



# CirPark Scada



Scada software for parking management

User's Manual  
V4.2.2

MU610105-16A-EN-CirPark Scada-1-Manual

<b>1</b>	<b>GENERAL DESCRIPTION .....</b>	<b>3</b>
1.1	CIRPARK SCADA TOPOLOGIES .....	3
1.1.1	All in one.....	3
1.1.2	Engine/editor and clients.....	3
1.1.3	Engine, editor and clients .....	4
1.1.4	Engine, editors and clients.....	4
1.2	CIRPARK SCADA INSTALLATION.....	5
1.3	TYPICAL APPLICATION.....	9
1.3.1	Configure the communications engine.....	10
1.3.2	Create the application in the editor .....	11
1.3.3	Export the application to the engine .....	12
1.3.4	View the application in the client.....	14
<b>2</b>	<b>SYSTEM REQUIREMENTS .....</b>	<b>16</b>
<b>3</b>	<b>LICENSE, TERMS AND CONDITIONS .....</b>	<b>17</b>
<b>4</b>	<b>F.A.Q.....</b>	<b>18</b>
4.1.1	Some equipment is not communicating. What could be happening? .....	18
4.1.2	A TCP2RS converter does not communicate. What could be happening? .....	18
4.1.3	I cannot see the applet. What could be happening?.....	18
4.1.4	The Applet does not display the texts properly. What could be happening? .....	18
4.1.5	The values display is not what I expected. What could be happening? .....	18
4.1.6	An event is not behaving as expected. What could be happening? .....	19
4.1.7	I can't paint the graph correctly. What could be happening? .....	19
4.1.8	The Paint Pot is not working correctly. What could be happening?.....	19
4.1.9	Can I launch external applications from applet?.....	20
4.1.10	How can I see the applet from a machine which is not running Windows? .....	20
4.1.11	How can I draw a line in a report or a SCADA screen ?.....	21
4.1.12	I am making my first screen or report and I cannot add a background image or a still picture. What is happening? .....	21
4.1.13	What can be "counted"?.....	21
4.1.14	I would like to export the report data in order to process it later. How can I do it? .....	22
4.1.15	I tried to make a table with the client application and I get the Message "Table too Big." What can I do to see it? .....	23
4.1.16	How can I simulate a control switch?.....	24
4.1.17	How do I add animation to the SCADA? .....	24
4.1.18	How can I change the properties of control in accordance with a condition? .....	25
4.1.19	How can I know the status of a device? .....	25
4.1.20	How can I display documents from a SCADA screen? .....	25
4.1.21	How can I obtain an event according to the status of a device?.....	25
4.1.22	How can I produce sounds in response to an event? .....	25
4.1.23	How do I show documents in response to an event?.....	26
4.1.24	How can I communicate with a TCP2RS converter by way of a router?.....	26
4.1.25	There are screens on which I cannot see the text of the controls properly or they are truncated. How can I solve this? .....	26
4.1.26	When viewing a graph and selecting the tooltip, the graph disappears. How can I solve this? .....	27
4.1.27	I cannot connect with the engine and the following error occurs on the Java console: java.net.BindException: Address already in use: connect. How can I solve this? .....	27
4.1.28	When I run the client as an embedded applet in the webpage within a browser, how can I access as an anonymous user? .....	27

## 1 General description

---

CirPark Scada is a parking management software package and its main features are the configuration, communication and monitoring of devices and the creation of SCADA screens and reports. It also has a set of tools such as events, filters, calculated variables, and an images and styles manager to facilitate the user's interaction.

CirPark Scada is divided into three main modules, the applications editor, the communications engine and the client.

The editor is the module that is in charge of applications management and it allows a new application to be created, to modify an existing application, to import an application from the engine or to export an application to the engine.

The engine is the module in charge of running the application it receives from the editor and of communicating with the different devices, storing downloads and attending to the various requests made by both the editor and the client.

The client is the module that allows connection with an engine and access to the SCADA screens, reports and to view the instantaneous values recorded by the devices. Graphs and listings can also be prepared of the recorded values, events can be viewed, the status of the devices can be displayed, etc.

### 1.1 CirPark Scada topologies

---

CirPark Scada software design as three well-differentiated modules: the editor, the engine and the client, make it possible to use it through different topologies, which are explained in detail below.

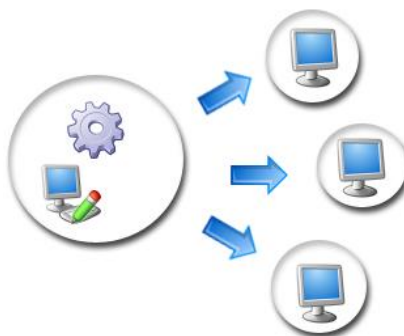
#### 1.1.1 All in one

This is the basic configuration in which the three modules, the editor, the engine and the client, are on the same machine. With the editor we can create a new application to send to the engine and from the client connect to the engine to display the application. From the editor we can also download an existing application from the engine, modify it and then send it back to the engine.



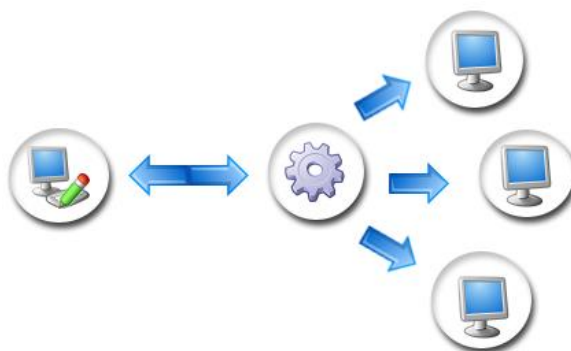
#### 1.1.2 Engine/editor and clients

In this configuration we have the editor and engine on one machine and from one or more clients on other machines we connect with the engine to access the viewing of data, SCADA screens, reports, etc. This configuration is useful when we want to view the engine data remotely from the client.



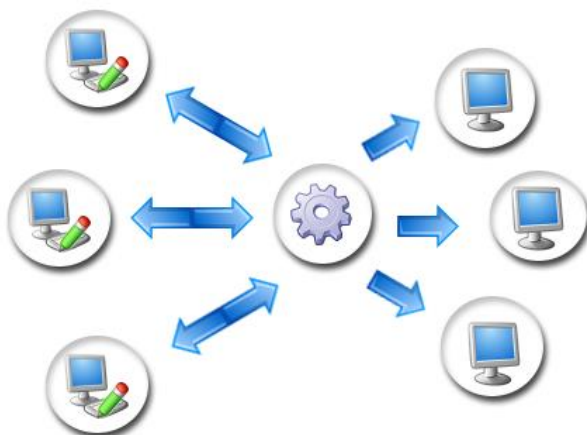
### 1.1.3 Engine, editor and clients

In this configuration we have an editor, an engine and one or more clients, each of these being on different machines. This configuration allows the engine configuration to be edited remotely. This configuration is used when we want the data downloaded from the devices by the engine to be centralized in a machine that is independent of the editor machine.



### 1.1.4 Engine, editors and clients

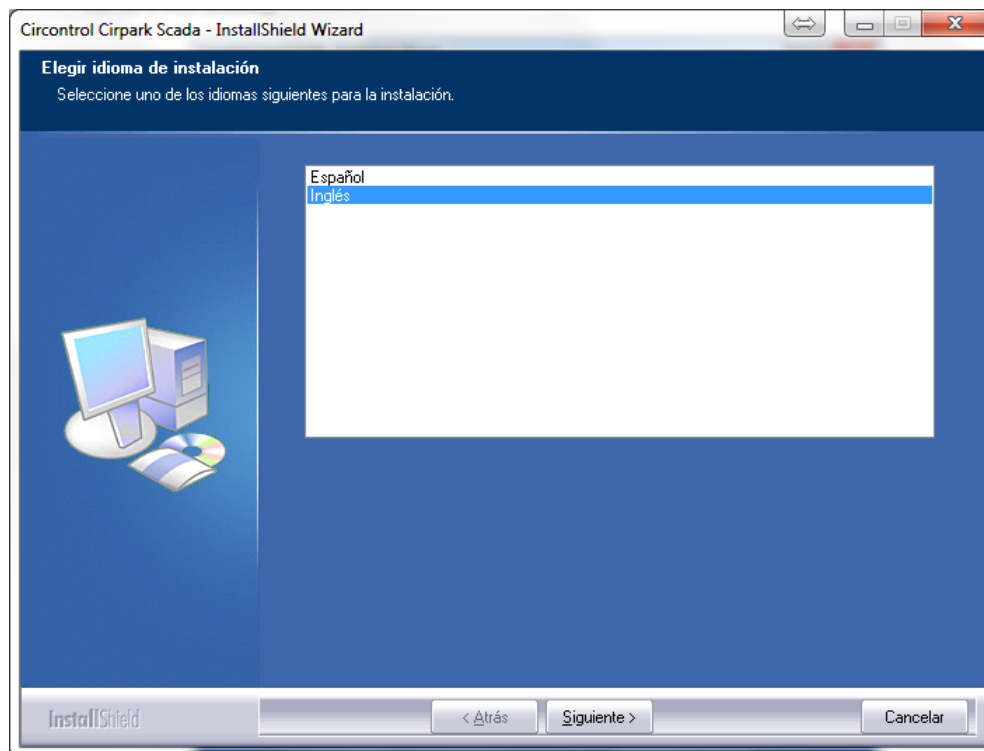
This configuration is the same as the previous one with the only difference that it is possible to edit an application from two machines at the same time. For example, the SCADA screens could be configured from one editor and the reports from another. It is important that each editor must import the engine configuration before new changes are made. When modifying the application and exporting it to the engine, were any type of incongruity to occur with the engine application, we will be able to correct it.



## 1.2 CirPark Scada installation

---

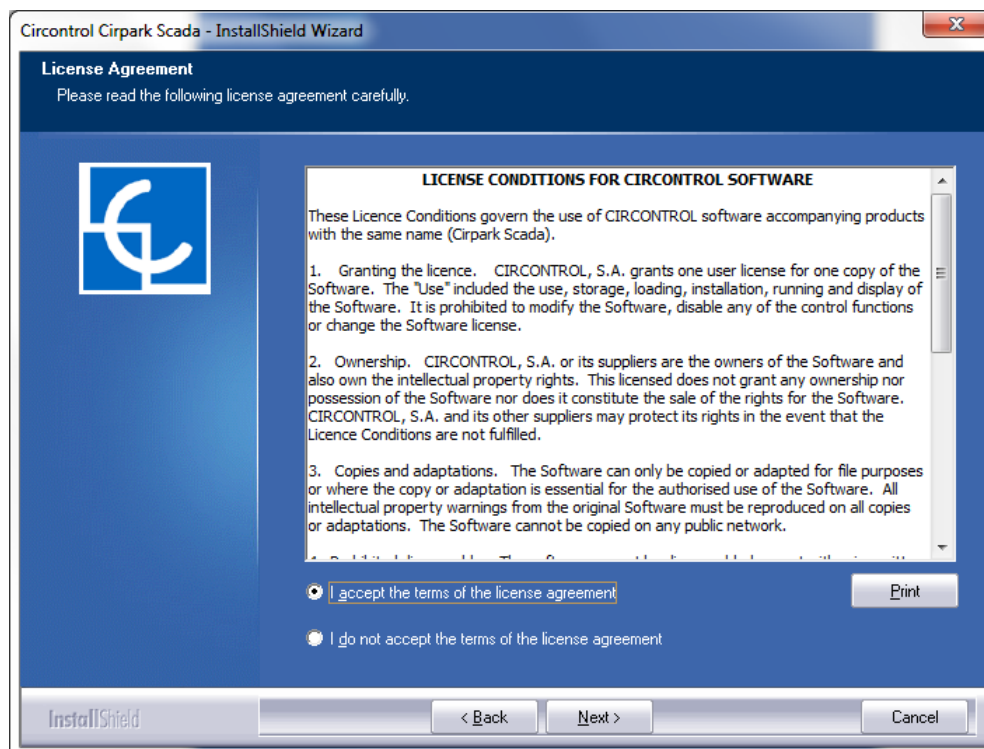
Once it has been ascertained that your machine meets the minimum requirements for the software insert the CirPark Scada CD and select the install software option that will appear on the main screen. If the main screen does not appear automatically when the CD is inserted in the unit, you must manually run (from Windows explorer or with the **“Run”** option on the START menu) the **“AUTORUN.EXE”** program which is in the CD's root directory.



**Installation language**

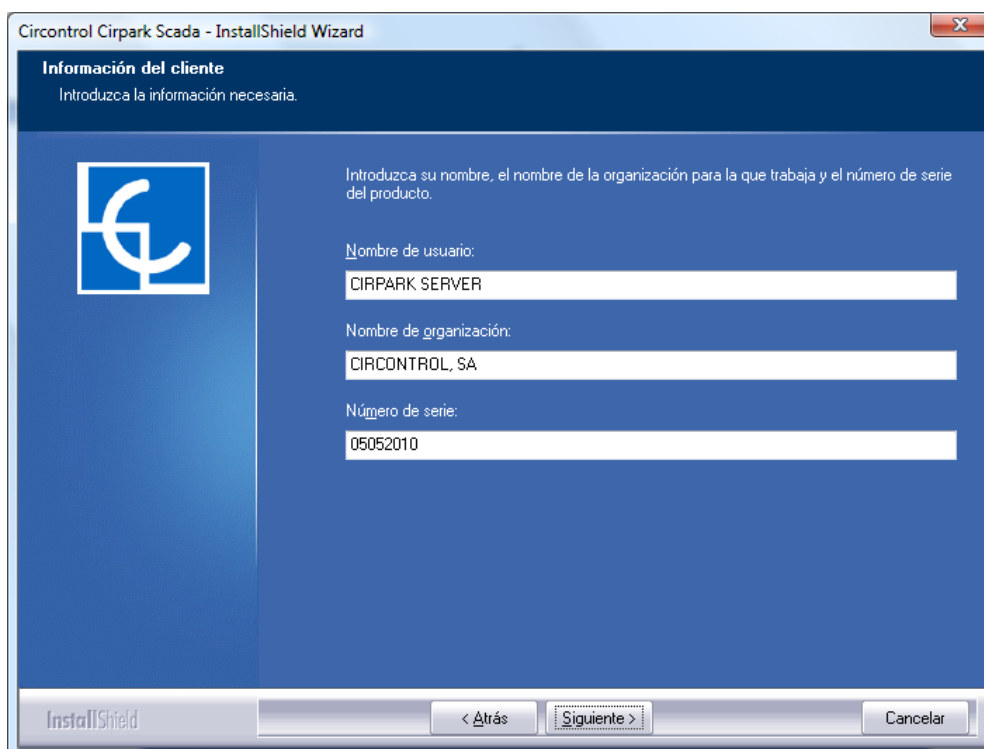
After selecting the installation language and pressing the **“Next”** button we will access the license screen where we must accept the terms to be able to continue.





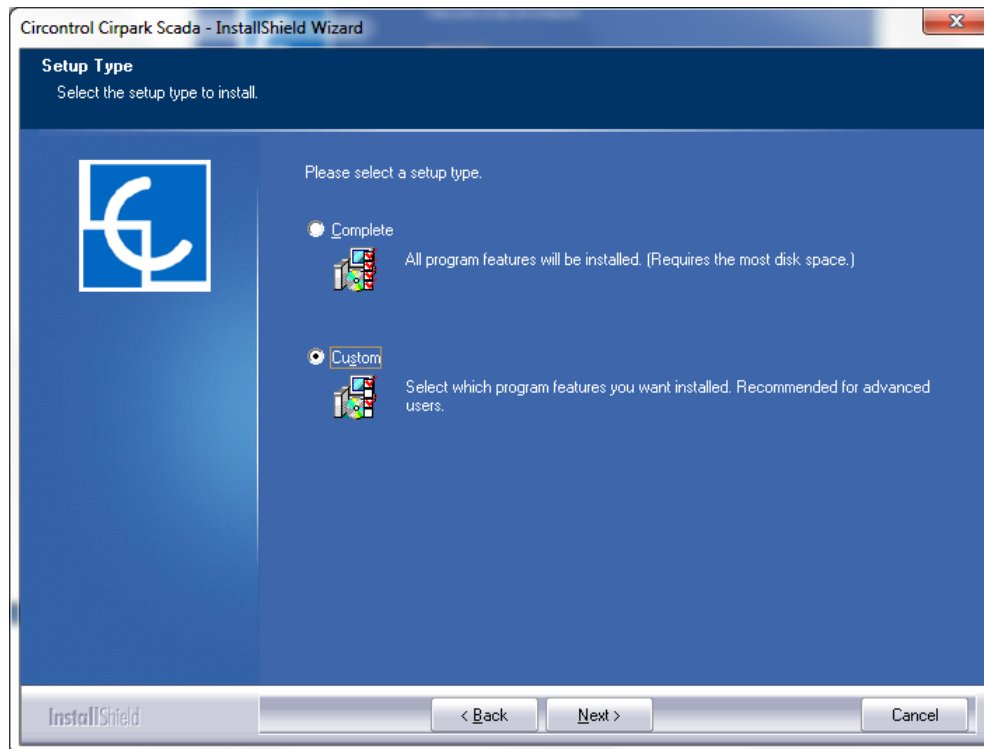
**License terms**

Then press the **“Next”** button and you will be required to register the product and enter the user name, the company name and software serial number.



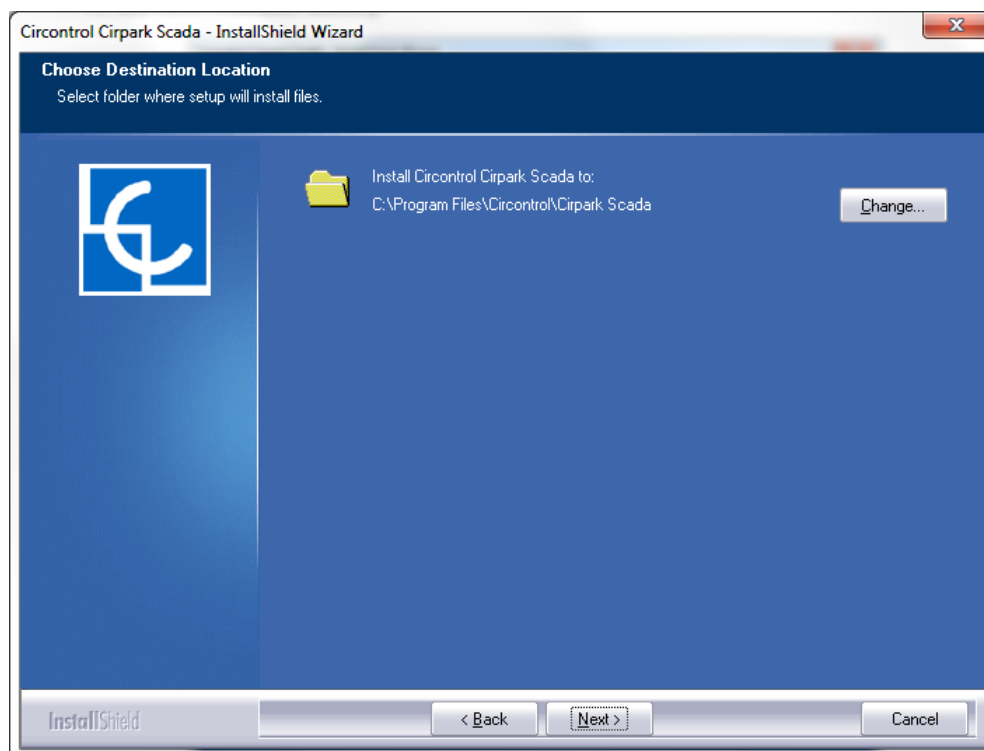
**Register screen**

Then press the **“Next”** button and you will access the installation type selection screen. We can choose the complete installation, which will install the Editor, the Engine and the Client, or the custom installation, where we can select the modules to be installed.



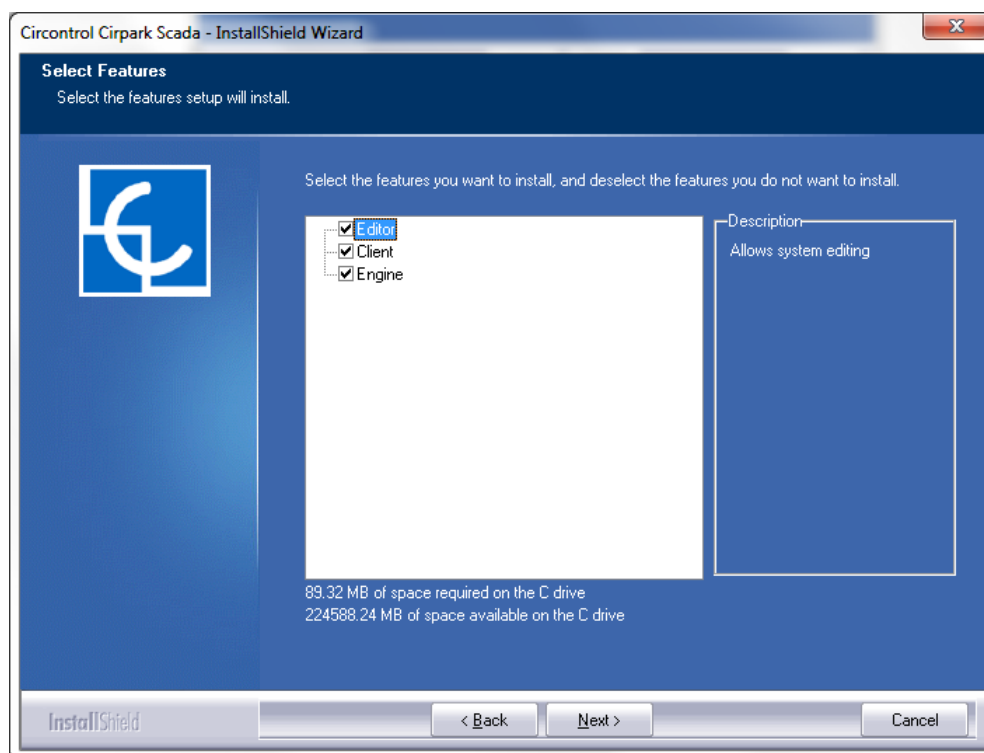
**Installation type**

After completing the installation preparation process a dialogue will appear where you will be asked for the application installation directory.



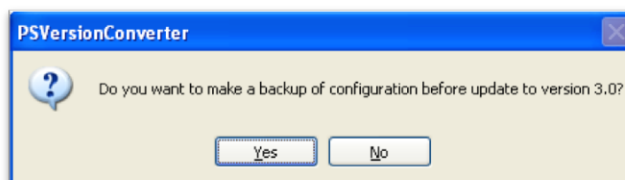
**Installation directory**

On the next screen we can select the module or modules to be installed. You must only select the components that are required for the selected topology.

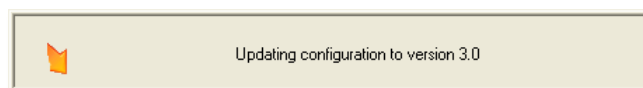


**Components selection**

If the installation detects that you have already installed a previous version of CirPark Scada, it will allow you to make a backup copy of the configuration before you update to the current version.

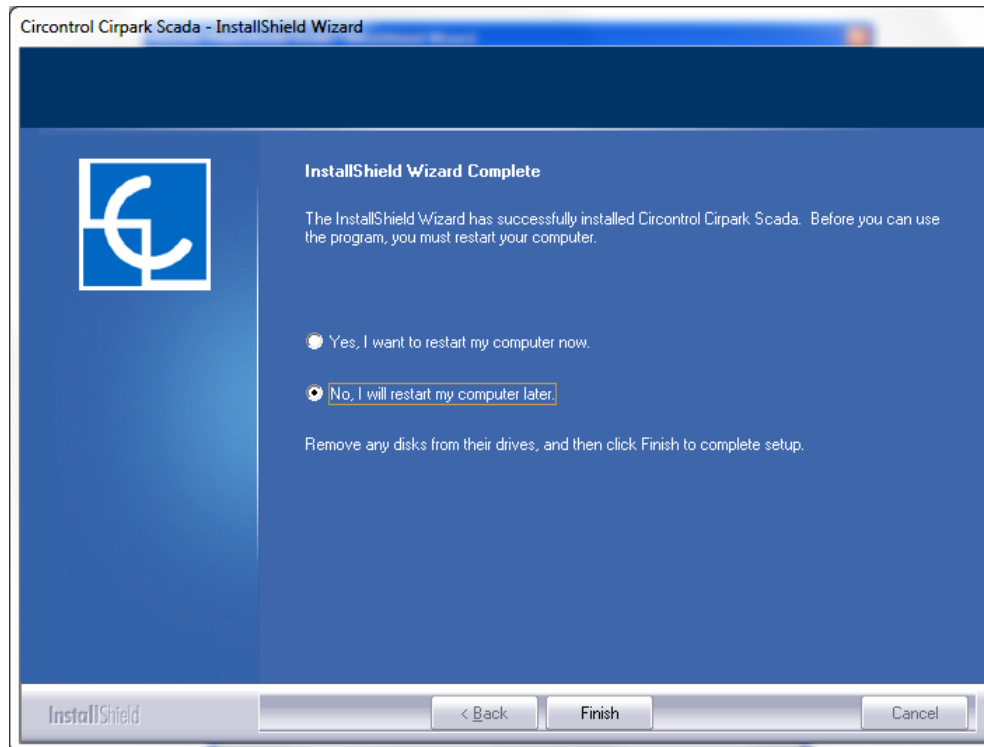


If you wish to make a backup copy, the 'Backup' directory will be created within the directory where you are installing CirPark Scada and the old configuration will be backed up. If you do not wish to make a backup copy, the old configuration will be lost.



After having updated the configuration, if there is an old version installed and the installation has been completed, a dialogue will appear reporting that the installation was correctly completed.





### ***Installation complete***

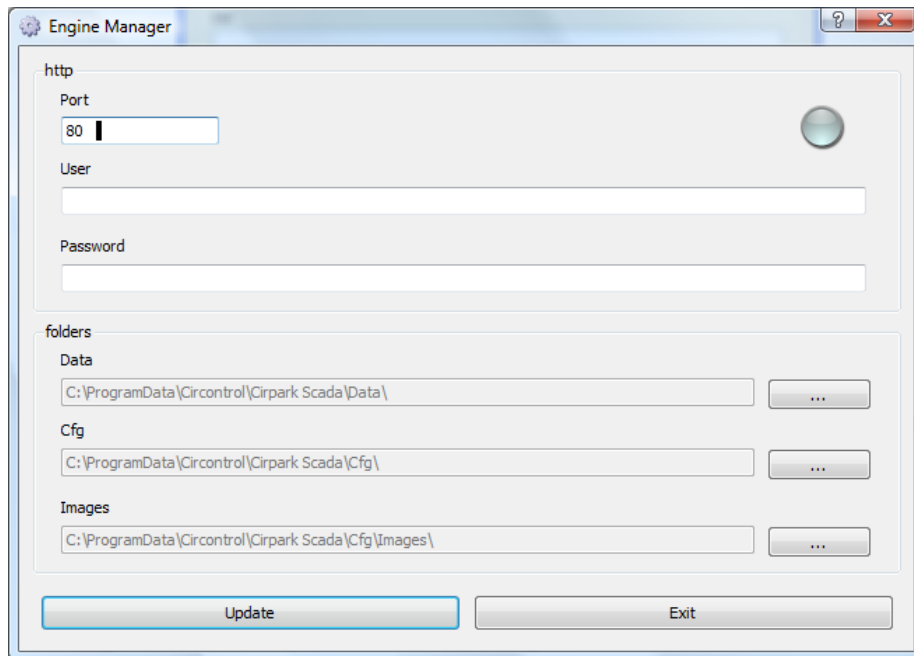
When the client is installed a default application will be created, called 'Local', which will be the active installation the first time the client is run. If the CirPark Scada installation is done on top of a previous version, the entire configuration will become a part of the 'Local' application.

## **1.3 Typical application**

Below we show the steps required to create a typical application, configure the communications engine, create the application from the editor, export the application and view the application from the client.

### 1.3.1 Configure the communications engine






For the application to operate properly, the first step will be the configuration of the communications engine. When the communications engine is installed the runtime 'Engine Manager' application is copied to the same directory, and with this application can configure the engine's operating parameters, such as the web server and the working directories.



***Engine Manager. Engine configuration***

- Port: We indicate the port that the engine will use to initialize the web server. The editor and client requests will be attended to on this port.
- User: User used if we desire edition authentication.
- Password: We indicate the user password for edition authentication.
- Data: Working directory for storing the data downloaded from the machines.
- Cfg: Working directory to store the application's configuration.
- Images: Working directory to store the application's images.

On the upper right-hand part of the screen, we will see a dot indicating the engine status. The possible states are the following:

-  The engine is not operating or not found.
-  The engine is active; there are no events or problems with the communications.
-  The engine is active; there are no events but there are problems with the communications.
-  The engine is active; there are problems with the communications and active events.
-  The engine is active; there are no problems with the communications but there are active events.

It is necessary to start the communications engine so that the 'Engine Manager' can configure the web server parameters. By default the communications engine attempts to start the web server on port 80 and if it is busy, it seeks a free port, as we have seen; these parameters can subsequently be changed with the 'Engine Manager'.

### 1.3.2 **Create the application in the editor**


To create a new application, the following main steps must be performed:

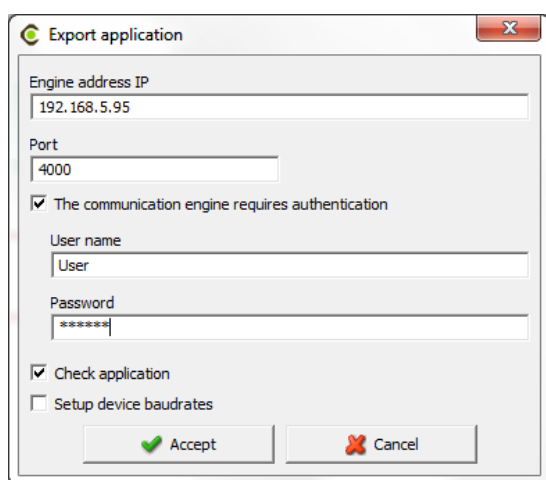
- Add and configure devices: Add first and second level devices and configure the communications parameters. (Refer to the 'Devices' section in the 'Editor manual').
- Create device groups: Organize the devices into groups according to the structure defined by the user. (Refer to the 'Device groups section in the 'Editor manual').
- Create filters: Create one or more energy filters to apply to the data gathered by the devices. (Refer to the 'filters' section in the 'Editor manual').
- Create calculated variables: Define new variables with values of different devices. (Refer to the 'Calculated variables' section in the 'Editor manual').
- Create styles: Define styles configurations to apply to the fonts of the various controls of SCADA screens and reports. (Refer to the 'Styles' section in the 'Editor manual').
- Manage images: Add the images required for subsequent use in SCADA screens and reports. (Refer to the 'Images manager' section in the 'Editor manual').
- Create SCADA screens: Create one or more SCADA screens, which allow for visually displaying the application. (Refer to the 'SCADA' section in the 'Editor manual').
- Create reports: Create one or more templates for displaying reports. (Refer to the 'Reports' section in the 'Editor manual').
- Create events: Define application events, disabled schedules and their configuration. (Refer to the 'Events' section in the 'Editor manual').
- Define user rights and authentication: Configure one or more profiles relating to the application resources and assign to the users. (Refer to the 'User authentication' section in the 'Editor manual').

If we wish to modify the application in the communications engine, we first have to import it, then modify it and export it to the engine so that the new changes are included.

### 1.3.3 Export the application to the engine

When we have completed an application or an existing one has been modified, we must export it to the communications engine so that the latter takes all the changes made into account. While we are editing an application, the communications engine continues to run the last application configured in it and it is not until we export it from the client that these changes are implemented in the engine. (Refer to the 'Editor Manual' for a more detailed explanation).

From the editor toolbar if we select the  **Export** option, we will access the application's export dialogue.



**Export application**

Engine address IP  
192.168.5.95

Port  
4000

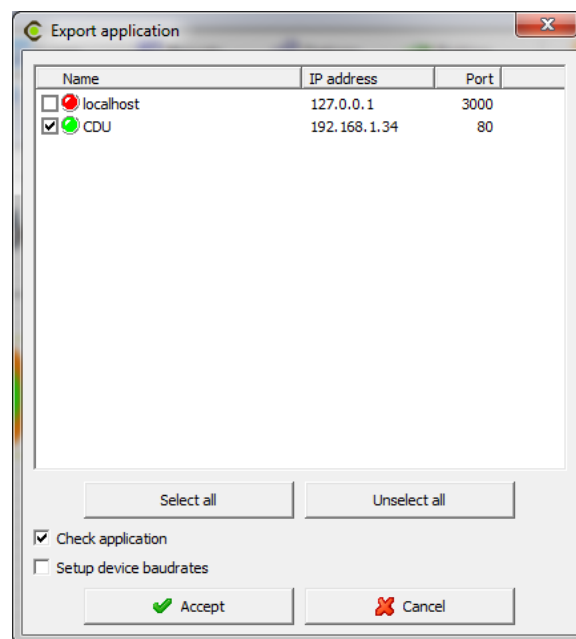
☒ The communication engine requires authentication

User name  
User

Password  
\*\*\*\*\*

☒ Check application

☐ Setup device baudrates



**Export application**

Name	IP address	Port
<input type="checkbox"/> localhost	127.0.0.1	3000
<input checked="" type="checkbox"/> CDU	192.168.1.34	80

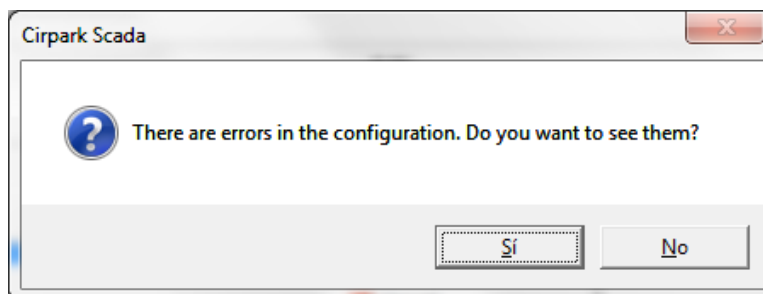
☒ Check application

☐ Setup device baudrates


**Export application window for unique engine or multiple one**

In the export dialogue we must select the IP address and port of the engine to which we are going to send the configuration, we will also mark the ☒ **The communication engine requires authentication** option and enter the user and password if user authentication is enabled.

If we select the ☐ **Check application** option, before sending the application it is verified to be correct, and the following message will be displayed if there is invalid data.



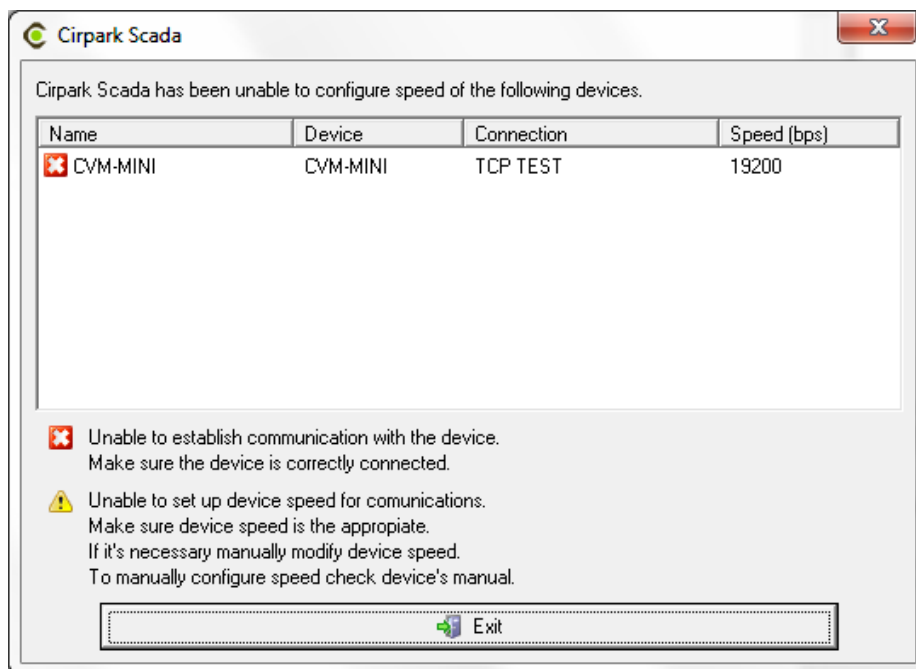
**Cirpark Scada**

 **There are errors in the configuration. Do you want to see them?**

If we select the 'No' option the configuration will be sent to the engine with the detected errors and it is possible that it will not operate as desired. If we select the 'Yes' option a screen will appear reporting the detected errors. (Refer to the 'Editor Manual' for a more detailed explanation).

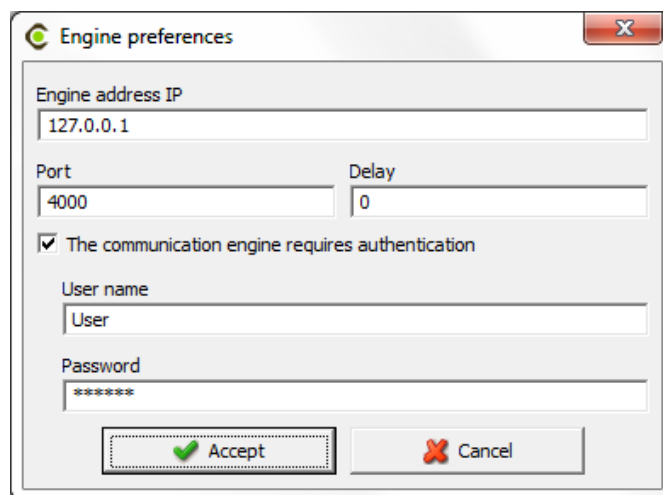
If we select the ☐ **Setup device baudrates** option, before sending the application an attempt will be made to communicate with the devices added in the application. If communication cannot be made with any

of them, a dialogue will appear reporting the detected incidents. (Refer to the 'Editor Manual' for a more detailed explanation).



### ***Communication incidents report***

From the editor it is possible to configure the default options that appear on the export dialogue, we must go to the 'File -> Engine preferences' menu option. (Refer to the 'Editor Manual' for a more detailed explanation).

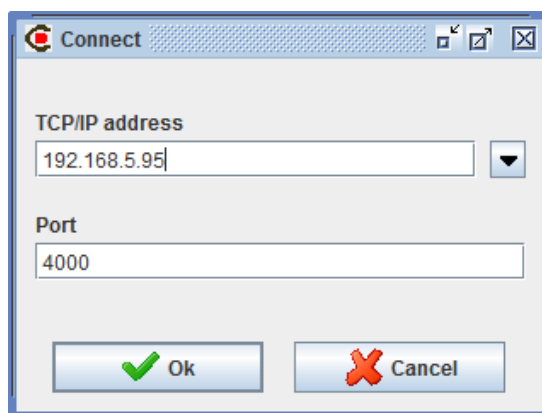


### ***Engine preferences***



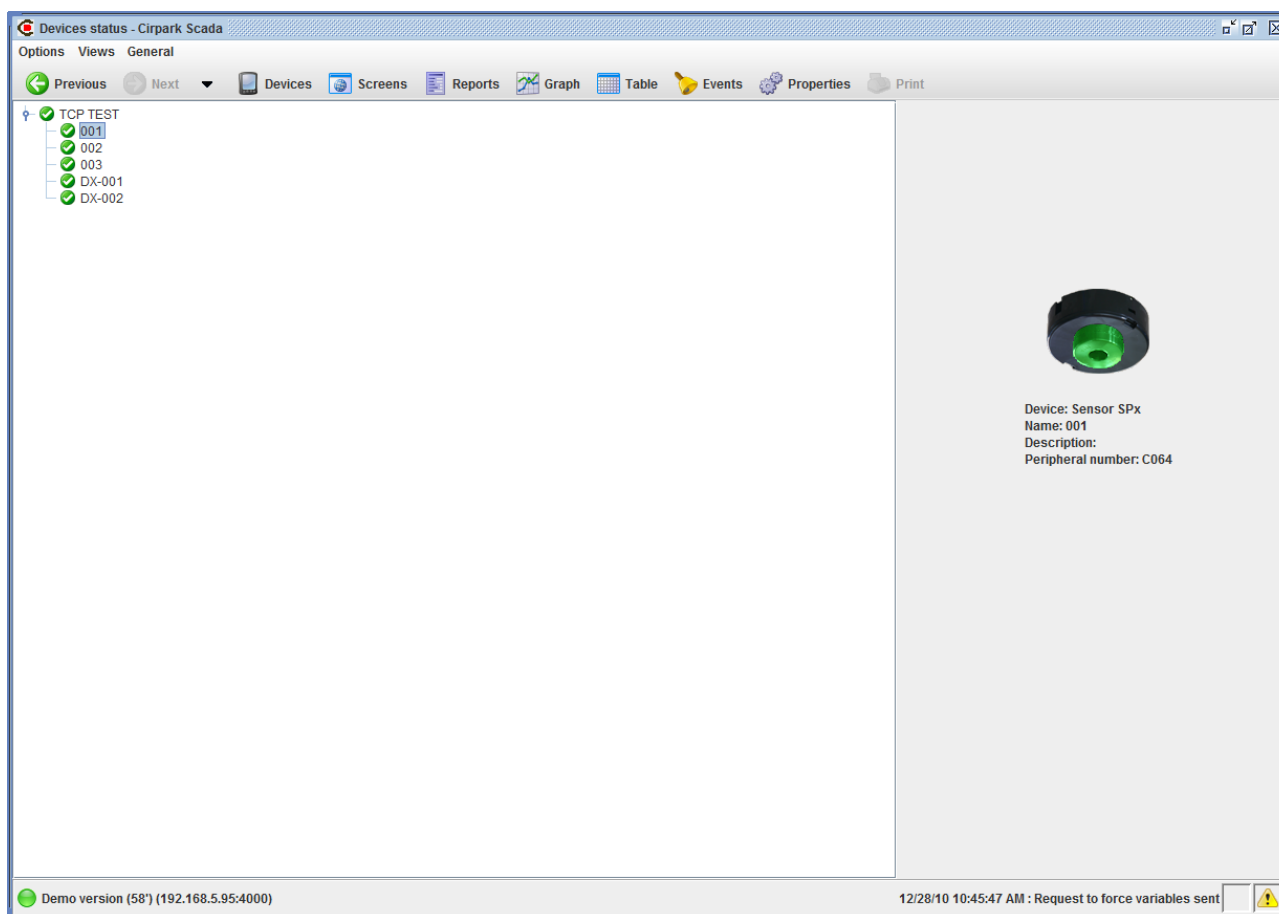
### 1.3.4 View the application in the client

From the Client we can connect with the engine to view the application by selecting the 'General --> Connect' menu option. (Refer to the 'Client Manual' for a more detailed explanation).

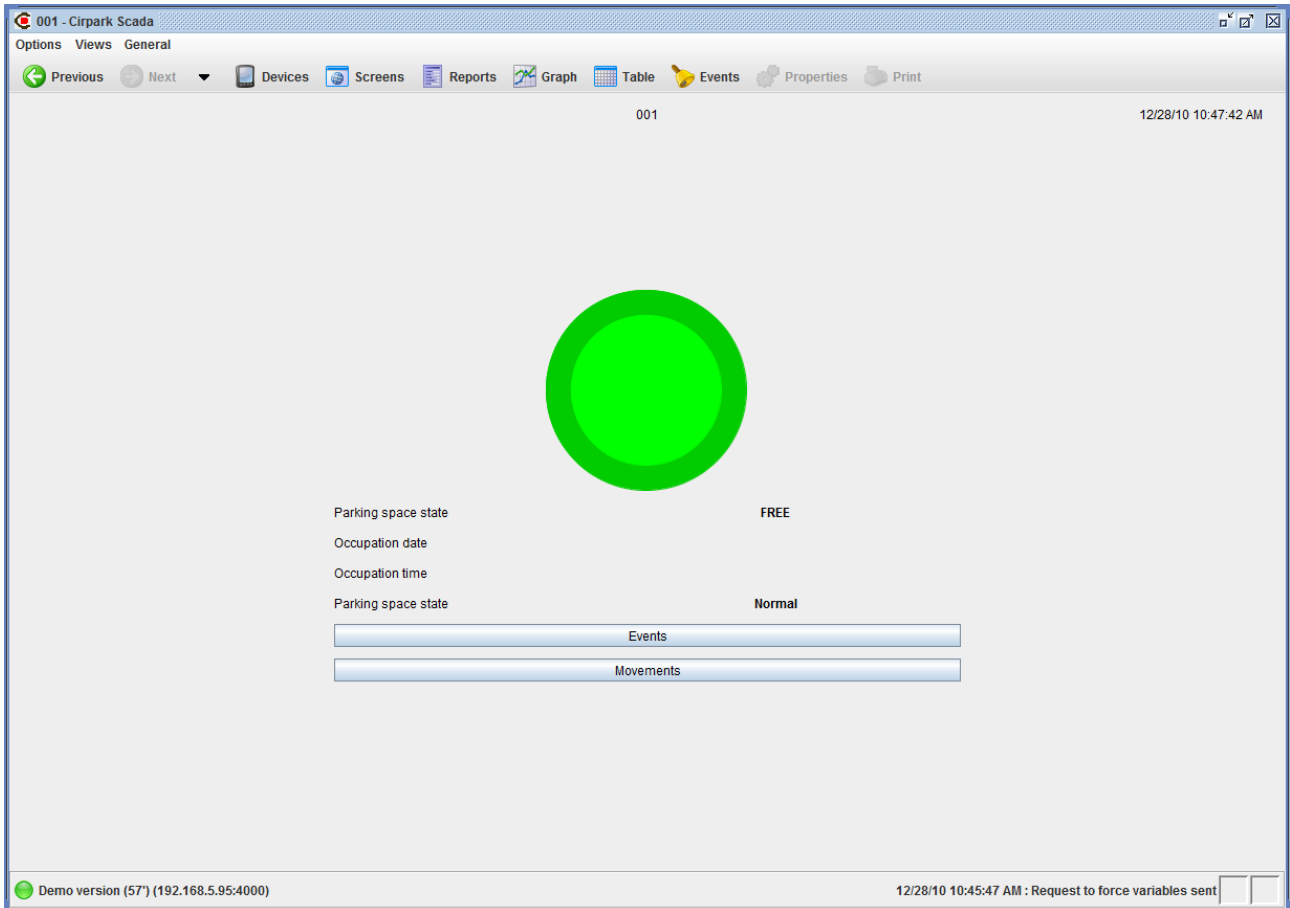


**Connect to the engine**

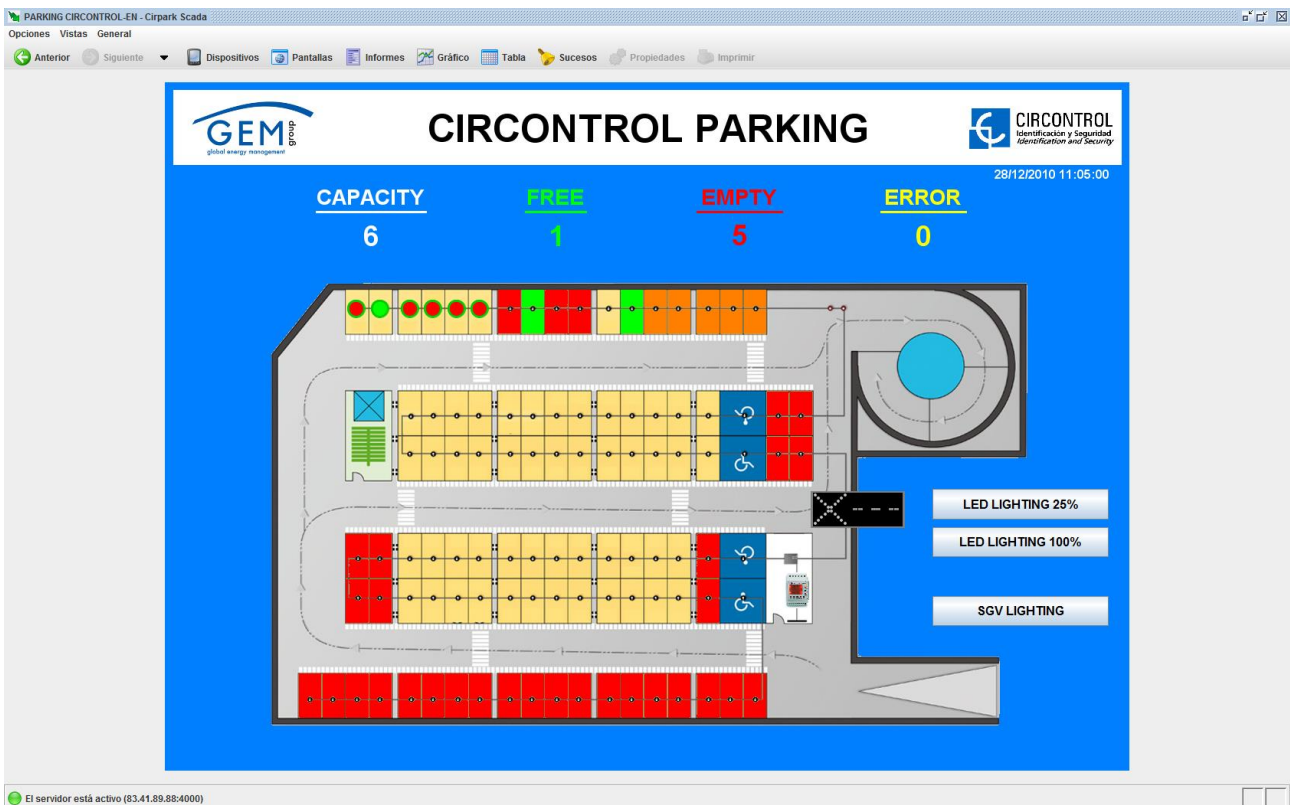
Below some of the views obtained from the Client are shown, such as the device status view, the machine monitoring view or SCADA screen.



**View device status by connection**



Device monitoring screen



Client application with a SCADA screen as an active view

## 2 System requirements

---

- Microsoft Windows in versions:
  - 2003, 2008 and 2012 Server, XP Home, XP Professional (Service Pack 1), Windows Vista, Windows 7 and 8, 32 bit versions
  - 2003, 2008 and 2012 Server, XP Professional (Service Pack 1), Windows Vista, Windows 7 and 8, 64 bit versions
- Client in any operating system where the Java JRE 1.7.0 virtual machine is installed (Linux, Windows, MAC, etc.)
- I86 architectural machine (Intel or AMD) for the Engine and Editor, 1GHz or greater.
- Minimum RAM 1GB
- 1 GB free hard drive (depending on the number and type of equipment connected space should be increased at a rate of approximately 20 MB per device and year of data we want to save).
- CD-ROM.
- SVGA monitor 1024x768 or better.
- Windows compatible mouse and keyboard.



For the software to work properly it will be necessary to install it as the Administrator, or as a user with Administrator privileges.

### 3 License, terms and conditions

---

#### LICENSE CONDITIONS FOR CIRCONTROL SOFTWARE

These Licence Conditions govern the use of CIRCONTROL software accompanying products with the same name (Cirpark Scada).

1. **Granting the licence.** CIRCONTROL, S.A. grants one user license for one copy of the Software. The "Use" included the use, storage, loading, installation, running and display of the Software. It is prohibited to modify the Software, disable any of the control functions or change the Software license.
2. **Ownership.** CIRCONTROL, S.A. or its suppliers are the owners of the Software and also own the intellectual property rights. This licensed does not grant any ownership nor possession of the Software nor does it constitute the sale of the rights for the Software. CIRCONTROL, S.A. and its other suppliers may protect its rights in the event that the Licence Conditions are not fulfilled.
3. **Copies and adaptations.** The Software can only be copied or adapted for file purposes or where the copy or adaptation is essential for the authorised use of the Software. All intellectual property warnings from the original Software must be reproduced on all copies or adaptations. The Software cannot be copied on any public network.
4. **Prohibited disassembly.** The software cannot be disassembled except with prior written consent from CIRCONTROL, S.A.. "Disassembly" includes disassembly, decompilation, decoding and reverse engineering. In some jurisdictions, consent from CIRCONTROL, S.A. may not be necessary for limited disassembly. When disassembly is requested all reasonably detailed information on the disassembly must be supplied to CIRCONTROL, S.A.
5. **Transfer.** The licence shall automatically terminate when the company stops using the products for which this Software license was issued. In the event of these products being transferred, the new owner of the equipment must accept the conditions of the licence as a condition of transfer.
6. **Termination.** Regardless of any other legal rights or applicable laws, CIRCONTROL, S.A. and its suppliers may terminate the licence with prior notification in the event that the Licence Conditions are not fulfilled. The software together with all his copies adaptations and merged parts, in any format, must be destroyed at the time of termination.
7. **Export requirements.** The export or re-export of the software or any copy or adaptation in contravention of applicable laws and regulations is strictly prohibited.
8. **Responsibility of CIRCONTROL, S.A..** This program has been developed and fully tested, therefore CIRCONTROL, S.A., does not bear any responsibility for incompatibility with other software and its guarantee is limited to the replacement of any faulty copies that may exist. CIRCONTROL, S.A. is not responsible for damages to other applications which may occur.

## 4 F.A.Q

---

### 4.1.1 **Some equipment is not communicating. What could be happening?**

Make sure your computer is switched on and in a mode which can communicate, ensuring particularly that it is not in the set up or starting up mode. Make sure your computer is connected to a PC or a compatible converter and that the wiring is correct. Make sure there is no possibility of any interference in the cable run from the device to the PC or between the device and the converter. If you are connected to a converter, check that the latter is properly connected to the PC. Verify that the grid is not overloaded with an excessive amount of devices. If your computer is connected to 232-485 converter, make sure that the switches are in the correct position. Make sure that the equipment bus does not have devices that communicate at different speeds or have the same device number. Check that the PC port is working properly.

### 4.1.2 **A TCP2RS converter does not communicate. What could be happening?**

Make sure your computer is switched on and connected to the communications network. Make sure there is no possibility of any interference in the cable run from the converter to the PC. Make sure your PC is correctly connected to the communications network and can communicate with other equipment connected to the network (for example with another PC). If you are using a router, make sure the communication port is redirected in the router, to the converter address.

### 4.1.3 **I cannot see the applet. What could be happening?**

Check that the local computer has the Microsoft Internet Explorer, Netscape (Mozilla) or Firefox browser installed. Ensure that the Java Virtual Machine JRE 1.6 (6.0) or later is installed. If they are not installed the browser will provide information and guide us through the installation process.

If the applet appears but a message is displayed warning that there is “***no communication with the server***” or “***the required information could not be recovered***” ensure that the communications engine is running.

### 4.1.4 **The Applet does not display the texts properly. What could be happening?**

It is possible that some fonts applied to the controls when designing a report or a SCADA screen do not exist on the machine on which the applet is downloaded and, as a consequence, the font chosen may be markedly different from the original.

### 4.1.5 **The values display is not what I expected. What could be happening?**

It is possible that a conditional control or a formula refers to a variable of a device which does not communicate or that has not yet been interrogated for the first time. In a SCADA screen, if we are dealing with a condition nothing will appear and if we are dealing with a formula a dash ("-") appears until the value can start. In a report, if there is no data in this period and we cannot assess the condition of a conditional control, nothing will be displayed and if we cannot assess the definition the same will occur.

It may occur that when assessing the formula we come across an invalid operation, such as the square root of a negative number or a zero division, in this case a question mark ("?") appears on the SCADA screen and the report will show the definition of the formula. If we are unable to assess the condition of a conditional control, nothing will be displayed.



It may not be possible to represent the assessment of the formula of an expression, because either its control or assessment configuration returned an out of range value. In this case the “#” character will appear.

#### **4.1.6 An event is not behaving as expected. What could be happening?**

When an event does not occur when you think it should, or vice versa, check that this condition can be fulfilled and make sure the event is enabled at some time by the calendar and that the condition can be fulfilled during that interval. Verify that the devices involved in assessing the condition of the event communicate properly and ensure that the communication engine is running. Make sure you have permission to see this type of event and you have checked the notification and/or register box.

If the incident appears not to have carried out actions that have been defined, check what has actually occurred in the list of events. If the event has still not produced the program action or actions, check that the equipment upon which it should have acted is on and communicating correctly. Should the action involve the running of an external application, check that the application is properly installed and that the command and parameters are correct (you can put this action in a run control in a SCADA screen test to see if it behaves as expected)

#### **4.1.7 I can't paint the graph correctly. What could be happening?**

If the graph appears to have dots missing, verify that this is not because the variables are being represented with different periods.

If the bar chart has widths that are not correct, ensure that the values are separated by the distance marked by the driver period. For example, if a device saves data every 5 minutes and we change the period to 15 minutes, the bars will be superimposed when displaying the bar graphs for the values prior to the change of period (every 5 minutes). If we change the period to a lower value, the bars prior to the change will appear narrower than necessary. In any case, the bar graphs of values separated by the distance shown in the Driver registration period will always appear correctly.

If you do not see any values when you think there should be, ensure that you have not zoomed in an area without values or that the Y-axis is not forcing levels for values which do not exist.

#### **4.1.8 The Paint Pot is not working correctly. What could be happening?**

If when placing the paint pot control on a SCADA screen, it does not behave in the manner expected, ensure that:

- 1.- The condition or conditions defined are right for each colour.
- 2.- The area in which the control is positioned has a uniform colour. It is possible that the area where the paint pot is positioned has different coloured dots but with very similar tones, which at first sight appear the same. The paint pot control only spreads through identical colours.
- 3.- The area to be filled with the colours defined in control is not part of another control. The paint pot control only interacts with the screen background and does not take into account any of the other controls. Do not attempt to use the paint pot to fill, for example, an image by way of the image type control.

#### 4.1.9 Can I launch external applications from applet?

For security reasons, Java Applets have some fairly significant limitations with regards accessing the resources of the local machine on which they are running. One of these restrictions is being able to run applications on the local machine. Nevertheless, this restriction may be disabled by adding the following line to the '*java.policy*' permission file situated in the installation of the JRE virtual machine:

```
permission java.io.FilePermission "<<ALL FILES>>", "execute";
```

It must be noted, however, that the Applet cannot directly display files from the run control, in the way SCADA can. So, if we wanted to show an image in applet it is not enough to enter the name of the image in the run control, but rather we should enter the application we want to use to show the image and, as a parameter, the image to show.

**N.B:** The option to launch external applications very much depends on the system in which applet is running, and it is highly probable that it will only work in the system for which the application has been developed.

#### 4.1.10 How can I see the applet from a machine which is not running Windows?

The applet can be viewed without carrying out any other special action from all operating systems that have Java Virtual Machine 1.5 (5.0) or later and an HTML browser. Among others, the following operating systems would satisfy these requirements: Windows, Linux, Solaris SPARC, Solaris x86, Solaris AMD64, Linux AMD64, etc.

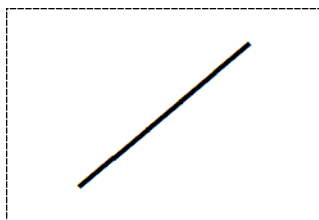
#### 4.1.11 How can I draw a line in a report or a SCADA screen ?

Although there is a specific tool to draw lines, it is possible to carry out this function in two different ways:

1. - Draw lines you want in the background image beforehand.

2. - If you want to draw vertical and/or horizontal lines and it is not practical to use the method above, it is possible to carry out this function by way of a simple trick. The procedure involves obtaining a solid rectangle or square image of the colour you like for the line (this may even consist of a simple pixel image). Then add an image control and assign the previous box to it. Disable the fields of "*Maintain real size*" and "*Maintain aspect ratio*" and use the control to obtain the desired horizontal line and / or vertical thickness desired.

3. - Add a text control and write the text "\_\_\_\_\_" (underscore characters and as long as needed) this creates a horizontal line. This method has the advantage that it allows vertical or diagonal lines to be applied by text rotation (90 or 270 degrees for vertical lines), colour changes, as well as allowing the thickness to be changed by modifying the size.



**Diagonal Line**

4. - Use control called Primitive, select object properties.



#### 4.1.12 I am making my first screen or report and I cannot add a background image or a still picture. What is happening?

You should remember that the images that can be included on the SCADA screens and the reports must have been added previously through the image manager. Therefore it is necessary before starting to design a screen or report to add the images you will need through the image manager.

#### 4.1.13 What can be "counted"?

Any event added to the system contains a variable that indicates how many times it has been enabled, how many times it has been recognized, how many times it has been deactivated, how long has it been active, if it is active at the moment and how much time has elapsed since it was last enabled.

One can also count how many times something has occurred in the current hour, day, etc. For this purpose a forced calculated variable will be created and initialized to 0 and an event, which when a condition is fulfilled performs the action of forcing that variable to its same value plus one unit.

```
[R$CAL_FORCED.COUNTER1] = [R$CAL_FORCED.COUNTER1] + 1
```

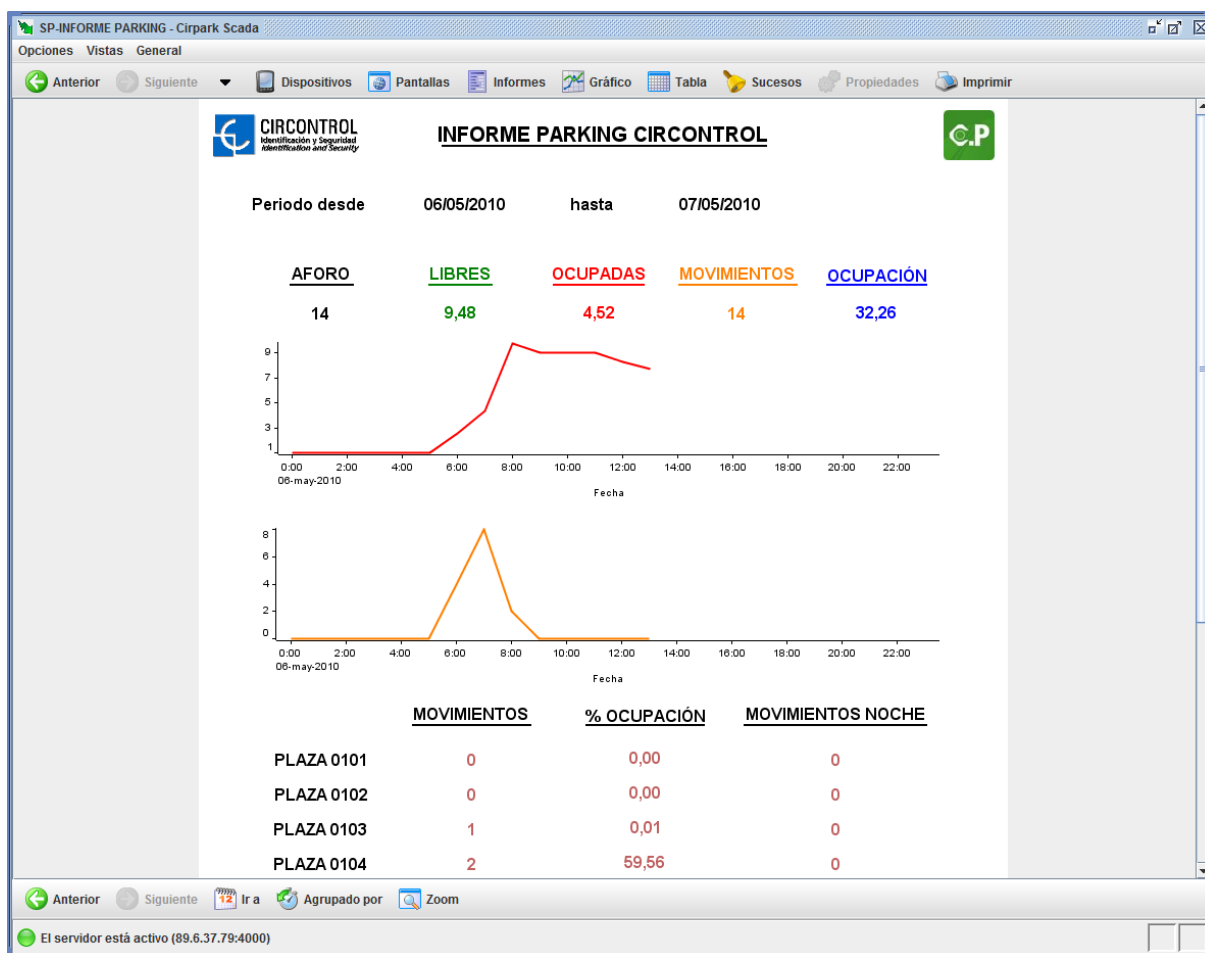
We then just need to add an event that would reset this counter to 0 when the date was outside XX / XX / XX 00:00:00 (00:00:00 hours each day) with which the counter would have the number activations of the day in course. The counter reset could be carried out with a variable forced control on the SCADA screen, in this case manual instead of automatic.

#### 4.1.14 I would like to export the report data in order to process it later. How can I do it?

The data displayed in a report is log data grouped together for the period of the report, therefore we have a value per period (if it is an expression where several variables are involved the value of each variable is recovered for the period of the report and the expression assessed).

For practical purposes, the values of the variables that are used in the reports can be consulted by requesting `/services/user/records.xml` (which is documented in the XML user requests section).

Imagine then we have a report with the following appearance:

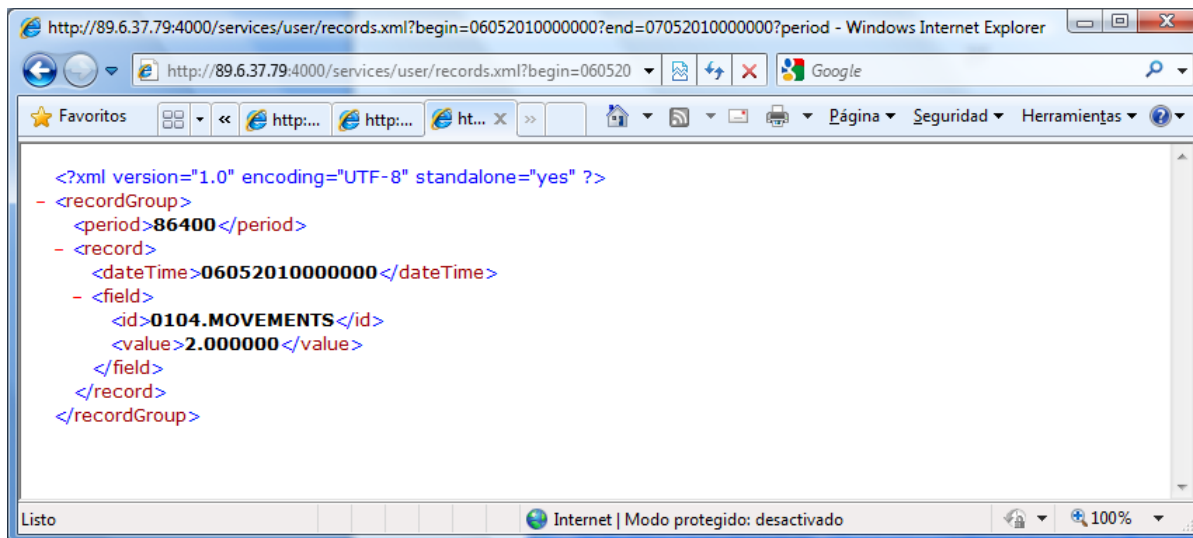


**Report generated**

To see that value through a HTTP/XML request to the server we can do the following:

`http://89.6.37.79:4000/services/user/records.xml?begin=06052010000000?end=07052010000000?period=ALL?var=0104.MOVEMENTS`

This request, if carried out with the browser, will return something similar to the following:



*Result of the request from the Internet Explorer browser*

Where, in the "value" field we have the desired value.

#### 4.1.15 I tried to make a table with the client application and I get the Message "Table too Big." What can I do to see it?

The client is a Java application. As a Java application it runs on a virtual machine with a limited memory for it to run assigned by default. Normally this amount of memory allocated by default is sufficient for running the program. But perhaps for very large tables this memory is insufficient.

For these cases it is possible to run the client application forcing the virtual machine to assign more memory to the program. This is accomplished by running the program from the command line with a parameter indicating the maximum and minimum memory available for the program.

```
java -Xm256m -Xmx1024m -jar AppletScada.jar
```

As you can see the parameters Xm-and-Xmx allocate a minimum and a maximum quantity to the program.



#### 4.1.16 How can I simulate a control switch?

To simulate the behaviour of a switch (e.g. to act on a digital output) we need a conditional control and two controls to force the variable. The conditional control would contain two images, one with the representation of an open switch, with the condition that the digital variable is 1, and another with the representation of a closed switch, with the condition that the digital variable is 0.



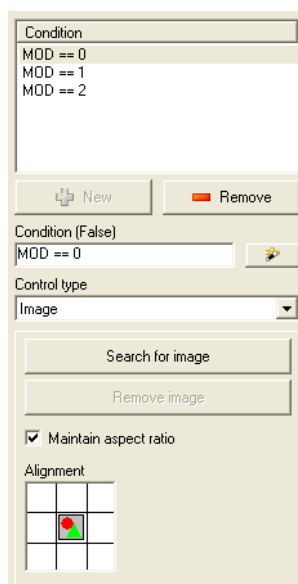
A control is positioned on the left part of the control to force a variable with a digital output value at 1, while another control is positioned on the right-hand section to force a variable with the output value at 0.

#### 4.1.17 How do I add animation to the SCADA?

To add a small animated image the conditional control combined with the "**second**" function in the condition is added. First, save the images that makes up the animation using the image manager. Suppose your animation consists of a sequence of 3 images. Assume further that we want our animation to change every second. Therefore we will have to create a list of formulae on the SCADA screen which will return module 3 of the "**second**" function (which will vary between the values, 0, 1 and 2). The function is as follows:

`mod (second, 3)`

Let us suppose that this function is called MOD. Now we can define a conditional control with 3 conditions, where each condition displays one of the images that form the animation. The following shows control properties:



The result is that one of the images that make up the animation is shown every second. As can be seen, there are many combinations to be carried out and a large variety of opportunities to exploit using this technique.

#### **4.1.18 How can I change the properties of control in accordance with a condition?**

The properties of control cannot be changed in accordance with a condition. However, we can simulate the change of these properties, using a conditional control. Thus, for example, if we wish to change the colour of a text in accordance with a condition we add a conditional control with two text type controls which are exactly the same but of a different colour, and specify which conditions need to be fulfilled for each one to be shown. Likewise, we can also change the orientation, font, size, etc.

We can also make a control be an image or a text in accordance with a condition using, as in the previous case, the conditional control.

#### **4.1.19 How can I know the status of a device?**

All devices have a variable called STATUS that shows the status of the device using a numerical value (for example, [0101.STATUS]). The meaning of this variable is the same for all devices and can be used in the conditional expressions (see the appendix to check the types of variables and their possible values)

#### **4.1.20 How can I display documents from a SCADA screen?**

To show documents previously stored on the PC the run control can be used. If we wish to show a PDF file, we can enter its name directly (including the complete path) in the program field, so that the file will open in the related, defined program when running the screen and clicking on the control. Likewise, we can do this with any file type which has an associated program to open it. (DOC, TXT, HTML, WAV, MP3, MPG, AVI, etc.)

**NOTE:** This option will not work on systems which do not run Windows, nor when using the applet.

#### **4.1.21 How can I obtain an event according to the status of a device?**

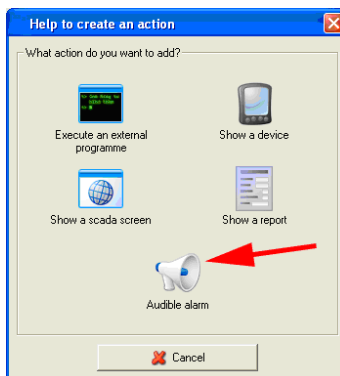
To produce an event according to the status of one or more devices, use the STATUS variable of the device in the event activation status. The possible values of the STATUS variable can be seen in the variable type appendix.

Since the events generate a number of variables associated to them, we can even see how many times an event was enabled, how many times it was deactivated, how many it was recognized and how long it was enabled.

#### **4.1.22 How can I produce sounds in response to an event?**

To produce a sound in response to an event, we should add an action to run an external program and enter the corresponding (WAV, MP3, etc.) with its full path in the program field. For the action to take effect, you will need to have a program installed that can play back this type of file (for example, Windows Media Player, etc.).

If what is needed is simply reproducing a bleep on the client application, an action associated with this event can be added to carry it out. Likewise this action can occur during activation, upon acknowledgement, on deactivation or while active.



**Support for the audible alarm action on the client in response to an event**

#### 4.1.23 How do I show documents in response to an event?

In a similar manner to the previous point, add an action to run an external program and enter the file to be shown (PDF, TXT, DOC, etc.) along with its corresponding path. For the action to take effect, you will need to have a program installed that can read this type of file (for example, Microsoft Word, Adobe Acrobat Reader, etc.).

#### 4.1.24 How can I communicate with a TCP2RS converter by way of a router?

To communicate with a TCP2RS converter located in a sub-network different to the network in which the software is located, we can use a router as shown in the following image



The TCP2RS converter should be added as follows

- 1- Enter the router address (192.168.120.201)–In the “Converter Address” field.
- 2- Redirect ports ‘10001 ’and ‘30718’ in the router to the converter address (192.168.15.205) (see router manual)

#### 4.1.25 There are screens on which I cannot see the text of the controls properly or they are truncated. How can I solve this?

The screens are designed to be properly viewed with a minimum size of 1024x768. You must increase the size of the window to the recommended minimum size, if your screen is configured at 1024x768 you must maximise the screen.

#### 4.1.26 **When viewing a graph and selecting the tooltip, the graph disappears. How can I solve this?**

With some platforms when a graph is made and the tooltip is viewed it disappears and the background turns black. If this occurs you must start the client with the following command line:

```
java -jar -Dsun.java2d.d3d=false AppletScada.jar
```

#### 4.1.27 **I cannot connect with the engine and the following error occurs on the Java console: java.net.BindException: Address already in use: connect. How can I solve this?**

The CirPark Scada client application continuously makes many connections to the server. In Windows the open sockets (ports) for making the connection are limited, and in addition they cannot be used for a specific amount of time after having been freed up (WAIT). Thus, in Windows XP, for example, by default the user applications are allowed to use ports 1024 to 5000 and also by default, a port will remain in the TIME\_WAIT state for 4 minutes after it is closed, before finally being freed up by the operating system.

In Windows it is possible to change this policy by modifying or creating two registry keys that define this behaviour:

**MaxUserPort**  
**TcpTimedWaitDelay**

Located in:

**HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Services\Tcpip\Parameters**

In the first we assign the maximum port number, which is set at 5000 by default and we can set it at 20000, for example, and in the second we define the time in seconds that we want a port to remain reserved after having closed it (for example, we can set it at 30). These parameters must be verified in both the server and the client computers. Remember to reboot the PC for the changes to become effective.

For other operating systems consult the specific method for configuring this behaviour.

#### 4.1.28 **When I run the client as an embedded applet in the webpage within a browser, how can I access as an anonymous user?**

When the client is run as an embedded applet in the webpage within a browser, the authentication is managed by the browser itself. The authentication screen displayed by the browser, usually only allows the user name and password to be entered. If you wish to access as an anonymous user you must use the following access data:

User: **anonymous**  
Password: **anonymous**

This will provide access to the system as an anonymous user as long as this profile has been defined in the engine (by means of the editor).