# RELEASE NOTES - SATEL NMS PC V2.0.9

This is the quick start and version history document for SATEL NMS PC Version 2.
See the end of the document for version history.

## GENERAL

This document highlights some of the features of SATEL NMS PC. A more complete User's Manual will be made available at a later date. In case of any questions please contact your local distributor for technical support.

## IMPORTANT NOTE

Before setting up or deploying your radio modem network, make sure the LATEST MODEM FIRMWARE has been installed into the modems.

## INSTALLATION

To install the product, simply run SATEL_NMS_PC_V2.0.9_Installer.exe and follow the instructions. If you select "Full installation", the installer will install all components of SATEL NMS PC. If you select the "Monitoring only" installation, the "SATEL NMS PC Setup" program is not installed. The Monitoring Only-installation cannot be used to change the settings of a radio network.

## COMPONENTS

The main program is SATEL_NMS_Setup.exe. This program will start the other programs when necessary. It is used to design your radio modem network and program the modems, as well as test the deployed network and make necessary configuration changes while the network is online.

Monitoring settings are also defined using this program, although there is a separate program, SATEL_NMS_Monitoring.exe, which will actually monitor the network while it is online. This program will not allow any configuration changes. It will read the network and monitoring settings generated by SATEL NMS PC Setup, handle communication to the network, show current network status and write log files.

SATELSerialServer.exe is a communication middleware program, which allows several SATEL NMS PC programs to access the same serial port at the same time. The other programs will start serial server automatically when needed. It also makes it possible to access serial ports of another PC if SATEL Serial Server is running in that PC and both PC's are connected to the Internet.

Because communication is always passed through IP (internet protocol) sockets, any installed firewall software must be configured to allow SATELSerialServer.exe to act as an IP server, even when using only the local machine's serial ports.

Finally there is FilterEditor.exe, which is used to define protocol filters to allow the radio modem to handle different application protocols. There are already pre-defined filters for the most common protocols included with the installation.

# USING SATEL NMS PC Setup

## *Network Design*

To design a radio modem network, start SATEL NMS PC Setup. The display will show an empty system and two buttons: New Network and Open. (There is a setting which allows automatic loading of a system on startup; if this setting is active the above may not apply)

Use Open if you have an existing system file created using an older version of SATEL NMS PC. Open can import .sas files generated by older versions of SATEL NMS PC but you must save the system as a new-format .sax file to be able to monitor the network. Saving of the old-style .sas files is no longer supported.

Click New Network to design a network. It is recommended to try designing a network even if you already have an existing radio modem network to familiarize yourself with the new features of the program. Note that in SATEL NMS PC, there is always only one System, which can contain one or more radio modem Networks. Each Network will have its own master modem and unique connection settings.

The program's main screen is divided into several parts. At the top is the usual menu bar and below it is the toolbar. Below the toolbar on the left is the *system tree-view*, which is used to select what kind of view and which network or modem is shown on the right, in the view area.

The main tool to designing a working network is the To-Do-list, located in the lower left-hand corner of the main window. Simply click on each item on the To-Do-list, and the program will guide you through the design procedure. Following the To-Do-list you will create a network with one master modem and one substation. You will need at least one SATEL radio modem to act as the master modem and another for the substation.

If you wish to have more than two modems in the network, use the New Modem button in the Design view to add any number of modems at any time during the process, after adding the first modem.

The Frequency and other settings of the network will by default be read from the master modem's settings, although they can be changed using the *network settings view*, accessed by clicking "Settings" in the *system tree-view*.

The items on the To-Do-list are either setting items, which ask you to input a certain setting, or Synchronize items which means the settings will be transferred to a modem. If you change a setting after synchronizing a modem, the synchronize To-Do-items will appear again in the list.

Once the To-Do-list is empty, all necessary operations to program your network have been completed. You can still make additional changes to your settings if you wish, but to avoid having to synchronize the modems several times, all changes should be made before starting to synchronize the modems.

### *Tests*

You can then perform a desktop test of the system by powering all the modems and running some basic tests. The tests are located in the *Network Information view*, which is accessed by clicking the network's name in the *system tree-view.* Alternatively, tests can be run from the Tools menu. The basic test to run is the NMS Radio connections test, which will try to send an NMS message to all modems in the network and will report which modems responded and which did not.

Local modem status test shows the status of the currently connected modem.

NMS Ping test can be used to repeatedly request the RSSI reading from a modem in the network. It also measures total roundtrip time. Note that this value contains additional random delays from the Windows serial port.

Custom connections test can be used to test Custom connections, if any have been defined. It works similarly to NMS Radio connections test.

### *Monitoring Settings*

To be able to use the Monitoring program, monitoring settings need to be configured. Either click the Monitoring toolbar button or select Monitoring in the *system tree-view*. Following the To-Do-list will also bring you to the *monitoring settings view*.

The monitoring settings are grouped into pages.

#### General settings

In the General page you can select the directory where log files are saved. See below for more on log files.

#### Polling settings

The second monitoring settings page is the Polling Settings. Here the polling list is defined. You can select which NMS parameters are requested (polled) from each modem of the network. You can also select optional delays between each message and each poll cycle to lessen the bandwidth requirements imposed by the polling on the radio network. The polling list is generated from these settings. If you make changes to the network such as adding or removing

modems or changing addresses the polling list must be generated again, by pressing the *update* button.

| Parameter | Explanation |
|---|---|
| Voltage Floor | As the modem's transmitter activates, the increased current causes a slight drop in the input voltage. This diagnostic parameter measures the lowest ("floor") voltage during transmission. This makes this parameter a good indicator about the quality of the input voltage to the modem. |
| Temperature Ceiling | This is the highest measured temperature of the radio modem's power amplifier during transmission. As such, it indicates how close to critical operating temperatures the modem is. See modem manual for actual maximum operating temperature. |
| RSSI | Each radio modem keeps an *RSSI Log,* which includes information about radio transmissions it has received. The log includes the sender modem's address and the RSSI value.<br><br>Using this information, SATEL NMS Monitoring is able to display bi-directional link RSSI values on the network map.<br><br>30 *RSSI* values can be stored per modem, so in networks with more than 30 modems within radio range of each other there might sometimes appear "*-127 dBm"* values from *RSSI*. This simply means the RSSI value of a modem was not found within another modem's RSSI log, and the situation should even not occur every time a RSSI value is polled. |
| Last RSSI | This is the RSSI value of the last radio message the modem has heard. When a NMS message is sent through radio to the modem, it is this NMS request's RSSI which is measured.<br><br>This parameter thus gives one-directional RSSI information.<br><br>Note that the normal *RSSI* gives more information than *Last RSSI.* (Two link directions as opposed to one, but only 30 values per modem, see above) |

If you check the Allow advanced configuration checkbox, you can modify the automatically generated polling list, but this should not be necessary in most cases.

### Trigger settings

The third monitoring settings page is the "Triggers" page. Here you can define conditions of the monitored parameters to be acted upon. For example, a condition like "if Voltage is less than 12 volts" may trigger an alarm.

### Action settings

The fourth page is the Actions page. Here you can define what to do when certain triggers match, for example run a command or write some data into a file.

Note that you must first define some actions, then you can select those actions to be performed in the trigger definition window.

For more information on triggers and actions, see the separate document "ConfiguringTriggersAndActions.pdf"

### Start Monitoring

After saving the system, you can start the Monitoring program by clicking the Start SATEL NMS Monitoring button.

## USING SATEL NMS PC Monitoring

If Monitoring was started from within Setup, the system file is loaded and monitoring is started automatically. Otherwise you need to load the system file (.sax) using the *File->Open* menu command. The monitoring is then started automatically. The monitoring can be stopped using *the Monitoring->Stop* menu command. The system file name may also be given to SATEL_NMS_Monitoring.exe as a command line parameter. This way monitoring can be started automatically for example when the computer starts. To do this, a shortcut with the correct command line is added to the computer's *Startup folder*, and automatic log-in to Windows must be configured.

### Note about Serial Port Settings

Please note that all COM port settings are NOT carried over from the Setup program into the Monitoring program. Please use SATEL Serial Server's Communication Settings tab to select correct serial port settings. Remember to save the settings by clicking the Save button. These settings are saved into Windows registry.

### *Monitoring Views*

The Link Map page shows the status of links (RSSI) and modems in one network. If there are alarms, the links will turn red and/or the modem icons will receive a red exclamation mark "!". If the system has more than one network, select the shown network by using the drop-down list.

The Trend Graphs page shows the history of monitored parameters as a graph.

The Log page shows the monitoring NMS messages as they are sent to and received from the network.

The Status page shows the latest result for each monitored parameter for each modem or link.

The Alarms page shows the alarm history of the system.

The Triggers and Actions page show the history of triggered Triggers and Actions taken.

If you only get ERROR messages with the text "Connection settings are not valid" you need to run Setup in the same machine where the monitoring program is running and make sure connection settings are valid for each network in the system. Also check the Serial Server's port settings.

There are also other error messages. For example, No response means there was no answer from a modem.

## *Log Files*

SATEL NMS PC Monitoring will write a log file to the location defined in monitoring settings of SATEL NMS PC Setup. The program will open the file; write into it and the close it every time a new log line is added. This makes it possible to import data into other programs in almost real time from the log file. The log file is a Tab-separated file. There is one log entry per line.

One log file per day will be generated. The log files are named in the following format: satelnms[d].[m].[y].log where [d] is the current day, [m] is the month and [y] is the year. Example: satelnms28.5.2007.log.

Log file columns, separated by tab characters:
-Timestamp (example: 6.6.2007 14:10:53)
-Connection (example: localhost:55555:COM5)
-Network Name (example: Test Net)
-Destination address (example: 3)
-Destination modem name (example: Modem 3)
-Command (example: GETVAL)
-NMSID (example: 1.83)
-Value (empty, if command is GETVAL) (example: 29)

Example lines from a log file:

| | | | | | |
|---|---|---|---|---|---|
| 6.6.2007 14:17:26 | localhost:55555:COM5 | Test Net | 3 | Modem 3 SETVAL | 1.3086 1 |
| 6.6.2007 14:17:26 | localhost:55555:COM5 | Test Net | 3 | Modem 3 VALUE | 1.55 -95 dBm, From 1 |
| 6.6.2007 14:17:28 | localhost:55555:COM5 | Test Net | 1 | Master Station GETVAL | 1.80 |
| 6.6.2007 14:17:28 | localhost:55555:COM5 | Test Net | 1 | Master Station VALUE | 1.80 120 |

| | | | | | |
|---|---|---|---|---|---|
| 6.6.2007 14:17:31 GETVAL 1.80 | localhost:55555:COM5 | Test Net | 2 | Modem 2 | |
| 6.6.2007 14:17:31 1.80 | localhost:55555:COM5 121 | Test Net | 2 | Modem 2 VALUE | |
| 6.6.2007 14:17:33 GETVAL 1.80 | localhost:55555:COM5 | Test Net | 3 | Modem 3 | |
| 6.6.2007 14:17:33 1.80 | localhost:55555:COM5 122 | Test Net | 3 | Modem 3 VALUE | |
| 6.6.2007 14:17:34 GETVAL 1.83 | localhost:55555:COM5 | Test Net | 1 | Master Station | |
| 6.6.2007 14:17:34 VALUE 1.83 | localhost:55555:COM5 29 | Test Net | 1 | Master Station | |

# FAQ

## *MONITORING*

Q. I have configured my PC serial port settings and Master Modem Diagnostic port settings like this: 19200,8,E,1. When I start monitoring, it does not work because it tries to open the port using settings 9600,8,N,1. Why?

A. SATEL NMS PC Monitoring uses the serial port settings defined in SATEL Serial Server. Define the correct settings in SATEL Serial Server's Communication Settings page.

# VERSION HISTORY

## *VERSION: v2.0.9.0*

DATE: 19.6.2008

### NOTES

This release includes several bug fixes and new features. This release should be used instead of earlier releases.

### ADDITIONS

- Support ANSI X3.28 protocol with radio modem SW V4.0.12 or later.
- Support Improved Network ID mode with radio modem SW V4.0.12 or later.
- Support for Dual Band modems.
- Support for transparent network topology. Transparent (Basic – RX priority) networks should be designed using SATEL NMS PC to enable offline NMS access for emergencies etc. Normal NMS operations in transparent networks are NOT supported.
- Custom connections may be defined to each modem.
- Limited IP-Link support with external hardware, please contact SATEL for more information.
- Ability to import triggers and actions
- Additional trigger conditions are now available, such as "edge" reacting "drops below" and "raises above" triggers.
- Support duplicate master modems. Duplicate the whole network, Replace the master modem of the duplicate network with the secondary master modem HW and set the Primary network in the <network name-> Settings page. For more information contact SATEL and/or read the manual.

### FIXES

- Changing a port setting while being connected to that port caused synchronization to fail. Now changing critical port settings is prevented unless using programming mode or radio connection.
- Monitoring Link Map now correctly shows RSSI values and additional diagnostics
- Serial Server can now be minimized
- Fixed trigger editing window
- *Last RSSI* Monitoring parameter is not asked from the Master anymore, since the value changes with every received radio message depending on which station transmitted last. In other words, the value does not make sense *when asked from the Master.* The value is usable when requested from other modems, and this is done if the value is selected to be monitored.

*VERSION: v2.0.3.0*

DATE: 8.11.2007

## NOTES

This is an important repair release. This release should be used instead of earlier releases.

## ADDITIONS

- Added support for tab and new line characters as well as OtherModem, Unit and NumValue Parameters into "Action: Write To Log File" in Monitoring Settings

## FIXES

- A severe memory leak in SATEL NMS PC Monitoring has been fixed.
- In Monitoring Settings, Action settings, the "Date" parameter was not working. Date has been changed to LogDate and Time into LogTime. Action definitions made using an earlier version (V2.0.0, V2.0.1 or V2.0.2) need to be updated.
- In some rare cases involving Packet Filter Extensions the save file could have been corrupted because of extra "<" characters.
- Several modem settings only start working after the modem has been reset. SATEL NMS PC now resets the modem automatically after synchronization to immediately take new settings into use.

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*VERSION: v2.0.2.0*

DATE: 23.10.2007

## NOTES

This is a repair release. This release should be used instead of earlier releases.

## ADDITIONS

- Support ANSI X3.28 protocol (modem SW version 4.0.12.0 or later required)

## FIXES

- There was a problem with protocol settings, which could cause data messages to not be delivered after changing the protocol until the master modem was reset. Now NMS PC Setup will reset the modem automatically.
- Protocol settings were partially broken.
- Modems no longer require synchronization after saving and loading if nothing has changed.

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*VERSION: v2.0.1.0*

DATE: 19.10.2007

## NOTES

This is a critical repair release. This release should be used instead of V2.0.0.0 in all cases.

## FIXES

- There was a problem with Packet Filter handling, which made it impossible to change the Protocol of the network. The protocol appeared to change, but in effect the old protocol remained in the modem. The most obvious symptom of this problem is that although NMS messages were working, DATA messages were not.
- There is an option to keep the serial ports open continuously, rather than closing and opening them quickly while the NMS Setup SW is synchronizing.
- Some USB-to-serial port converters were having trouble with the quick opening and closing, and were getting stuck. Symptoms of this problem included erratic behavior while synchronizing. This option is enabled by default.

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*VERSION: v2.0.0.0*

DATE: 3.10.2007

## NOTES

First release of V2.0

There are many differences to version 1.0.3, including the addition of the To do list and generally easier-to-use network design features, separation of the program into several sub-programs, support for more user protocols (achieved by the packet filter editor).

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