

CitectSCADA

Version 5.5

CitectSCADA Pocket

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Introduction to CitectSCADA Pocket

CitectSCADA Pocket provides a mobile, wireless interface to CitectHMI/SCADA and CitectFacilities. Designed to run on a handheld Pocket PC, it enables operators to move away from the control room and tend to duties within a plant or factory, safe in the knowledge they can monitor the SCADA system, be alerted to any alarms, and respond if required.

Being a complementary tool to a CitectHMI/SCADA system, CitectSCADA Pocket is designed to focus on the current plant status. In view of this, you can read and write variable tag values, view and acknowledge current alarms, and trend up to four variable tags. Configuration capabilities have intentionally been kept to a minimum, and CitectSCADA graphics pages are not accessible.

Once communication has been established with the host CitectHMI/SCADA system, an administrator can download a list of the available tags and select to display those that an operator will be required to monitor. Different combinations of trends and variables can be saved as Favourites, giving the operator easy access to the information they require.

CitectSCADA Pocket architecture

Communication between the Pocket PC and the CitectHMI/SCADA system takes place via a Web Service. This allows the information sent to and from the Pocket PC to be HTML-based, offering a high level of flexibility with the transmission method used (for example, Wireless LAN or GPRS).

To facilitate this, the required architecture includes a CitectSCADA Pocket Server with Microsoft's Web Service software installed: IIS (Internet Information Services). The Pocket Server can be any computer, as long as it shares the same network domain as the CitectSCADA system you would like to extract information from.

The client software required by the Pocket PC is installed separately.

CitectSCADA Pocket security

Security is managed with CitectSCADA Pocket via password protected logins. Two type of logins are used:

Administrator

Operates locally to the Pocket PC unit and controls the configuration of the connection to Citect, the sample frequency of the device, timeout settings, and the read/write capability of the tags viewed by an operator.

Operator

Is defined within the CitectHMI/SCADA project.

When CitectSCADA Pocket is started for the first time, a login screen appears with the username Administrator keyed in. The user is prompted to select and verify a password for the Administrator account. On subsequent logins, only the password is required. Once the Administrator is logged in, they are taken to the Settings page. This is where the link to the CitectSCADA Pocket Server is configured. See the topic Configuring the connection to CitectHMI/SCADA for more information.

Note that the Administrator account cannot be used to connect to the CitectSCADA system, as this requires verification from within the runtime project.

Installation and setup

Preparing the CitectSCADA Pocket Server

The CitectSCADA Pocket Server is a Web service that manages communication between CitectHMI/SCADA and the Pocket PC unit(s). It can be located on the CitectHMI/SCADA Server you would like to extract information from, or any computer that shares the same network domain.

There are two steps required to set up a CitectSCADA Pocket Server:

- 1. Install Microsoft Internet Information Services (IIS).**

The computer you choose as your Pocket Server must be running Microsoft IIS, a component of the Windows operating system. To check if IIS is installed, you can launch Internet Explorer and type "localhost" into the address bar. If the local machine has the IIS Web Service installed, a page will display informing you that it is currently running. If you are redirected to any other page (for example, you are redirected to a Microsoft search engine), you will have to install IIS. To do this, go to the Start menu, and select Settings | Control Panel | Add/Remove Programs. Select the Add/Remove Windows Components icon, and locate the listing for Internet Information Services (IIS). Select the IIS box and work your way through the Windows Component Wizard.

NOTE: If you need to install IIS on a computer, ensure the computer does not have Microsoft's .NET framework previously installed. Problems may occur if you install IIS over .NET, however, these problems do not occur if IIS installed first.

- 2. Install the CitectSCADA Pocket Server software.**

Place the CitectSCADA 5.5 Product Options installation CD into the computer you would like to set up as a CitectSCADA Pocket Server, and run the Installation Wizard. Select to install CitectSCADA Pocket Server.

NOTE: You can select to install the CitectSCADA Pocket Client at the same time as the Pocket Server. However, the destination Pocket PC must be docked to the server machine for the installation to take place successfully. See Installing the client software on the Pocket PC device.

Once the Pocket Server software has been installed on the host computer, you can move on to installing the client software, as any further configuration takes place on the Pocket PC.

Installing the client software on the Pocket PC device

Installing the client software on the Pocket PC involves two steps:

- 1. Connect the Pocket PC device to a computer via its docking station.**

If you are yet to set up the CitectSCADA Pocket Server, you may want to dock the Pocket PC unit to the server computer, as this will allow you to install the software for both at the same time.

- 2. Install the CitectSCADA Pocket Client software.**

Load the CitectSCADA Product Options CD into the Pocket PC's host computer and run the Installation Wizard. Select CitectSCADA Pocket Client from the installation options, and work your way through steps presented by the Wizard. The installer will inform you of any problems communicating with the Pocket PC.

Once the installation process is complete, a CitectSCADA Pocket icon should appear on the Pocket PC's Programs page. You can use this icon to launch CitectSCADA Pocket and then progress to the step of Configuring the connection to CitectHMI/SCADA.

Configuring the connection to CitectSCADA

To configure the connection to CitectSCADA, you need to log in to CitectSCADA Pocket as an Administrator. You then need to identify the CitectSCADA Pocket Server you'd like to extract data from.

- 1. Log in as an Administrator.**
If you are using CitectSCADA Pocket for the first time, you will be prompted to define and verify a password for the Administrator account.
- 2. Go to the Settings page.**
- 3. Identify the CitectSCADA Pocket Server.**
In the Server field, type in the IP Address or computer name of the machine you have set up as the CitectSCADA Pocket Server.
- 4. Set the Sample Rate frequency for the connection to the Pocket Server.**
This sets the length of time between each automatic refresh of the Pocket PC display.
- 5. Set the Server Down Timeout.**
If the Pocket PC cannot contact the Pocket Server, it will stop making requests after the period of time set in this field.
- 6. Set the Web Method Call Timeout.**
This field indicates the amount of time you would expect it to take for a response to be returned from the Pocket Server, based on the estimated network speed. The default is 20 seconds. If a response is not received within this time, a new request will be sent.

NOTE: You can "start" and "stop" the connection to the CitectSCADA Pocket Server via the Server menu. By default, the connection is set to start, however, you can choose to stop the connection if communication with the server is temporarily not required.

You then need to download the list of required tags from the CitectHMI/SCADA project on to the Pocket PC.

Downloading tags to the Pocket PC

To view current information from the CitectSCADA runtime system, you need to download a list of the tags you would like to monitor/control onto the Pocket PC. This is typically achieved by going to the Server menu on the Pocket PC and selecting Download. This will create a list of tags stored on the Pocket PC as an XML file.

However, before you attempt a download, you need to consider which tags you would like to transfer and the impact this will have on performance. We recommend you have less than 500 tags on your Pocket PC. If you require more than 5000 tags, the easiest way to load the tags on the Pocket PC is to manually create the XML file. This avoids a lengthy download time, improves performance, and increases usability by allowing you to create a subset of the runtime tags to only those required by the operator using the Pocket PC.

To manually create the tag list as an XML file:

1. Locate the CitectSCADA Pocket XML tag list included as a part of the CitectSCADA Example project (C:\Program Files\Citect\CitectSCADA\User\Example\Pocket PC Example.XML).
2. Open the file in a simple text editor such as Microsoft Notepad.
3. Edit the XML file replacing the listed tags with the names of those from your CitectSCADA

runtime project.

4. Save the file back to the Pocket PC as Config.XML in the directory My Device/My Documents.

Once this list of required tags are located on the Pocket PC, you can log in as an Operator and load this file.

Logging in as an Operator

To log into CitectSCADA Pocket as an operator, you need verification from with the CitectHMI/SCADA project you are trying to connect to. To do this:

1. obtain a current operator login and password from your CitectHMI/SCADA administrator.
2. You then have to go to the **Login** page. This appears when you start up CitectSCADA Pocket, or you can select Login from the File menu.
3. Key in the username and password and click OK.

Once you are logged in as an Operator, you can:

- View and acknowledge alarms
- View tag variables
- View time-based variable charts

Viewing and acknowledging alarms

Perhaps the most important functionality offered by CitectSCADA Pocket is its ability to notify an operator of any alarm conditions within the Citect system. It does this by providing an audible alert on the Pocket PC's speaker, and updating the current alarm display to provide details. Located on the Alarm tab, this page displays all alarms in the following states:

- current and unacknowledged
- inactive and unacknowledged

The fields displayed for each alarm include the **name** of the alarm tag, a **description** of the alarm, the alarm **status**, the alarm **type**, and the **time** the alarm triggered.

When an alarm sounds, you can immediately silence it by clicking on the Acknowledge button. However, the alarm will still require proper acknowledgement to remove it from the list of current alarms. To do this:

1. Click on the Alarm tab.
2. Scroll vertically down the list of alarms and locate any current alarms.
3. Select a current alarm, then click on the Acknowledge button.

Once an alarm is acknowledged, the display will refresh and the acknowledged alarm will be removed from the list.

- NOTES**
- 1) You can stop the notification of alarms from a particular alarm category if they are a nuisance and irrelevant to the operator. To do this, go to the Settings tab and locate the Exclude Alarm Categories field. The alarm categories you would like to exclude can be keyed in as comma separated values (for example: 4, 5, 6, 21-24, 48-56).
 - 2) You can also set a limit on the number of current alarms that appear on the Alarms page. By default, a maximum of ten alarms can appear simultaneously. If you would like to change this limit, go to the Settings tab and adjust the Max Number of Alarms field.
-

Configuring and viewing tag variables

The Variables page allows the list of tags downloaded to the Pocket PC to be arranged and displayed in a directory structure appropriate to the needs of the operator. The pane to the top of the page is where the directory appears, displayed as a hierarchy of folders with selected tags included. The pane below displays information about the item currently selected above: if it is a folder, it will list the included tags and any subdirectories; if it is a tag, it will show its name and current value or state.

The Variables page is set up under the administrator login and saved as a part of the configuration file. The operator can add tags to any of the directories created by the administrator, but they will be read only.

To create a folder-based directory structure on the Variables page:

1. Log in as Administrator and go to the **Variables** page
2. **Point-and-hold the pen on the top pane of the page until a menu appears.**
This menu allows you to add, edit or delete items within the directory structure.
3. **Select New to add an item to the root directory -**
in this case a folder. This will take you to the Device Control page.
4. **Give the folder a Name and select OK.**
If a tag is not selected on the Device Control page, the application presumes a folder is required.
5. **To create a folder within this folder as a subdirectory -**
simply select the parent folder and repeat the process of selecting **New** and giving the subdirectory a Name. To add a second folder to the root directory, you will firstly have to choose **Deselect** from the click-and-hold menu, then call up the menu again and select **New**. This will create a folder alongside the first, not within it.

Once you have created a directory structure, you can begin populating it with the required tags. Note that the following steps can be performed by either the Administrator or an Operator.

To add a tag to your directory structure:

1. **Select the folder you would like to add a tag to**
then point-and-hold your pen within the directory panel. Select **New** from the menu that appears to go to the Device Control page.
2. **Click on the Tag field**
a drop-down list of the tags currently loaded on the Pocket PC will appear. Select the required tag from this list.
3. **Give the tag a Name**
This is how the tag will be identified when displayed on the Variables page. Typically you would use the actual name of the tag, however, you can use a name that is more intuitive to

the operator if required.

4. **You then need to indicate if the tag is a digital tag or an analog tag by selecting the appropriate radio button**

Note that if you are adding a digital tag, you can select the text that is displayed for the tag's true and false states. In the Display Value field, you can key in the word that represents the true state for the digital tag next to the green check mark, such as "on" or "open", and you can set the text for the false state next to the red cross, for example, "off" or "closed".

5. **Click OK to add the tag to selected folder**
Repeat the process until all the required tags are added.

NOTE: You can adjust the size of the directory pane by selecting Maximise, Minimise or Restore from the point-and-hold menu. Maximise increases the directory pane to full screen size, Minimise reduces it, and Restore returns it to its default size.

At this point you will need to decide if there are any tags an operator will need to write to. If this is the case, the Administrator must configure this capability into the structure of the Variables page. See Making a tag writeable.

Making a tag writeable

CitectSCADA Pocket can be configured to allow an operator to use the Pocket PC to write to a tag within the CitectSCADA project. This is enabled by the Administrator during the process of setting up the Variables page.

For example, you may want to give an operator the ability to switch "Pump1" on or off. You would firstly need to place a tag within the Variables directory that allows the current status of the pump to be viewed. For example, you could place the digital tag "Pump1_STATUS" in a folder named "Pumps". You could even simplify the interface by changing the name to just "Pump1", and applying the text "on" and "off" to the true and false display values (see Configuring and viewing variable tags).

To then allow the operator to control the pump, you need to provide write access to the command tag that switches the pump on and off - this could be the tag "Pump1_CMD", where 1 is on and 0 is off. It is important to note here that the tag that monitors the pump is different to the command tag that controls the pump, however, for the purposes of monitoring and controlling a pump from a Pocket PC, the two are best defined as a single entity within the Variables directory.

For this reason, the Device Control page is required to allow you to define write access to a different tag to the one being monitored within the directory structure.

To make a tag writeable:

1. **Locate and select the tag that you would like the operator to manipulate.**
In the example above, this would be the tag "Pump1" in the Pumps folder.
2. **Click-and-hold your pen within the directory pane and select Edit from the menu that appears**
This will take you to the Device Control page for the currently selected tag.
3. **Locate to the Write Value To Tag field.**
Use the drop-down list to select the command tag that controls the state of the tag being monitored. If it is a digital tag, you will have to include a tag and relevant value for true state (marked by the green tick) and false state (marked by the red cross). For example, you would place Pump1_CMD with a value of 1 in the true state, and Pump1_CMD with a value of 0 in the false state.
4. **Click OK.**

When an operator logs in and views the configured tag on the Variables page, they will now have the ability to change its value. If the tag is analog, the operator will be able to type in a new value (within the confines of the tag's range). If the tag is digital, radio buttons will appear allowing a true or false state to be selected.

Viewing time-based variable chart

The Trends tab allows an operator to view a time-based, graphical representation of up to four CitectHMI/SCADA variables. The display is dynamic, with the presented chart updated at a scan rate set by the administrator.

To select the tags displayed as a trend:

1. **Go to the Trends tab.**
The display should automatically be scrolling to the left in synch with the scan rate set by the Administrator.
2. **Go to the first selection field below the display window -**
flagged by a coloured box to the left. The arrow to the right of this field calls up a drop-down list of available tags. Scroll through this list and select the required tag. Alternatively, you can tap on the field twice to select it, use the keypad to jump straight to the tags beginning with a particular letter, and then select from the list.
3. Once a selection has been made, the display will start mapping the current value for the selected tag. Note that the trend pen matches the colour of the box in the selection field.

If required, repeat the above steps for each of the remaining selection fields.

Once the required tags have been selected, you will notice that a small green triangle appears in the corner of the coloured box for the currently selected pen. The vertical axis of the graph will auto-scale to the maximum and minimum values for this pen. You may also notice a label appear at the current scrolling point of the selected pen. The appearance and content of this label is configured via the **Label** menu.

The Range field changes the resolution of the trend display. By default, the display will span a range of one minute.

Trend displays can be saved as **Favourites**, allowing a configuration to be recalled quickly if required later.

Using Favorites

Favorites are available on the Trend and Variable displays. They allow the user to save a current configuration of CitectSCADA Pocket display for easy access at a later date.

Favorites are memory resident. To save one, simply select Save from the file menu and Name the Favorite - leaving the Name field blank is not accepted. It can then be reloaded from the Favorite field on the Trend or Variable display page by selecting the relevant favourite name from the drop down list that appears.

Favorites can be created by an administrator, or by an operator. If the Administrator creates the Favorite, then it cannot be deleted by an operator. If the operator creates a favourite, they can also delete it.

Localising the interface

The CitectSCADA Pocket Client has the ability to display its menus, buttons, tabs and text labels in a variety of languages.

To localise the interface so that it displays a particular language:

1. Go to the **Settings** tab and locate the **Language** field.
2. Select the language you would like to use from the drop-down menu to the right of the field. The language you select will be implemented straight away.

If there is a particular language you would like to use that is not included in the default list, you also have the option to translate the required content and add a language to the available options. This is achieved by manually editing the .XML file that defines the text used on the interface and the language options. To do this:

1. Locate the file called Language.XML on the Pocket PC under the directory My Device/Program Files/Pocket SCADA.
2. Copy this file to a directory on the host PC and open it in an appropriate editor - for example, Notepad or Front Page.
3. Copy the content included between the <English> </English> tags (including the tags themselves), and paste it directly after the closing </English> tag. Make sure the content is within the closing </language> tag.
4. Change the copied <English> </English> tags to the name of the language you would like to use, and translate all the content that appears between identifying tags. For example:

```
<fileMenuItem>File</fileMenuItem>
```

would become

```
<fileMenuItem>Plik</fileMenuItem>
```

if you were translating the interface to Polish.

5. Copy the edited Language.XML file back to the My Device/Program Files/Pocket SCADA directory on the Pocket PC. The language you have created will now be accessible from the Language drop-down menu on the Settings tab.

Saving the current configuration

You can save the Pocket client's current configuration settings as an .XML file for retrieval at a later date. This may prove useful if, for example, a number of CitectSCADA operators use a common Pocket PC for different purposes. Each operator could save their SCADA Pocket settings when they hand over the device, and then pick up exactly where they left off by simply reloading their saved configuration when the device is returned to them.

The information saved includes the Pocket Server connection settings, the currently selected trends and variable tags, the list of downloaded tags, any Favorites that have been created, and all the configuration options.

To save the current configuration settings:

1. Go to the File menu and select Save.
2. Give the current configuration a Name, and identify the Location where it will be saved (the Folder field allows you to select a particular folder in the Pocket PC's My Device/My Documents directory).

To restore the saved configuration:

1. Go to the File menu and select Load.
2. Select the required configuration file from the list that appears.

The Pocket PC will be restored to the state defined by the cofig.XML file you have loaded.