select the reports sent in a given time period, with a specific equipment, etc.).



You can hide the filters window by clicking on the up arrow in the top-right corner of the window.


2.4 Data

On the menu *Analysis* on the left of the screen, click on *Data*. A table is displayed in the main screen, with the data of the received reports. By default, this table contains the last report sent by each asset. The reports are time sorted, with one line per report, the most recent report being on the top.

All the data of the reports are displayed in this table, with their date of reception by the platform. For one report, if a field has not been filled in by the user on the Wescor, the field is not displayed in the table.

To filter the displayed data, drag the mouse on the *Assets* tab on the top-left corner of the screen. Toggle the tickboxes of the assets you want to be displayed, toggle off the others. Then drag the mouse on the *Time period* tab. For the chosen asset(s), you can either choose to display:

- the reports received between two dates;
- the *N* last reports;
- the reports received during the last *N* hours.

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Once you have set the filters on the assets and/or on the time period, start the filtering by pressing the *OK* button. The platform will search for a while the reports which correspond to the search, then the table will be displayed.

Note: The more reports you want to display, the longer it takes for the platform to display the selection. The table can display a maximum of 1000 reports at the same time. If the filter you entered is too large, the following message is displayed:

***** ERROR *****

- You have asked for 1950 values while the maximum number of values to display is limited to 1000.

Of course, the number of values specified here (*1950*) is an example. If this message is displayed, reduce the time period or select less assets then click on *OK*.

2.5 Tabs

As a report can contain many fields of value, the data table might become a bit heavy and difficult to read. That is why another way to consult a report is available. Seek the report you want to consult, then click on the date of reception of this report in the table (the link in the *Date / Time* column). A new window appears.

| Field Report | Habitat | Rain and soil | Locust | Hoppers | Swarms |
|---|---------|---------------|--------|---------|--------|
| <p>Date/time : 30/01/2006 15:47:02</p> <p>Position : 43.54972N 1.485E</p> <p>Area surveyed : 100 ha</p> <hr/> <p>User ID : 10</p> | | | | | |

This window displays the content of the selected report. The data are classified tab by tab, each tab corresponding to a screen of the eLocust2 application on the Wescor. Drag the mouse over a tab on the top of the window to display the data corresponding to this screen. Only the fields that were filled in the report are displayed. If no data has been entered for a given tab, this tab is not displayed.

| | | | | | |
|--------------|---------|---------------|--------|---------|---------------|
| Field Report | Habitat | Rain and soil | Locust | Hoppers | Swarms |
|--------------|---------|---------------|--------|---------|---------------|

Maturity

☒ Immature
☒ Maturing
☐ Mature

Swarms

Size : 1 ha
Number of swarms : 1


Breeding

☒ Copulating
☐ Laying

Flying

From : N
To : SW
Height : Low

In the screen above, the tick boxes are toggled if the associated item was selected by the user on the Wescor.

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3 Mail diffusion

When the user of a Wescor sends a report, the latter is transmitted to the Novacom platform. The data can then be consulted on the website. It can also be automatically forwarded by mail to specific addresses registered beforehand in the platform. The mail contains a single *.xml* file containing all the data from this report.

However, the format of this file does not fit the FAO database. That is why Novacom has provided a software to read the *.xml* file and turn it into an Excel file that can be easily imported in the FAO database.

3.1 Address subscription

To associate an email address to an asset, open the *Management* menu on the left of the screen by clicking on it, then click on the *Asset* item. A list of the available assets is displayed. Select an asset by clicking on its name in the *Asset* column. The menu *Asset definition* is displayed.


Asset definition

Name :

Last modification : [GMT] 06/07/2005 14:58:53

Description :

Maximum speed (km/h) :

Map symbol :  Size :

Sensors :

Data dissemination :

1 :

2 :

3 :

There is no active surveillance.

Active surveillances :

Inactive surveillances :

Other surveillances :


Automatic poll :

Hour :

Minute :

Send every minutes from : to :

In the submenu *Data dissemination*, click on *Add*. A new line appears. In the empty field, enter the mail address where you want the data to be sent to. Then click on *Save* on the bottom of the screen to validate. From now on, each report received from the current asset will be transferred by email to the new address. The mail is also sent to the other addresses if more than one address has been registered for this asset.

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3.2 Install and configure the mailReader

The software *mailReader* is necessary to convert the *.xml* file received with the emails of the platform to a format adapted to the FAO database.

3.2.1 Installation

Copy the following files on your PC:

- *diffusion.dtd*,
- *mailReader.xls*.

3.2.2 Security of the macros

Open *mailReader.xls*. The window *Security warning* appears, asking if you want to run the macros or not (the macros are functions programmed in the Excel file to process data automatically). Click on *Disable macros*.

If this window does not appear, you need to change the security level of Excel. To do so:

1. In the menu bar, select *Tools/Macro/Security*.
2. Set the security level of Excel to *medium*, then click on *OK*.

3.2.3 Language


You can change the language in which the processed data will be displayed. To do so, click on the *Options* tab on the bottom of the screen of *mailReader*. Next to the cell *Language / Langue*, enter *English* or *Français*.

3.2.4 Local time zone

The data processed by the software is time stamped in universal time. You need to configure the software so that it corrects these data and displays them in local time. To do so, change the value of the field *Timezone / Heure locale* in the *Options* tab. Enter the value in hours (with a negative value if your area is Western to the Greenwich Meridian).

3.2.5 Save the settings

In the File menu, choose *Save*. Then close Excel. Reopen *mailReader.xls*.

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3.3 Read the reports

3.3.1 Reception of the reports

When you receive a mail, download the attached *.xml* file and put it in the directory where you have already put the file *diffusion.dtd*. You can download as many reports as you want and put them in the same directory.

Run *mailReader.xls*. When the window *Security warning* appears, select *Enable macros* (if the window does not appear, you need to configure the security level of the macros (cf. § 3.2.2: *Security of the macros*)).

A browser asks you to choose the files to decode: choose the *.xml* file that was attached with the email. You can also select multiple files by dragging the mouse, or by clicking on multiple files while holding the *Ctrl* button pressed, then pressing on OK. All the selected files will be processed in a single shot.

3.3.2 Data format

After a while, you will see an Excel table, with one line per report. The date associated to each report is the date of reception of this report by the Novacom platform (given in the local time zone of the user of *mailReader*), which is short before the time it is transmitted by mail.

Reports sent in two times (with additional *Control* data) are regrouped on the same line, with the date of the first sending. The eldest messages are on the top of the table, the most recent are on the bottom.


The names of the fields are the same as the ones used in the database of the FAO. The names can be slightly different between the Novacom platform and the database of the FAO.

| User ID | Report ID | Transmission | Missing | Date | Time | Latitude | Longitude | Area surveyed | Habitat |
|---------|-----------|--------------|---------|----------|----------|----------|-----------|---------------|------------|
| 10 | 7 | Sent | | 11/01/06 | 15:02:51 | 43.54972 | 1.48528 | 100 | Dunes |
| 10 | 14 | Sent | Bands | 30/01/06 | 15:47:02 | 43.54972 | 1.48500 | 100 | Crops |
| 1 | 0 | Sent | | 02/02/06 | 9:57:52 | 41.88222 | 12.48889 | 200 | Town |
| 1 | 1 | Sent | | 02/02/06 | 10:04:12 | 41.88222 | 12.48861 | 4 | Interdunes |
| 1 | 3 | Sent | | 02/02/06 | 10:30:32 | 41.88194 | 12.48889 | 1000 | Wadi |

The Novacom platform can notice the loss of data in a report. If a part of the currently read report has not been received by the platform, the *Missing* column specifies which part of the report has been lost.

While processed, data is automatically saved in a *.csv* file in the same directory as *mailReader*. The name of the file is *<day_of_processing>_SAT_<file_index>.csv*. The former *.xml* data files can be removed from the PC.

The complete format of the data is specified in the chapter 5: *Data format*.

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4 Direct download toward a PC

There is another way to read the data on the Wescor without using the satellite transmission nor the Novacom platform, but by saving the survey reports on the Wescor and downloading them directly to a PC.

The current chapter explains how you can retrieve and decode old reports stored on the Wescor. To transfer files from the Wescor towards a computer, you have to follow the procedure below step by step:

- install and configure the *logReader* software;
- install the *WTerm* software on your computer;
- connect the Wescor terminal to the computer;
- put the Wescor in server mode;
- run the *WTerm* application;
- retrieve data files from the Wescor;
- run the *logReader.xls* application.

4.1 Install and configure the *logReader* software

4.1.1 Installation

Copy the file *logReader.xls* on your computer.

4.1.2 Security of the macros


Open *logReader.xls*. The window *Security warning* appears, asking if you want to run the macros or not (the macros are functions programmed in the Excel file to process data automatically). Click on *Disable macros*.

If this window does not appear, you need to change the security level of Excel. To do so:

1. In the menu bar, select Tools/Macro/Security.
2. Set the security level of Excel to *medium*, then click on *OK*.

4.1.3 Language

You can change the language in which the processed data will be displayed. To do so, click on the *Options* tab on the bottom of the screen of *logReader*. Next to the cell *Language / Langue*, enter *English* or *Français*.

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4.1.4 Local time zone

The data processed by the software are in universal time. You need to configure the software so that it corrects these data and displays them in local time. To do so, change the value of the field *Timezone / Heure locale* in the *Options* tab. Enter the value in hours (with a negative value if your area is Western to the Greenwich Meridian).

4.1.5 Save the settings

In the File menu, choose Save. Then close Excel. Reopen *logReader.xls*.

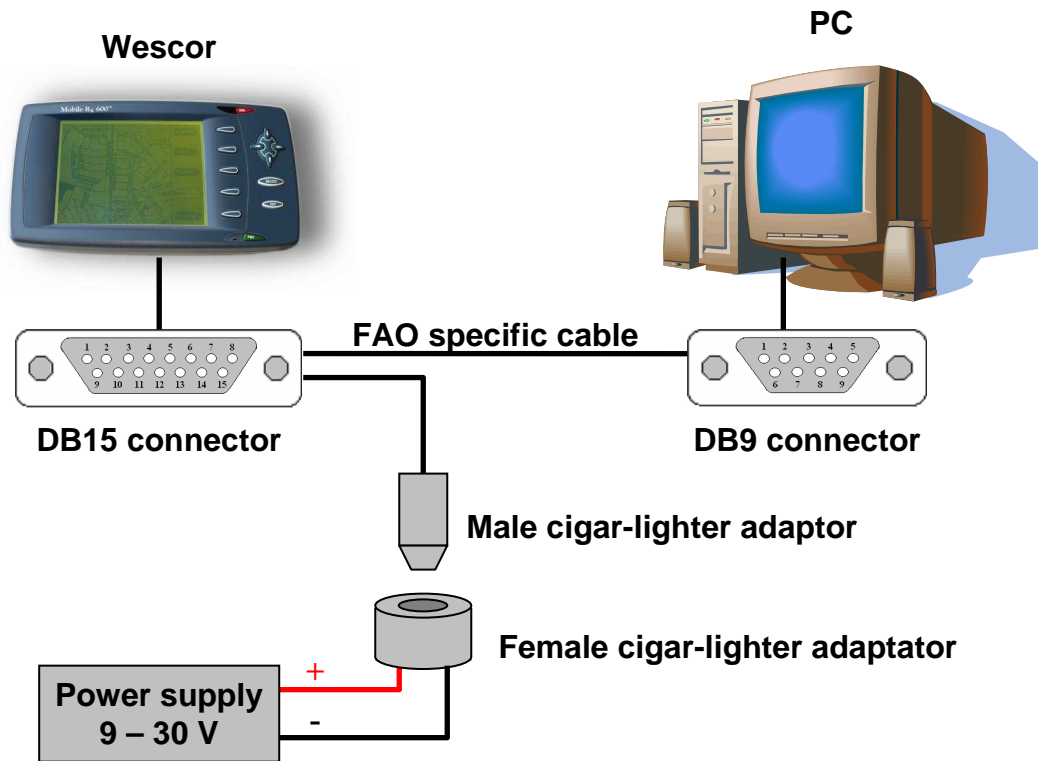
4.2 Install the WTerm software

Create a *WTerm* directory on your computer, and copy the following files in:

- *Powerpak.dll*,
- *WTerm.chm*,
- *WTerm.exe*,
- *WTerm.pdf*.


4.3 Connect the Wescor to a computer

Establish a serial link between your computer (DB9 communication port) and the Wescor (DB15 port) according to the following diagram:



The link is done using the FAO specific cable delivered with the unit, and must be powered on with a tension between 9V and 30V.



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The last connector of the cable (the blue round connector towards the SAT-201) is not used for the downloading of files to a PC.

4.4 Set the Wescor in server mode

To carry out a data transfer from the Wescor, it must be set in server mode.

As soon as the Wescor is powered on, press simultaneously the buttons *PWR* and *CANCEL* of the Wescor. Hold on the pressure until you hear a beep.

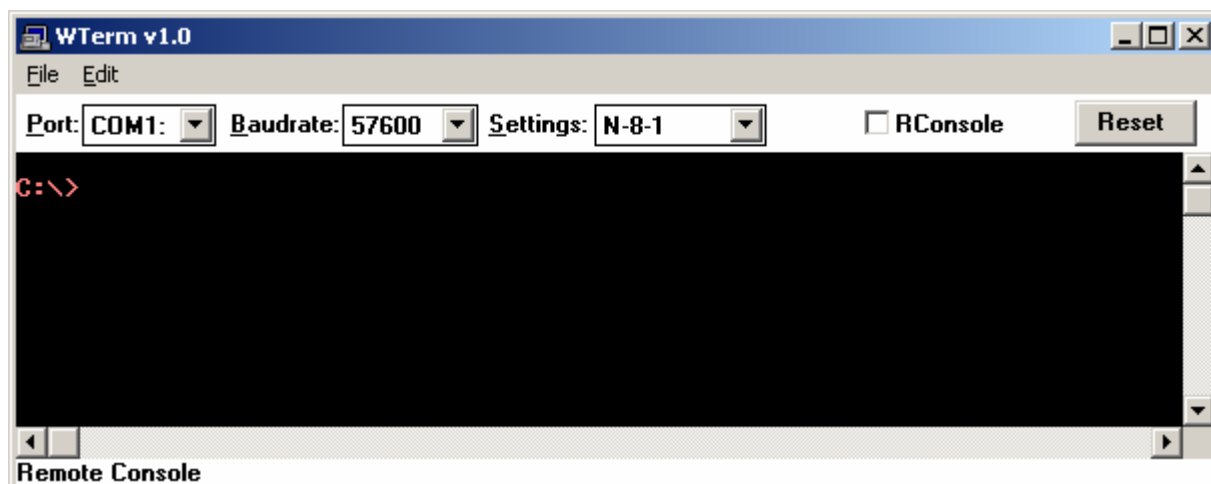
The following menu then appears on the screen of the Wescor:



Choose the option *Server mode* by pressing the button *F3* on the Wescor. Thus, the Wescor is the server, and the computer is the host. You can then transfer files from the Wescor to the computer using WTerm.

4.5 Use of WTerm

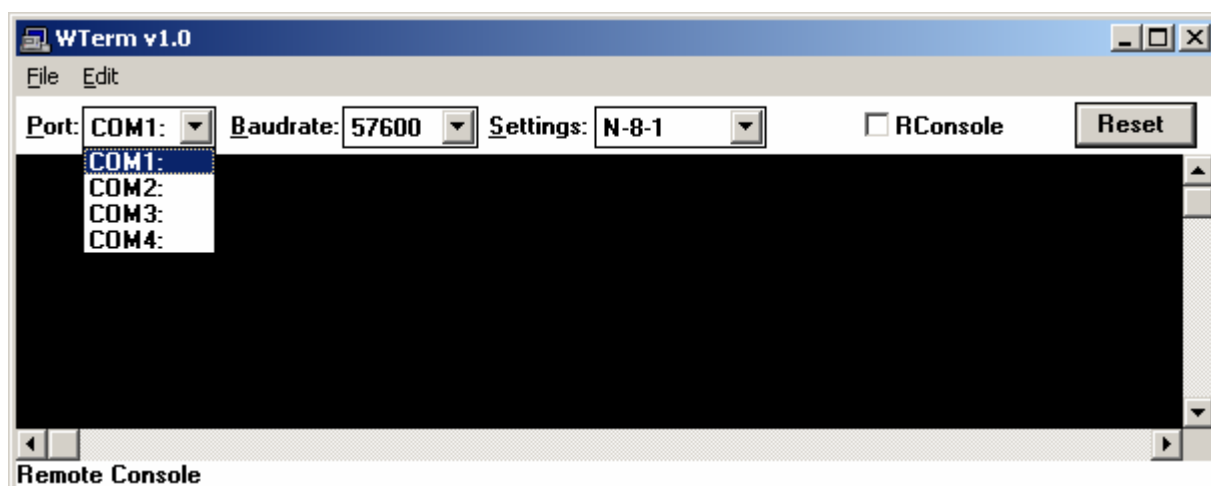
Run the WTerm application (double-click on the *WTerm.exe* file). Below is the startup screen for WTerm, assuming your Wescor is powered on and correctly linked to the host:



4.5.1 Select the communication port

Actually, the WTerm console allows you to browse through the application installed on the Wescor. You can use it as a MS DOS terminal. The message on top of the console “C:\>” is the root of the tree structure of the Wescor.

If you don’t see this message at the startup, you may have plugged your Wescor in a communication port different from *COM1*. To select the desired communication port on the host, click on the *Port* pick list.

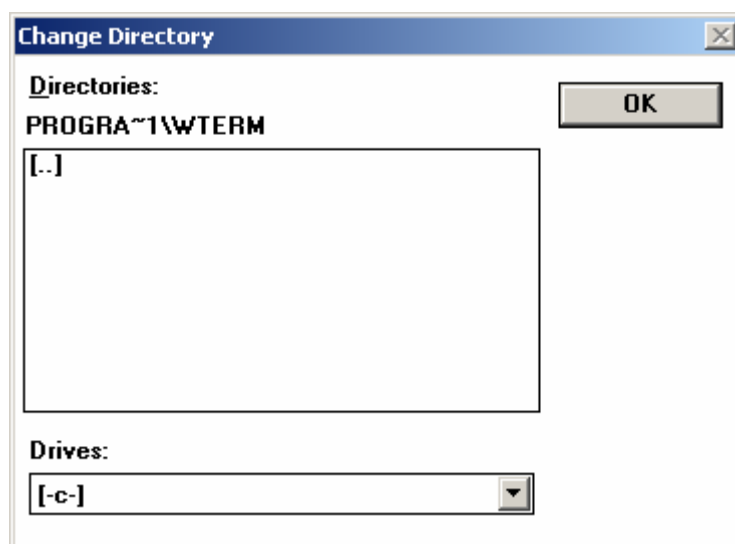


The default serial port is *COM1*. Select the desired port by clicking on it. Click on the *Reset* button. If your cable is correctly connected to the selected COM port, the message “C:\>” must appear.

4.5.2 Retrieve file

To retrieve files from the Wescor, click on the *File* menu, then choose *Select directory...* in the submenu that just appeared.

The following window appears:



With the browser, choose the directory where you want your files to be stored, then click on *OK*.

Back in the WTerm console, enter:

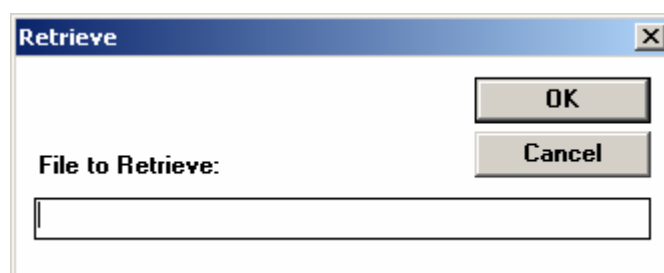
```
cd resource
cd data
dir
```


You should see the following files:

- *LOGMSG.TXT* where the messages already sent are stored. When this file gets too big, it is renamed to *LOGMSG.BAK*, and an empty file *LOGMSG.TXT* is created where new messages will be stored.
- *LOGMSG.BAK* (optional) where the older messages are stored. This file is removed when *LOGMSG.TXT* gets too big.
- *HISTORY.TXT* used by the Wescor to display the logs in the *History* menu.

(Note: A *dummy.txt* file might be visible. Do not take care of it.)

In the *File* menu, select *Retrieve File(s)...*. The following window appears:



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Enter *logmsg.txt* if you want to retrieve the most recent messages or *logmsg.bak* if you want to retrieve the oldest ones. Click on *OK*. A progress bar appears while the file is downloaded. If a file with the same name already exists on the host in the same destination directory, it is overwritten.

Once the progress bar disappears, go to the destination directory on your PC, to check that the file you just downloaded from the Wescor is in it.

4.6 Read the report

Run the file *logReader.xls*. When the window *Security warning* appears, select *Enable macros* (if the window does not appear, you need to configure the security level of the macros (cf. § 4.1.2: *Security of the macros*)).

A browser asks you to choose a file to decode: choose the file *LOGMSG.TXT* you have just downloaded from the Wescor.

After a while, you will see an Excel table, with one line per report. The date associated to each report is the date of storage of the first message of a report (given in the local time zone of the user of *logReader*). The eldest messages are on the top of the table, the most recent are on the bottom.

| User ID | Report ID | Transmission | Missing | Date | Time | Latitude | Longitude | Area surveyed | Habitat |
|---------|-----------|--------------|---------|------------|----------|----------|-----------|---------------|------------|
| 1 | 0 | Sent | | 21/02/2006 | 09:56:26 | 41.88222 | 12.48889 | 200 | Town |
| 1 | 1 | Sent | | 21/02/2006 | 10:02:24 | 41.88222 | 12.48861 | 4 | Interdunes |
| 1 | 2 | Saved | | 21/02/2006 | 10:09:04 | 41.88222 | 12.48861 | 4 | Dunes |
| 1 | 3 | Sent | | 21/02/2006 | 10:29:19 | 41.88194 | 12.48889 | 1000 | Wadi |
| 1 | 4 | Sent | | 21/02/2006 | 10:38:22 | 41.88194 | 12.48889 | 10 | Dunes |
| 1 | 5 | Sent | | 21/02/2006 | 10:41:56 | 41.88194 | 12.48889 | 34 | Dunes |


The reports are written line by line, with one report per line. The reports sent in two times (with *Control* data apart) appear on the same line if they have been sent in less than five days of interval (this duration can be changed in the *Options* tab of *logReader*); otherwise they are considered as two distinct reports.

If a report is sent in two times in less than five days, the date associated to the report is the date of sending of the first message from this report.

For each report, the software specifies in the *Transmission* column if the report has also been sent by satellite, or only saved on the Wescor. The *Missing* column is always empty, indeed there is no transmission loss in the downloading from the Wescor to a PC.

While processed, the data are automatically saved in a *.csv* file in the same directory as *logReader*. The name of the file is *<day_of_processing>_PC<User ID>_<file_index>.csv*. The former data file *LOGMSG.TXT* can be removed from the PC.


The complete format of the data is specified in the chapter 5: *Data format*.

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5 Data format

Each field of data occupies one column. The order of the fields is given in the table below (it follows the organization on the screens of the Wescor). If a data has not been filled in for a report, the corresponding cell appears empty in the table.

| Field | Possible values |
|-----------------------|--|
| User ID | ## |
| Report ID | ## |
| Transmission | Sent, Saved |
| Missing | Survey stop, Ecology, Bands, Hoppers, Adults, Swarms, Control |
| Date | dd/mm/yyyy |
| Time | hh:mm:ss |
| Latitude | +/- dd.ddddd |
| Longitude | +/- ddd.ddddd |
| Area surveyed | ##### |
| Habitat | Beach, Crops, Dunes, Hills, Interdunes, Oasis, Plains, Plateau, Town, Wadi, Well |
| Vegetation state | Dry, Greening, Green, Drying |
| Vegetation density | Low, Medium, Dense |
| Last rain date | dd/mm/yyyy |
| Last rain quantity | Low, Moderate, High |
| Soil moisture | Dry, Wet |
| Locust Presence | Present, Absent |
| To control | Yes, No |
| Area infested | ##### |
| Area infested units | m2, ha |
| Hopper maturity | H, 1, 2, 3, 4, 5, 6, F (any combo) |
| Hopper phase | Solitary, Transiens, Gregarious (any combo) |
| Hopper behaviour | Isolated, Scattered, Groups (any combo) |
| Hopper density est. | Low, Medium, High |
| Hopper density number | ##### |
| Hopper density units | /m2, /site |
| Band maturity | H, 1, 2, 3, 4, 5, F (any combo) |
| Band density est. | Low, Medium, High |
| Band density/m2 | ##### |
| Band size | ##### |
| Band size units | m2, ha |
| Band number | ##### |
| Adult maturity | Immature, Maturing, Mature (any combo) |
| Adult phase | Solitary, Transiens, Gregarious (any combo) |
| Adult behaviour | Isolated, Scattered, Groups (any combo) |
| Adult breeding | Copulating, Laying (any combo) |
| Adult density est. | Low, Medium, High |
| Transect length | ##### |

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|  | Reports reading with eLocust2 | Page: 22 Date: 23rd February 2006 |
| Ref. origin : NS/NT/GC 06.013 | Nomenclature : Version 1.0 | |

| | |
|---------------------|--|
| Transect width | ## |
| Adults seen | ### |
| Adult density/ha | = Adults seen / (Transect length * Transect width) * 10000. (The value is calculated by the software) |
| Swarm maturity | Immature, Maturing, Mature (any combo) |
| Swarm breeding | Copulating, Laying (any combo) |
| Swarm density est. | Low, Medium, High |
| Swarm density/m2 | ##### |
| Swarm size | #### |
| Swarm size units | km2, ha |
| Swarm number | ## |
| Swarm flying FROM | N, NE, E, SE, S, SW, W, NW |
| Swarm flying TO | N, NE, E, SE, S, SW, W, NW |
| Swarm flying height | Low, Medium, High |
| Pesticide name | Bendiocarb, Chlorpyrifos, Deltamethrin, Diflubenzuron, Fenitrothion, Fipronil, Lambdacyhalothrin, Malathion, Metarhizium, Teflubenzuron, Triflurnuron, Other |
| Pesticide dose | #. # |
| Pesticide quantity | ##### |
| Area treated | #####. # |
| Control method | Mechanical, Handheld, Vehicle, Air |
| Control type | Full cover, Barrier |
| % kill | #### |
| Damage | No, Light, Medium, Heavy |

The width of each column automatically fits to its content.

For the fields with multiple choices selection, if more than one value is selected, the different values selected are represented in a single cell and separated by a space. The order of the items in the cell might vary.

Note that the data format is exactly the same after processing with *logReader* and with *mailReader*.