

# Getting started with JMobile Suite

This documents includes a brief presentation of the JMobile HMI and explains in few steps how to get started with it

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## 1 What is JMobile

JMobile is a software suite designed to offer a complete HMI solution. JMobile includes a target run-time system, remote client viewer and drag and drop graphical editor.

JMobile uses the latest technologies including vector graphics that are based on the Internet W3C Scalable Vector Graphics (SVG) standard. Using SVG you can create stunning graphical displays that can be view at different sizes and different displays without losing quality. JMobile also includes all the features of an advanced HMI system including Tag management, Trending, Alarm management, and Macro logic. In addition, JMobile includes an integrated graphical ladder logic engine which provides advanced control of the target device.

JMobile is based on a client-server architecture and is made of several software components. The JMobile Server runs on a target device and provides standard web connectivity, data acquisition, alarming and a modular interface to factory equipment. The JMobile Client is a standalone application that provides remote viewing of graphical displays with real-time monitor and control of the target. The JMobile Client can run on a Windows desktop PC, Window Mobile device or Cellular phone. The JMobile Studio provides a user friendly environment for creating graphical displays. JMobile Studio is complete Integrated Development Environment (IDE). It offers drag and drop development of graphical HMI displays as well as tag management, alarm management, symbol libraries, run-time simulation and full configuration of the target device.

The typical JMobile HMI system consists of a JMobile Server component running on a target device. The JMobile Studio application is used to configure the data and create the HMI display. The resulting project is downloaded and run on the target. Users can then control the device from the local display or remotely using the JMobile Client. JMobile provide full web connectivity so users are able to access the target from anywhere on a local or wide area network.

This document is intended as a quick start guide for setting up and running JMobile. It contains a brief description of:

- How to install the JMobile Suite
- How to install the JMobile Server component on UniOP panels equipped with T2005 CPU board
- How to create a simple application in JMobile Studio
- How to transfer the application to the target system
- How to use the JMobile Client application to remotely view the target device

## 2 Installing the JMobile Suite on PC

### 2.1 System requirements

JMobile Studio has the following system requirements:

- Windows XP or Windows Vista operating system
- 100 MB of disk space
- Minimum 512 RAM

- Ethernet interface

## 2.2 Installation

The JMobile Suite is installed by running a simple install utility that includes all the necessary files to setup and run JMobile.

The JMobile install utility offers the possibility to install all components or a subset of components as shown in Figure 1.

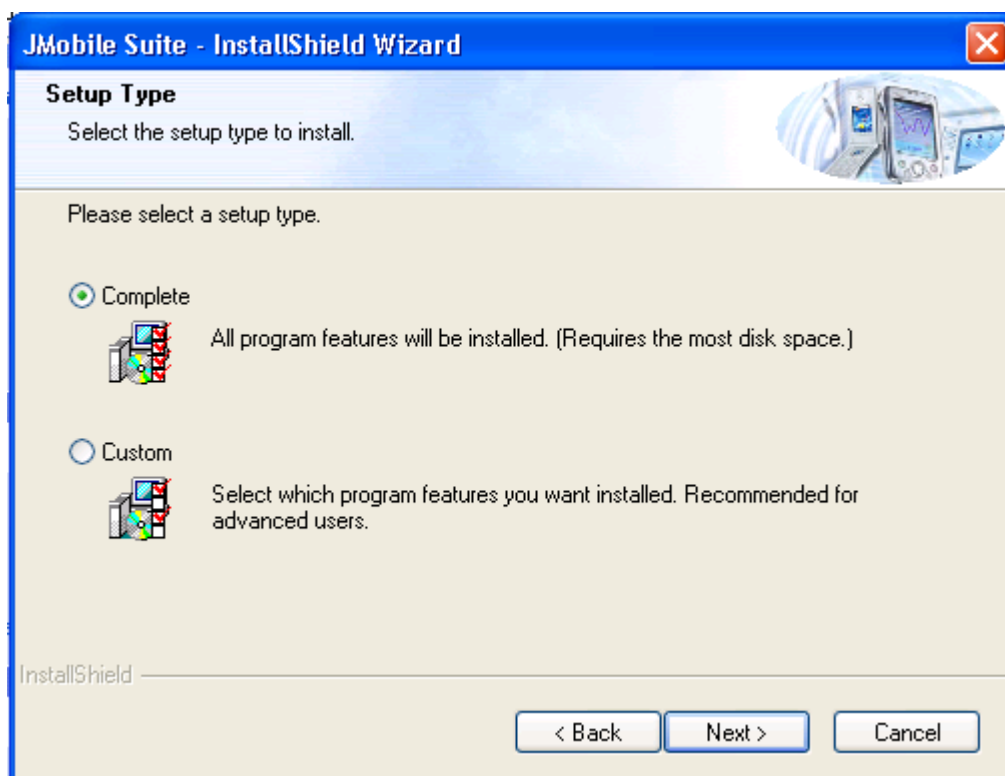


Figure 1

To install a subset of components, select the “Custom” option and you are provide the option to change default installation path and install various JMobile components individually as shown in Figure 2.

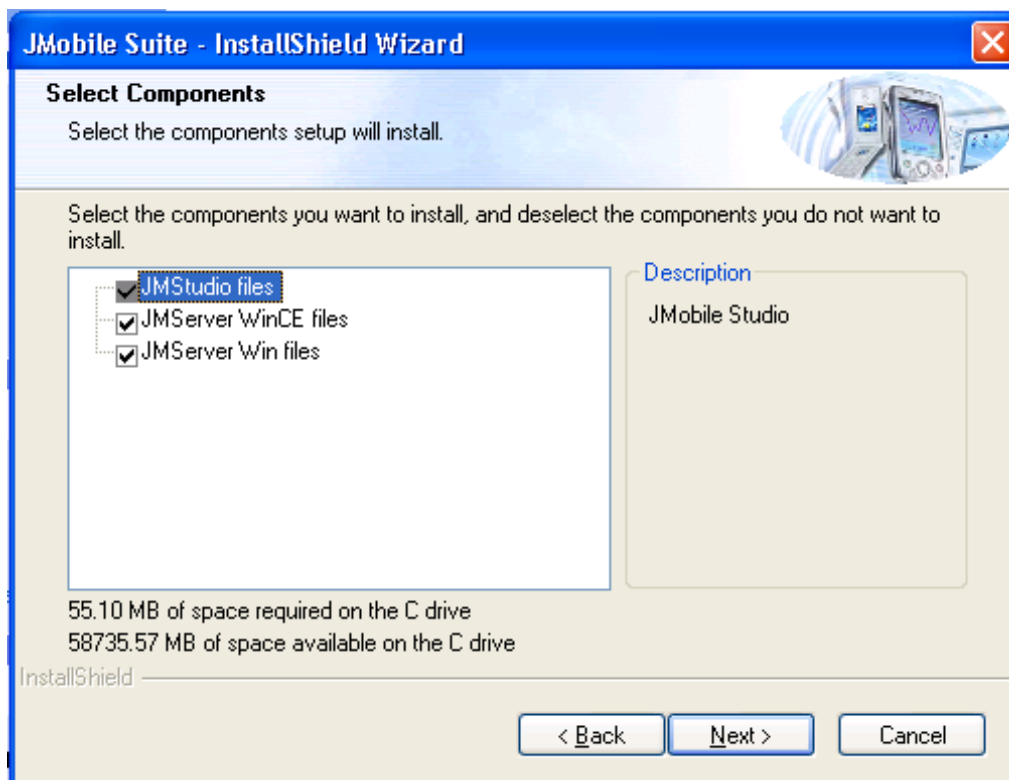


Figure 2

The 'JMobile Studio files' option includes files required for running JM Studio. The 'JMServer WinCE files' option includes the target run time files for a WinCE based panel or device. The 'JMServer Win files' option includes the run time files for a Windows based panel or device.

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**Note:** When setting up a WinCE device, the install utility copies the required files to the desktop computer. The files are copied to the target device from within the JMobile Studio application as discussed in Section 3.

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Click on the Next button and the installer will copy the file to the computer. Once the installation is complete, you can launch JMobile Studio by clicking on the JMobile Studio icon from the Windows Start menu.

## 3 Installing JMobile Server on UniOP Windows CE Panel

### 3.1 System requirements

JMobile Server for UniOP Windows CE has the following requirements.

- UniOP unit with T2005 CPU and integrated Ethernet port
- UniOP Boot v5.90 (file name: Boot70-590-00-09) and Firmware v5.90 with specific support for JMobile (file name: Firm70-590-00-09\_WJMSE)
- Windows CE v5.0 operating system (OEM build 5.50.224 or greater)
- Active Ethernet connection

### 3.2 Target Setup

The installation of the JMobile Suite provides the target files for the various operating systems in a folder called “Targets” which is located in the JMobile Suite installation directory. By default the folder is in the following position:

C:\Program Files\Exor\JMobile Suite\Targets

The files for UniOP T2005 WCE platform are located in the directory “JMServer-WinCE”. The contents of this folder should be copied entirely to the “PanelMemory” location on the target.

To copy the files to the target you can use a USB pen-drive, Microsoft ActiveSync connection (serial) or directly from a panel using the Ethernet connection accessing a shared folder on the PC where JMobile Studio has been installed and containing the “JMServer-WinCE” files.

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**Note:** *JMobile Server requires an active Ethernet connection to properly operate. The target unit must be accessible from the PC where the JMobile Studio is installed and the proper network parameters must be assigned to the panel. Network parameters can be assigned using the “Network and Dial-up Connection” tool available in the WindowsCE Control Panel. The configuration of the UniOP on board Ethernet interface has to be done using the “LAN90001” connection.*

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Once the files are copied to the target, start the executable file called “jmse-wince-ui.exe”. The JMobile Server will start in Configuration Mode.

Next, download the system files to the target device by using JMobile Studio. Start JMobile Studio and select the “Manage Target...” item from the “Run” menu.

In the “Target Projects ...” dialog shown in Figure 3, click on the “Where are you” button. When clicking this button, JMobile will scan the network for active JMobile Servers. The IP of your panel should appear in the list.

Next, select the panel IP to make active the connection.

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**Note:** *The IP is shown in black when the server is working correctly. The IP is shown in red if connection is invalid or not connected.*

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If the IP of the panel is not listed, it is possible that the panel detection is blocked by a firewall on your computer or network. In this case, you can type the IP of the target unit directly into the IP address field of the dialog.

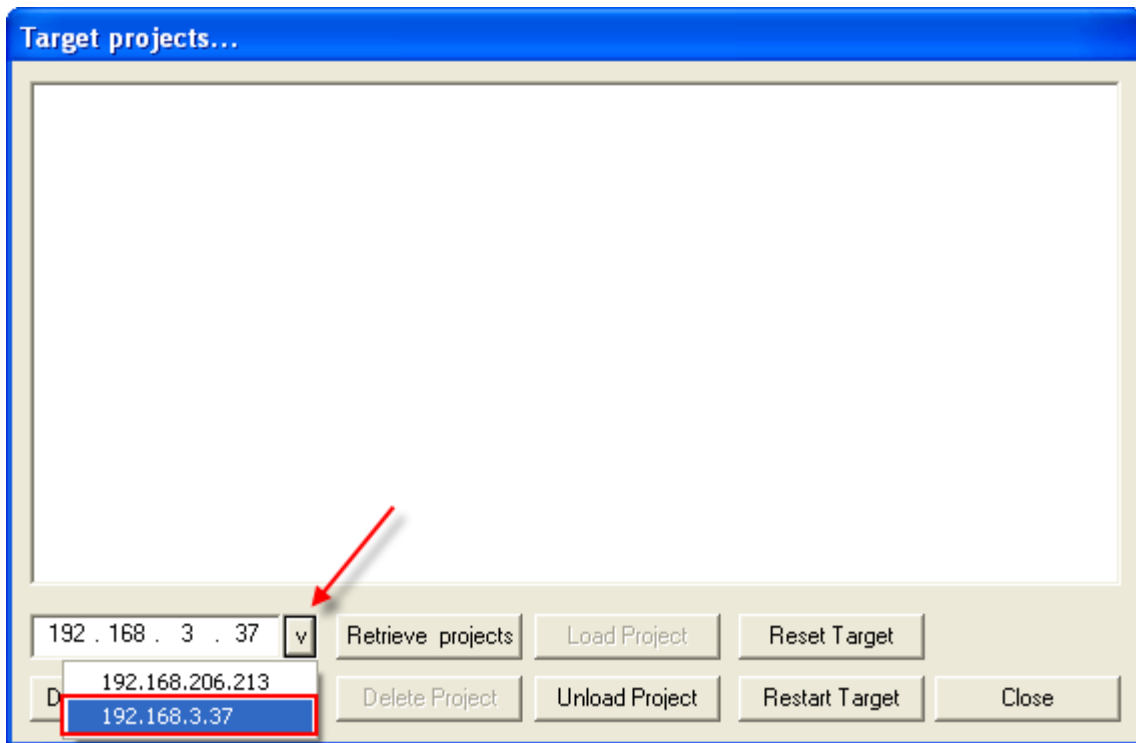


Figure 3

Once the IP of the target unit has been selected, click on the “Download System Files” button as shown in Figure 4.

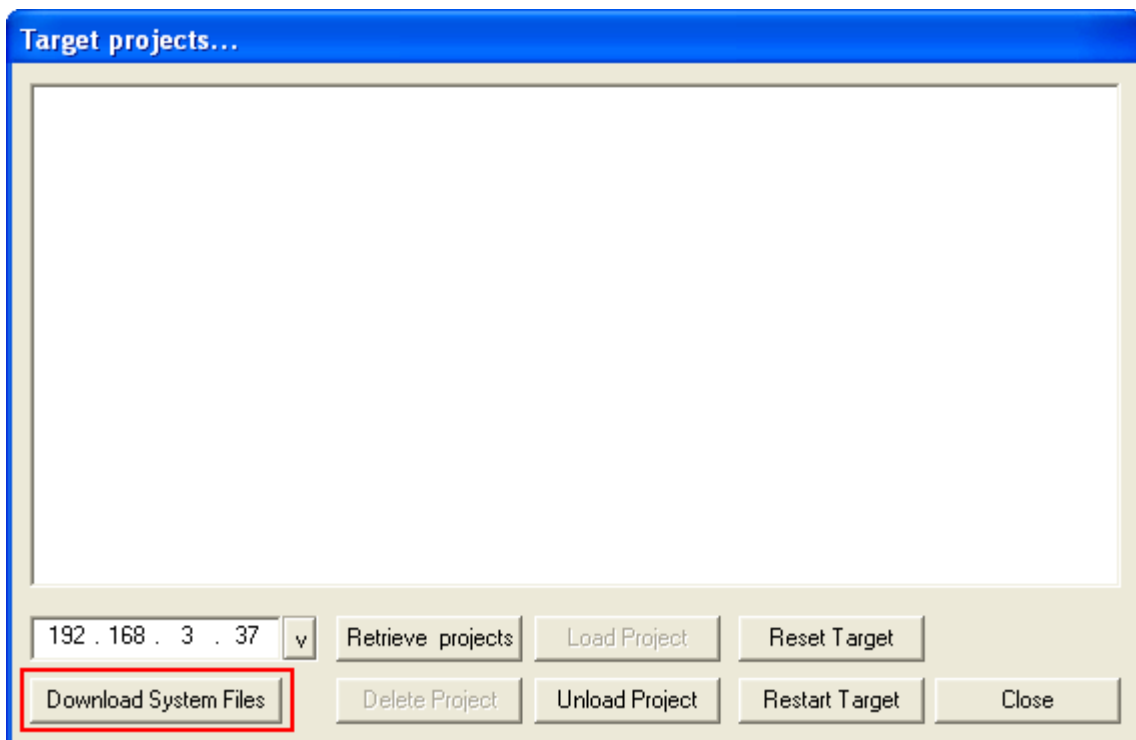


Figure 4

JMobile Studio will transfer the system files and confirm when the process is completed. The “Server log” on panel will also show the transfer progress.

Once system files have been transferred to the panel, the server is ready to accept the project download as described in Section 4.7.

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*Note: Downloading the System Files is only done once when first configuring the device or after new releases of the JMobile Server executable files.*

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### 3.3 JMobile Server Operating Modes

The JMobile Server supports the following two Operating Modes:

- **Configuration Mode:** the system is running with or without system files but with no project running.
- **Operation Mode:** the server is running an application.

When in Operation Mode, the Windows CE JMobile Server supports three different execution modes:

- **Full Screen:** entire display area is used to display the HMI. To exit from Full Screen mode, press your finger in an empty area of the screen and hold it for a few seconds. The JMobile Server will switch to Tabbed Mode view
- **Tabbed Mode:** entire display area is used, but the window displays tabs at the top to switch between “Project” view, “Server Log” view (used for diagnostic and debug information) and “Command Screen”.
- **Normal:** Normal WinCE window mode

### 3.4 The JMobile Server Command Screen

JMobile provides a special screen call the JMobile Sever Command Screen to configure and control the run-time operation. The JMobile Command screen allows changing the Operating modes and the window execution mode of the Server. A picture of the JMobile Server Command Panel is shown in Figure 5.

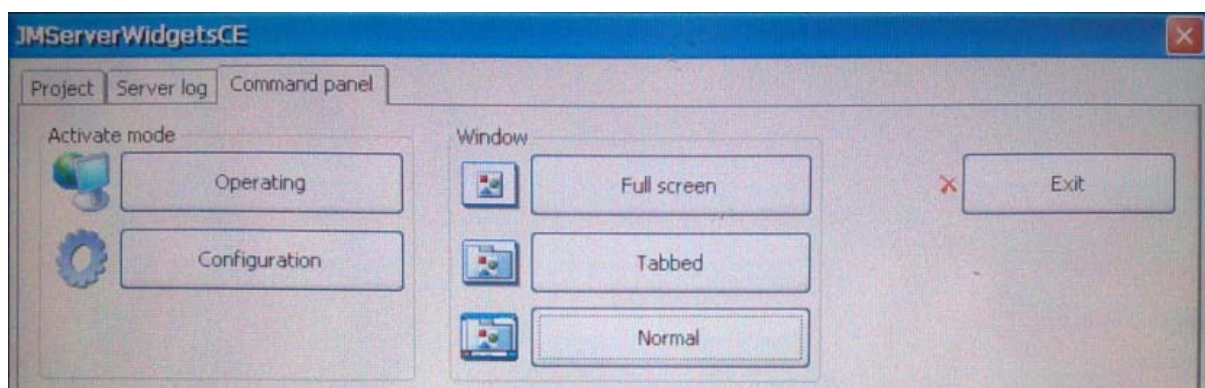


Figure 5

### 3.5 Resetting the Panel

JMobile Servers supports two ways to reset the pane; Restart and Reset.

The **Restart** command performs a soft restart of the server causing the server to reload configuration files and project files. This command can be used to reload a project.

The **Reset** command performs a reboot of the target unit similar to a power cycle of the target device.

Restart and Reset commands are available in the “Target projects...” dialog accessible from “Run>>Manage Targets” menu in JMobile Studio as shown in Figure 6.

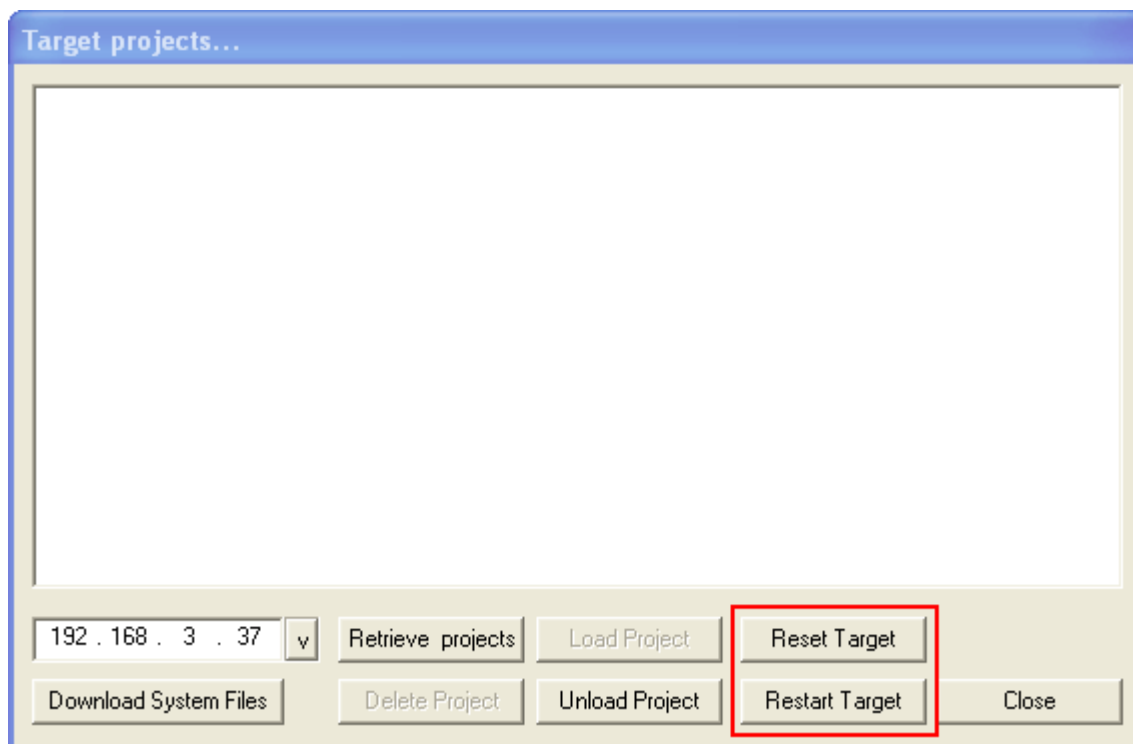


Figure 6

### 3.6 Communication Protocols

JMobile Server for UniOP T2005 WCE supports native UniOP communication drivers that use serial and Ethernet interfaces.

The UniOP drivers are automatically installed in the device by JMobile Studio according to the project configuration. JMobile Server for UniOP T2005 WCE also supports block requests and double protocols configurations.

## 4 My first JMobile Project

This section describes the steps to make a simple JMobile project.

### 4.1 Making a New Project

To create a new project click on “File>>New Project” menu item. The “New Project” dialog is displayed as shown in Figure 7. From the New Project dialog you can enter the project name and set the path for storing the project files.

JMobile projects are stored in a folder with the same name as project. This folder contains all the project files. To move, copy or backup a project, you can simply move or copy the project folder and all its contents to the desired location.

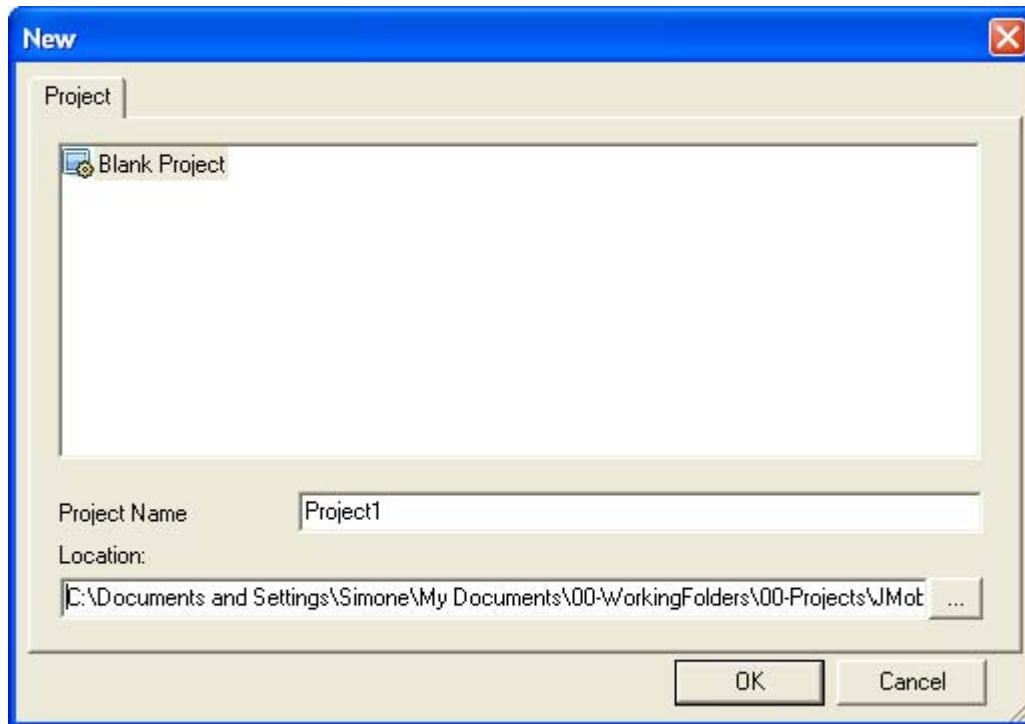


Figure 7

The JMobile Studio application has three main areas as shown in Figure 8.

On the left part of the window there is the Project view and Gallery View. The Project view provides a hierarchical tree representation of the project files. The Gallery View provides an large library of symbols and graphics.

The center area is the main working space and provides editors for creating the HMI display and configuring project data. Editor views are indicated by a tab at the top of the center area. You can quickly switch between different editors by clicking on the desired tab.

The right part of the window shows the properties for the selected object. When an object is selected, the object visual settings can be changed by changing the various properties in the Property View.

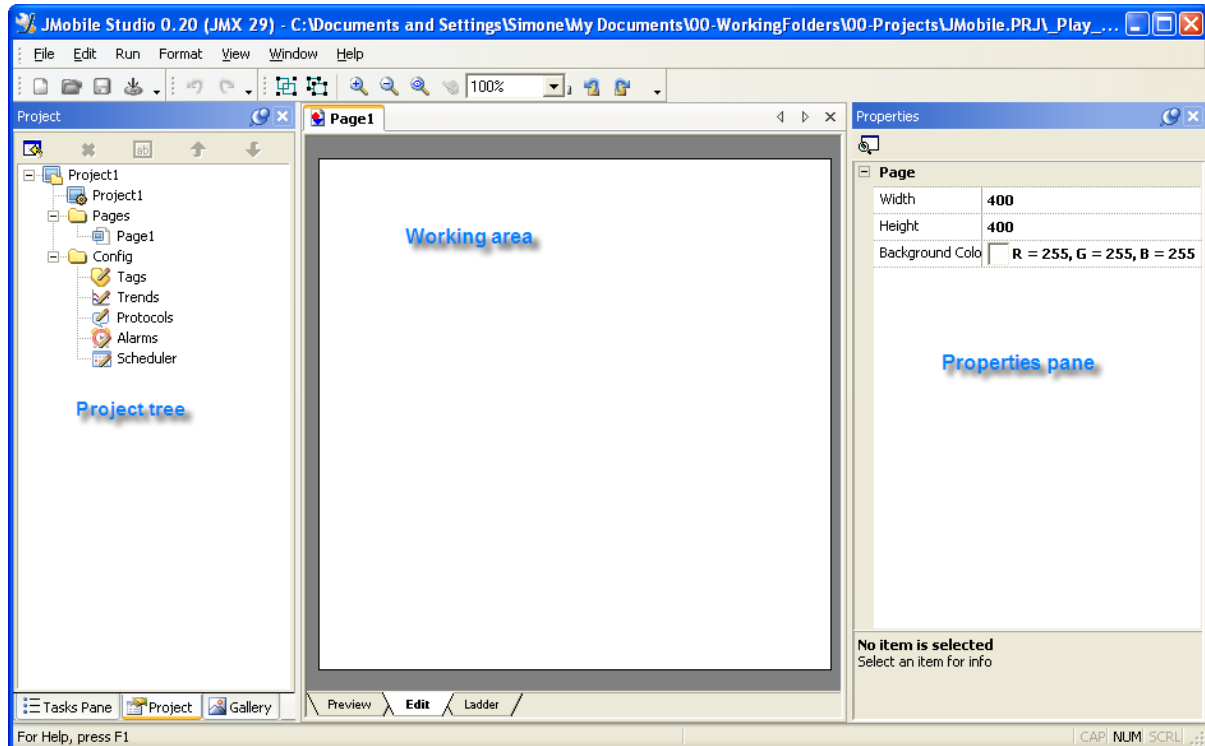


Figure 8

## 4.2 Step 1: Select the Communication Protocols

Device Communication drivers are configured from the “Protocol Editor” which is accessible from the project tree as shown in Figure 9. Double click on the Protocols icon in the Project Tree view and the Protocol Editor will open up.

To add a driver, click on the “plus” green icon and select the driver from the list in the PLC field.

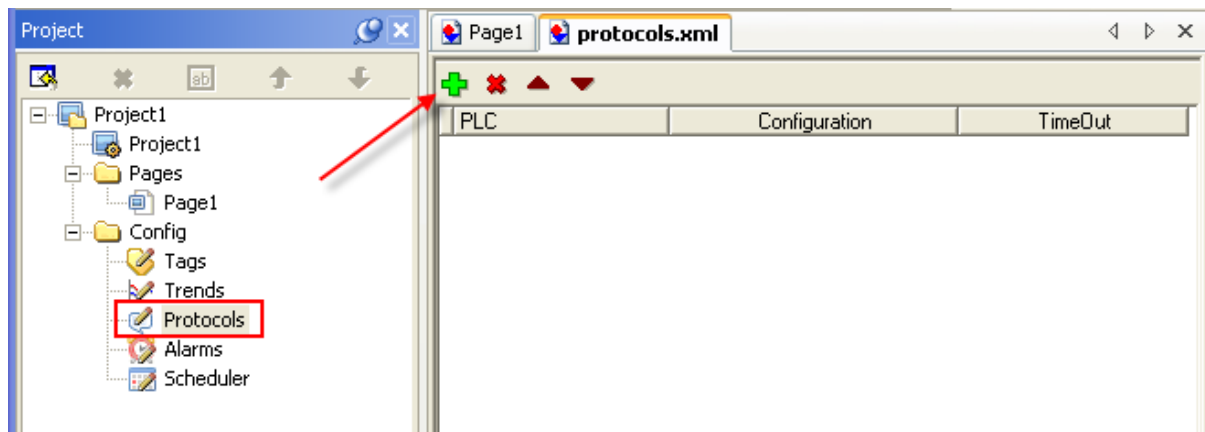


Figure 9

The list of available driver includes the UniOP drivers (denoted by the “uniop” prefix) as well as generic cross platform drivers. Once a driver is selected, configure the driver by clicking on the browse button in the Configuration field. A configuration dialog will be displayed allowing you to set the parameters of the driver as shown in Figure 10.

As an example, to make a project for Modbus RTU, select the uniop:Modbus RTU driver and then configure the communication parameters by selecting the browse button in the Configuration column.

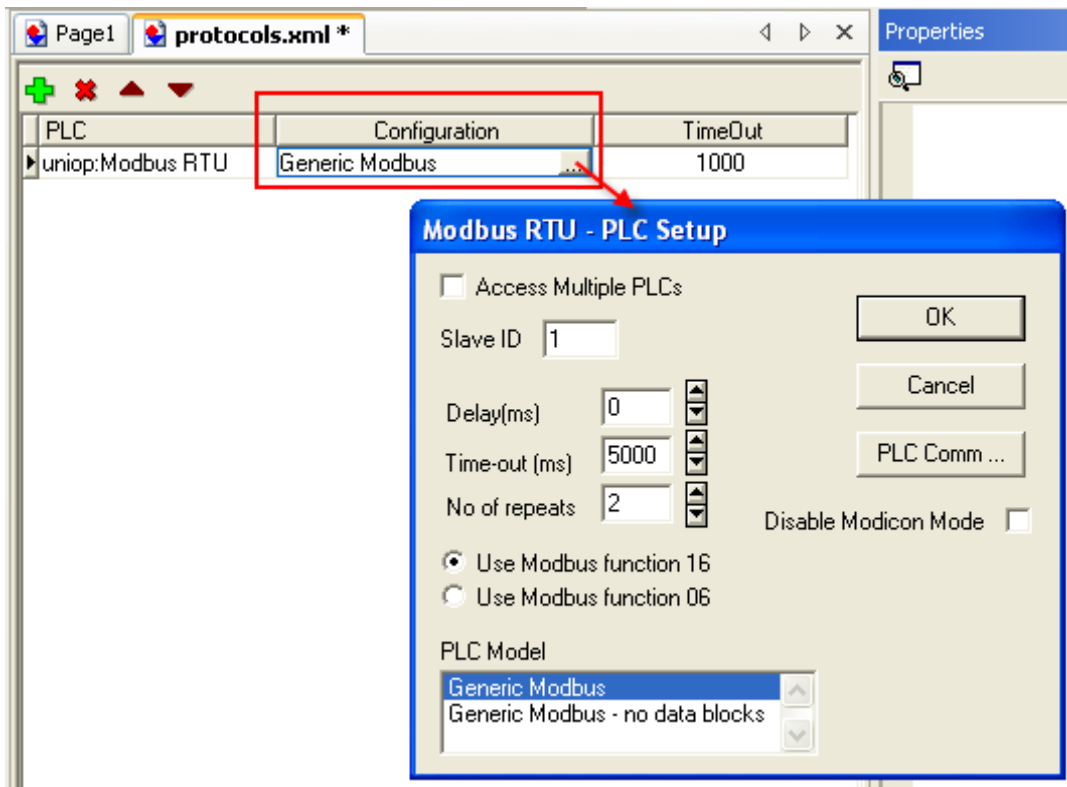


Figure 10

### 4.3 Step 2 – Add the Tags

JMobile uses tag names to access all device data. All fields and reference locations in the device need to be assigned a tag name to be used in the HMI. To assign tags, double click on the Tags icon in the Project view and the Tag Editor will be displayed as shown in Figure 11.

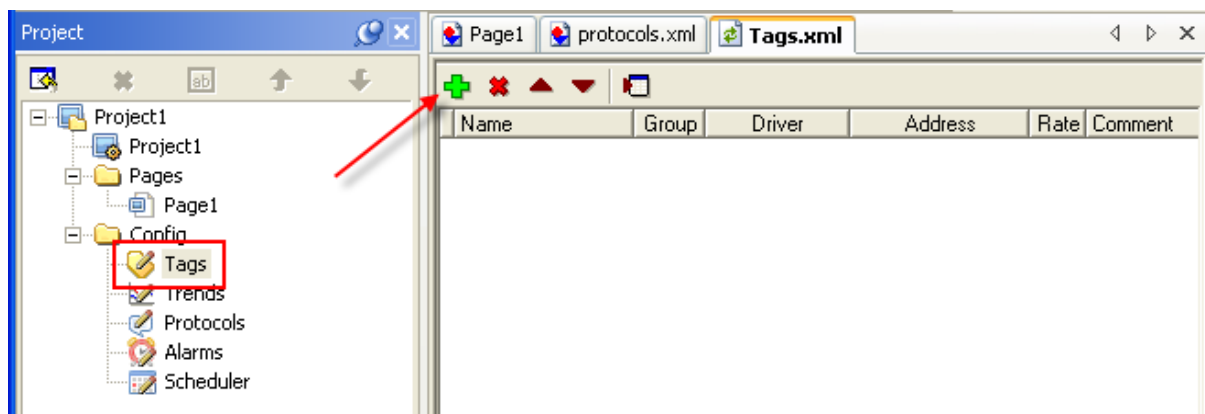


Figure 11

To add a new Tag, click on the “plus” icon, and enter a tag name. Select the driver that is used to access the data and then click the browse button in the Address column to select the driver address. Address locations including data types and data format are fully compatible with UniOP systems.

## 4.4 Step 3 – Create a Page

When a project is created a page is automatically added to the project and show in the page editor. To add objects to a page you simply drag an object from the Gallery to the page.

The Gallery is in the same area as the Project view and can be shown by clicking on the Gallery tab at the bottom of the view as shown in Figure 12.

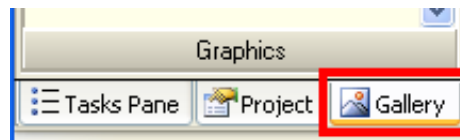


Figure 12

Select the desired object from the gallery and drag and drop it on the page. To change the appearance of the object, select the desired property from the Property View and change the property setting. You can add any number of objects to the page to create a fully graphical display.

## 4.5 Step 4 – Attach Data to Objects

JMobile Studio allows simple binding between tags and widget properties. Many different widget properties can be attached to a tag which allows you to control the device and animate objects based on live data.

To attach a tag to a property, click on the property in the Property view. A button will be displayed on the right side of the property field. Click on this button and select Attach Tag from the menu item as shown in Figure 13.

For example, if a gauge object is on the page, the most common action the programmer would do is attach a tag to the needle so that the value of the tag referenced controller memory can be shown with the needle movement.

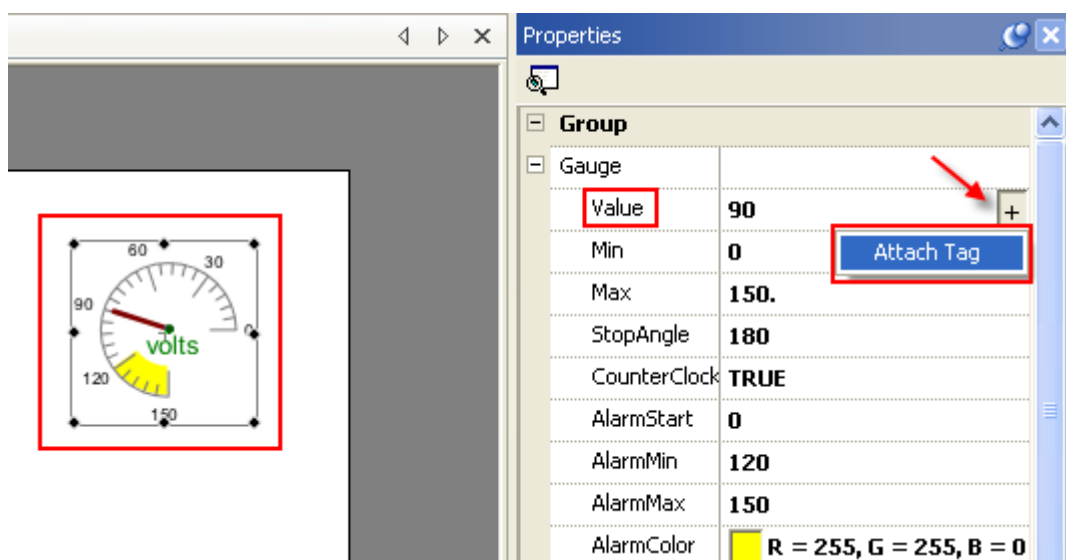


Figure 13

To attach the tag to the needle, single click on the object to display its properties in the Property view. Locate the “Value” property and click on the + button on the right part of the field as shown in Figure 13. Select the Attach Tag menu item and a dialog will be displayed as shown in Figure 14.

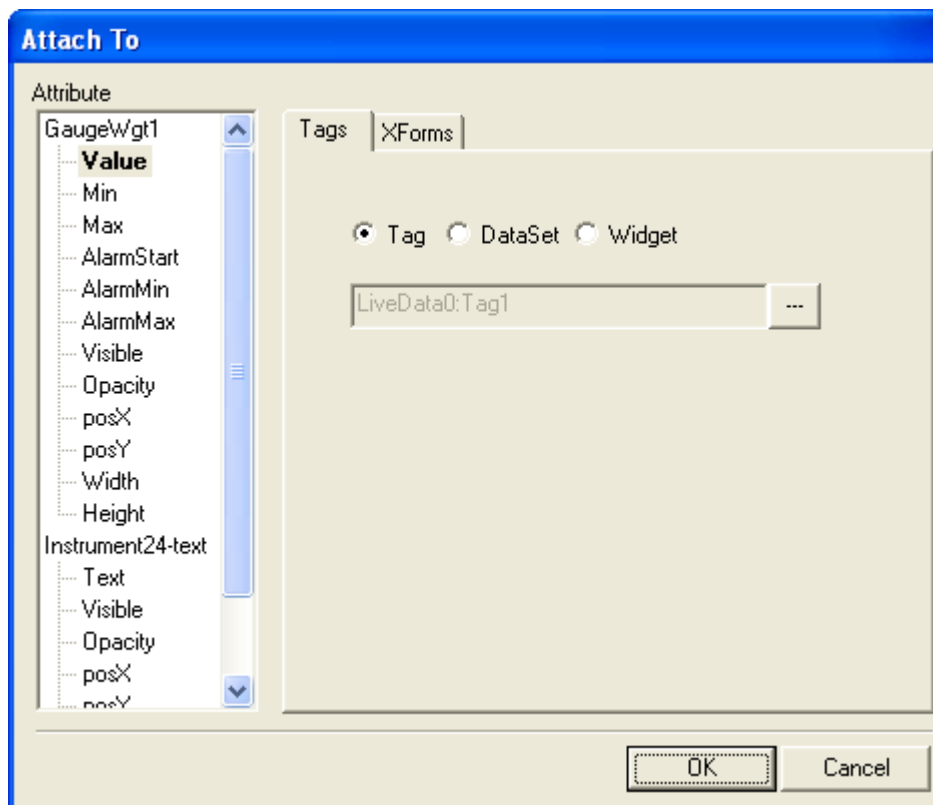


Figure 14

When attaching a tag, you can attach to three types of data sources; a tag, a dataset or another object. Select the 'Tag' button to attach to a tag defined in the tag editor. Select the 'DataSet' button to attach to other groups or sets of data defined in the page or application. Select the 'Widget' button to attach to data from another object. Next click the browse button to select the desired tag as shown in Figure 15.

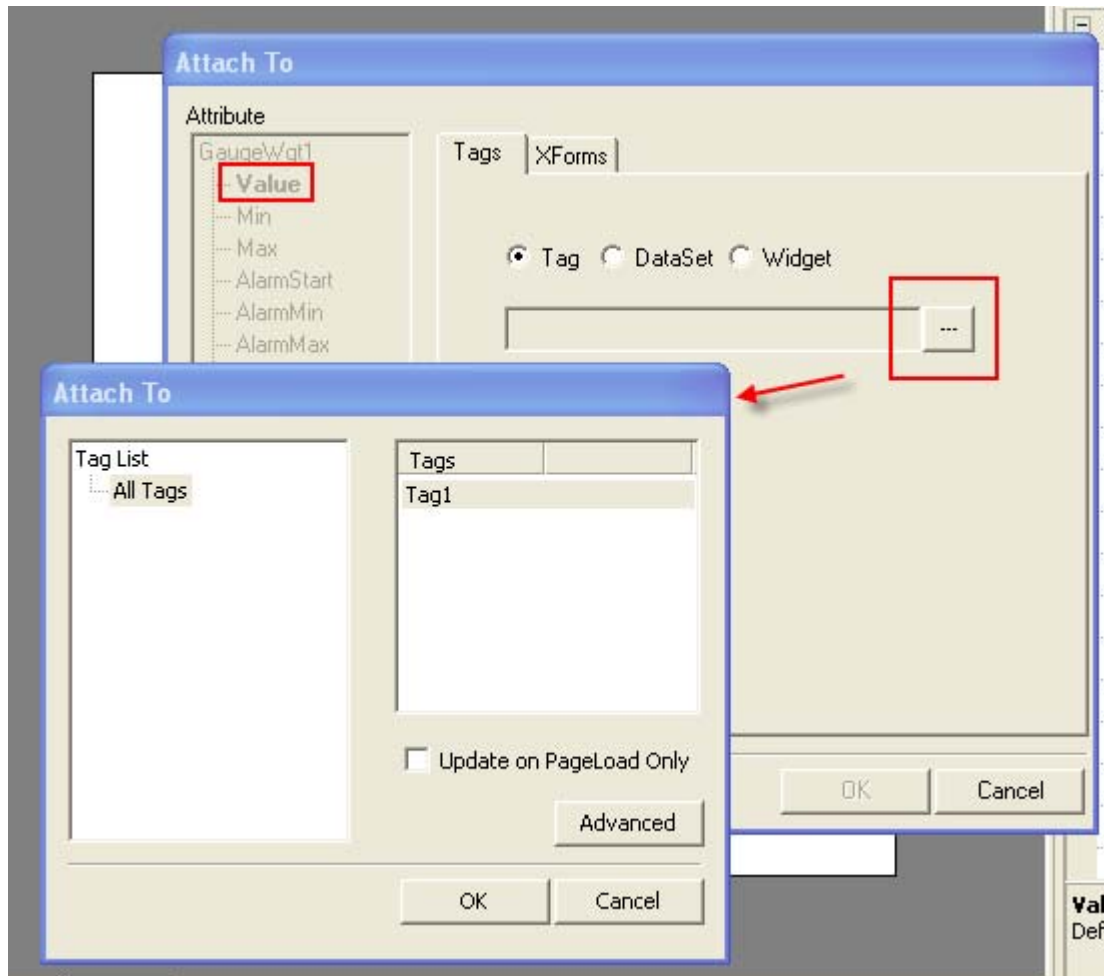


Figure 15

Tags can be attached to many different properties of the object (not just the Value). You can attach a tag to a different property by selecting the property in the Property view and clicking on the Attach Tag popup menu. You can also right-click on the object and select the Attach Tag menu item. The Attach To dialog will be displayed and you can select the desired property from a list on the right part of the dialog.

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**Note:** In JMobile, a “DataSet” is an object used to group and manage sets of data. There are different types of DataSete. Project DataSets are provided to define values used by the project, such as Application variables and Alarm Settings. Page DataSets are provided to group tags on the page. In the future, other DataSets will be available to access various types of data such as Databases, OPC data, and other sources.

When a tag is added to a page, one or more DataSets are automatically created for the page. The DataSet appears as a Brown box in the page editor. When you select the DataSet object on the page, the properties are shown in the Property view. The DataSet properties can be changed to provide finer control over the data storage and retrieval. For example, the update rate of the DataSet can be changed to control how often the data is retrieved from the server.

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#### 4.6 Step 5 – Testing the project

With JMobile you can test the project operation before downloading it to the target device. JMobile provides an internal simulator that generates data and simulates the target operation.

When defining Tag values, the Tag Editor also includes a field to select a method for *simulating* the data as shown in Figure 16. Tag values can be simulated in the following ways:

- **Variables:** The data is stored in a variable in the simulator. This variable holds the value of the tag so the client can read and write to the tag value.
- **Counter:** A count value is incremented from 1 to 1000. When the counter reaches 1000, the value is reset to 0 and the counter continues incrementing all over again.
- **Sine Wave:** A sine wave value is generated and written to the tag value. The Min, Max and Period values of the Sine wave can be defined for each tag.
- **Triangle Wave:** A triangle wave value is generated and written to the tag value. The Min, Max and Period values of the wave can be defined for each tag.
- **Square Wave:** A square wave value is generated and written to the tag value. The Min, Max and Period values of the Sine wave can be defined for each tag.

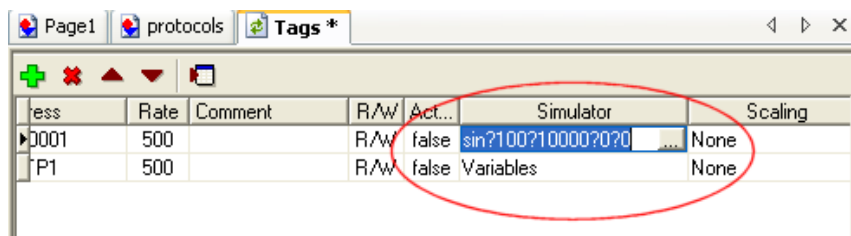


Figure 16

The JMobile Simulator is launched from JMobile Studio. Select the Run>>Simulator menu item to start the Simulator. At this point, the simulator is running locally on the PC in the same way that JMServer runs on a panel or target device.

Next to test the project, click on the Preview tab at the bottom the Page Editor as shown in Figure 17. In Preview mode, the project runs the same way it would run on the panel except the data is generated from simulator instead of the target device. You can click button, change pages, view live data and test the project before downloading it to the panel.

When you are done testing the project, select the Run>>Stop Simulator menu item. This action will stop the simulator operation.



Figure 17

#### 4.7 Step 6 -- Transferring the Project to Target

The JMobile project is transferred to the JMobile Server target system from JMobile Studio using the “Download to Target” item in the “Run” menu.

The “Download to Target” dialog is shown in Figure 18. The dialog lists the project files that will be transferred to the target. Click on the “Download” button to start the process. The system will switch the target to Configuration mode, transfer the files, and re-activate the Operation Mode.

Any time a project is changed, the changed files need to be transferred to the target device. When updating a target, JMobile provides the option to only transfer changed files to the device.

Existing projects on target devices can also be uploaded using JMobile Studio. The Upload Project item from the Run menu will display an upload dialog to retrieve projects on the panel. Once a project is uploaded it can be used and edited like any other project with no-loss of functionality.

In addition, projects folders can be transferred to and from JMobile Servers using a standard FTP program. This allows project to be manages and updated in a simple and uniform manner.

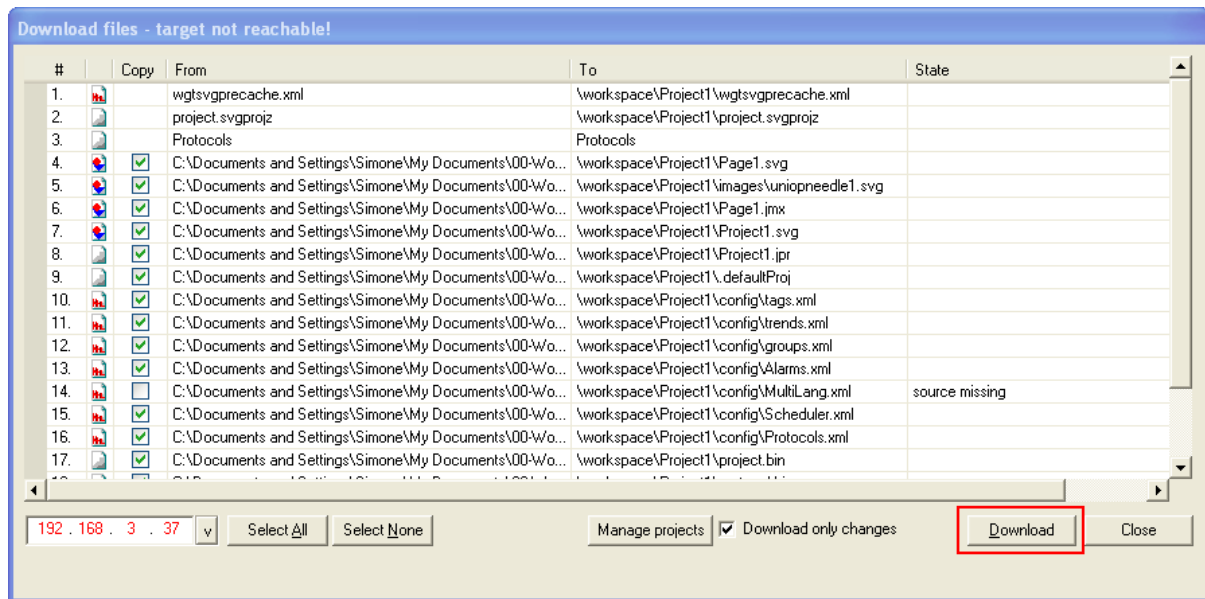


Figure 18

## 5 Using the JMobile Client

The JMobile Client provides remote access to the JMobile Server and is included in the JMobile Suite installation. The JMobile client consists of a simple stand alone application with the same graphic rendering system as the server but relies on a specified JMobile Server for live data.

You can launch the JMobile Client directly from JMobile Studio as a way to test the remote operation of the project. Select the Run Client item from the Run menu to launch the client. A Run Setup dialog will be displayed as shown in Figure 19.

The Run Setup Dialog allows you to define different launch configurations for running the client with a given target. When the JMobile client is launched, the specified target will be automatically loaded into the client window.

The Name field allows you to define a name for the launch configuration. When the Address button is selected, you can enter a URL for the target device. For example, you can enter the IP address for a target panel. The Project Name defines the desired project on the panel. When the client is launched, the specified project form the target panel will be loaded into JMobile Client.

When the Path button is selected, you can select a file path for a JMobile project on the current PC. When the client is launched, the project on the PC will be loaded into JMobile Client.

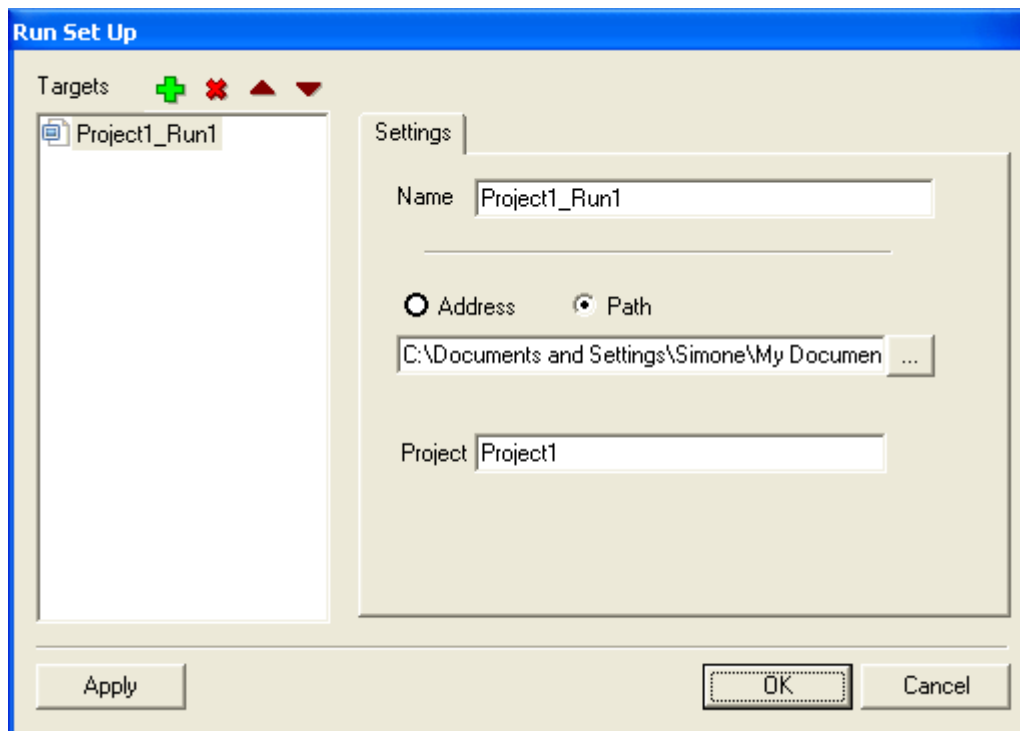


Figure 19