narda Safety Test Solutions
an L3 Technologies Company

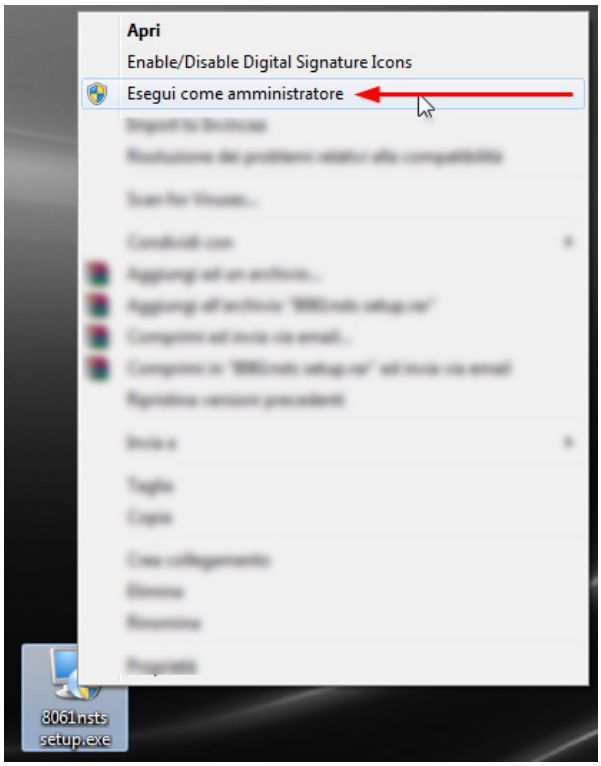
# AMS-8061
# First Use

A quick step by step guide

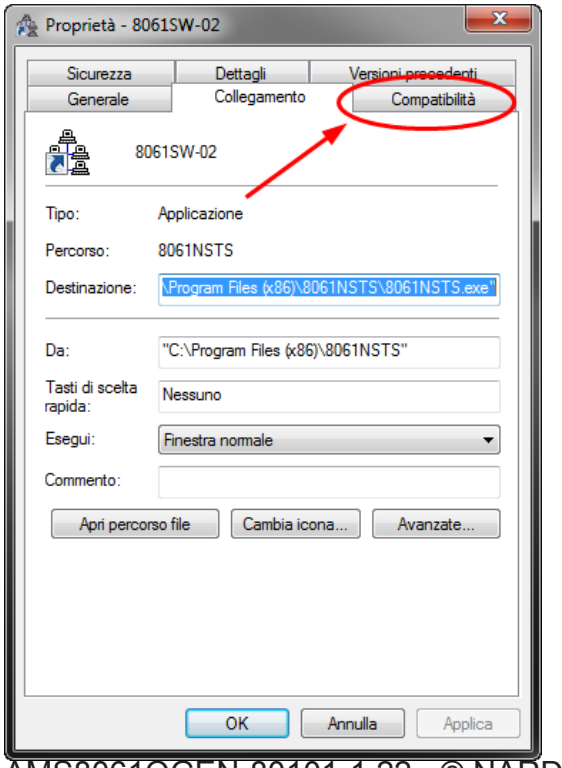
# Index

# Software installation

The software must always be installed and used as Administrator.
To do this:

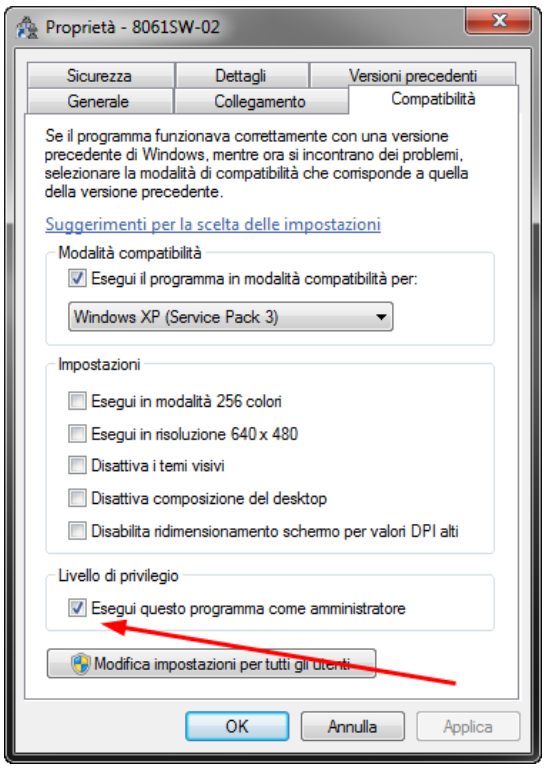



- Highlight the icon 8061 NSTS setup with one click of the mouse, then push the right button and from the menu choose the third voice from the top “RUN as administrator”




- After the installation, go on the icon of the 8061 NSTS and after highlighting it, always with the right button of the mouse, choose the voice “property”, it should be the last one of the menu.

In the new window you have to choose the card called “compatibility”




- Now check the box “run this software as administrator” and push the ok button.

At this point, every time the software runs, it will be in the mode Administrator.

Now it is time to connect the area monitor to your computer

# What happens when I do not use the option “Run as Administrator”?

From last Windows versions (after XP) every software, to be correctly used, must be installed with the option “Run as Administrator”.
Also to be used, you have always to choose the option “Run as Administrator”.
This is a security control introduced in Windows.
When you do not use this option, all program files are created in a parallel folder.

So with the option “Run as Administrator” the program folder used has the following path:
C:\Program Files (x86)\(folder program)

Without this option the folder used is:
C:\Users\(nome utente)\AppData\Local\VirtualStore\Program Files (x86)\(folder program)

In addition, on some computer, the folder AppData is not visible, it is hidden.

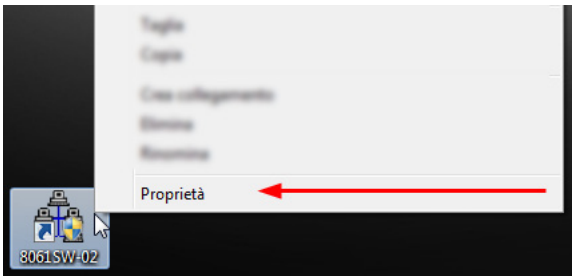
Without the correct installation and use the program could not find some important file and have some problems during the normal utilization

# Connection to the computer

The first connection with the area monitor must be done via cable (RS232 or USB).
We can have 3 different possibilities:
- the computer has a RS232 port
- the computer does not have a RS232 port and you have to use the USB/RS232 adaptor
- use the USB connection

**The computer has a RS232 port**

This is easiest situation. Normally the RS232 port is recognized as COM1.
To be sure that the software uses that specific port you have to:

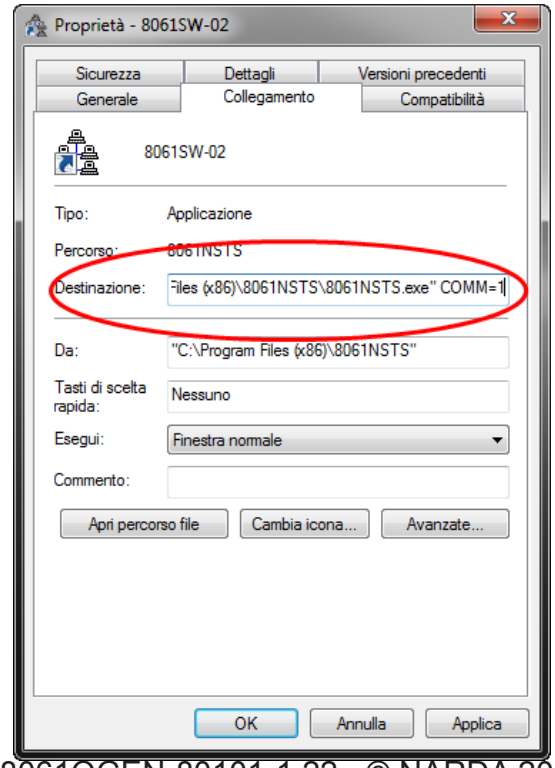



- Highlight the icon 8061 SW-02 with one click of the mouse, then push the right button and from the menu choose the last voice from the top "Property"

- Now you should have the below window.
Where is written destination you have this string: "C:\Program Files (x86)\8061NSTS\8061NSTS.exe"

You have to add, at the end, COMM=1.
so the string will be: "C:\Program Files (x86)\8061NSTS\8061NSTS.exe" COMM=1

Remember that between the .exe" and COMM=1 there is a space.
In this way the software will always start using the main RS232 port of your computer

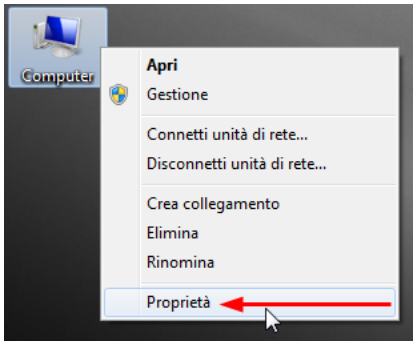



The software will ask you to confirm this change with Administration authorizations. Click on "Continue" to complete the operation.

**The computer does not have a RS232 port and you have to use the USB/RS232 adaptor**

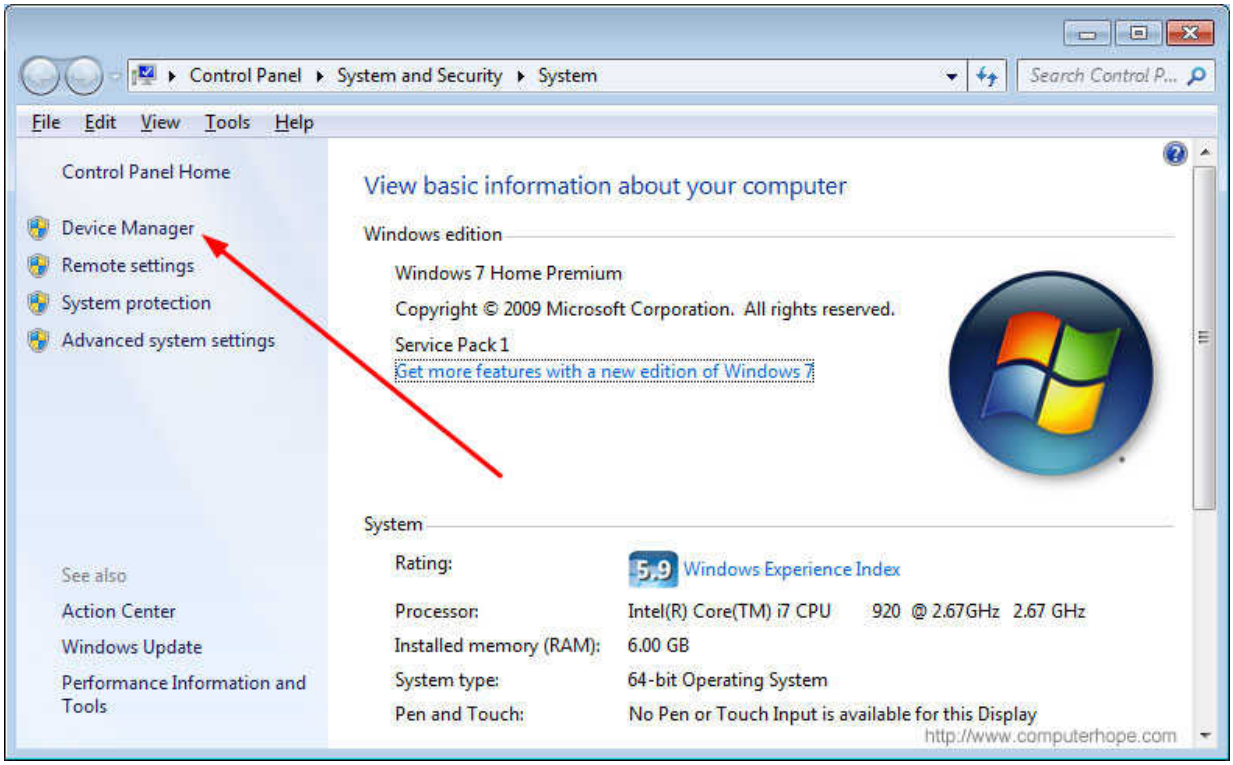
This is the converter normally given with area monitor.
It should be automatically installed on your computer.
In case you can install necessary driver manually that are in the CD.

After install it, as in the previous page, you have to explain to the software what is the correct COM port to use.

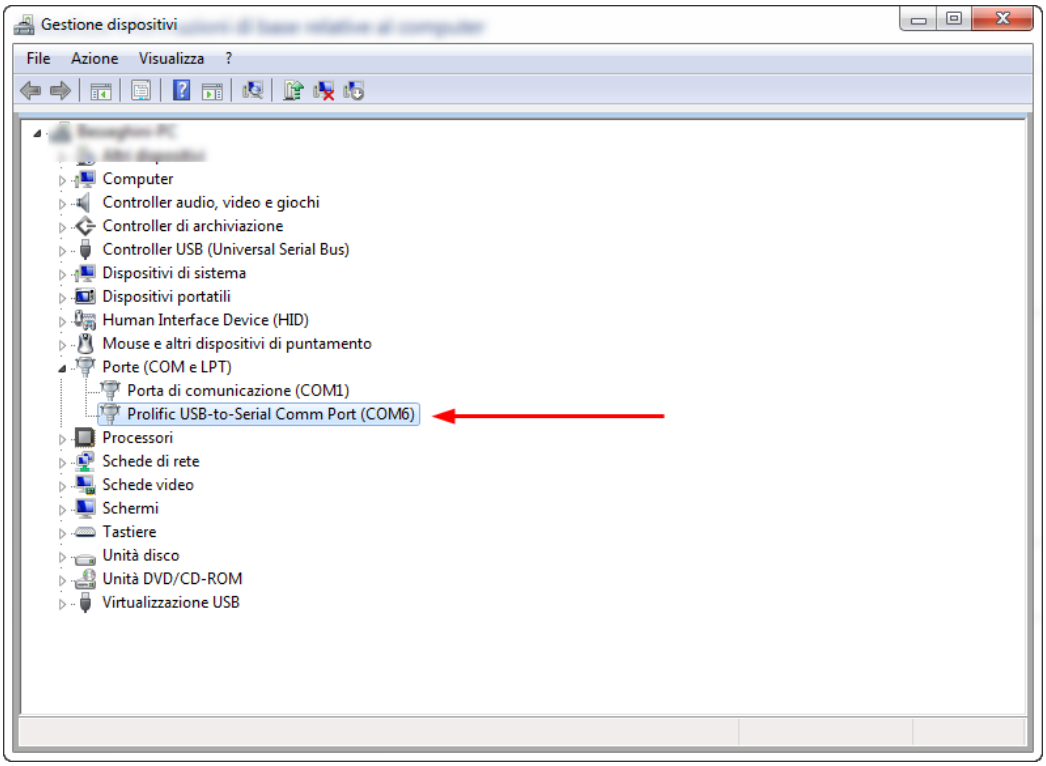



Highlight the computer icon with one click of the mouse, then push the right button and from the menu choose the last voice from the top “Property”

In the new window, from the menu on the left side, choose Device manager

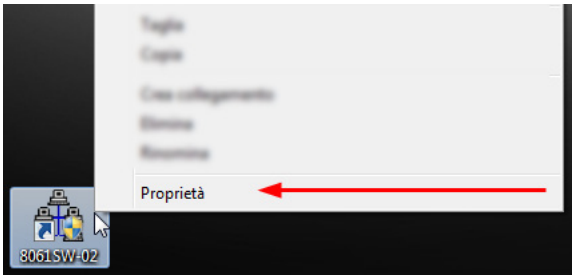


Now you have to expand the voice “Ports (COM & LPT)”




The USB/RS232 adaptor is under the voice “Prolific USB to Serial Comm Port (COMx)”. In this example the computer associates, to this new port, the number 6. It would be better have numbers lower than 10. In case you need to change the number of the port, associated to this converter, see the user’s manual  chapter 7.4.1.1 for further details.

Now we have to explain to the software which port has to be used for the connection

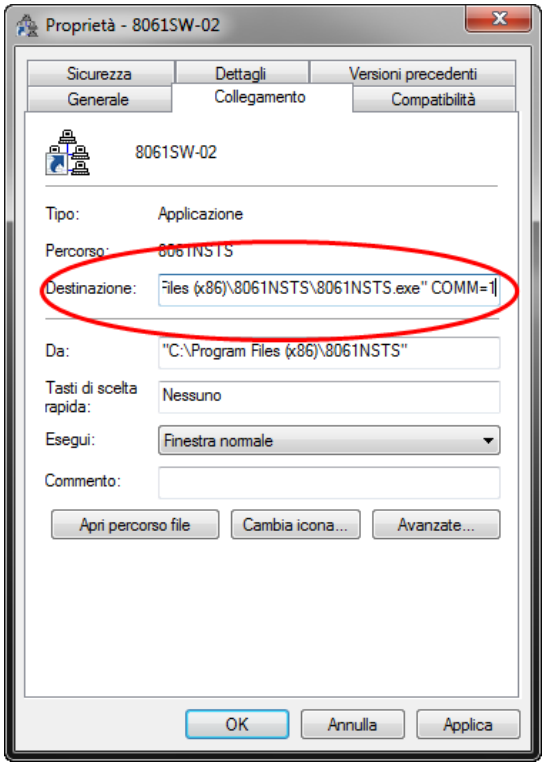



- Highlight the icon 8061 SW-02 with one click of the mouse, then push the right button and from the menu choose the last voice from the top “Property”

- Now you should have the below window.
Where is written destination you have this string: “C:\Program Files (x86)\8061NSTS\8061NSTS.exe”

You have to add, at the end, COMM=x, wher x is the number of the port associated to the converter, in this example it is 6
so the string will be: “C:\Program Files (x86)\8061NSTS\8061NSTS.exe” COMM=6

Remember that between the  .exe” and COMM=6 there is a space.
In this way the software will always that specific RS232 port of your computer

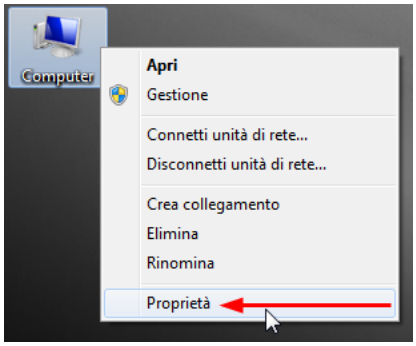



The software will ask you to confirm this change with Administration authorizations. Click on “Continue” to complete the operation.

## Use the USB connection

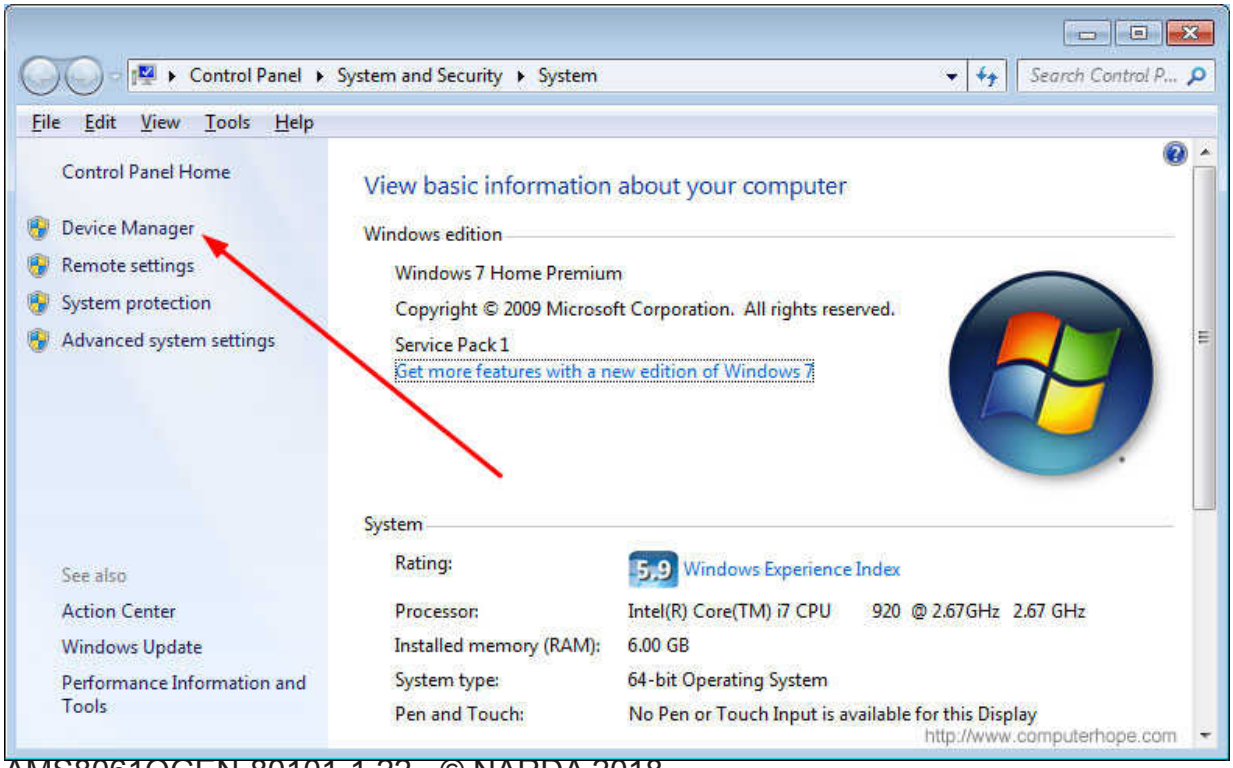
When the AMS-8061 is connected via USB, it is recognized by the computer as a new COM port called TI MSP430 USB (COMx), where x is the number associated to this specific port.
With the first connection it would be necessary to install its specific driver. Consult the user's manual, chapter 7.4.1.1 for additional information.
The driver is called MSP430_CDC.inf and it is located in the same program folder, normally its path is C:\Program Files (x86)\8061NSTS

After install it, as for others kind of connection, you have to explain to the software what is the correct COM port to use.

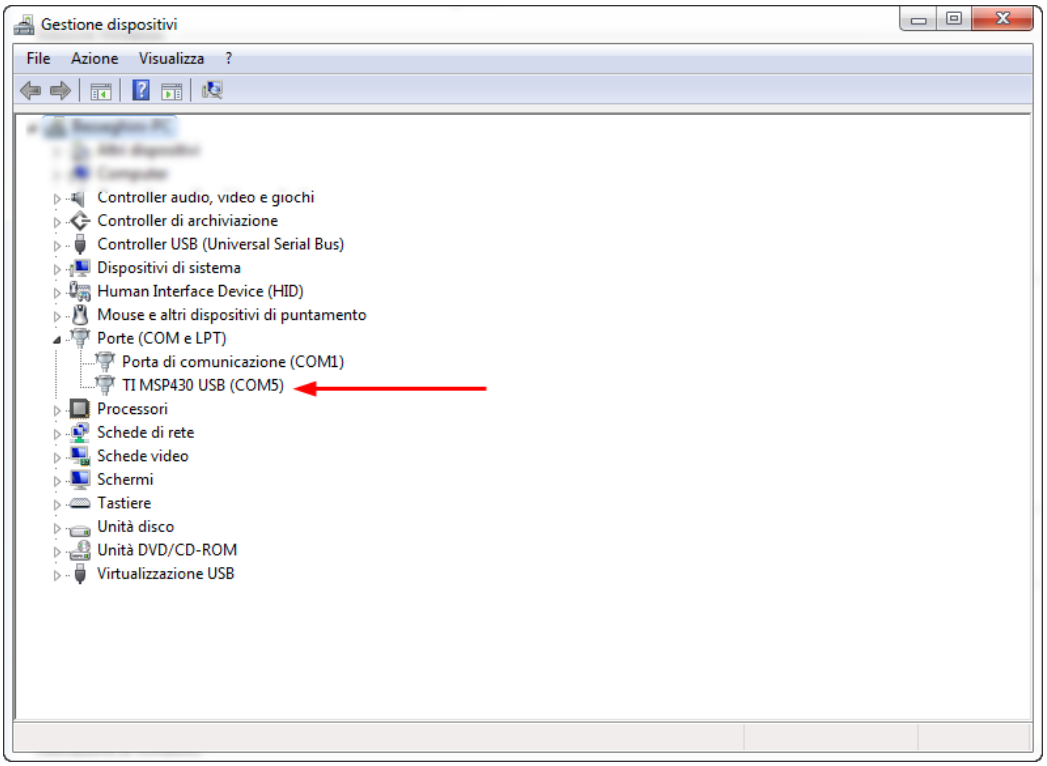



Highlight the computer icon with one click of the mouse, then push the right button and from the menu choose the last voice from the top "Property"

In the new window, from the menu on the left side, choose Device manager

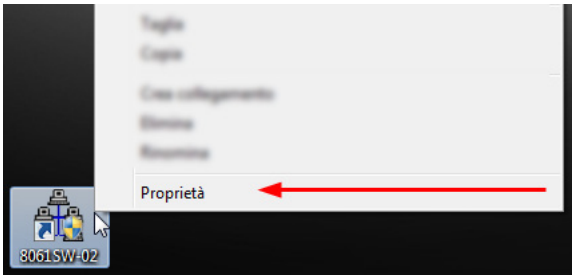


Now you have to expand the voice “Ports (COM & LPT)”




The USB connection is under the voice “TI MSP430 USB (COMx)”. In this example the computer associates, to this new port, the number 5. It would be better have numbers lower than 10. In case you need to change the number of the port, associated to this converter, see the user’s manual chapter 7.4.1.1 for further details.

Now we have to explain to the software which port has to be used for the connection

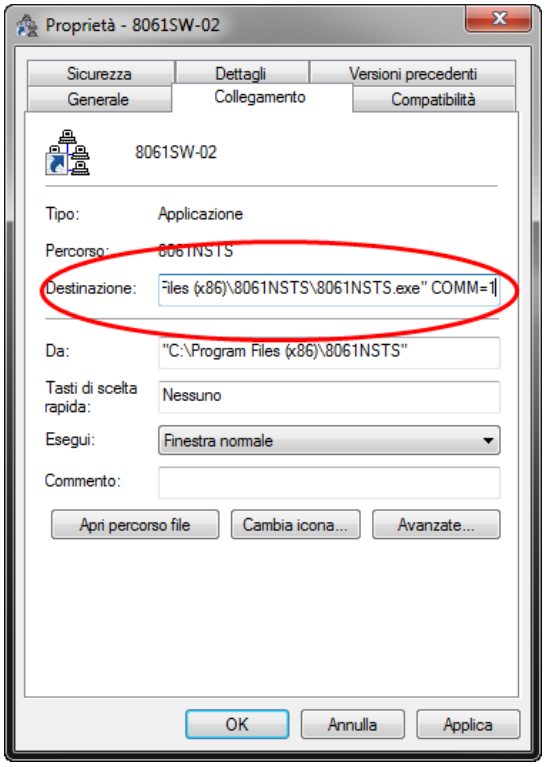



- Highlight the icon 8061 SW-02 with one click of the mouse, then push the right button and from the menu choose the last voice from the top “Property”

- Now you should have the below window.
Where is written destination you have this string: “C:\Program Files (x86)\8061NSTS\8061NSTS.exe”

You have to add, at the end, COMM=x, wher x is the number of the port associated to the USB connection, in this example it is 5
so the string will be: “C:\Program Files (x86)\8061NSTS\8061NSTS.exe” COMM=5

Remember that between the .exe” and COMM=5 there is a space.
In this way the software will always that specific RS232 port of your computer

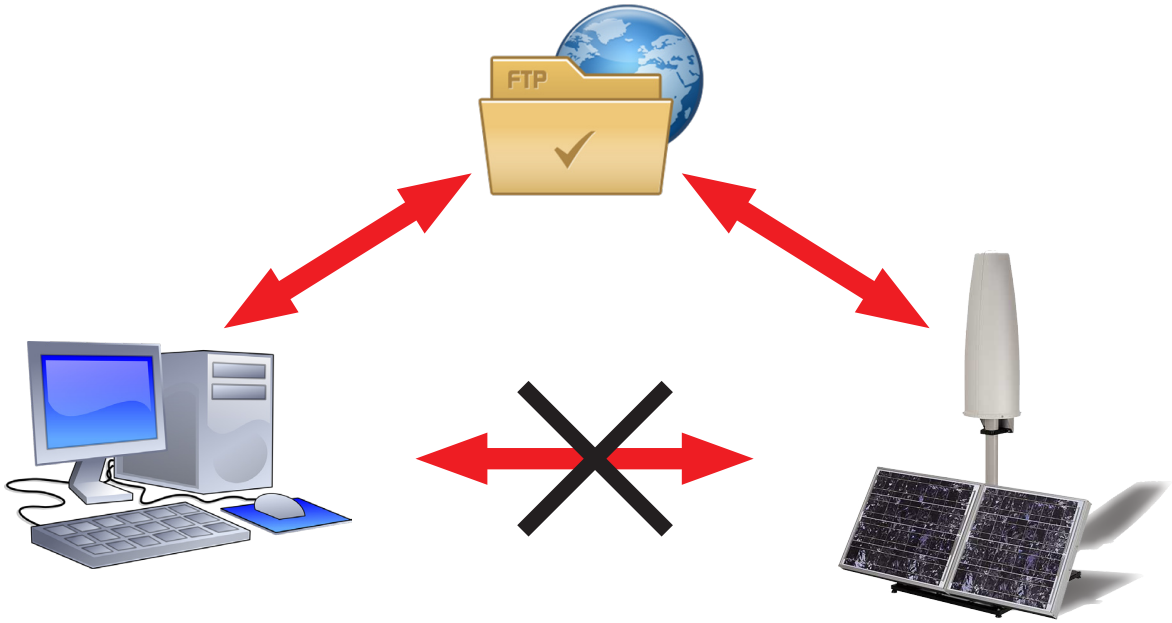



The software will ask you to confirm this change with Administration authorizations. Click on “Continue” to complete the operation.

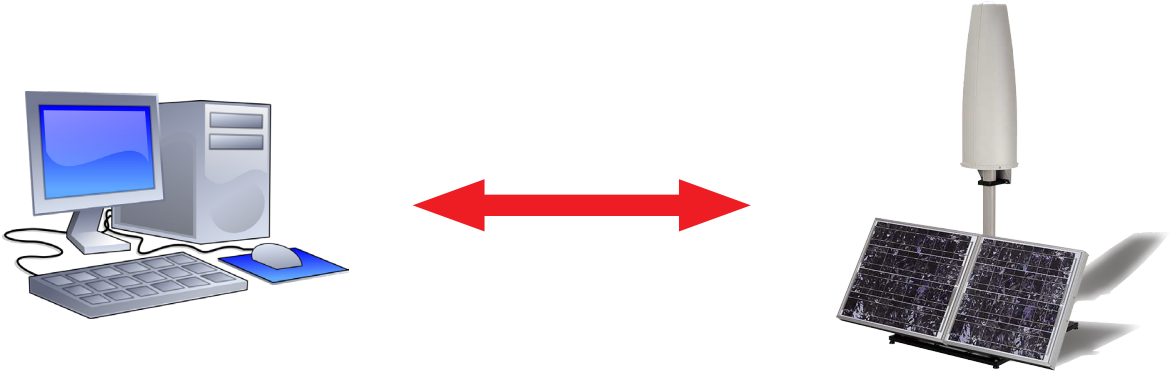
Now, it is time to decide in which way your AMS-8061 has to work.
With this area monitor you can work in CSD mode or FTP mode.

As default, every Narda area monitor is set to work in FTP mode

**FTP** means File Transfer Protocol, in this mode there is no direct connection between the area moniotr and the computer. The area monitor will send all data on a FTP server where they lies up to the user will use the software to download them.
To work in this mode you need a FTP server and  a SIM card in the area monitor modem with an internet data subscription. Make sure the PIN code of the SIM card in use has been removed.

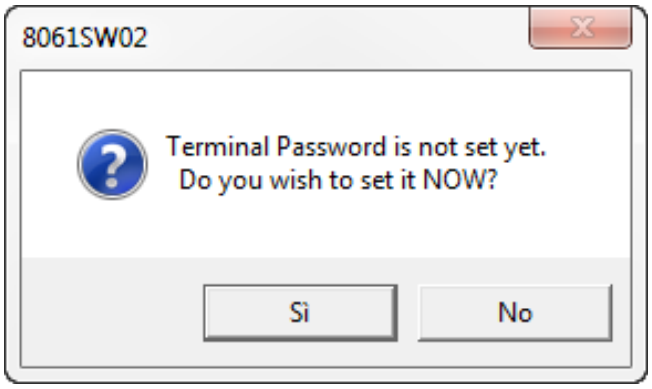



**CSD** means Circuit Switched Data, it is a direct connection between the area monitor and the computer using the modem connection.
To work in this mode you need a PC modem, a SIM card in the area monitor modem and another SIM car for the PC modem but only if it is GSM. Beware, the SIM card for this way of communication need to be specifically enabled for CSD communication mode. This kind of specific SIM card is normally called M2M Machine to Machine.
Make sure the PIN code of the SIM card in use has been removed.



# The software

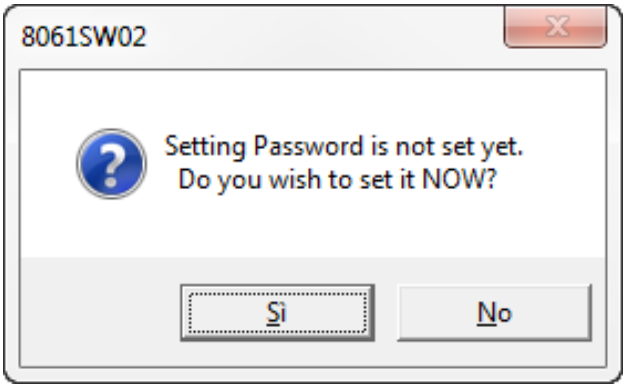
Connect the area monitor to the computer and launch the sofwtare.
The first time you run it, will ask you to enter a Terminal Password.
The Terminal PASSWORD is used to prevent the improper use of the software by non admitted personnel.




If the answer is YES, a window will be opened where it is possible to enter the Terminal PASSWORD for the management of the Area Monitors. If the answer is NO, the program will allow to enter the password later. The User can enter any sequence of alphanumerical characters. We recommend to take a note of the Terminal PASSWORD entered.
It will be necessary to install the control software again in case the password is missing. After entering the Password with OK, the software will request confirmation of the password before registering it into the system.

For additional information or problems, consult the User's manual chapter 7

After entering the Terminal Password needed to ensure the secure management of the Field Monitors (Station identifier, telephone number, automatic downloads, automatic text file creation…), the software asks to enter a Setting PASSWORD which is needed to edit the parameter settings on the Field Monitors to be queried (alarm settings, storing rate, frequency bands, firmware upgrading…).

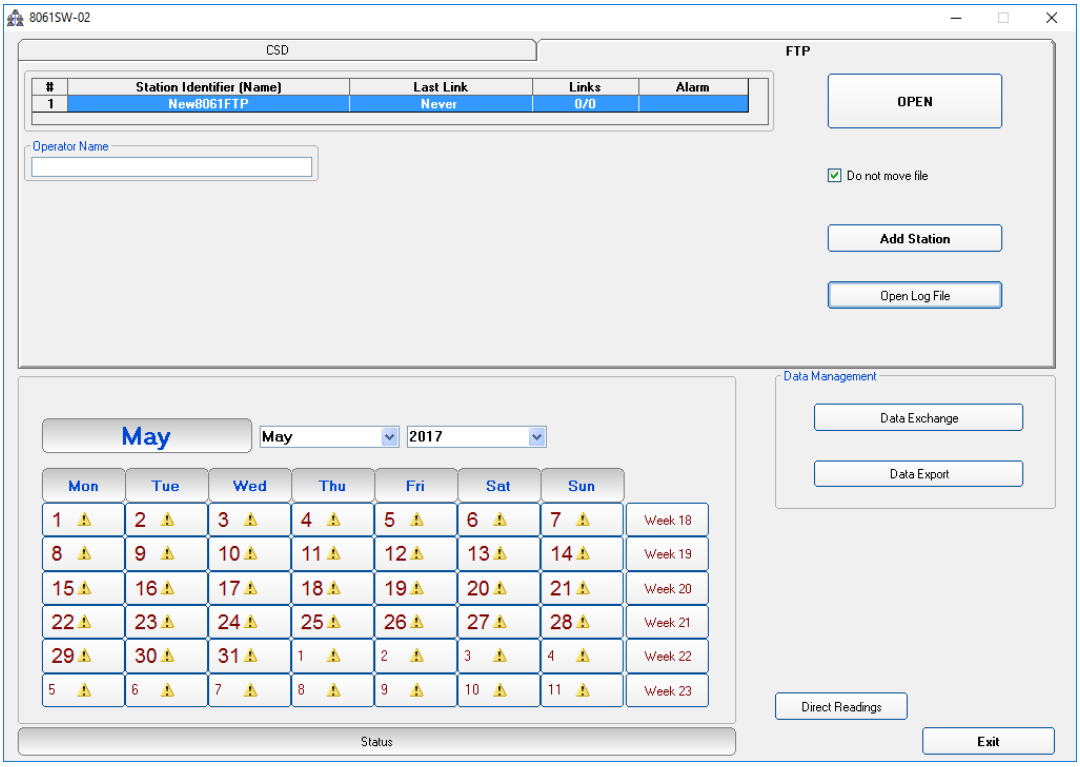



Exactly for the previous passage, if the answer is YES, a window will be opened where it is possible to enter the Setting PASSWORD for the management of the Field Monitors. If the answer is NO, the program will allow to enter the password later. The User can enter any sequence of alphanumerical characters. We recommend to take a note of the setting PASSWORD entered.

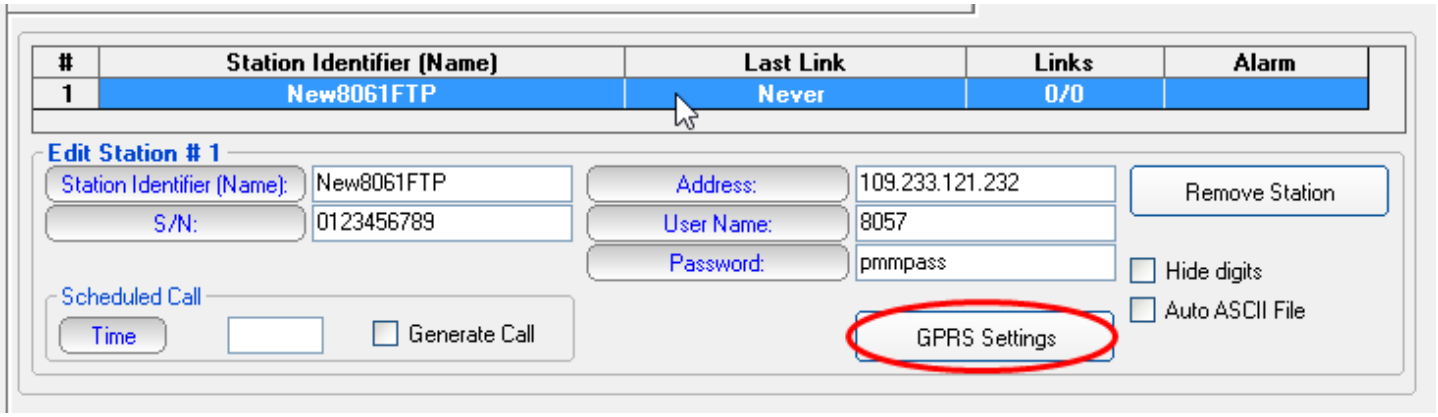
For additional information or problems, consult the User's manual chapter 7


**Every time you have to modify a field, the Terminal Password or the Setting Password will be requested by the software.**
**At the beginning, for the first setting operations, it would be helpful to leave these password blank, simply pressing enter on the keyboard.**
**Set a password only after all your area monitors will be correctly set, and just in case you need to have an higher security level**

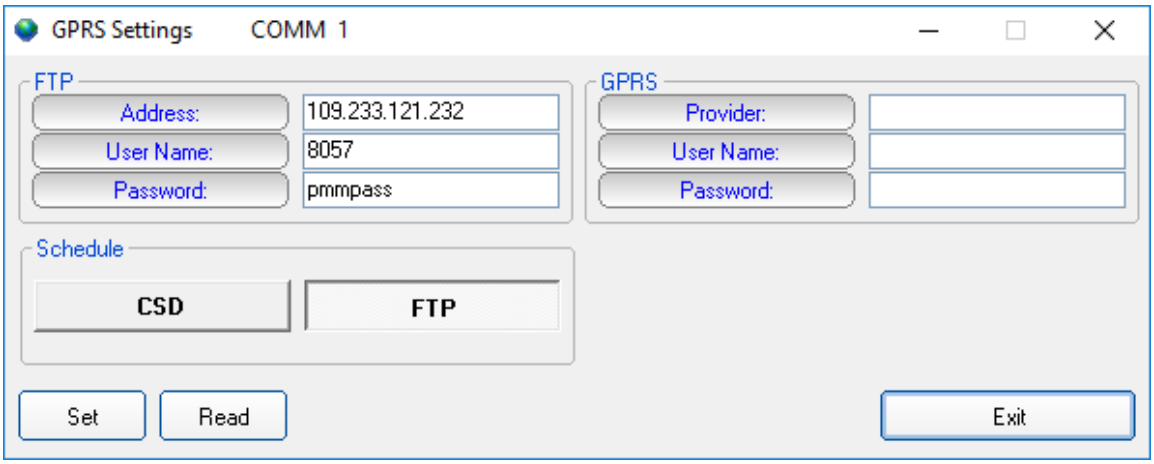
This is the main window of the software:




Place the cursor on the area monitor in the grid and click once, then click on button GPRS settings.



In this new window it is possible to see 3 different parts: Schedule, FTP and GPRS




**Schedule**
Here you have to set if the area monitor has to work in CSD or FTP mode.
Make your choice and push the button SET
In case you decide to work in CSD mode, you can omit to fill FTP and GPRS sections.

**FTP**
These parameters depending on the FTP server you are using. As default, every Narda area monitor is set to work in FTP mode and the parameters you can find in this section are of our FTP server that can be used for preliminary test.
Beware that our FTP server is periodically cleaned, therefore do not use it in a definitive way.

**GPRS**
These parameters depending on the service provider of the used SIM card.
Provider is the APN (Access Point Name)
User name used for GPRS connection
Password used for GPRS connection

Some examples:

Italy: APN for a Vodafone SIM card is: web.omnitel.it
User name and password are not required.

Greece: APN for a Cosmote SIM card is: internet
User name and password are not required.

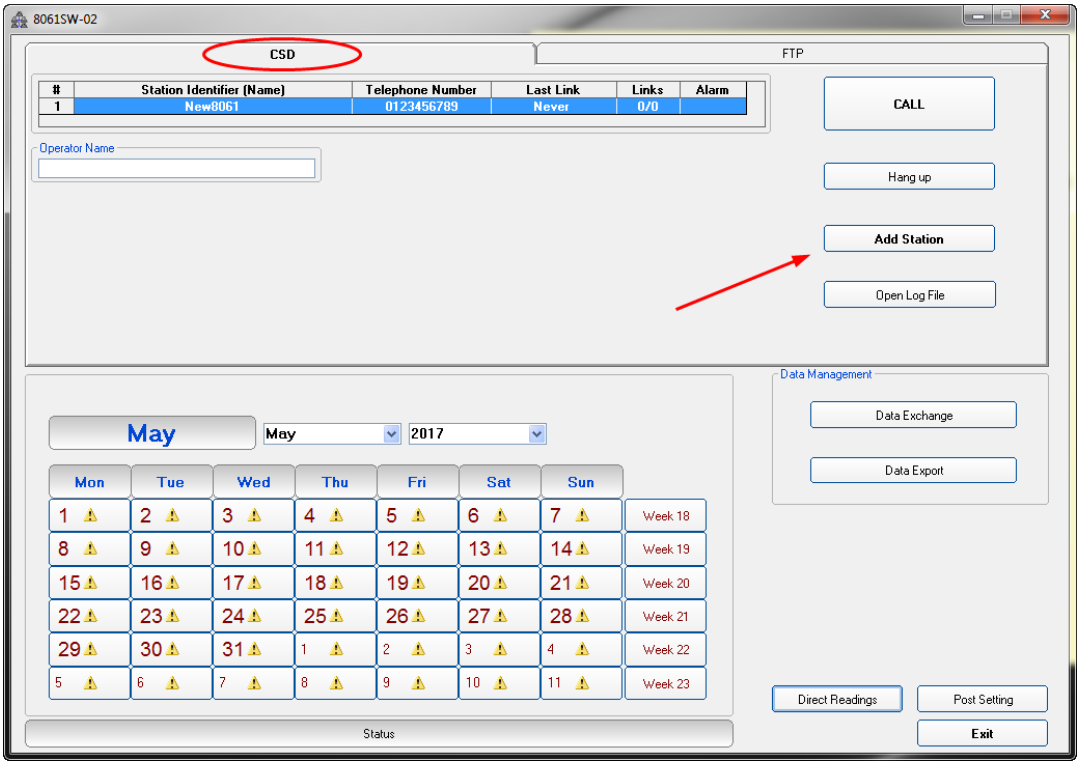
China: APN for a China Mobile (Shanghai) SIM card is: cmnet
User name and password are not required.

**Once all fields are filled, push the button Set.**
**The button Read is used to verify what parameters are recorded in an area monitor.**

# FTP mode

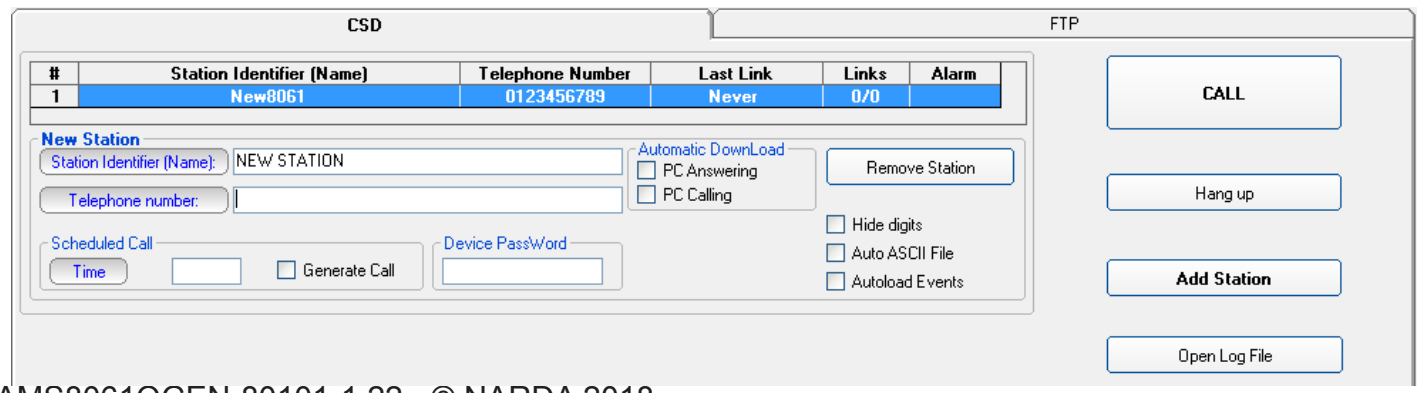
Once you set the FTP mode in the GPRS Settings window, you have to set the correct hours and date in the internal clock. To do this switch the main panel of the software into CSD mode and add a new station. It always better add and remove stations instead of change an existing one.


**It always better add and remove stations instead of change an existing one.**

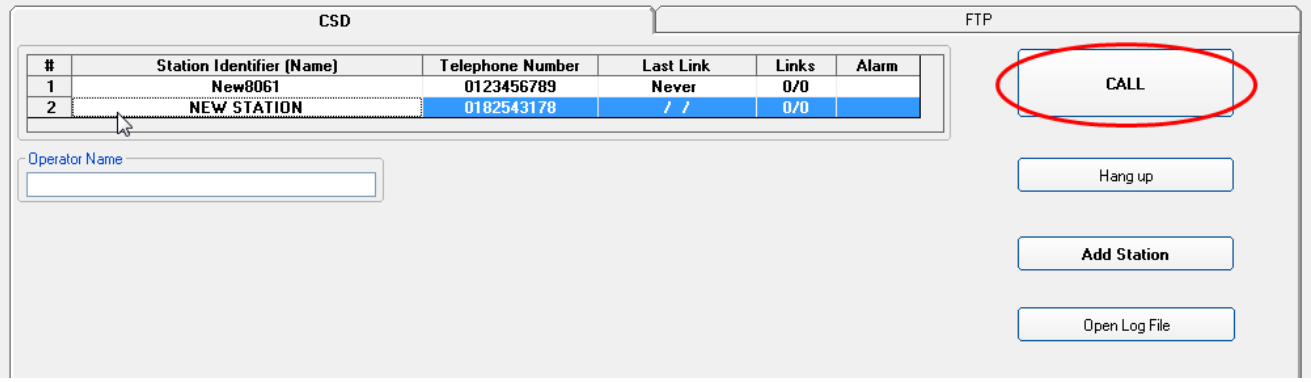



Now:
- Insert the Station Identifier: it is the name you decide to give to your monitor station. As default it is the serial number of the station.
- Insert the Telephone Number: it is the phone number associated to the SIM card in the area monitor
- Insert the Device Password: as default it is PASSPMM

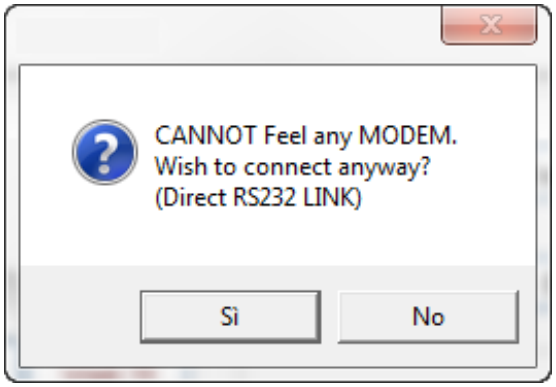
For every field the computer will request the Terminal Password



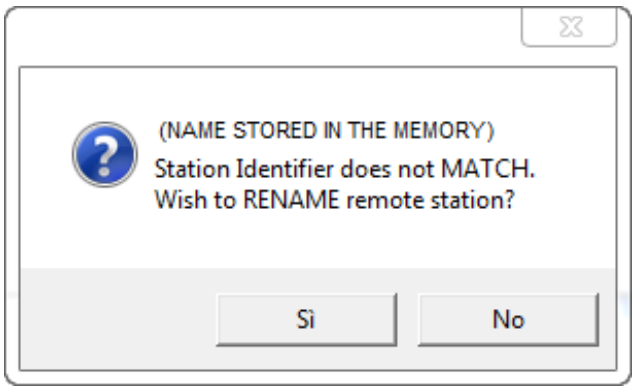
Now your area monitor should be added to the list.
Click once on its row and then press the button Call



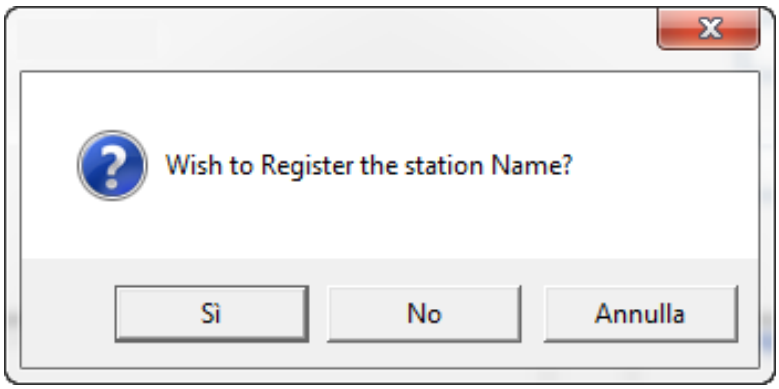

Every time, the software will try to have a connection with the modem. Because of the area monitor is directly connected to the PC you will see the following window.



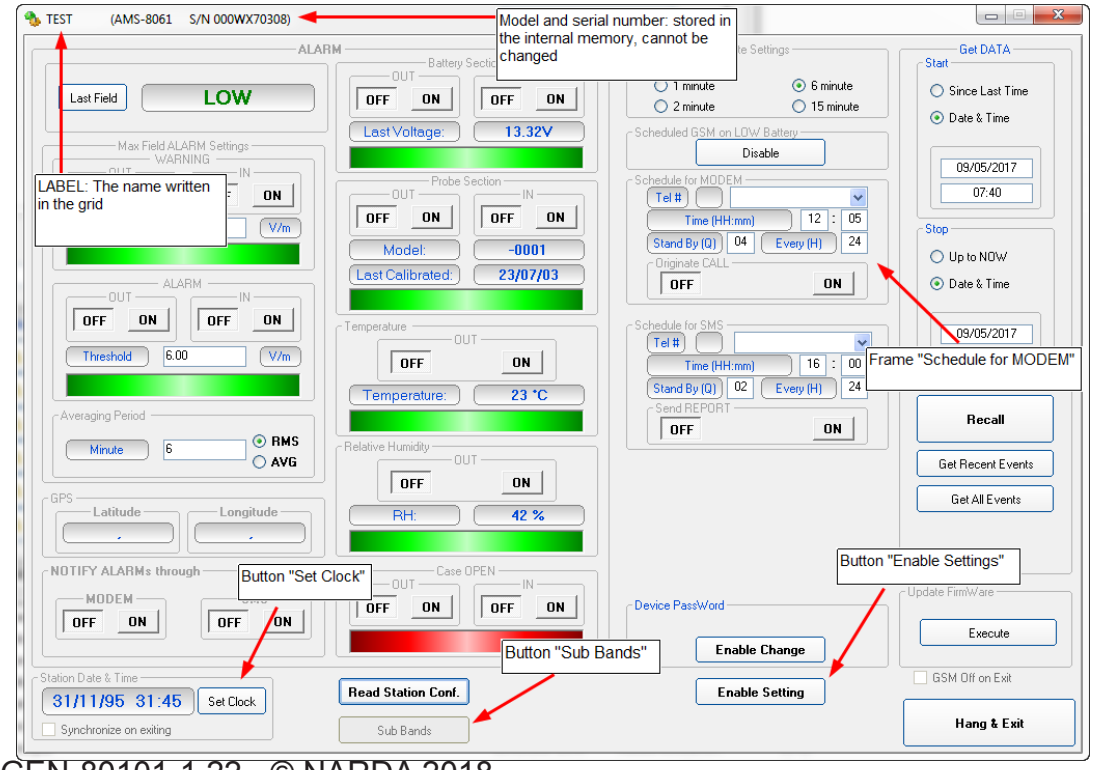

Press YES (SI)
Now the software will verify if the name you gave to the station is the same registered in the station's memory.
In case they are not matching the software will ask you if you want to change the name of the area monitor, stored in the internal memory, with that one you wrote in the grid, with the following window:



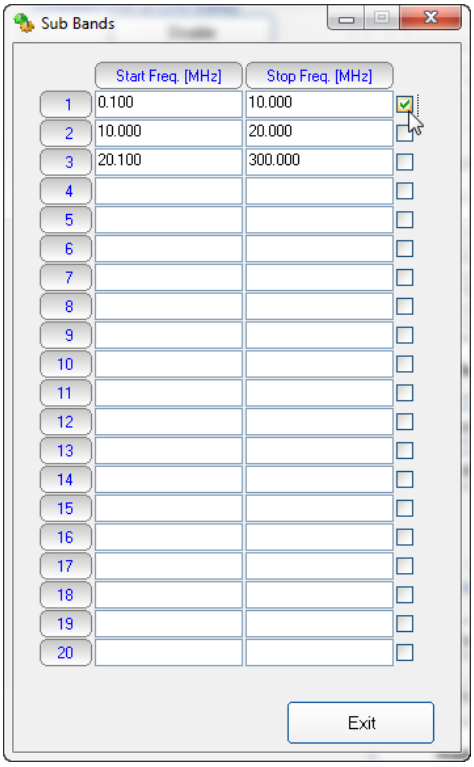
If you press YES the name inside the station will be changed.
This name it is just a label, the serial number of the area monitor will be always the same and cannot be changed.
If you press no, the software will ask you if you want to replace the name in the grid with that one stored in the area monitor.




The main window of the software show you all possible information about the area monitor and the probe.
Now passages to do are:
- push the button Enable Settings
- push the button Set Clock and then choose Yes to sincronize the internal clock
- push the button SUB Bands



Now you have the following.
insert start and stop frequency for each line and then check the box on the left to activate that frequency range.




Frequencies are expressed in MHz and they can be overlapped.
The narrowest SPAN is 110 kHz

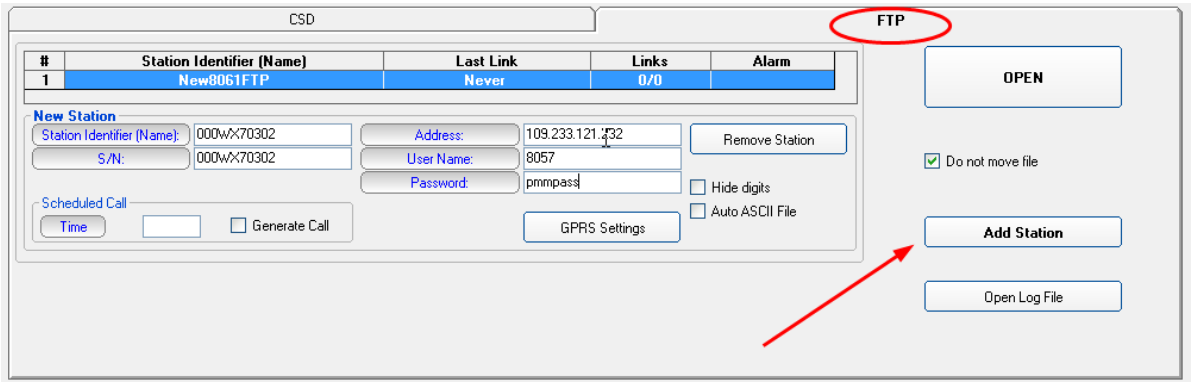
# BEWARE!

It is not advisable to have a band crossing the frequency of 20.0 MHz since this is the frequency where the internal receiver switches between low-range module and high-range module.

In the low range part, a too narrow frequency range, could introduce a continuous component, falsifying in this way the measure.

At the same time, in the high range part, a too wide frequency range will activate a too wide filter, causing the raise of the noise floor. In this way a low signal could be confused with the noise floor itself.

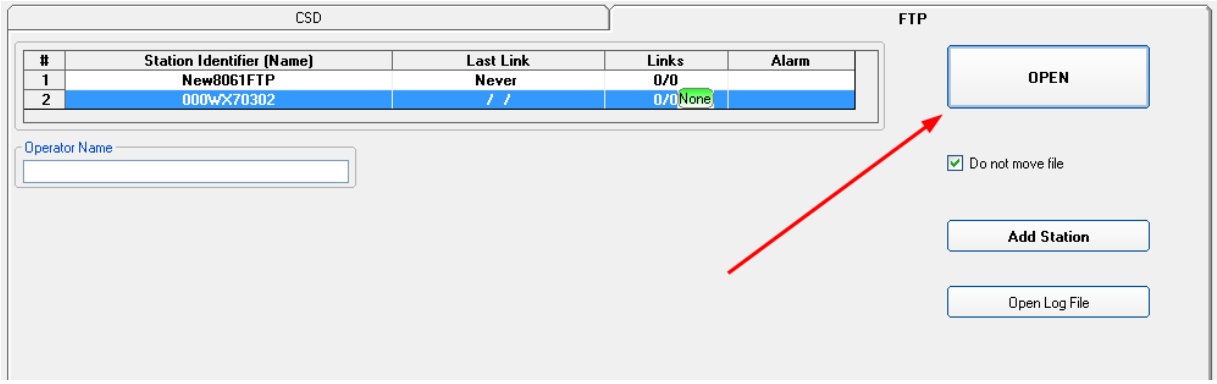
Now turn again in the FTP mode in the main window and add a new station.



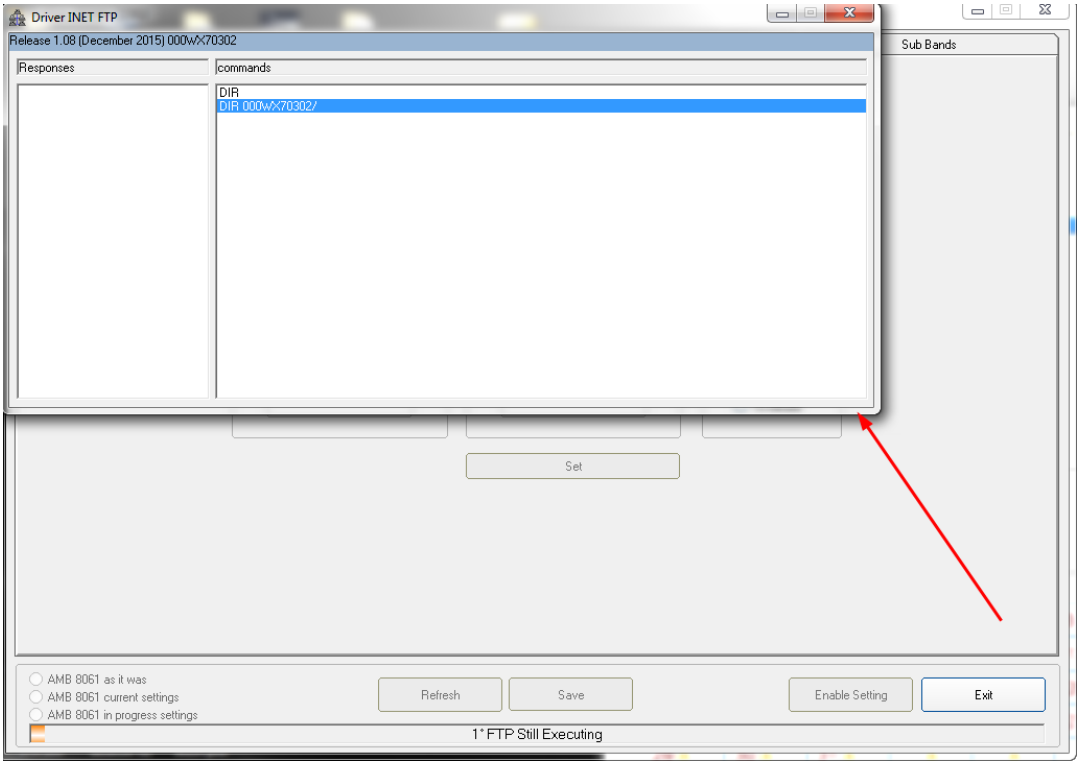

Now:
- Insert the Station Identifier: it is the name you decide to give to your monitor station. As default it is the serial number of the station.
- Insert the S/N: it is the serial number of the station and it will correspond to the folder that will be created in your FTP server where you can find all data.
- Insert the Address: the IP of your FTP server
- Insert the User Name: the user name to enter in your FTP server
- Insert the password: the password to enter in your FTP server

For every field the computer will request the Terminal Password

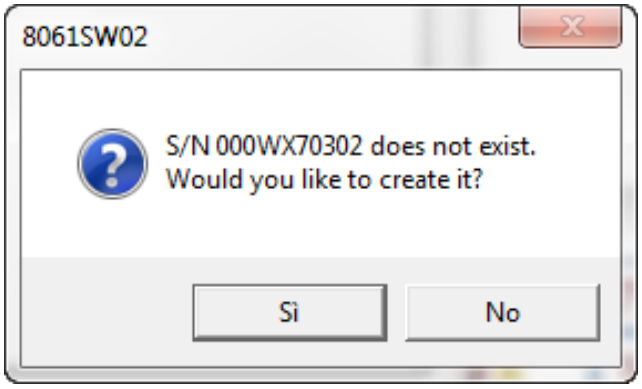
Now your area monitor should be added to the list.
Click once on its row and then press the button Open



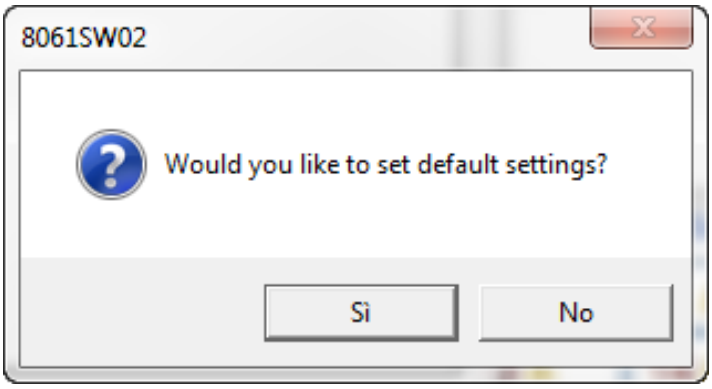
The software starts to communicate with the FTP server. All communications between them is monitored by the window called Driver INET FTP



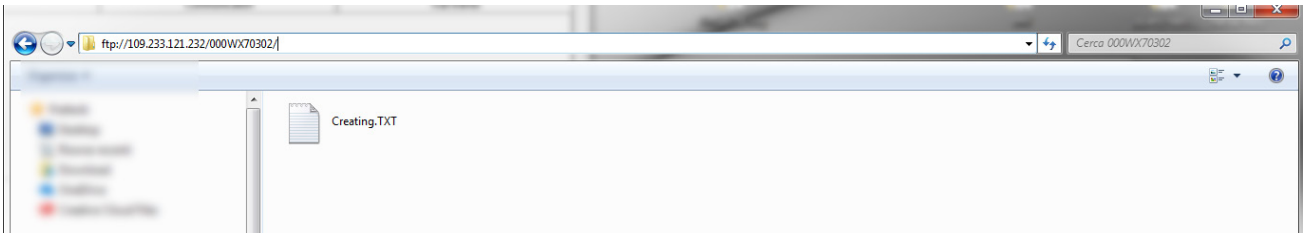

The first time, the software will advise you that there is no folder on FTP server with that serial number and ask you to create it.



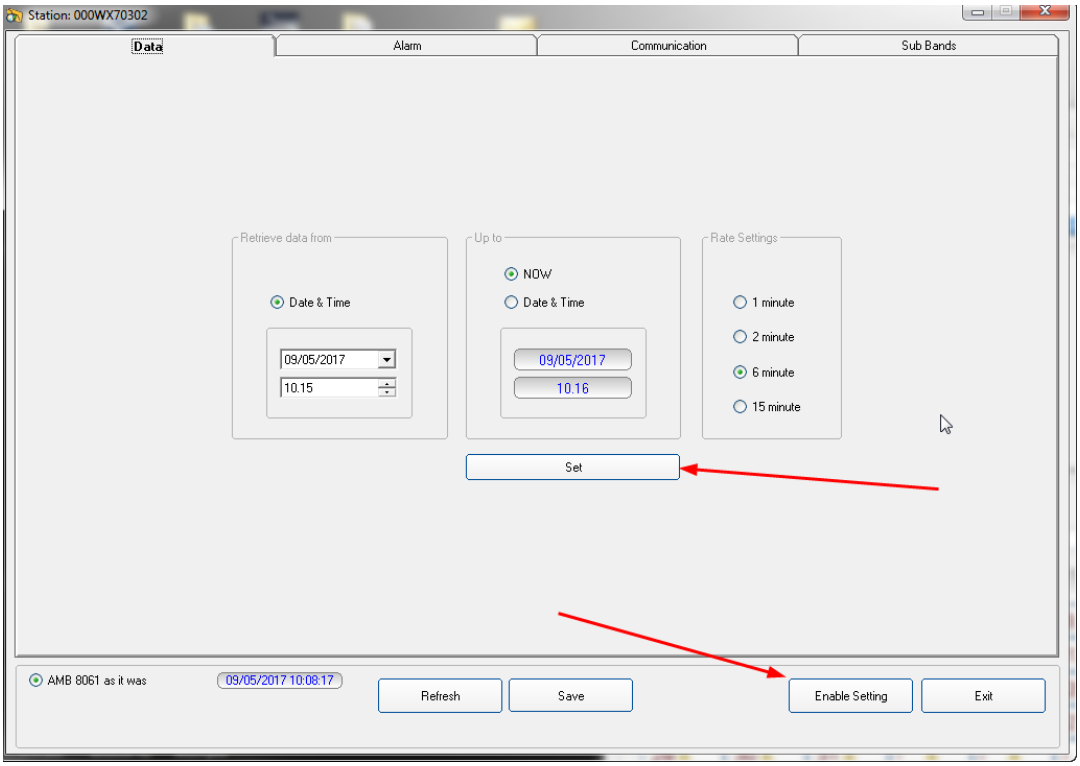
Then will ask you if you want to use default settings. Choose YES for both windows



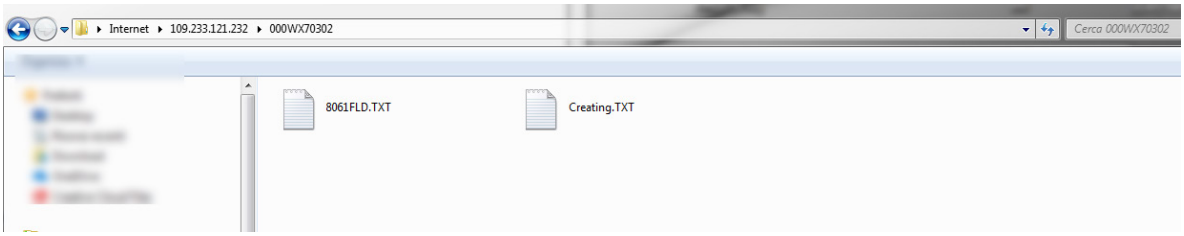

In this moment, in your FTP server, there should be a folder with the same serial number of your monitor station and inside there should be a file called creating.TXT



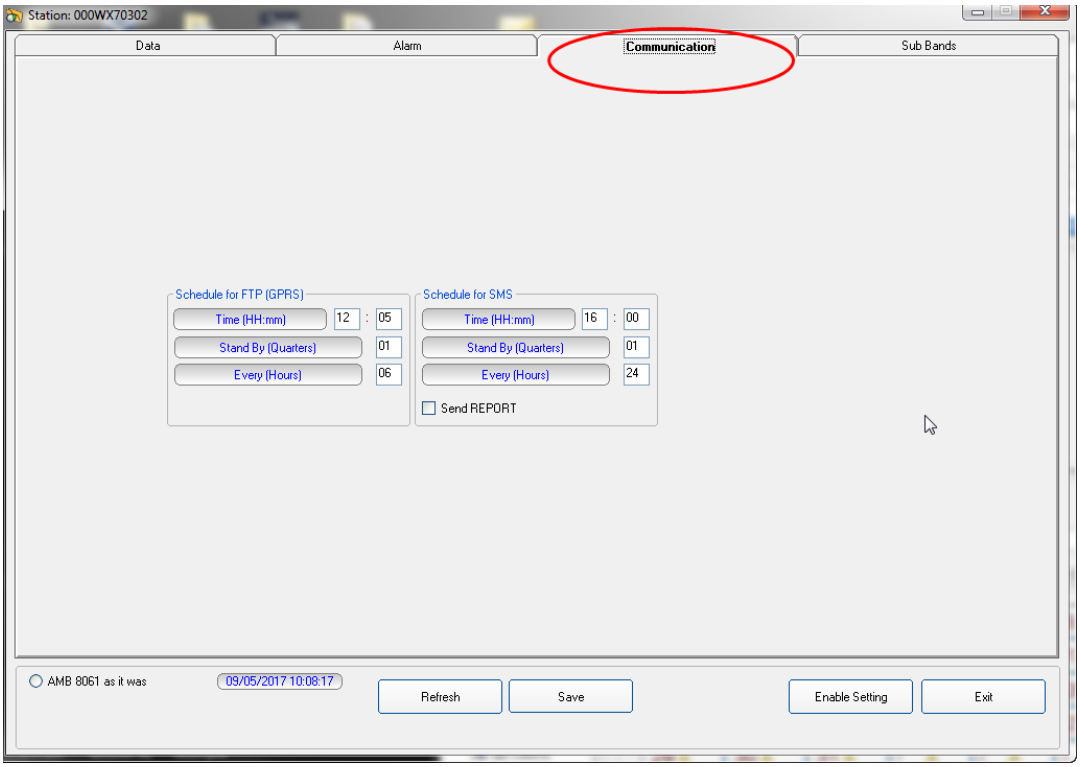

In the main window push the button Enable Settings and, after modify them push the button SET. For every changing the software will ask you the Setting Password



in the FTP server there is an additional file called 8061FLD.txt




In the software choose the section Communication and change the Schedule for FTP settings accordingly to your needs.




The frame Schedule for FTP works in the following way:

- in the part Time, you have to decide when the modem has to be switched ON and send data to the FTP server

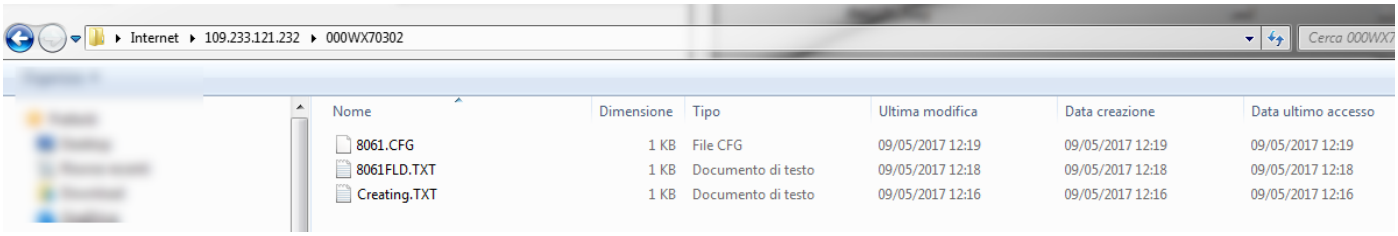
- in the part Stand By, you have to decide for how many quarters of hours, starting from the hours of switching ON, the modem has to try to send all data

- in the part Every, you have to decide the interval, expressed in hours, from every switching ON

Example:
in the picture the modem will be switched ON at 12:05 and it will try to send all data to your FTP server for 1 quarters of hours.

This operation is repeated every 6 hours for a total of 4 connections every day

Once everything is correctly set, push the button Save.
Now on the FTP server there is a file called 8061.CFG that is the configuration file you have just created and that will be used by the area monitor, during the first connection, to modify its settings accordingly to this file




Now we have to force the first connection between the Area Monitor and the FTP server.
Send a SMS with a mobile phone to the Area monitor with the following message:

#SM?IDN(space)password*(space)#SMSCGN*

Where:
- (space) means you have to leave a space
- password is the Device Password

As default the Device Password is PASSPMM. For further details about Device Password consult the users manual chapter 7.5
In this case, with factory settings, the message will be:

#SM?IDN PASSPMM* #SMSCGN*

During the connection, the AMS-8061 will look for the CFG file with new settings. In case it is present, the area monitor change its internal settings and at the end it will leave a new file called 8061.SET. This new file is used by the software to show the last area monitor settings.

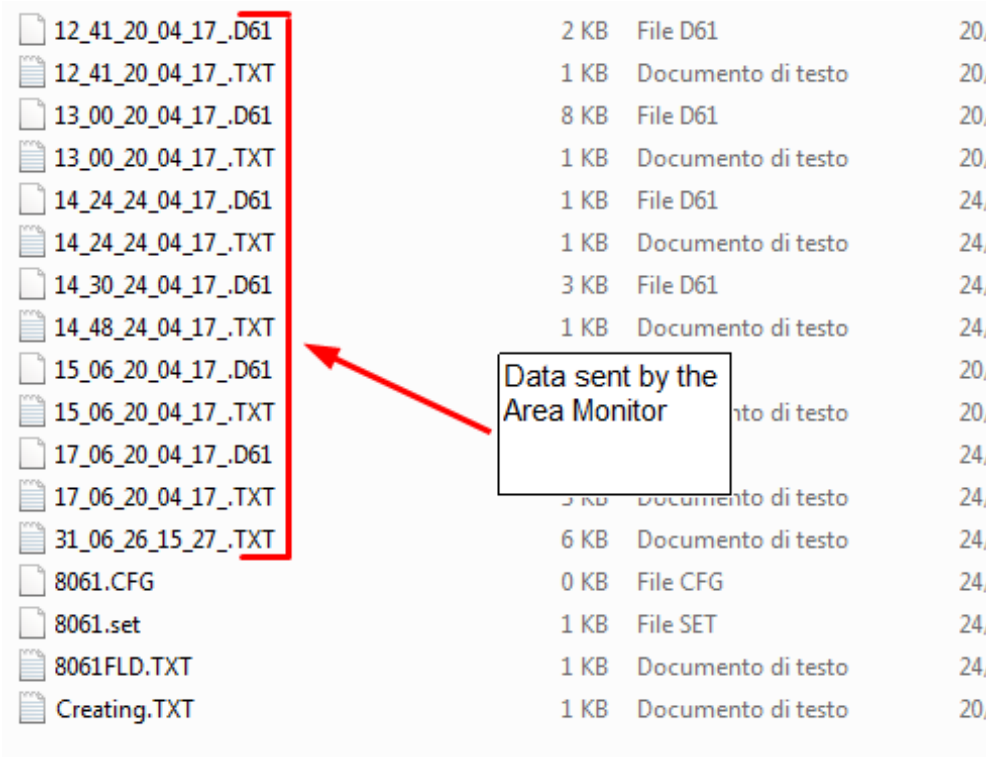
This last operation can also be done via cable RS232, using Windows HyperTerminal, or any other software like it.
To allow communication between the Hyper Terminal software and the area monitor, it has to be set with following configuration:

Baud-rate: 115200
Data: 8 bit
Parity: None
Stop: 1 bit
Flow control: None

In this way you have to send the command #BMSCGN*

The connection should be completed within 5 minutes.

Here an example about what you should have on your FTP server:




As you can see the CFG file is now of 0 kB.
This means that the area monitor has correctly taken new settings.

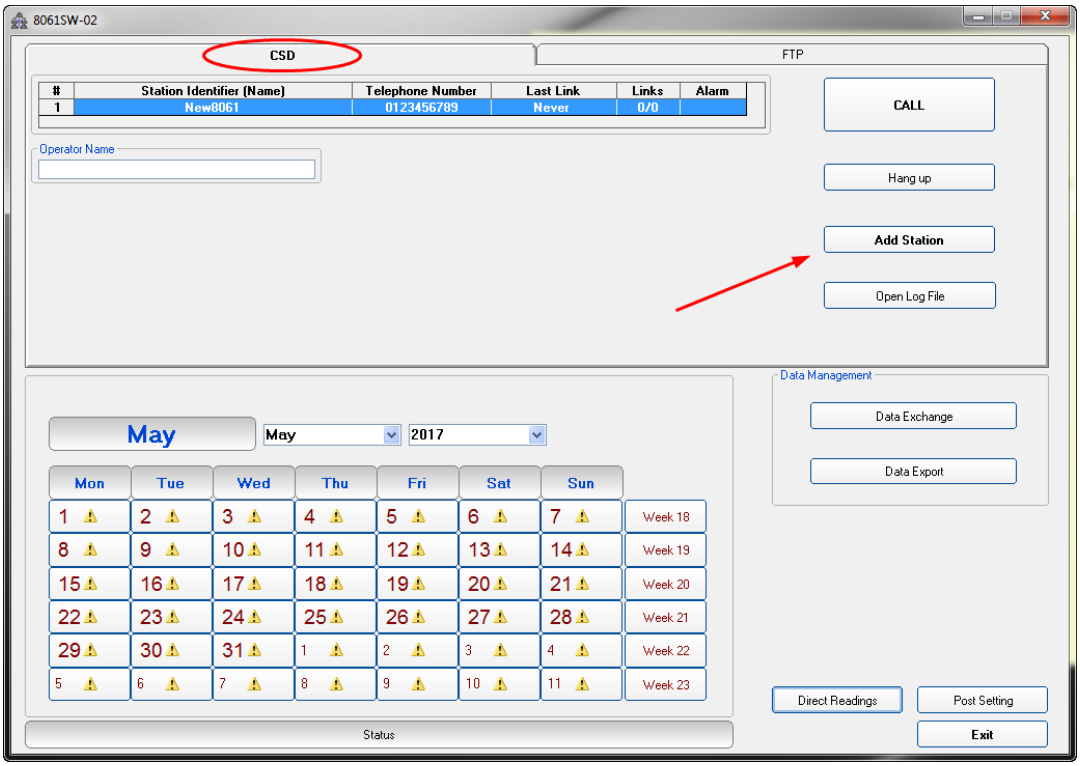
The AMS -8061 is now ready to work in total autonomy.

# BEWARE!

We strongly suggest to avoid free FTP storing services in general because of the many limitations and poor stability they exhibit. Overall features are not sufficient to guarantee a completely automatic system as Narda monitoring station.
Free web-hosting services are used to offer only passive FTP communication, whereas Narda monitoring station is designed for active FTP communications. Free web-hosting services have normally a limited number of connections (per time). This limitation, more often than not, stops FTP communication in the middle of data up- and down-load even on the same TCP session between the server and the same client. Free web-hosting services, often, exhibit very long reply times which trigger Narda monitoring station TO procedures.
To try Narda monitoring stations and setup a first working setup, we can provide you FTP space on our private server. However, for a future actual installation, you will need to arrange your own FTP server without the above mentioned limitations.

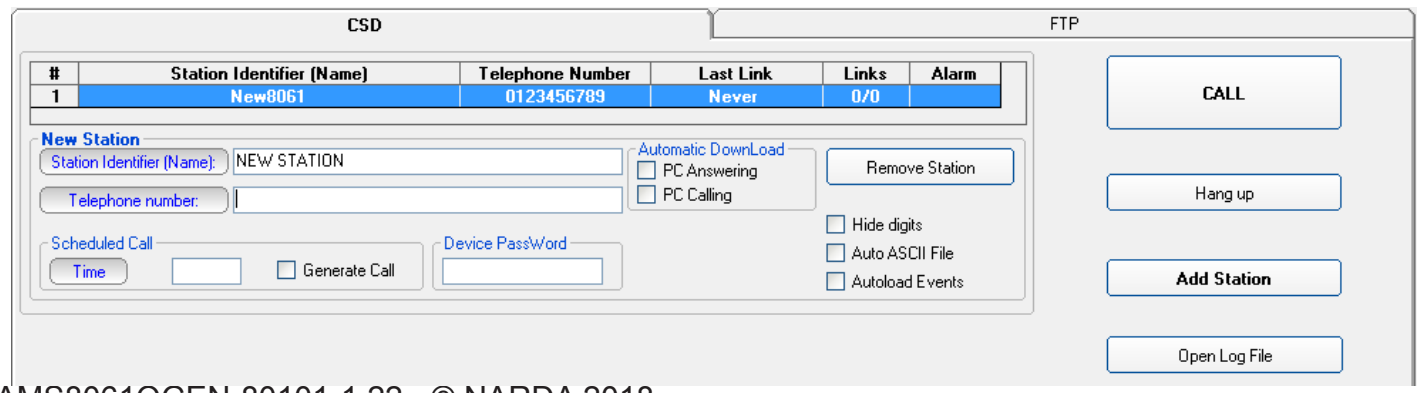
# CSD mode

Once you set the CSD mode in the GPRS Settings window, switch the main panel of the software into CSD mode and add a new station. It always better add and remove stations instead of change an existing one.

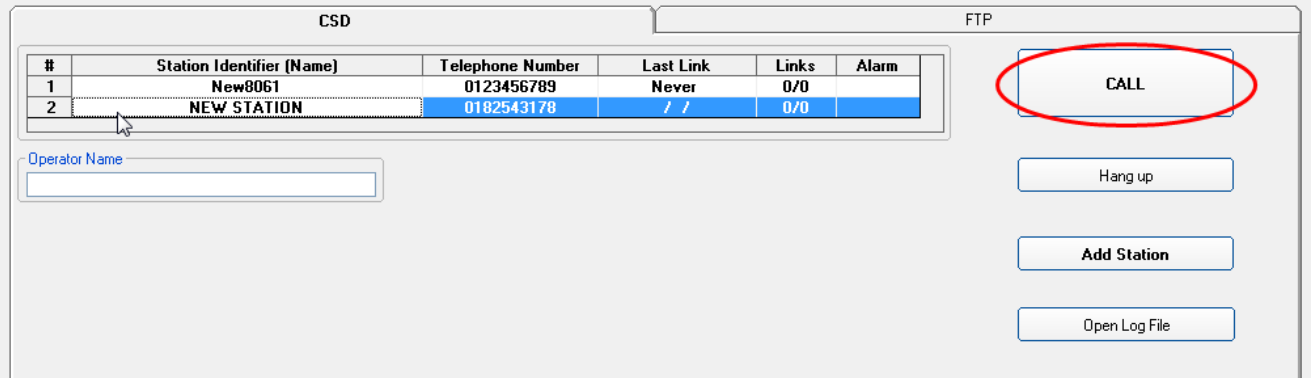



Now:
- Insert the Station Identifier: it is the name you decide to give to your monitor station. As default it is the serial number of the station.
- Insert the Telephone Number: it is the phone number associated to the SIM card in the area monitor
- Insert the Device Password: as default it is PASSPMM

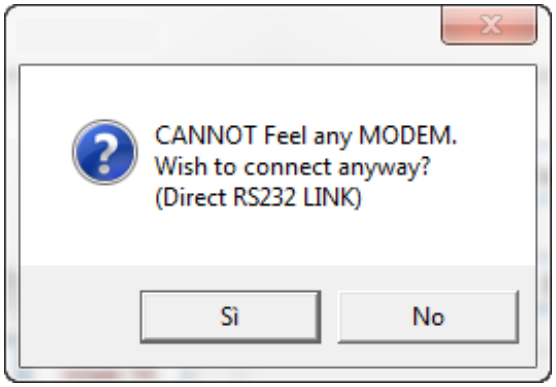
For every field the computer will request the Terminal Password



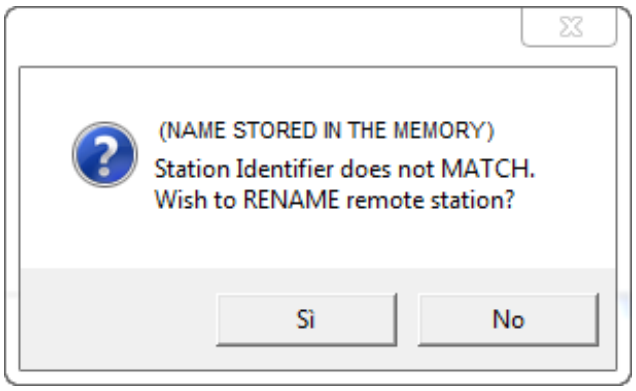
Now your area monitor should be added to the list.
Click once on its row and then press the button Call



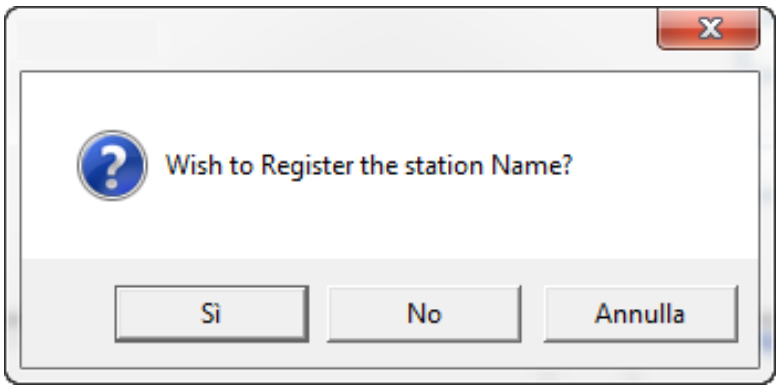

Every time, the software will try to have a connection with the modem. Because of the area monitor is directly connected to the PC you will see the following window.



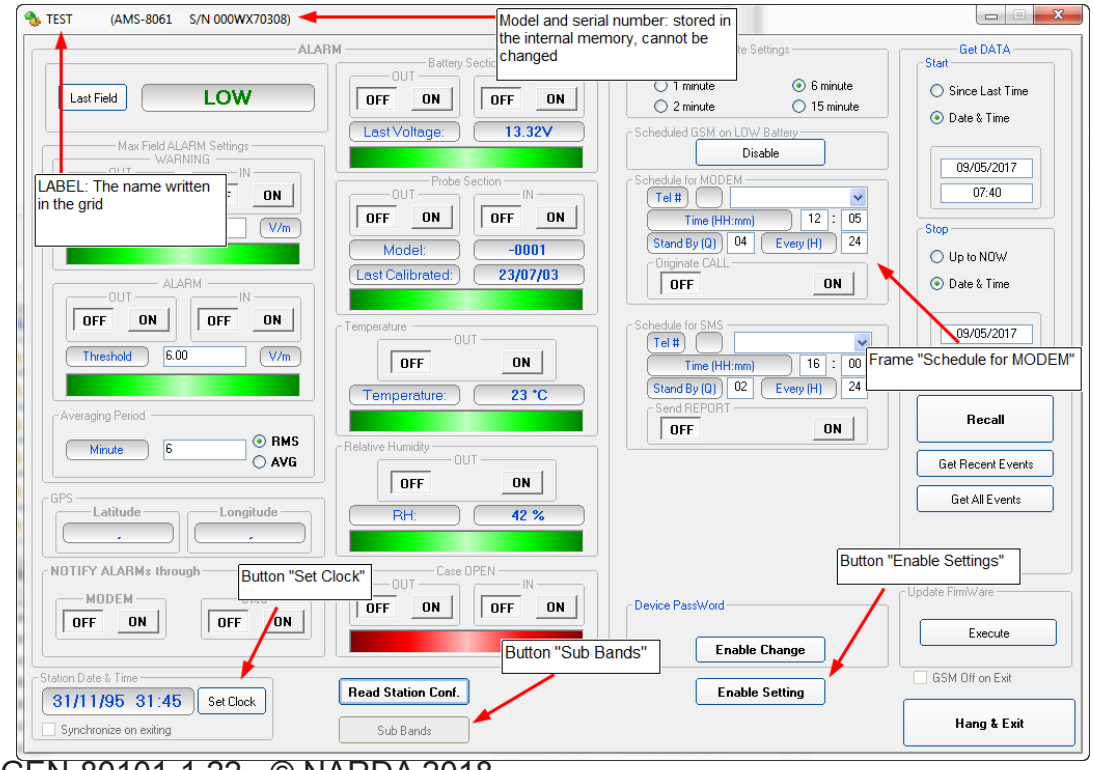

Press YES (SI)
Now the software will verify if the name you gave to the station is the same registered in the station's memory.
In case they are not matching the software will ask you if you want to change the name of the area monitor, stored in the internal memory, with that one you wrote in the grid, with the following window:



If you press YES the name inside the station will be changed.
This name it is just a label, the serial number of the area monitor will be always the same and cannot be changed.
If you press no, the software will ask you if you want to replace the name in the grid with that one stored in the area monitor.




The main window of the software show you all possible information about the area monitor and the probe.
Now passages to do are:
- push the button Enable Settings
- push the button Set Clock
- decide how many time and for how long the modem has to be switched on in the frame Schedule MODEM



The frame Schedule for MODEM works in the following way:

- in the blank part near the written Tel#, you have to add the telephone number of the modem connected to the PC, this just in case you want the area monitor originates an automatic call to the computer

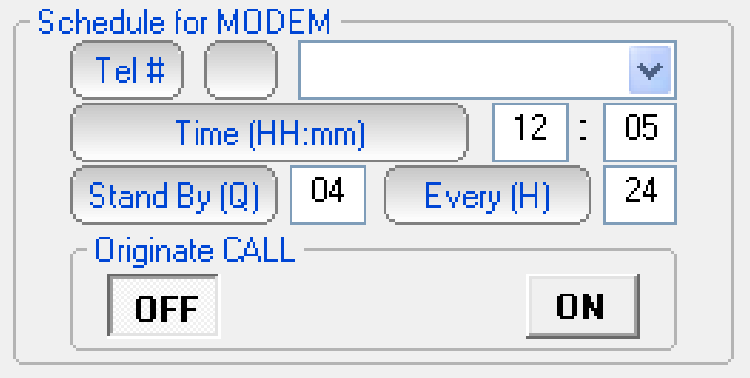
- in the part Time, you have to decide when the modem has to be switched ON

- in the part Stand By, you have to decide for how many quarters of hours, starting from the hours of switching ON, the modem has to stay in stand by

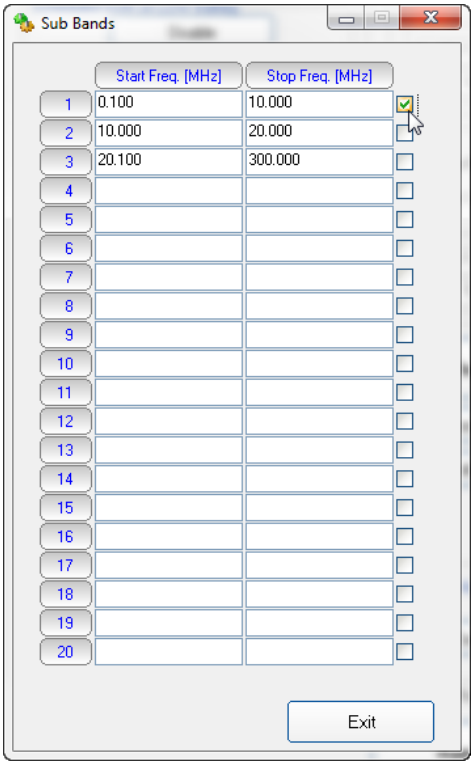
- in the part Every, you have to decide the interval, expressed in hours, from every switching ON

Example:
in the picture the modem will be switched ON at 12:05 and it will stay switched ON, in stand by mode, for 4 quarters of hours.
This means that for 60 minutes starting from the 12:05, the modem is ready to be called or to originate an automatic call to a computer
I can do this operation every 24 hours, always for 60 minutes, always starting from the 12:05

- Originate CALL has to be set to ON only in case the area monitor has to contact the computer in automatic way



Now push the button SUB Bands and you will have the following window.
insert start and stop frequency for each line and then check the box on the left to activate that frequency range.




Frequencies are expressed in MHz and they can be overlapped.
The narrowest frequency range is 110 kHz

# BEWARE!

It is not advisable to have a band crossing the frequency of 20.0 MHz since this is the frequency where the internal receiver switches between low-range module and high-range module.

In the low range part, a too narrow frequency range, lower than 100 kHz, could introduce a continuous component, falsifying in this way the measure.

At the same time, in the high range part, a too wide frequency range will activate a too wide filter, causing the raise of the noise floor. In this way a low signal could be confused with the noise floor itself.

Now you can disconnect the station from the computer and put it in the place chosen for monitoring

## BEWARE!

Every time the Area monitor is switched OFF, and the battery pack is disconnected from it, the internal clock has to be set. It is always better prepare the first installation on site with the help of a laptop or a tablet to verify that internal clock has the right hour and date

Connect the modem to the computer to start working in CSD mode with the area monitor.
Remember that the modem needs to work with a baud-rate of 115200. In case consult the user's manual chapter 7.4.2

# Area monitor installation guide

### Where to place an area monitor?

The placement of an area monitor is a compromise between a non-easy access site, to avoid possible vandalism, and a place that requires continuous monitoring.
Normally a roof, a very large terrace, an open place and on a straight surface, is the place that is most advisable.

**For example, in case of a hospital or a kindergarten, why not put the instrumentation where people are?**

As already explained, the instrumentation must be in a place not easy to access.
This is to avoid accidental damages from children's games such a balls or something else, possible signal influences caused by the passage of people with special equipment or who simply speak on the cellphone. Possibly avoid placing the control unit in a place where it can be easily subjected to vandalism.

We also have to consider that signals we are going to monitor come from antennas, high voltage trellis, a technology that radiate even for miles. If the signal, we are detecting, on a roof is already low, it will be even more inside the building or at a distance greater than the emission point.

Instead, if the detected signal is near or exceeds the limits that is the area where we will have to investigate with more specific, selective equipment.

### Exactly, once on a roof or a terrace, where and how does the control unit be installed?

First of all we must remember that the area monitor is powered by batteries that are recharged during the day thanks to its solar panel. Then the first thing to do is choose a sunny place and point the solar panel in the SUD direction, if possible, or at least avoid positioning it completely toward NORTH.
Verify the presence of any objects or constructions around them does not create a shadow that will undermine the work of the solar panel.

Avoid places too close to large metal objects, or any objects that may interfere with the electromagnetic field, invalidating the measurement.

Where possible, it is good to install the area monitor at a certain distance from walls, palaces, pillars, high voltage trellis or other similar objects.

**What is the minimum distance I should keep from a wall or any other object?**

Much depends on the type of material it is made, its density, how the environmental factors affect it.
If we take the example of an area monitor mounted on a wall bracket, we must also consider how the latter will act on the signal that it is going to measure. If the wall was made of polystyrene, the control unit could also be attached to it, but in reality the density of the materials with which the wall is made, affects the signal.

It is also necessary to consider the atmospheric phenomena which, in conjunction with the structures around the control unit, can affect the signal.
During a rain, with the slightly wet wall, will the reflected signal be the same? And if instead of just being slightly wet it was completely covered with water? How does the refraction of the signal change?

It should be remembered that the area monitor measures a true value. If in a point the probe marks 10 V/m, it is because in that precise point there are actually 10 V/m, which is the result of the sum of all vectorial components, so both the direct and the reflected signals.

**How do you know what is the most suitable point?**

Good sense says that at least 3 to 4 meters away help minimize possible perturbations of the signal that you go to measure.

The best approach would be to use a wide bandwidth meter and make pads in some parts of the area chosen for installation, trying to locate an area where the signal is more homogeneous.

You do not just have to consider radio frequency though. Area monitors are programmed to send data using a SIM card. So also the presence of the GSM / 3G signal is important. We recommend using a cell phone to evaluate the presence and quality of cell signal.

# Troubleshooting

Windows HyperTerminal, or any other software like it, and a serial port monitor could be useful tools to check the station operation when connected to the controller PC through the RS232. You can check attempts of the station to connect to the GPRS network and its operation. Hyper Terminal and Serial Port Monitor show activity of the station being it connected to the PC RS232.

To allow communication between the Hyper Terminal software and the area monitor, its has to be set with following configuration:

Baud-rate: 115200
Data: 8 bit
Parity: None
Stop: 1 bit
Flow control: None

In this way it is possible to send all commands described in the user's manual chapter 4 and also verify the answer from the monitor station

---

**When I open the software, some sections are not active**

- Verify to have pushed the button Enable setting.
- Verify the area monitor is correctly set to work in CSD mode or in FTP mode. The choice of one mode can exclude some part of the software when used in the other mode.

Example
When the AMS-8061 is set to work in FTP mode and you use the software in CSD mode, via cable, the section Schedule fo Modem is not active

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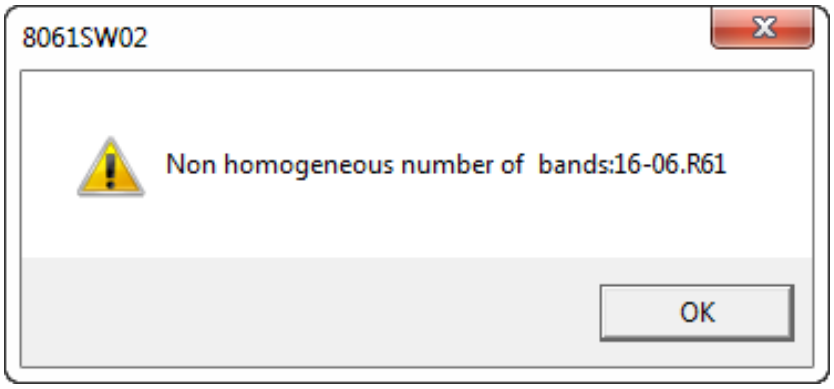
**The software is not able to have a connection with the FTP server**

- Verify to have put correct IP address, user name and password for the FTP connection
- Try to enter in the FTP server with a browser (Mozilla, Safari, Internet Explorer,...)
- Verify that a firewall, or an anti-virus, is not blocking the connection, try to temporarily disable them just to try once

**Sometimes, when i download data, i receive the window message:**
**Non homogeneous number of bands.**




This happens because the number of bands have been changed. The software NSTS is not able to manage, in the same day different settings regarding Sub Bands and Rate Settings. When, in the same day one or both these parameters change we have a not homogeneous data in that specif day or week. The software will show you only data before the settings change.
Data will be correctly available only from the next day or from the first acquisition after the change.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