

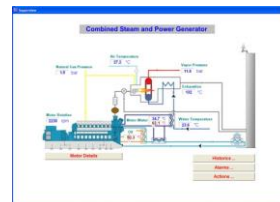


1295 Morningside Ave Units 16, 17, & 18
Toronto ON M1B 4Z4 Canada
Telephone: 416-261-4865 Fax: 416-261-7879
www.scigiene.com

Superview

INSTRUCTIONS

Version 2.0x



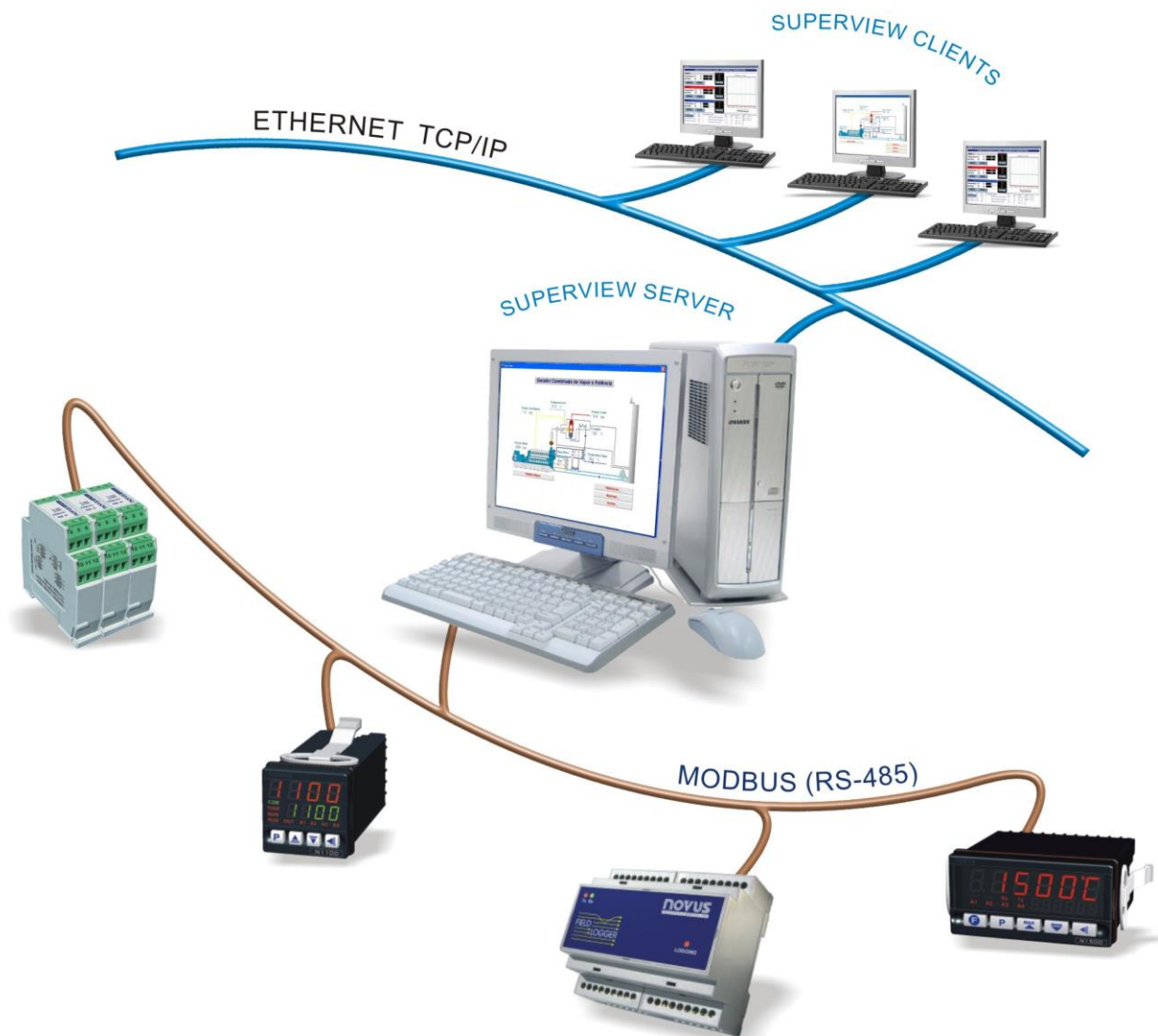
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INTRODUCTION

Superview is a scalable and configurable Supervisory Control and Data Acquisition (SCADA) software, focused in the supervision of Modbus RTU devices. Easy to configure and flexible, allow users to create customized applications with visual objects (images, texts, buttons and graphics) that represent the synoptic of the process under supervision. Within a corporate network, it is possible to distribute the supervision among multiple computers.

A typical application topology is presented in Figure 1.



Superview can be configured to notify alarm conditions by changing images, playing sounds, sending e-mails and changing tag values in the monitored devices. Process data can be periodically stored in the computer hard disk and be later displayed as graph or table and exported to different file formats (XLS, PDF, RTF, XML, HTML, DBF, TXT, CSV). User authentication, log of user actions and supervision occurrences are additional features offered by Superview.

This manual describes the steps required to start using Superview. A detailed description of each setting window can be found at the help system, accessed through the menu **HELP/SUPERVIEW HELP**, or by pressing **F1**.

INSTALLING SUPERVIEW

SYSTEM REQUIREMENTS

Superview requires:

- A PC-compatible machine running Windows 98 Second Edition or higher. Minimum requirements:
 - Pentium III Processor 500MHz
 - Free disk space: 100MB
 - RAM: 128MB (256MB for Windows 2000, XP and higher)
 - Mouse, Keyboard, SVGA Monitor, Serial or USB Ports
 - Network interface
- To execute Superview as a data server and/or as a Modbus RTU master, one or more slave Modbus RTU devices are mandatory. An RS232/RS485 or USB/RS485 converter is needed to convert the PC communication port (RS232 or USB) to the RS485 communication line used by most Modbus RTU networks. USB communication ports are only supported under Windows 2000, XP and above.

INSTALLATION PROCEDURES



To install Superview, the user must be logged-in as a system administrator with unrestricted access to Windows system folders.

To have Superview installed on your computer, the following steps must be accomplished:

1. Insert the CD in proper drive
2. The installation wizard will launch automatically. If it does not launch automatically, run Setup.exe from your CDROM drive.
3. Follow the instructions prompted on the screen up to the installation is complete.

FIRST STEPS

The use of Superview can be divided into four stages:

- Setting up basic configurations
- Registering Superview
- Widening the application scope
- Supervision

The three first must be performed by a registered user with Administrator's benefits. Supervision can be accomplished by an Administrator, Operator or Monitor user.

The following steps must be followed for the **basic set up**.

- Start Superview
- Create a new application.
- Inform Superview about NOVUS networked equipment in the supervisory system (Superview can communicate with Modbus RTU devices from other vendors, as described in "Configuring the Communication With Modbus Devices From Other Vendors").
- Inform Superview which the interest variables are (TAGS) within each device in the network.
- Create one or more supervision forms, with images, texts, buttons and graphics associated to the variables in the communication network.
- Define the network communication parameters.
- Save the application.
- Start supervision.

The **registration** of your Superview software consists of registering the license number provided by NOVUS when a use license is purchased. The registration number is unique and is associated to the serial number of one of NOVUS devices connected to the communication network.

Some additional steps may be required to **widen the application scope**:

- Create application's users, with different privileges.
- Create alarm groups, defining actions for alarm events.
- Define alarm ranges for the critical variables the system monitors.
- Set up the log of important events in the system.

TO configure a **distributed supervision**, the following additional steps are required.

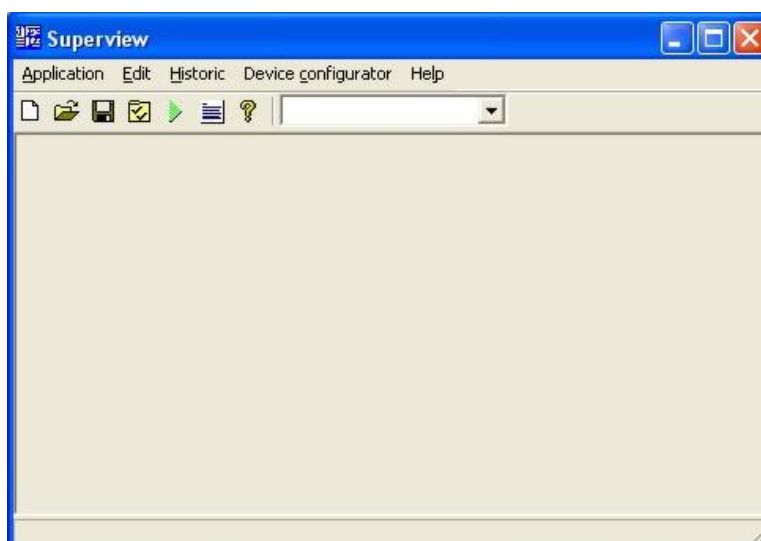
- Configure the Server Mode to allow TCP/IP communication between two or more Superview stations.
- Configure all additional Superview stations as clients of the server.

Once the application was created, Superview will be used only in the **Supervision** mode, showing the operator the information about the process supervised.

CREATING A SIMPLE APPLICATION

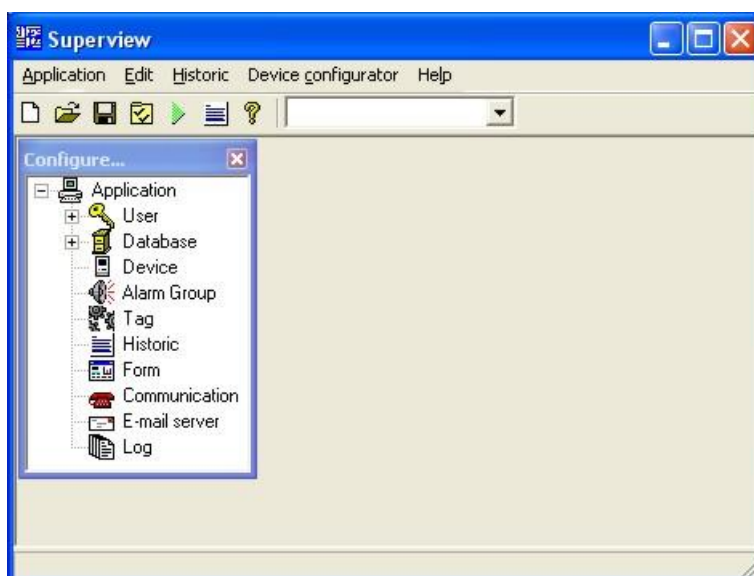
START SUPERVIEW


To start Superview, select the icon Superview from the Start menu. The initial window will pop up in a few seconds, as the following figure shows.



CREATE A NEW APPLICATION

To create a new application in Superview, select the option APPLICATION/NEW. The CONFIGURE window will display, as the figure shows.

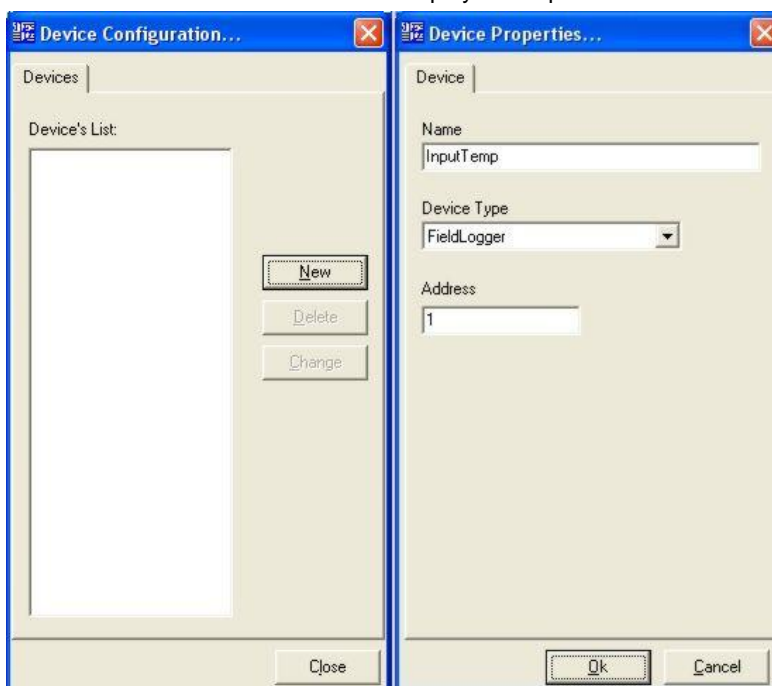


If the CONFIGURE window is closed, it can be opened again through the menu APPLICATION/CONFIGURE, or pressing .

REGISTERING DEVICES IN THE NETWORK

Communication is only possible among registered devices. To register the devices in the Superview network proceed as indicated below:

1. Double click the icon DEVICES in the CONFIGURE window. The window DEVICE CONFIGURATION will display.
2. Click NEW and the DEVICE PROPERTIES window will display. Examples are shown below.



3. Enter a name for the device in the NAME field; in the drop-down menu DEVICE TYPE select the NOVUS device model that you want to be included in the network. In the ADDRESS field, type the address of the Modbus network that identifies the device. The informed Modbus address must be the same as the one defined for the device, and it must be unique in the network (only one device in the network can have this address). The name selected for the device will be used to identify it when configuring the communication variables (TAGS).
4. After entering all these information, click OK and check if the new device was added to the list in the DEVICE CONFIGURATION window.
5. Register all devices in the network. After concluding, close the DEVICE CONFIGURATION window.

- To change data of an existing device, select the device from the list in the DEVICE CONFIGURATION window and press CHANGE.

The devices to be selected from the drop-down menu DEVICE TYPE are registered in the Superview devices database. For further information about the database, see "DATABASE OF MODBUS DEVICES PARAMETERS". To setup devices from other vendors, see "Configuring the Communication With Modbus Devices From Other Vendors".



The device registered with the address 1 must be a Novus device, and its serial number must be the one listed in the **Superview Use License**. This is required when Superview is used in the **Full Registered Mode**. See section "REGISTERING A SUPERVIEW COPY" for further information on Superview registering and licensing.

REGISTERING THE VARIABLES OF EACH DEVICE - TAGS

TAG is the basic element of information that will be displayed in Superview. A TAG identifies a numeric information, and it can be:

- Physical Tag:** Identifies a variable associated to a Modbus register in a networked device. The tag's value represent, for example, the current temperature reading of a controller or the required pressure (set point) in another one. Only 16-bit value can be associated to a physical tag (values ranging from -32768 to 32767 or from 0 to 65535).
- Constant Tag:** Identifies a variable in the computer's memory, not associated to equipment in the network. Typically used to perform advanced functions.
- Date/Time Tag:** Identifies date and time variable, as indicated by the machine's internal clock. Used when you want the current date and time to be displayed.
- Timer Tag:** Identifies a variable that counts time in hours, minutes and seconds. Used when you want to indicate for how long the Superview application is running. A Timer Tag can be controlled by write operations using buttons or alarm groups. To Pause or Resume counting, write -1 to the Tag. To reset count, write 0 (zero) to the Tag.
- Collect Tag:** Identifies a variable associated to the data memory content of a NOVUS data logger, Field Logger model. Used when there are historic data stored in the logger that must be transferred to a Superview historic file.
- Custom Tag:** Identifies a variable associated to a Modbus register in a networked device (like the physical tag, but the device can be from vendors other than Novus). The configuration of the Custom Tag requires parameterization of the Modbus command used to read from and write to the device. The device must be a Custom Device. See "Configuring the Communication With Modbus Devices From Other Vendors" for additional information on communication with custom devices.

Read and write operations in a Physical or Custom tag are associated to read and write operations through the Modbus or TCP/IP network. When configuring a simple application, the Physical tag is of greater interest and use. To add and configure Physical tags associated to networked devices, follow the steps below:

- Double click the icon TAGS in the CONFIGURE window. The TAG CONFIGURATION window will be displayed.
- Click NEW and the TAG PROPERTIES window will be displayed. Examples are shown below.









The image shows two overlapping windows from the Superview software. The 'Tag Configuration...' window on the left has a 'Tags List' table with columns 'Tag' and 'Type'. Below the table are buttons for 'New', 'Delete', 'Change', and 'Close'. The 'Tag Properties...' window on the right is for configuring a specific tag. It has tabs for 'Tag' and 'Alarm'. The 'Tag' tab is active, showing fields for 'Type' (set to 'Physical Tag'), 'Origin' (set to 'Local'), 'Name' (set to 'TE-PV'), 'Description' (set to 'Input Temperature'), 'Device' (set to 'Input Temp'), 'Parameter' (set to 'PV'), 'Decimal format' (set to '1'), 'Error value' (set to '-9999'), and 'Scale' limits (Inferior limit: -1999, Superior limit: 9999). There are also checkboxes for 'Access bits' (15 to 0).

- In the drop-down menu TYPE, select Physical Tag.
- In the ORIGIN field, select LOCAL to read the tag from the Modbus network connected to this computer.

5. In the field NAME assign the tag a unique name, which will identify it in all further set up steps of this Superview application.
 6. The field DESCRIPTION is optional, and this information is displayed only at this window.
 7. In the DEVICE drop-down menu, select the tag to which the device belongs.
 8. In the PARAMETER drop-down menu, select which register of the device will be associated to the tag. Note that Superview displays only devices that were already registered, and once the device is selected, the parameter list corresponds to Modbus registers that are specific of this device model.
 9. Selects the number of decimal points that will be presented when the value of this tag is displayed on the screen.
 10. Assign an ERROR VALUE that will be assigned to the TAG in case of communication error.
 11. Check the box UNSIGNED in case you want the TAG undertake positive-only values higher than 32767 and up to 65535.
 12. After entering all these information, press OK and check if the new tag was added to the list of registered tags in the TAG CONFIGURATION window.
 13. Register all the tags. After concluding, close the TAG CONFIGURATION window.
 14. To change data of an existing TAG, select the tag from the TAG CONFIGURATION tags list and press CHANGE.
- To setup a TAG into a Modbus device from other vendor, see "Configuring the Communication With Modbus Devices From Other Vendors".

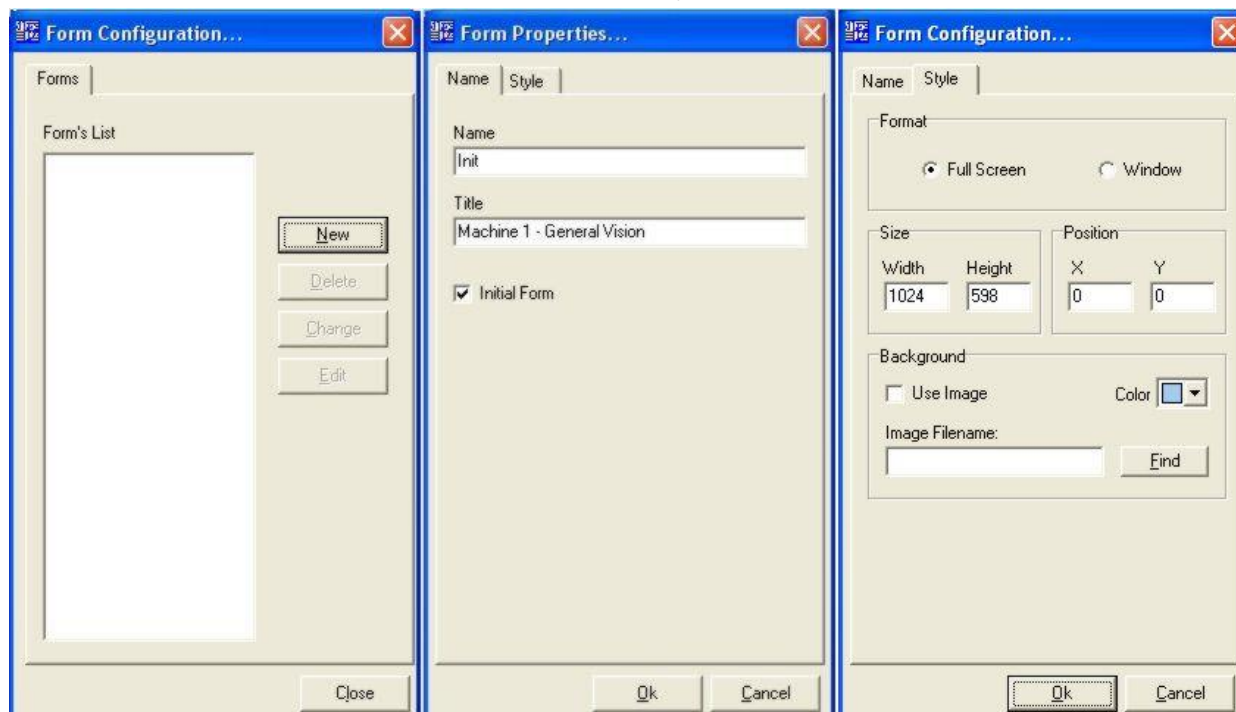
CREATING SUPERVISION FORMS

Supervision forms are the core feature of a Superview application. Each form displays a different view of the supervised process. They may be featured with the following types of objects:

- Images 
- Fixed texts 
- Text box with tags 
- Buttons 
- Charts with TAG values 
- Bar graph 
- Alarm table 
- Historic control 

To create a new supervision form on Superview, proceed as described below:

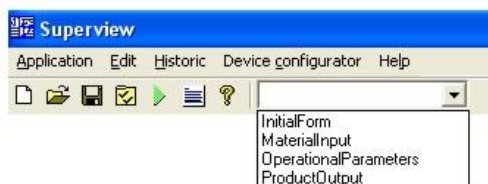
1. Double click the icon FORM in the CONFIGURE window. The FORM CONFIGURATION window will be displayed.
2. Click NEW and the FORM PROPERTIES window will display. Examples are shown below.



3. In the NAME tab, assign name and title to the form. The name will be used to identify the form in other set up steps of Superview, and the title will be presented at the upper part of the form during supervision.
4. Check the option INITIAL FORM to define this form as default whenever this Superview application is started.
5. In the STYLE tab, define the form appearance (format, size and position). Define color or an image to be displayed at the background in the BACKGROUND section.

6. After entering all these information, click OK and check if the new form was added to the list of registered forms in the FORM CONFIGURATION window.
7. To change data of an existing form, select it from the FORM CONFIGURATION list and press CHANGE.

Once the form is created, the objects that define its appearance and features must be positioned. If multiple forms were created, you can select the one that will be edited using the FORM CONFIGURATION window, clicking on EDIT. The form to be edited can also be selected from the drop-down menu in the upper tool bar, as the figure bellow shows. Select the name of the form to be edited.



The selected form will be displayed at the desktop. The bottom tool bar contains tools for the inclusion of different supervision objects in the form area, as presented in the following figure.

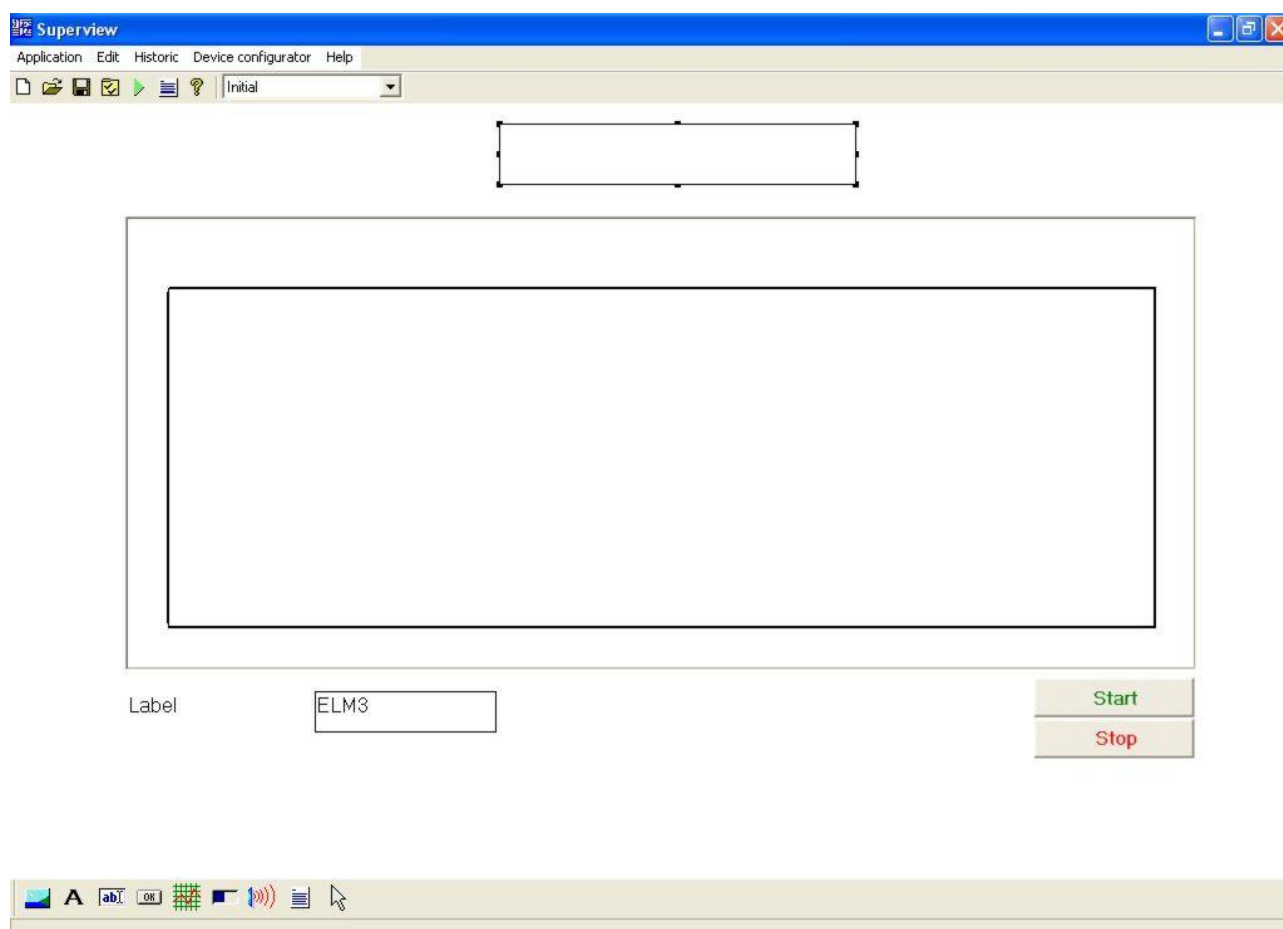


The steps required to create a form with a chart (grid), a text box with tag (ab1), two buttons (OK), an image (image icon) and a fixed text (A) are listed below:

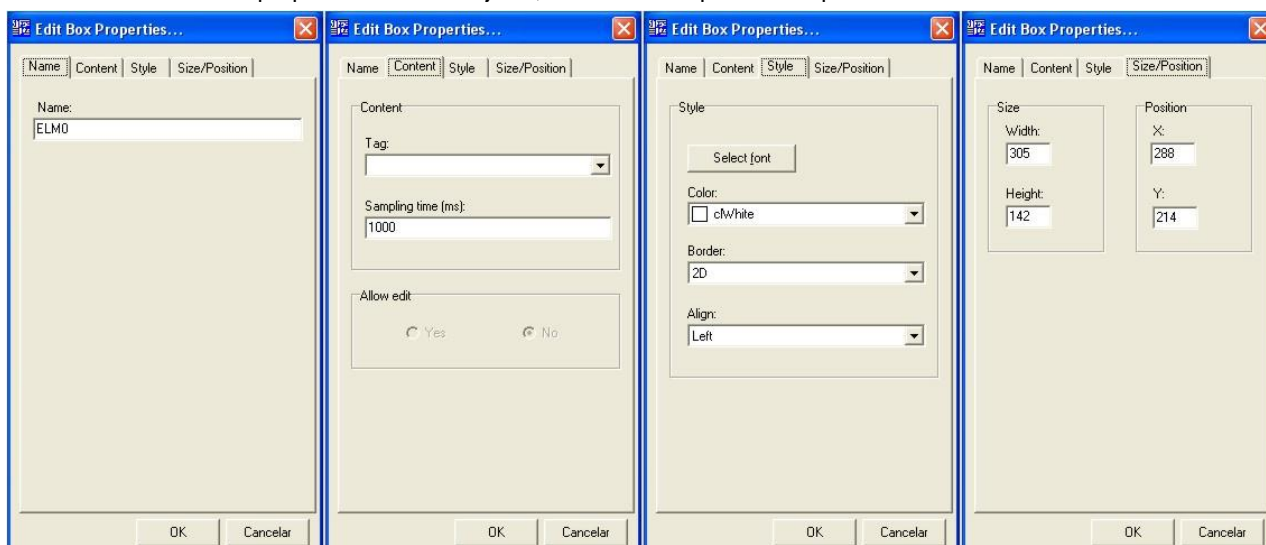
1. Select the form that will be edited in the list of forms at the upper tool bar.
2. Select the object that will be inserted clicking on the corresponding tool. It will be recessed while active. In the empty area of the form, left-click the mouse and drag it, defining a rectangle with the dimension required for the object. When you release the mouse button, the selected object will be placed on the form. If you want to place another type of object, select the corresponding tool and repeat the procedure to place it on the form. To disable the selected tool, click on the recessed one or on the arrow tool (mouse icon). When no tool is selected (recessed), the mouse can be used to move and change the dimensions of the already placed objects. The following figure shows an example of a form with all objects positioned.



To select more than one object, left-click the first object and then press the Ctrl key. With the Ctrl key pressed, click on the other objects. The objects selected can be dragged all together with the mouse.



- Define the properties for each object on the form. These properties specify the object's appearance and features. To access the properties window of each object, right-click the object and select PROPERTIES from the pop-up menu. The properties windows of a Text Box with Tags are shown below (ELM3 in the previous figure). For further information on the properties of other objects, refer to the Superview help.

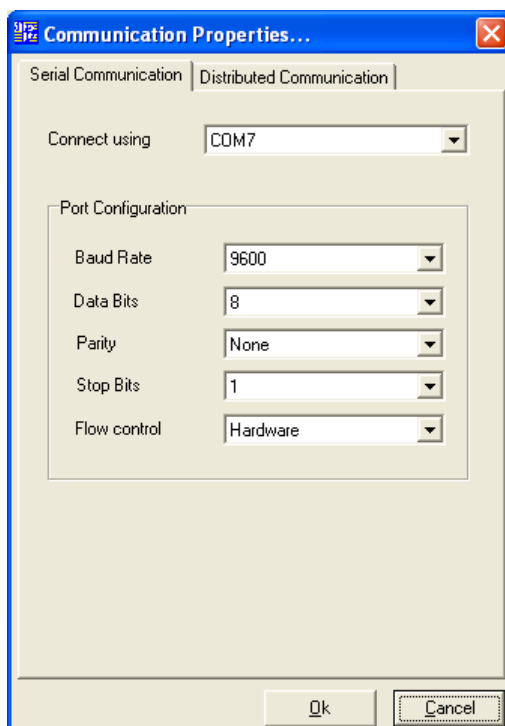


- Define a single name for the object in the NAME tab. You can maintain the name the software suggests.
- In the CONTENT tab, select the Tag associated to the text box. Only tags already registered can be associated to a screen object. Display the list of tags that can be selected by clicking . Define the update rate of the value displayed in the text box. For a physical tag, the rate defines the interval between tag readings in the communication network. Use the maximum acceptable value to reduce network traffic. If the associated tag allows write operations, define if the text box can be edited and changed during supervision.
- In the STYLE tab you can define visual properties as: font, background color, border type and text alignment.
- The SIZE/POSITION tab is more informative, once both size and position of form objects can be defined using the mouse.
- After the configuration is complete, click OK.
- Define the properties for all objects on the screen. Each type of object has a specific set of properties, which are not described in this manual. For further information about the particular properties of each object, see the Superview help by pressing F1 while the window is active.

DEFINE THE NETWORK COMMUNICATION PARAMETERS

The Modbus RTU communication is accomplished through a serial communication port (COM port). The COM port number and its settings must be configured in Superview. To configure, follow the steps below:


- Open the CONFIGURE window by clicking in the upper tool bar.
- Double click the COMMUNICATION icon. The COMMUNICATION PROPERTIES window will display, as the example below shows.



3. In CONNECT USING, select the communication port to which the devices to be supervised will be connected. In PORT CONFIGURATION, select the communication parameter compliant to the networked devices settings.
4. After the configuration is complete, click OK.

See DISTRIBUTED SUPERVISION topic for information on client and server configuration.

SAVING AND OPENING AN APPLICATION


The application created must be saved so that the last changes will not be lost. Multiple applications can be created and saved in different files. To save the current application, select APPLICATION/SAVE or click  from the upper tool bar.

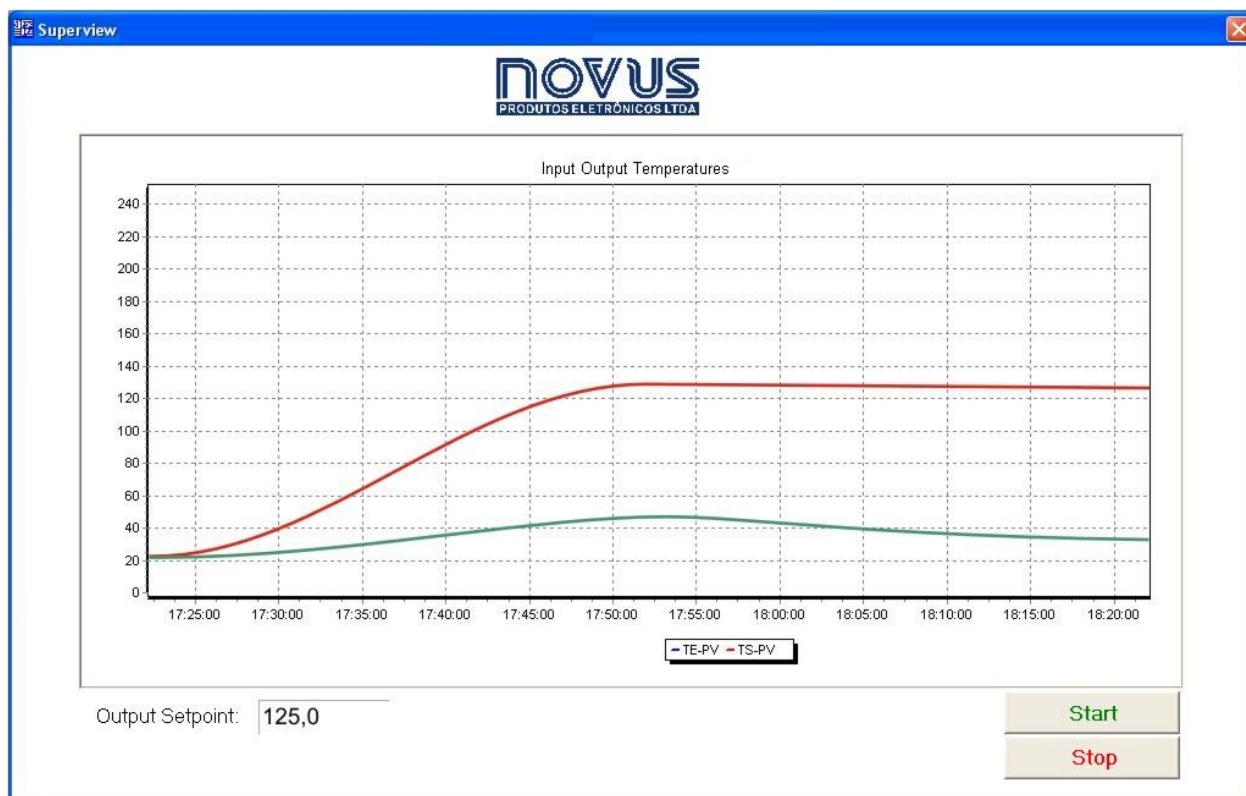
To open an application, select FILE/OPEN from the menu or click  from the upper tool bar.



Name and password are required to open an application. If a new user was not defined and settings for the default users was not changed, then use the default user name and password: superview (lower case characters).

START SUPERVISION

A non-registered copy of Superview is able to operate in the supervision mode for 20 minutes. This is enough time to check how the application created is working. To start supervision, click  from the upper tool bar, or select APPLICATION/SUPERVISE from the menu. Superview will warn that a non-registered copy will operate during 20 minutes only, and the communication with the devices will be started. The initial form will be displayed. The example screen shown in a previous figure appears as shown below in the supervision mode (tag values depend on values read from the network devices).



All steps described in this chapter are necessary to create a simple supervisory application and enough to get acquainted with Superview. For complex applications additional features must be included in the application, and are described in the “Additional Features” section. To operate for more than 20 minutes, Superview must be registered. Registering procedure is described in the next section.

REGISTERING A SUPERVIEW COPY

USE LICENSE AND REGISTRATION NUMBER

In order to have a use license of the software, you must purchase a Use License with a Registration Number. The use of a registered copy of Superview is only allowed if you own a Use License.



Superview registration number is matched to the serial number of a Novus Modbus device and associated to the maximum number of simultaneous client connections. If no client connections are requested when the license is purchased, Superview will allow connection of a single client for a maximum of 20 minutes. A Superview installation will only run with no warning and time restrictions if:

- A valid registration number was inserted.
- The Novus device associated to the registration number is communicating in the Modbus network, with address 1 (one).

VALIDATING THE REGISTRATION NUMBER

Superview registering is divided into three steps:

- Get a Registration Number and a Use License from Novus
- Enter the Registration Number in Superview
- Continuous validation of the Registration Number through communication with the device associated to the registration.

After supervision starts, the software can operate in three distinct modes, according to the registration status:

Demonstration Mode All Superview features are available in this operation mode, but when supervision starts a warn is displayed and after 20 minutes the supervision is aborted. To restart supervision, close Superview and open it again. Superview operates in this mode when:

- A valid registration number was not inserted.
- A valid registration number was informed, but the Novus device with the serial number associated to the registration number was not detected in the network for the last 30 days.

Partial Registration Mode: In this operation mode all Superview features are available, but once supervision is started, a warn is displayed informing the expire date for using the software with no limitations. After that, it will run on the Demonstration Mode.

- A valid registration number and the Novus device with the serial number associated to the registration number was detected in the last 30 days, but it is not communicating now.

Full Registration Mode: All Superview features are available in this operation mode, and there is no warning regarding registration and no time-limit on its use.

- A valid registration number was informed and the Novus device with the serial number associated to the registration number was detected in the network when supervision started.

REGISTERING PROCEDURES

The following steps are required to change Superview operation mode to Full Registration, which is its normal use status:

1. Start Superview
2. Select HELP/REGISTER from the menu.
3. Insert the registration number in the Use License.
4. Click REGISTER. If registration is successful, the message "REGISTERING SUCCESSFUL" is displayed. Superview can now operate in the PARTIAL REGISTRATION MODE.
5. Create an application in Superview and configure the Novus equipment with the serial number associated to the registration number in the Modbus network. The device must be installed in the network and respond in Modbus address 1 (one).
6. Start supervision. Superview will communicate with this device and validate its serial number. If validation is successful, Superview will start supervising and no warning will be displayed.
7. If Superview is still operating in the PARTIAL REGISTERING MODE, test the communication between the software and the device. Check device configuration in the application, the device address and communication parameters.
8. FULL REGISTRATION will be completed only when supervision starts with no warning.

ADDITIONAL FEATURES

The previous section described the required procedures for the creation of a simple application with Superview. In this section, procedures for additional features will be presented:

- Management of multiple users.
- Monitoring, presentation and notification of alarm conditions.
- Historic registering of supervised variables.
- Registering of user's actions and events.
- Database with network definitions of Novus devices.
- Communicating with Modbus devices from other vendors
- Advanced screen edition.
- Automatically start supervision when Windows is started.
- Additional resources available during supervision.

Each of these topics is approached in this section.

USER'S MANAGEMENT

Superview allows definition of three users types for an application:


Administrator: User with all privileges. It is the only type of user that can create or change an application, besides running it in the supervision mode. The Administrator is always requested a password.

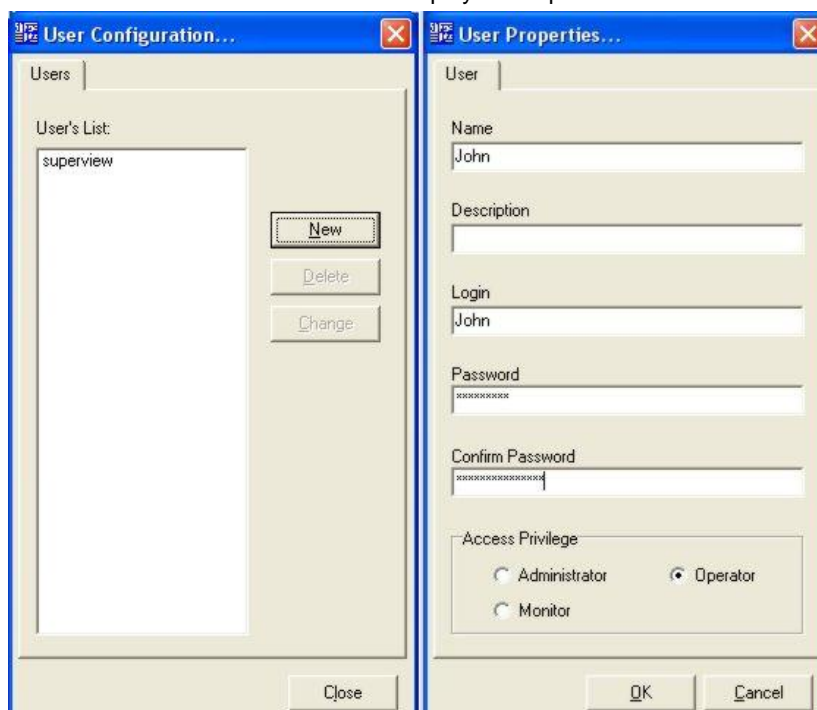
Operator: User allowed to open an application in the supervision mode only. The Operator is now allowed to change settings of an already existing application. The Operator is always requested a password.

Monitor: User with the same privileges of the Operator, though he can start supervision with no password. It allows for the start of supervision with no user's interference (for example, when the computer starts. See "Start supervision").

When a new application is created, an Administrator user is automatically created. Its user name and password is superview (in lower-case).

To create a new user, proceed as follows:

1. Open the CONFIGURE window by clicking  in the upper tool bar.
2. Double click the USERS icon. The USER CONFIGURATION window will be displayed.
3. Click NEW and the USER PROPERTIES window will display. Examples are shown below.



4. Insert information about the new user, define his level of access and click OK to confirm the addition of the new user.
5. To change data of an existing user, select the user from the list in the USER PROPERTIES window and press CHANGE.

Whenever an application is opened, the user's identification is requested. If the user is an ADMINISTRATOR, Superview will start in the configuration mode (which allows changing of application settings). If the user is an OPERATOR or

MONITOR, Superview will start in the supervision mode. The user's identification window is displayed below. The right window is displayed if a MONITOR user was defined in the application set up.



The user must type his or her name and password in the IDENTIFICATION window, and then click OK. In case a MONITOR user is registered in the application, the IDENTIFICATION screen suggests the monitor's user name and the OK button remains available for 30 seconds. If within this period the user does not take any action, Superview will automatically start the application supervision. During the 30 seconds interval, the user name can be changed and a new password informed.

ALARM MONITORING, PRESENTATION AND NOTIFICATION


Superview can monitor the logged value of any physical tag, comparing it to the limits set. If the tag exceeds the limits, the following actions can be defined:

- The computer plays a sound file.
- A notification e-mail is sent (this action depends on an adequate setting of the service and on the availability of an e-mail server in the corporate network environment. See "Configuring the e-mail server".
- The value of a tag is changed. It allows an alarm event condition to result in an automatic action, as changing a parameter in a device in the network, or changing the value of a constant tag (for example, used to define the display of an image on the screen or not)

The following alarm conditions can be simultaneously monitored for each tag in the application.


- Low value
- Low low value
- High value
- High high value
- The difference as compared to another tag is too high
- The difference above the value of another tag is too high
- The difference below the value of another tag is too high

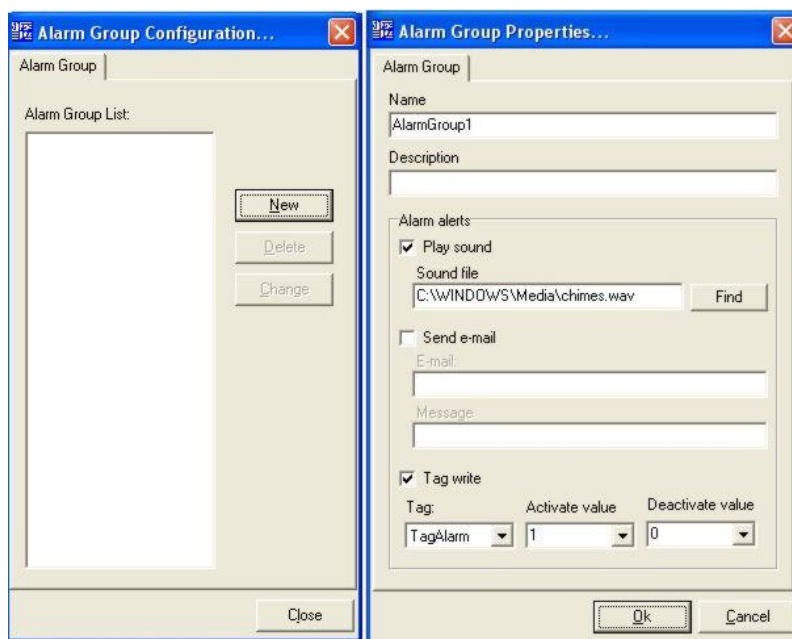
The following settings are required for the use of alarms monitoring:

- Create alarm groups
- Define the alarm parameters for each tag
- Include in one of the application forms an Alarm Table –  object.

CREATING ALARM GROUPS

The actions to be taken when an alarm condition takes place in a tag are defined in the attributes of the group to which the alarm belongs. To create and configure an alarm group, proceed as follows:


1. Open the CONFIGURE window by clicking  in the upper tool bar.
2. Double click the ALARM GROUPS icon. The window ALARM GROUPS CONFIGURATION will display.
3. Click NEW and the ALARM GROUP PROPERTIES window will display. Examples are shown below.

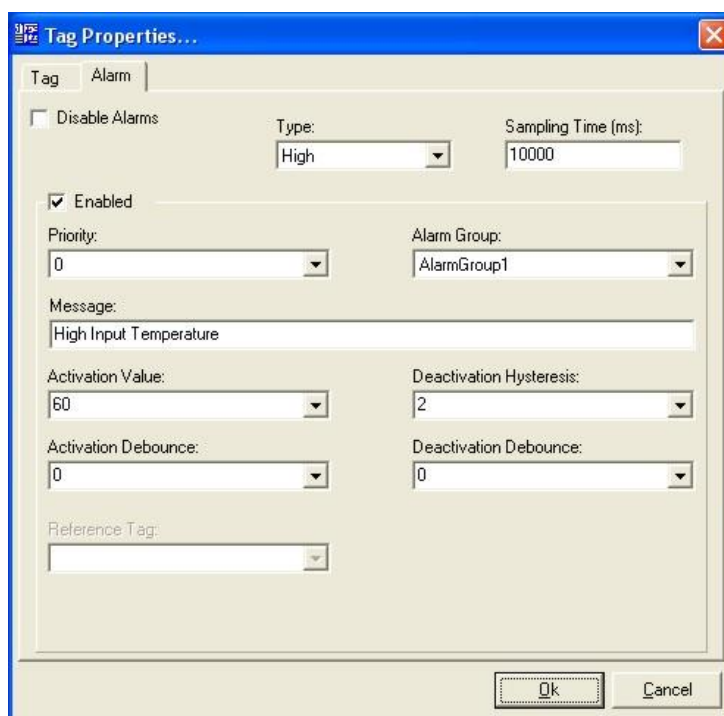


4. Assign a name for the alarm group. The name will be used to identify the group in further steps in the Superview set up.
5. Define notification actions that Superview will perform whenever the alarm of a tag in this group is activated/deactivated. Each action requires specific parameters.
 Play Sound: Select a sound file
 Send e-mail: Inform the address and the message subject. The same information contained in a Alarm Table object will be automatically inserted in the message body.
 Tag write: Tag name and values that it must receive when the alarm is activated and deactivated.
6. After entering all these information, click OK and check if the new group was added to the group list in the ALARM GROUPS CONFIGURATION window.
7. To change data of an existing group, select the group from the list in the ALARM GROUPS CONFIGURATION window and press CHANGE.

DEFINING THE ALARM PARAMETERS OF A TAG

Alarm values can be associated to any physical tag. Up to seven different alarm conditions can be set for the same tag. To configure alarms for a physical tag, proceed as described below:

1. Open the CONFIGURE window by clicking  from the upper tool bar.
2. Double click the TAGS icon. The TAG CONFIGURATION window will be displayed.
3. In the drop-down menu, double-click the tag you want the alarm to be set up. The TAG PROPERTIES window will be displayed. Select the ALARM tab. An example is shown below.




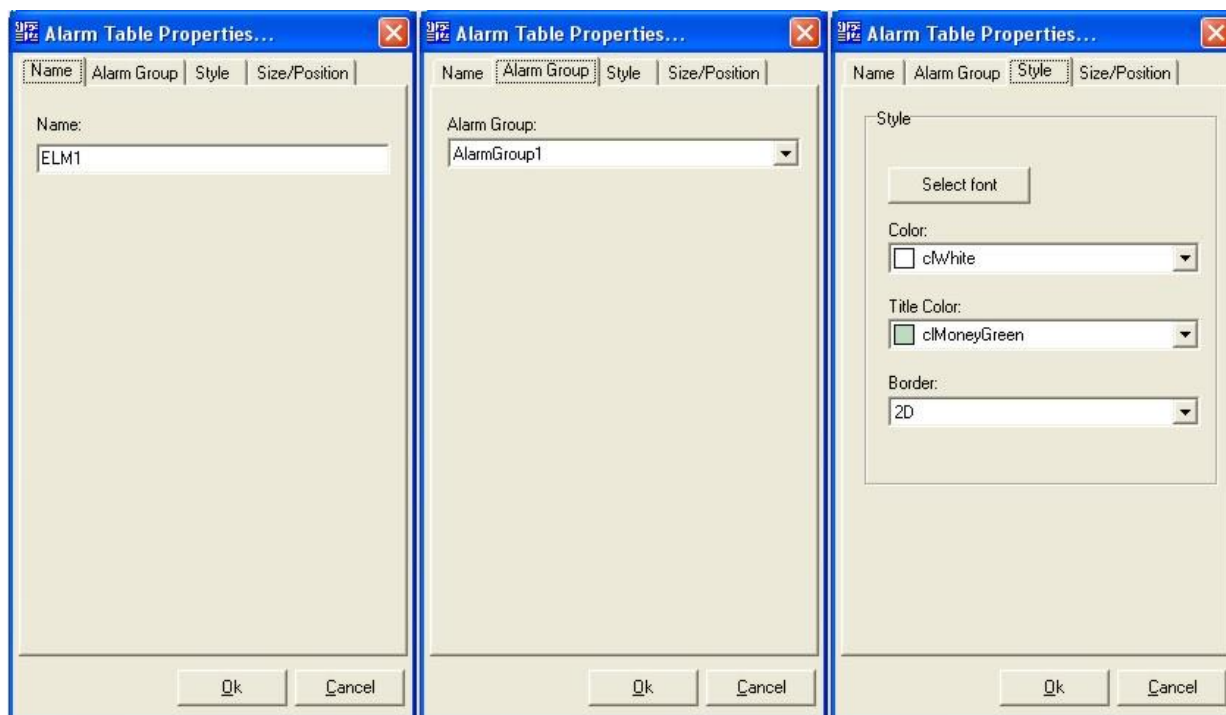
The image shows the 'Tag Properties' dialog box with the 'Alarm' tab selected. The 'Disable Alarms' checkbox is unchecked. The 'Type' dropdown is set to 'High'. The 'Sampling Time (ms)' is set to '10000'. The 'Enabled' checkbox is checked. The 'Priority' dropdown is set to '0'. The 'Alarm Group' dropdown is set to 'AlarmGroup1'. The 'Message' text box contains 'High Input Temperature'. The 'Activation Value' dropdown is set to '60'. The 'Deactivation Hysteresis' dropdown is set to '2'. The 'Activation Debounce' dropdown is set to '0'. The 'Deactivation Debounce' dropdown is set to '0'. The 'Reference Tag' dropdown is empty. The 'Ok' and 'Cancel' buttons are at the bottom right.

4. Select the type of alarm. The available options are Low, LowLow, High, HighHigh, LowDifference, HighDifference or Difference.
5. Define the updating rate. The presence of an alarm condition for this tag will be checked according to this scheduled interval.
6. Check the ENABLED box to enable the selected alarm.
7. Indicate the alarm group to which this alarm belongs (the group must be created in advance).
8. Define the other alarm parameters. Refer to Superview help for details on each parameter.
9. If you need to define another alarm condition for this tag, select another type of alarm in the TYPE box and proceed with the definition of parameters.
10. Click OK to conclude the definition of alarm parameters for this tag.

INCLUDING AN ALARM TABLE OBJECT

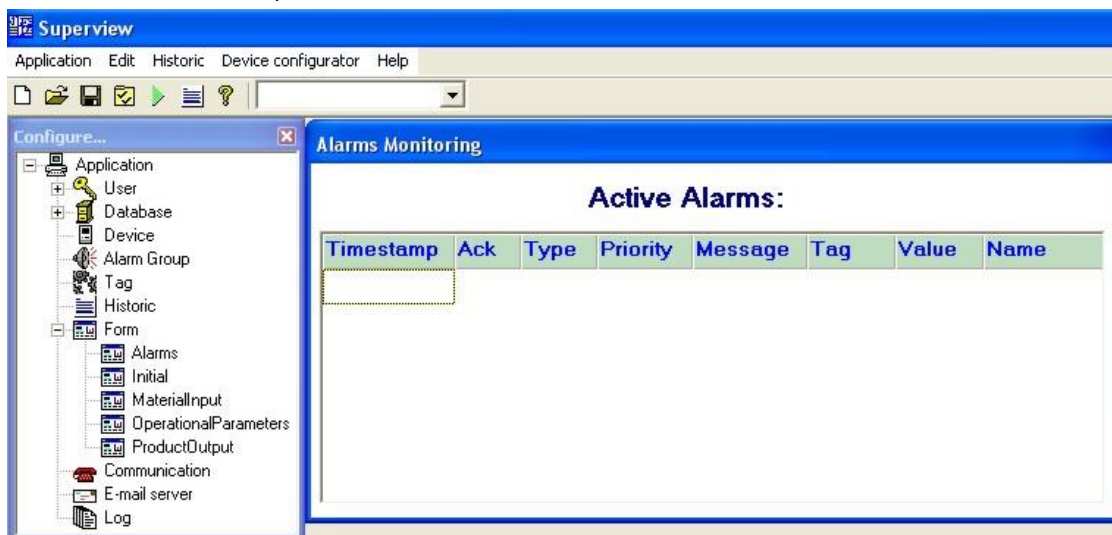
The effective monitoring of an alarm group starts only when an object of this type is positioned and its parameters are defined in one of the application forms. Proceed as explained below:

1. Create a new form or edit an existing one (see section "Creating supervision forms").
2. Select the Alarm Table object –  in the lower tool bar.
3. Place the object on the form and right-click on it to visualize the ALARM TABLE PROPERTIES window. The following figure shows the three main tabs of the object configuration.



4. Define a unique name for the object in the NAME tab. You can maintain the name the software suggests.
5. In the ALARM GROUP tab, select the name of an already configured alarm group. In this alarm table, the active alarms in this group will be displayed.
6. In the STYLE tab, choose the way how the table will display on the screen (font, background color and borders).
7. After the configuration is complete, click OK.
8. You can adjust the table columns using the mouse. Place the mouse cursor on the column lines in the table title bar and drag this line to change the column size.


The figure below shows an example of a form with a title text and an alarm table.



During supervision, all active alarms in the alarm group are presented in the table. When the operator makes a double click on the line indicating an alarm condition, the operator will be acknowledging (ACK) the alarm condition. The *Ack* column will indicate whether the operator acknowledged the alarm condition or not.

CONFIGURING THE E-MAIL SERVER

Superview can only send e-mails on alarm conditions if an e-mail server is accessible in the local network. E-mail account information must be configured in Superview. Get all the necessary information with your network administrator, and follow the procedure below.

1. Open the CONFIGURE window by clicking  from the upper tool bar.
2. Double click on the E-MAIL SERVER icon. The E-MAIL SERVER PROPERTIES window will be displayed.
3. Fill the information about sender NAME, name and PORT of the OUTPUT SERVER (SMTP), sender address and, if required, user name and password for the AUTHENTICATION in the SMTP server.
4. Click OK to end and save settings.

HISTORIC LOG


The value of any Superview tag may be periodically logged in a computer's file for later reference (such as a chart or table) or exported to other applications (Excel spreadsheets or PDF, for example). The historic log is an important feature in any supervisory system, because it allows for maintenance of information about the process for future reference, as well as to integrate these data with other systems within the company.

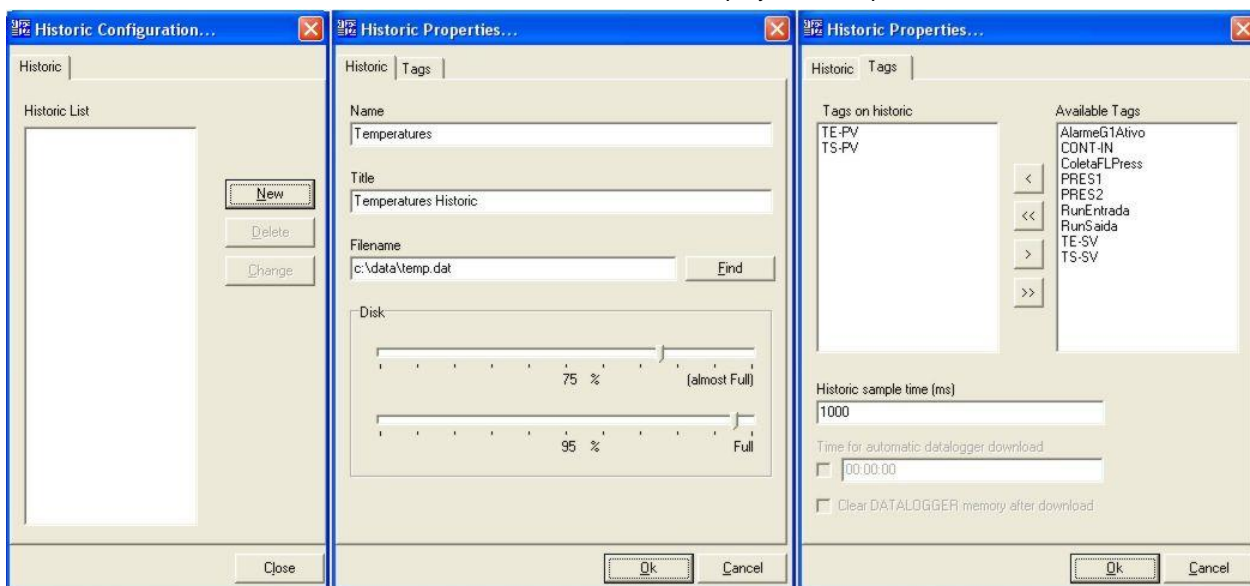
To use the historic log, the following settings are required:

- Create and define a parameter for one or more historics.
- Include a Historic Object in one of the application forms, defining its properties.

CREATING A HISTORIC

The tags that will take part in the historic and the name of the file that will store data are defined here. Proceed as explained below:


1. Open the CONFIGURE window by clicking  in the upper tool bar.
2. Double click the HISTORIC icon. The HISTORIC CONFIGURATION window will be displayed.
3. Click NEW and the HISTORIC PROPERTIES window will be displayed. Examples are shown below.

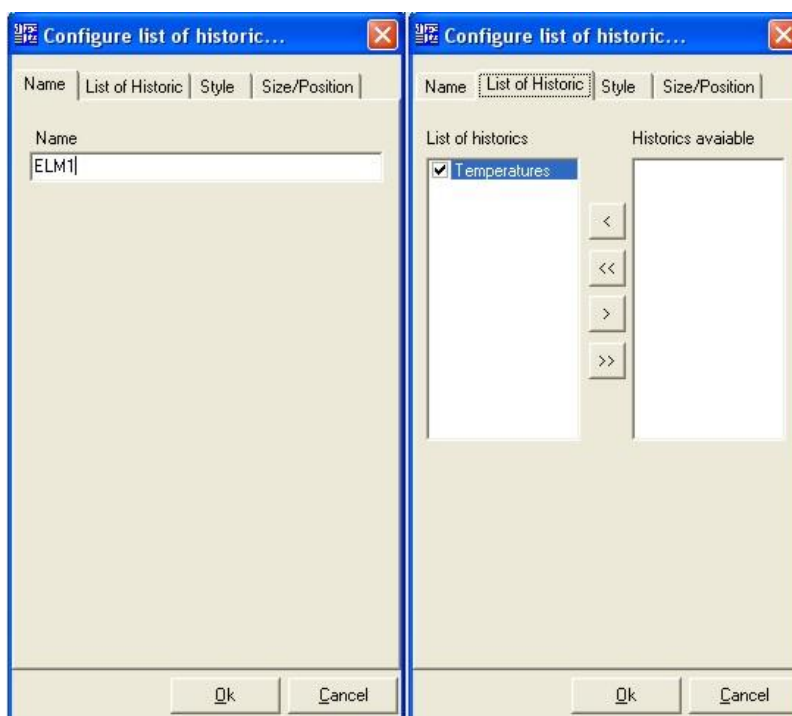


4. In the HISTORIC tab, assigns the historic a name and a title. The name will be used to identify the historic in further steps in the Superview set up. Define the name for the file that will store historic data.
5. In the TAGS tab, select from the right list the tags to be logged in the current historic. Use the arrow buttons placed between the lists to insert or remove tags to/from the historic. Define the sampling rate, which determines the time interval between logs in the historic file.
6. After entering all these information, press OK and check if the new historic was added to the list of the HISTORIC CONFIGURATION window.
7. To change data of an existing historic, select the historic from the list in the HISTORIC CONFIGURATION window and press CHANGE.

INCLUDING A HISTORIC OBJECT

A historic object must be positioned in an application form to allow the log of the configured tags. Proceed as explained below:

1. Create a new form or edit an existing one (see section "Creating supervision forms")
2. Select the Historic object –  from the lower tool bar.
3. Place the object on the form and right-click to visualize the CONFIGURE LIST OF HISTORIC window. The following figure shows the two main tabs of the object configuration.



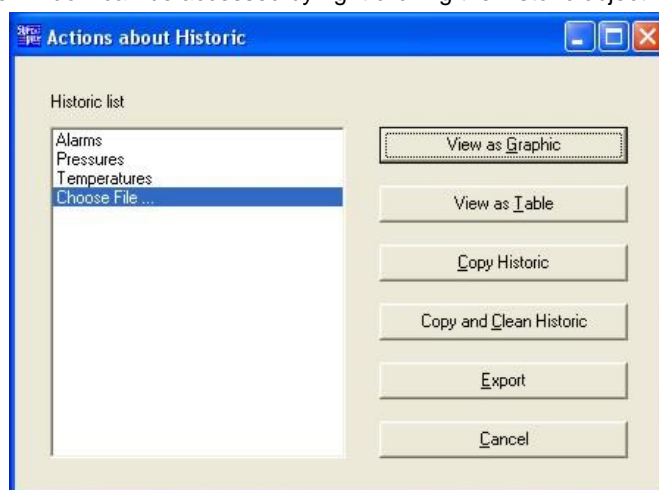
8. Define a unique name for the object in the NAME tab. You can maintain the name the software suggests.
9. In the LIST OF HISTORIC tab, select from the right list the historics to be controlled in this object. Use the arrow buttons placed between the lists to insert or remove historics to/from the list. When the historic check box is checked (☒) , the historics will be enabled as soon as the Superview application starts. When the historic check box is unchecked (☐) , the historics will be disabled when the Superview application starts. To check and uncheck the historic box, click on the box with the mouse.
10. When settings are complete, click OK and verify if the object with all historics selected is adequately listed. The next figure is an example of an object with three historics.



During supervision, the operator may enable (☒) or disable (☐) each historic, clicking with the mouse. Enabled historics will perform a historic log in the disk file. A disabled historic does not perform any historic register.

VISUALIZING, COPYING AND EXPORTING HISTORICS

Historic disk-stored files can be visualized from the Superview menu while it is in the application configuration mode. Select the menu option HISTORIC/ACTIONS ON HISTORIC to open the window with actions, as the figure shows. During supervision, the same window can be accessed by right clicking the historic object.



This window allows for:

- Visualizing historic data in the form of charts or tables. By right clicking on a historic chart, it is possible to change its visual properties and start printing. By right clicking on a historic table, it is possible to apply data filters and start printing.
- Creating a backup copy of a historic file, the original file may be cleaned or not. Backing up historic files is user's responsibility, and it is strongly recommended. It is also important to clean the historic frequently to avoid large files which may lower the application performance.
- To export a historic file to another format: **XLS** (Excel), **PDF** (Acrobat), **RTF** (MS Word and other text editors), **XML**, **HTML**, **DBF** (Database), **TXT** (Text only), **CSV** (comma separated text only).

USING SUPERVIEW WITH THE FIELD LOGGER

Field Logger is an eight-channel Data Logger manufactured by Novus that can be used both in online monitoring and in offline historic log. Superview includes some specific features:

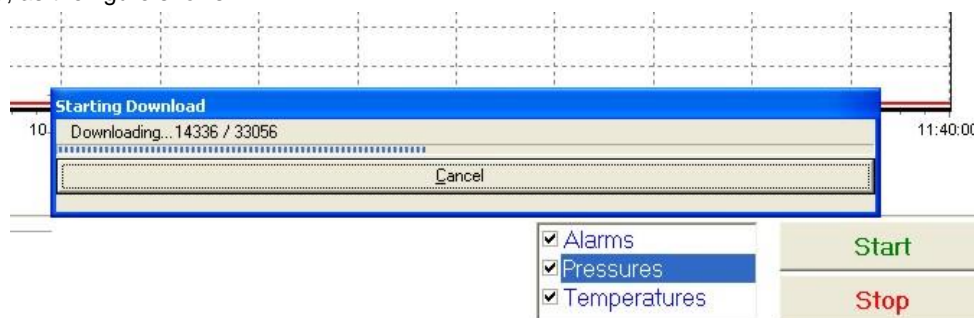
- Access shortcut to the Field Logger set up program.
- Transference (download) of the Field Logger memory data to a Superview historic file.

To start the Field Logger set up program from the Superview menu, select **DEVICE CONFIGURATORS**. In the displayed window, select a Field Logger type device and press **CONFIGURE**. The configuration program will start. For further information on how to use this application, refer to the Field Logger documentation.

The following settings are required in Superview to allow the operator to download historic data from the Field Logger memory.

1. In case it does not exist, register a Field Logger device. For further information on how to register a device, refer to the "Registering devices in the network" section.
2. Create a Collect Tag associated to a Field Logger device. For further information on how to create a tag, refer to the "Registering the variables of each device - TAGS" section.
3. Create a new historic and include the collect tag in the list of tags displayed in the **HISTORIC PROPERTIES** window. Note that a historic with a collect tag cannot have any other tag. In cases where the download must start automatically in a scheduled time, define time in the field **TIME FOR AUTOMATIC DATALOGGER DOWNLOAD** in this window. The value in the field **HISTORIC SAMPLE TIME** is not relevant for a historic with a collect tag. To delete data from the Field Logger memory after download, check the option **CLEAR DATALOGGER MEMORY AFTER DOWNLOAD**. It is recommended to delete data logged to certify that there will be no repeated data saved in the disk.
4. Include a historic object in an application form (in case it does not exist). Include the historic created in the previous step in the list of historics of this object. Uncheck the box for this historic so that when supervision starts it will not be enabled. For information concerning the historic object, refer to the "Including a historic object" section.

During supervision, the operator can start the Field Logger data download by enabling the corresponding historic in the historic object (it is only necessary to check the box preceding the historic name – ☒). A window with a progress bar will be displayed, as the figure shows.



At the end of the download, Superview will automatically uncheck the historic. A new download can be started at any time by checking the historic. Data read from the Field Logger will be saved in the historic file, and can be visualized and exported with the resources described in "Visualizing, copying and exporting historics".

If the option **CLEAR DATALOGGER MEMORY AFTER DOWNLOAD** is not marked, each download will be saved in a different file. If it is checked, each download will be appended at the end of the historic file, which will contain data from all downloads performed.

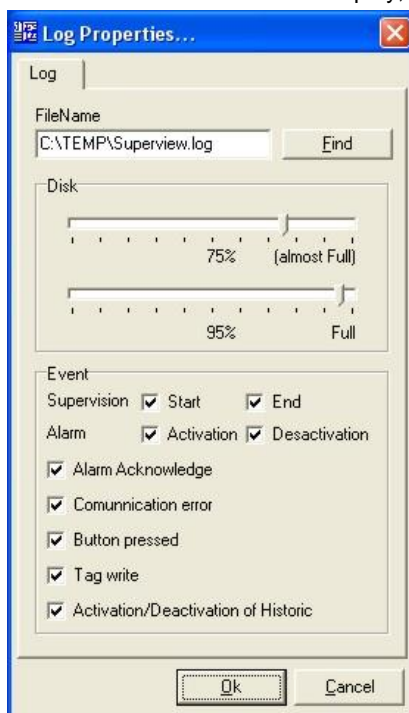


During download of the Field Logger data, Superview will stop all tags readings. Historic logs of Superview will also be stopped during download.

REGISTERING EVENTS WITH SUPERVIEW

Some actions the operator performs and some events detected by Superview can be registered in a text file for further reference. To configure this function, follow the steps below:

1. Open the CONFIGURE window by clicking  in the upper tool bar.
2. Double click the LOGS icon. The LOG PROPERTIES window will display, as the example below shows.



3. Select a name for the file that will store the events log.
4. In the EVENTS section, check the events that you want to be logged in the file
5. After completing the configuration, click OK

The LOG file is a text-only file that can be opened with any text editor, such as the Windows Notepad.

PRINT SETTING


During supervision, the operator may request a print screen of the supervision or historic data screens. The printer, as well as its settings, must be configured in the application during the application configuration. Define print parameters in the menu APPLICATION/PRINTER SETUP.

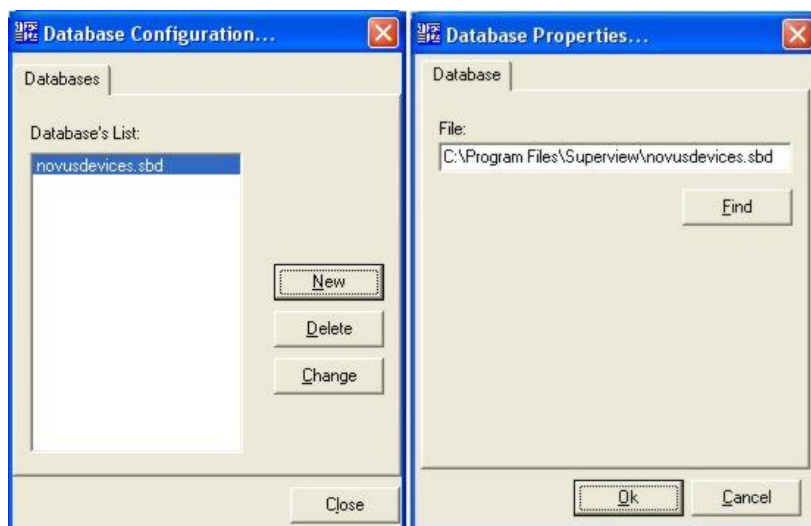
DATABASE OF MODBUS DEVICES PARAMETERS

To ease the use of Superview with NOVUS Modbus devices, a database named NOVUSDEVICES.SBD is included in the Superview installation. This database associates friendly names to Modbus registers of the NOVUS devices. When configuring the devices for an application (see "Registering devices in the network"), the devices from the "DEVICE TYPE" list will be the ones listed in this database.

If the NOVUS device that will communicate with Superview is not available in the database, an updated version may be available at Novus website (www.novusautomation.com). Download and include it as an additional database or as a replacement of the originally installed database. Before installing a new database, it is recommended to backup the old one, so that the operation can be reversed in case the application faces any problem with the database exchange.

Communication with devices that are not included in the database is possible and described in "Configuring the Communication With Modbus Devices From Other Vendors". Steps for the inclusion and exclusion of a database are described below:

1. Open the CONFIGURE window by clicking  from the upper tool bar.
2. Double click the DATABASE icon. The DATABASE CONFIGURATION will be displayed.
3. To include a new database, click NEW. To delete or change the properties of a database already registered, select the database from the list and click DELETE or CHANGE, respectively. In the databases list, double click the database to be set up. The DATABASE PROPERTIES window will display, as the example below shows.



4. In the file field, find the file with the Superview database that you want to include.
5. Select OK to confirm and save your selection.

CONFIGURING THE COMMUNICATION WITH MODBUS DEVICES FROM OTHER VENDORS

Superview can communicate with Modbus RTU slaves from different vendors. Knowledge of the Modbus protocol and documentation of the slave device are necessary to configure Superview for this. The following Modbus commands are implemented. The read command is defined during configuration, and the corresponding write command is automatically set based on the specified read command:

MODBUS REGISTER READ COMMAND	MODBUS REGISTER WRITE COMMAND
<ul style="list-style-type: none"> Read Coils (Command 01) 	<ul style="list-style-type: none"> Write Single Coil (Command 05)
<ul style="list-style-type: none"> Read Discrete Inputs (Command 02) 	<ul style="list-style-type: none"> Write not allowed for this register type
<ul style="list-style-type: none"> Read Holding Registers (Command 03) 	<ul style="list-style-type: none"> Write Single Register (Command 06)
<ul style="list-style-type: none"> Read Input Registers (Command 04) 	<ul style="list-style-type: none"> Write not allowed for this register type

Block read operations can be configured, and will result in the creation of multiple TAGS, one for each block member. Block write operations are not allowed. Use single write operations into each Tag that builds up the block.

Modbus addresses configured in Superview are the physical register addresses that are transmitted into the address field of Modbus frames, and not the logical addresses described in the documentation of some devices. For example, the lowest Holding Register allowed has address 0 (zero) in Superview, but is identified as 40001 for some devices. The lowest allowed Input Register is 0 (zero) in Superview, but 30001 in some devices.

Modbus commands configuration is only available for TAGS of type CUSTOM, that must be associated to CUSTOM DEVICES.

REGISTERING DEVICES IN THE NETWORK

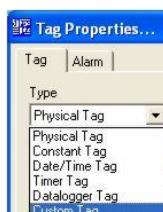
Devices from vendors other than NOVUS must be included as CUSTOM devices. To include such a device, follow the steps in "Registering devices in the network", making sure to select CUSTOM in the DEVICE TYPE list. Multiple custom devices can be included, but remember not to repeat Modbus addresses in the network.

Since the device that is associated to Superview registration number is always a NOVUS device addressed as 1 (one), no custom device should have this address.

REGISTERING THE VARIABLES OF EACH DEVICE - TAGS

Once a custom device is created, Tags should be created for each address of interest in the device. Since a custom device is not described into the database of Modbus devices, there is no friendly creation of Tags for this device. Knowledge on Modbus protocol and device communication documentation are necessary for configuration.

To create a Tag associated to a custom device, follow the steps in "Registering the variables of each device - TAGS", making sure to select the Tag TYPE as CUSTOM TAG:



Most of the properties already described for the Physical Tag are also available for the Custom Tag. The following figure shows the properties window for a Custom Tag. Properties applied only for the Custom Tag are then described.

Initial Address: First Modbus address of the register assigned to the Tag. If creating a block tag (multiple contiguous registers), specify here the address of the first register. The specified address must be the physical address of the Modbus frame.

Number of Registers: Size of the block of registers to be read and associated to the Tag. Enter 1 (one) to create a single register Tag. An array of Tags will be created for values greater than 1 (one), all with the same name but with different indexes. For example, if a custom Tag of 4 registers is defined and named as *DataValues*, 4 Tags will be created with the following names: *DataValues[0]*, *DataValues[1]*, *DataValues[2]* and *DataValues[3]*.

Read Command: Modbus command to be used for reading the Modbus register into the Tag. The following commands are acceptable: *READ COILS* (command 01), *READ DISCRETE INPUTS* (command 02), *READ HOLDING REGISTERS* (command 03) e *READ INPUT REGISTERS* (command 04).

Write Command: Superview automatically chooses the Modbus write command for Tag write operations, based on the previously selected read command. Tag write operations are automatically disabled for Tags that use a read command with no corresponding write command. Block write operations are not allowed. If a Tag uses a block command to read its values, write operations must be accomplished using single write operations to each Tag of the block.

ADVANCED SCREEN EDITION.

During the design of a supervision form, the following edition resources are available to make the task easier. To use them, select the objects that you want to change and right click on them. A drop-down menu will be displayed with the available options.

Properties	
Copy	Ctrl+C
Paste	Ctrl+V
Alignment	▶
Size	▶
Group	▶
Bring to Front	
Send to Back	

OBJECTS GROUPING

Applicable when more than one object was simultaneously selected (to select multiple objects, select them with a left click while holding the *Ctrl* key). A group of objects will always be moved together. The individual features of each object within a group can be accessed with a right-click on the object. The GROUP menu unfolds the options GROUP AND UNGROUP. Select the action you need.

BRINGING OBJECTS TO FRONT AND SENDING BACK

A selected object or group can be brought to the first plane of the screen, in front of objects in lower planes. It is useful to control how objects in the screen will overlap. Objects like TEXT BOX WITH TAGS and ALARM TABLE are always displayed in the first plane.

OBJECTS ALIGNMENT

Allows alignment of selected objects. Select objects to be aligned and choose the required alignment option:

- Horizontal/Left: All objects will have the same horizontal position as the object positioned on the left.
- Horizontal/Right: All objects will have the same horizontal position as the object positioned on the right.
- Vertical/Top: All the objects will be on the same vertical position of the object on the screen top.
- Vertical/Bottom: All the objects will be on the same vertical position of the object on the screen bottom.
- Vertical/Central: All the objects will be on the same vertical center of the object on the screen bottom.

STANDARDIZING THE SIZE OF OBJECTS

Allows standardization of dimension of multiple selected objects. Select objects to be dimensioned and choose the required option:

- Height/Higher: All the objects will be as high as the highest selected object.
- Height/Lower: All the objects will be as low as the lowest selected object.
- Width/Higher: All the objects will be as wide as the widest selected object.
- Height/Lower: All the objects will be as wide as the highest selected object.

COPY AND PASTE

Allows copying objects within the same application. One or multiple objects, grouped or not, can be selected, copied and pasted into another position on the screen. Select the objects you want to copy, select the copy option (or press *Ctrl C*) and then select the paste option (or press *Ctrl V*). The copy of selected objects will be placed on the screen, and they can be moved to other positions on the screen. The properties of copied objects will be maintained, but they must be reviewed, specially tags association.

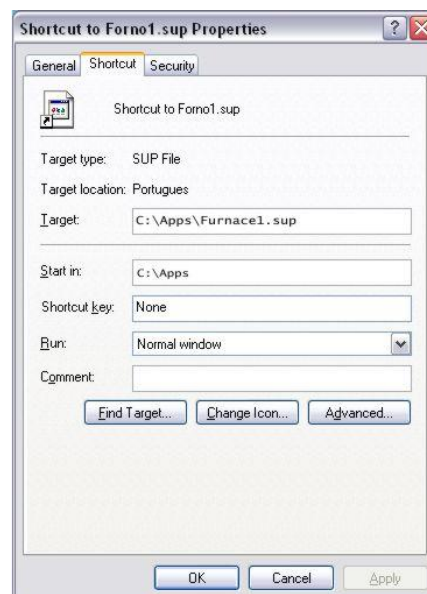
EXPORTING AND IMPORTING SUPERVISION FORMS

A supervision form can be saved to a file for later use in a different application. When a form is saved, application information as users, devices and tags are not saved. Only visual and position properties of the objects are preserved. When a form is imported into an application, all imported object properties must be revised and completed with the missing information. Import or export of forms is accessible through Application menu options Import Screen and Export Screen. Exported files containing form data are saved in file with **.xcr** extension name.

AUTOMATICALLY START SUPERVISION WHEN WINDOWS IS STARTED

A Superview application can be started whenever the Windows is started. Proceed as explained below:

1. In the register of the application users, create a MONITOR user, which will allow for the start of supervision without a password. Refer to "USER'S MANAGEMENT" section. Save the application.
2. In Windows, create a shortcut for the supervision file to be started.
3. Place this shortcut in the STARTUP Windows folder in the menu START/ALL PROGRAMS. Check below to see an example of a shortcut for the initialization of an example application named FORNO1.SUP.



DISTRIBUTED SUPERVISION


In a DISTRIBUTED SUPERVISION system, multiple computers running Superview are able to collaborate exchanging data and displaying different process views. Typically, the Superview station that is directly connected to the Modbus RTU network will act as a data SERVER to other stations, named CLIENTS. Client-Server communication use the existent TCP/IP computer communication network

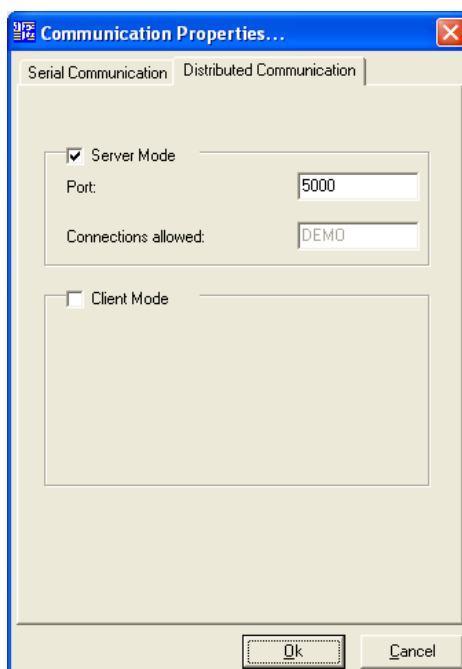
- Each client Superview can connect to a single server.
- The maximum number of clients that can simultaneously connect to a server is defined by the registration number of the Superview server. A Registration number can be purchased from NOVUS.
- A Superview station can act as a server and client at the same time.
- Client stations can also communicate with their own local Modbus RTU networks and act as server for other client stations.
- Any TAG defined in a Superview server station is available to all connected clients. A client stations request TAGS from the server by name.
- A client station can read or write TAGS in the server station
- Different client stations can display different views of the process under supervision. To ease the configuration of clients, use a copy of the server supervision file (.SUP file) in each client, enabling the client function and redefining the TAGs as REMOTE. The supervision forms layout can be freely changed for each client.

CONFIGURING DISTRIBUTED SUPERVISION PARAMETERS

When two or more stations running Superview share data in a client/server architecture, TCP/IP communication parameters should be configured. In a stand-alone configuration where supervision is limited to a single Superview station, this configuration is not needed. Follow the steps for **client** and **server** configuration

Server:

1. Open the CONFIGURE window by clicking  from the upper tool bar.
2. Double click COMMUNICATION icon and select the DISTRIBUTED COMMUNICATION tab. COMMUNICATION PROPERTIES window will show, as follows.



3. Click on SERVER MODE to activate the server and choose a TCP port number (from 1025 to 65535). Superview will wait for remote connection requests to this port. The field MAXIMUM NUMBER OF CONNECTIONS will display the maximum allowed simultaneous connections. This number is defined by the registration number purchased and entered for this Superview copy. If no client connections are included in this Superview license, DEMO is displayed and any remote client connection will be terminated after 20 minutes.
4. After the configuration is finished, press OK.




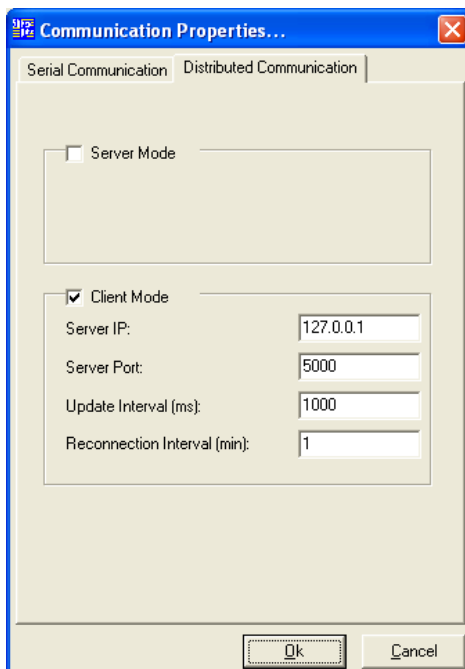
Sudden communication interruptions (such as an Ethernet cable removal) may result in client/server connection error that will only be solved after the restart of Superview stations.

Client:

A Superview client will gain access to data of a Superview server station if both are properly configured. It is recommended to first configure the Superview application running at the server station and then use a copy of this application as the start point for the configuration of all connected clients.

In each computer that will run as client, open a copy of the server supervision file (.sup) and follow the next steps:

1. Open the CONFIGURE window by clicking  from the upper tool bar.
2. Double click COMMUNICATION icon and select the DISTRIBUTED COMMUNICATION tab. COMMUNICATION PROPERTIES window will show, as follows.



3. In the properties window, click CLIENT MODE to enable the client feature.
4. In the SERVER IP field, enter the IP address of the computer running Superview that will act as a data server.
5. In the SERVER PORT field, enter the TCP port number. This value must match the port number that is defined in the configuration of the Superview server running in the PC with the IP address specified above.
6. In the UPDATE INTERVAL field, enter the interval in milliseconds that the client will receive data from the server. The lower the value the higher the network traffic. In the RECONNECTION INTERVAL field, enter the connection retry interval that will be used if TCP connection is lost.
7. After the configuration is finished, press OK.



Superview can be server and client at the same time.

REMOTE VARIABLES CONFIGURATION – REMOTE TAGS

To have the Superview operating as a client, tag configuration should be adjusted to access remote tags served by other Superview station. Only tags in use in the Superview server will be accessible to its clients. A tag is considered in use if it is associated to a form object, such as a text box, chart or bar graph.

1. To change a tag configuration to remote (read from the server), double click the tag name in TAG CONFIGURATION window. The TAG PROPERTIES window will show, as follows.

Tag Properties...

Tag | Alarm

Type: Physical Tag | Origin: Remote

Name: Channel1 | Description: <descricao default>

Device: FieldLogger | Parameter: Ch1

Decimal format: 0 | Error value: 155 | ☐ Unsigned

Scale:

Inferior limit: -1999 | Superior limit: 9999

Inferior limit of visualization: -1999 | Superior limit of visualization: 9999

☐ Access bits

15 14 13 12 11 10 9 8
7 6 5 4 3 2 1 0

Ok Cancel

- In the ORIGIN field, select REMOTE and press OK. Repeat this procedure to all tags that will be read from the server.



Tags in the client that will be read from the server must have exactly the same NAME and TYPE of the source tag at the server Superview application. In the client application these tags must be configured as REMOTE in the ORIGIN field.

ACTIONS DURING SUPERVISION

During the normal use of Superview in the supervision mode, probably by a non-administrator user, the operator can have access to some features the Superview offers.

PRINT A SCREENSHOT OF THE SUPERVISION SCREEN

Right click on an area with no objects on the screen and select from the pop-up menu the PRINT SCREEN option. The printer must be configured in advance in the application configuration (see "PRINT SETTING").

VISUALIZE, COPY, PRINT, EXPORT AND SEARCH HISTORICS

Right click on a historic object. The window with actions on the historic will be displayed. Available features in this window are described in "Visualizing, copying and exporting historics".