Getting started

Creating a Web Server support application

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Sielco Sistemi srl
via Roma, 24
I-22070 Guanzate (CO)

http://www.sielcosistemi.com

1. Introduction

In this guide we propose, as an example, the design of a simple Web Server supervision application; this example is a little step towards the design of more complex SCADA applications, but it can be useful for anybody who approaches for the first time to a SCADA, and in particular to Winlog Pro software, to quickly understand the potential related to Client/Server structures over intranet and internet networks.

Suppose that you want to realise a Client application that can be reached directly using an internet standard browser and replies the supervision interface of a previously created Server application thas is connected to its field devices using any supported protocol.

Let's start using one of the example applications described in the following guides:

- Getting started - Creating a simple Siemens Modbus protocol application

- Getting started - Creating a simple Siemens Omron SYSMAC protocol application

- Getting started - Creating a simple Siemens PPI protocol application

- Getting started - Creating a simple Siemens MPI protocol application


We will use one of these examples as Web Server

2. Server application configuration

To modify an existing supervision project, it is necessary to use Project Manager, the Winlog Pro integrated development environment that provides different tools (**Gate Builder, Template Builder, Code Builder**).

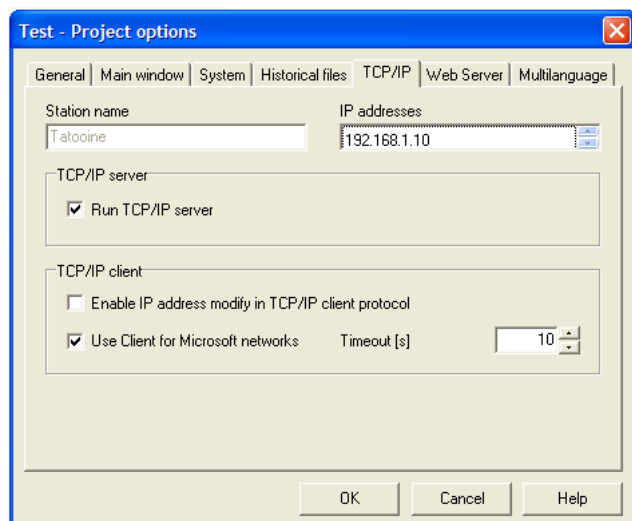Run Project Manager selecting the proper icon from Start menu.

Create `Test` project as described in the previous guides
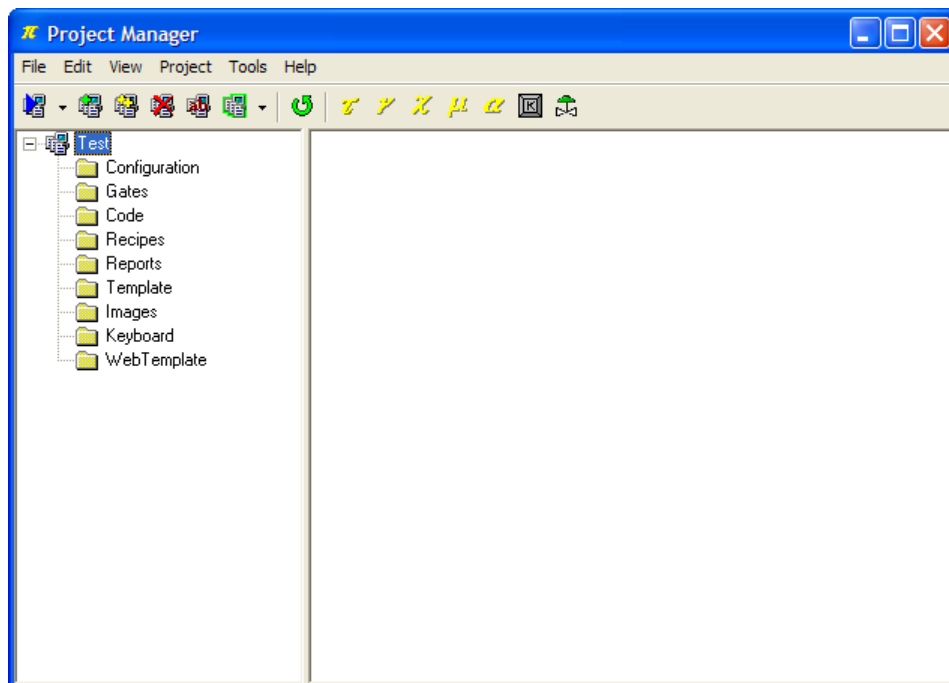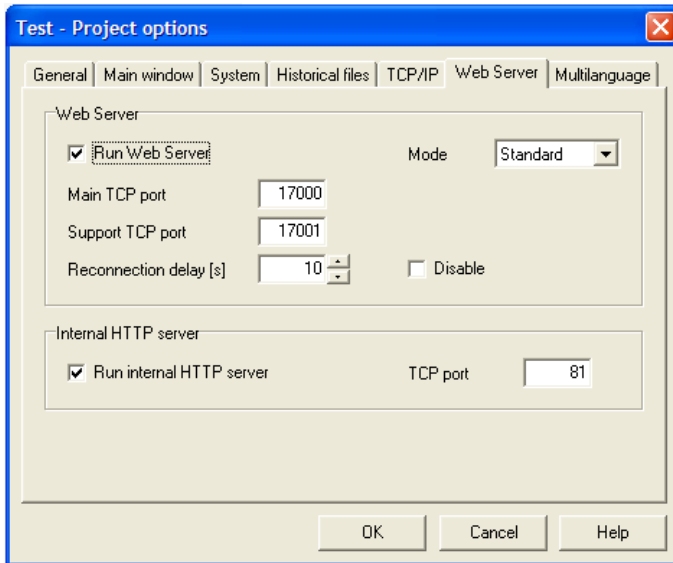

Server Project

In `Configuration` folder elements select `Options`.

In `TCP/IP` select `Run Time with TCP/IP Server`.

TCP/IP Server configuration

This application must be installed ed executed on the Server station (es. SERVER - IP Address: 192.168.1.10)

Web Server configuration

In `Configuration` folder elements select `Options.`

In `Web Server` select `Run Web Server` and set theTCP ports through which Web Server waits for instances (17000). These ports should have to be reachable from internet.

Select also `Run internal HTTP server` and set theTCP port through which HTTP Server is reachable (81). This port should have to be reachable from internet.

3. Web Template creation

In order to create a Web application, it is necessary to build the pages (Web Template) that will be consulted by remote users (clients). It is necessary to build new templates for the following reasons:

- not every standard templates objects are available for Web Server applications

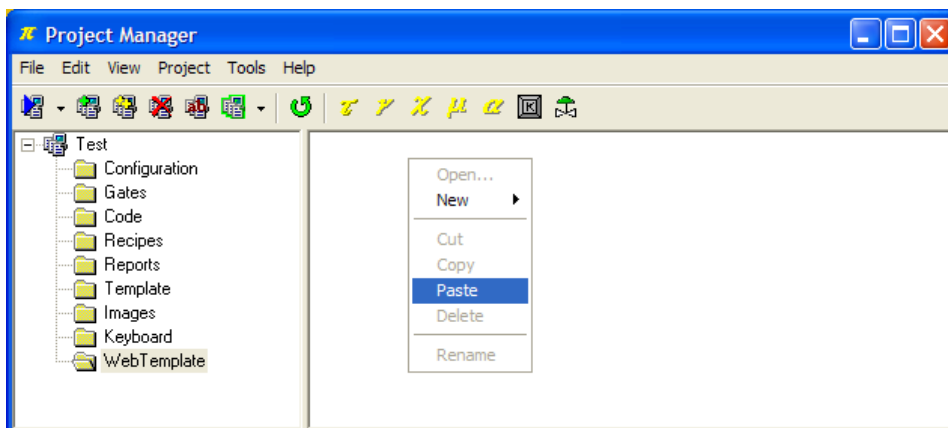- may be necessary to provide different and customized screens for remote users

Let's create a simple template starting from the previously created in the various examples of traditional applications (Test application).

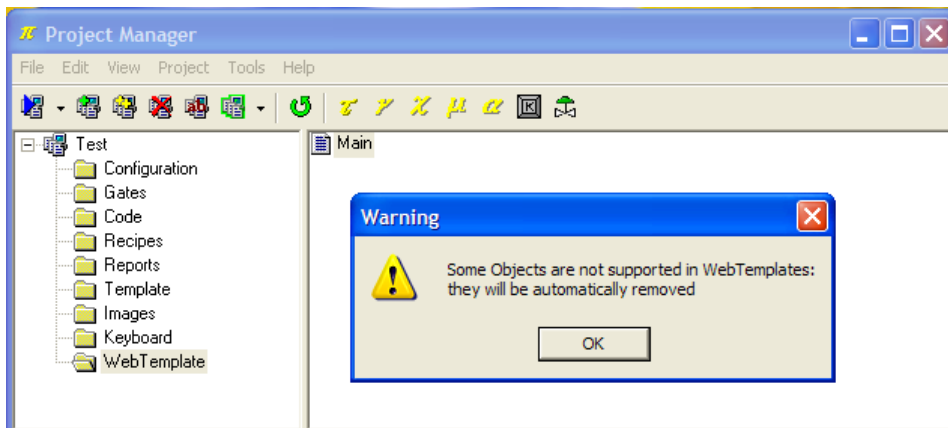Select `Template` folder from `Test` project and copy `Main` template.
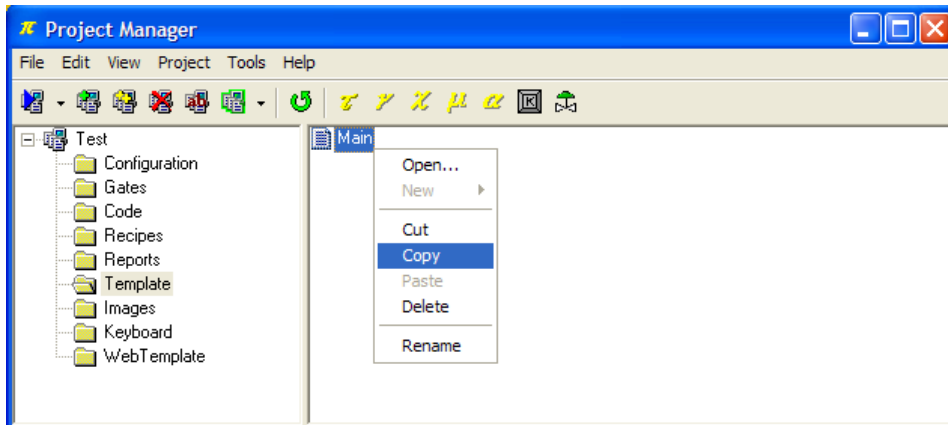
Main template copy from Templates folder

Paste it in `Web Template` folder.


Main template paste in Web Templates folder

A warning message will appear signalling that some objects are not supported in Web Templates.

*Warning – some objects are not supported in Web Templates*

Double-clicking on created template; a specific web applications **Template Builder** start in order to build the graphic page.

We can see that `Edit` objects have not been loaded; web templates do not support objects that allow web template sending values or commands to the system.
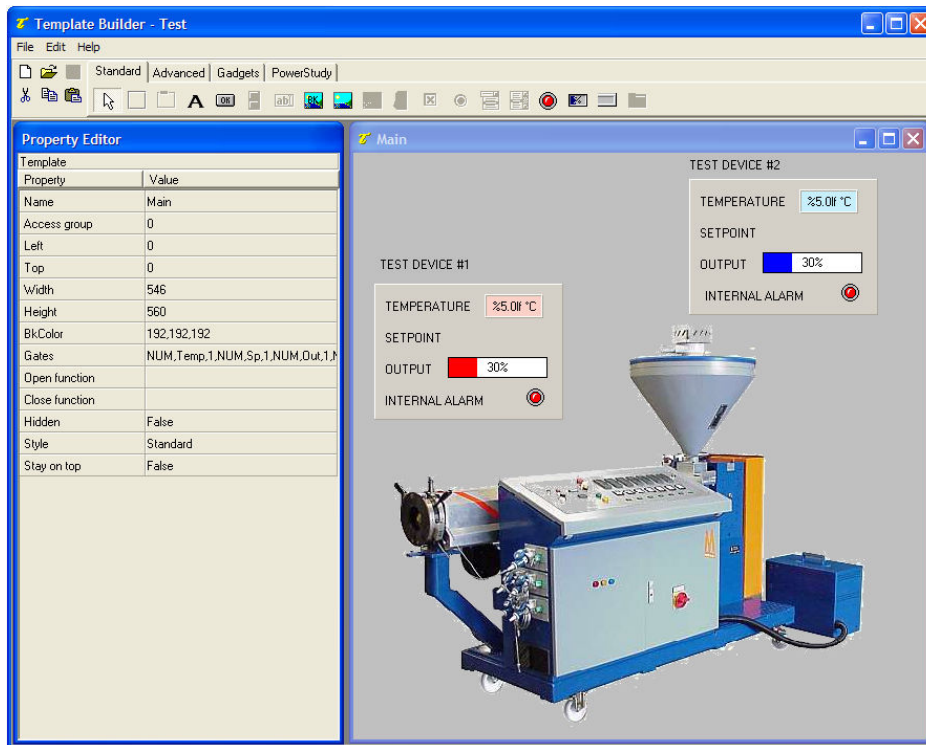
Imported template

Replace `Edit` objects with two `Label` objects in order to show setpoint value (`Gate` in property Editor - `NUM,Sp,1` e `NUM,Sp,2`)
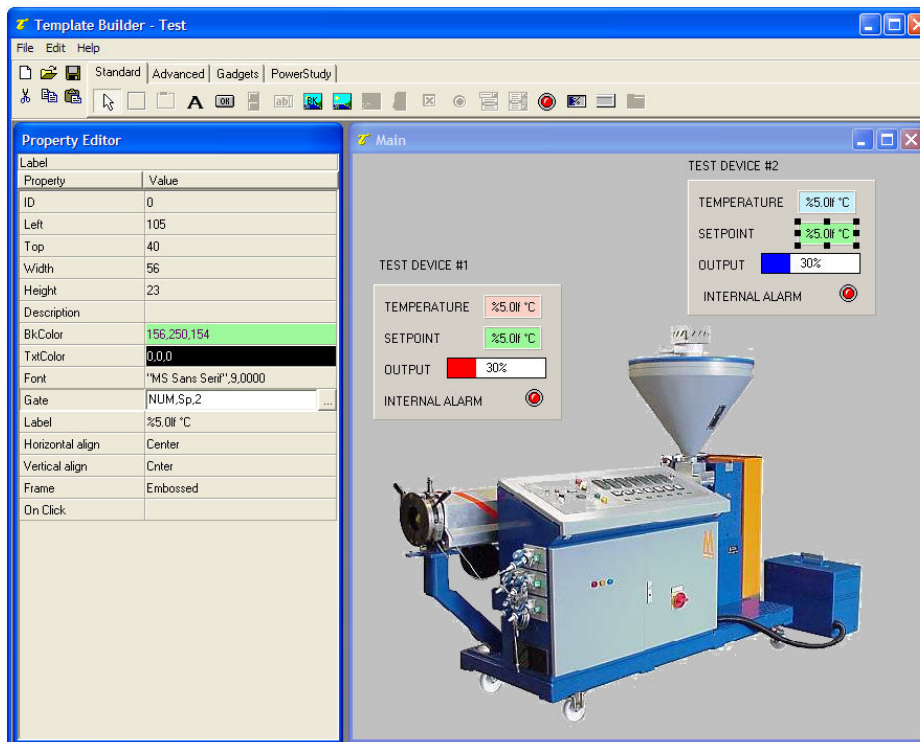

Label object inserting

Our web template now is ready. Let us now convert the entire application in a web project.

4. Web Server application - Creation and Configuration

Web project creation procedure produces some files required to run a web project. These files are created from original project elements (gates, templates, images, ...) and using settings specified in this dialog.
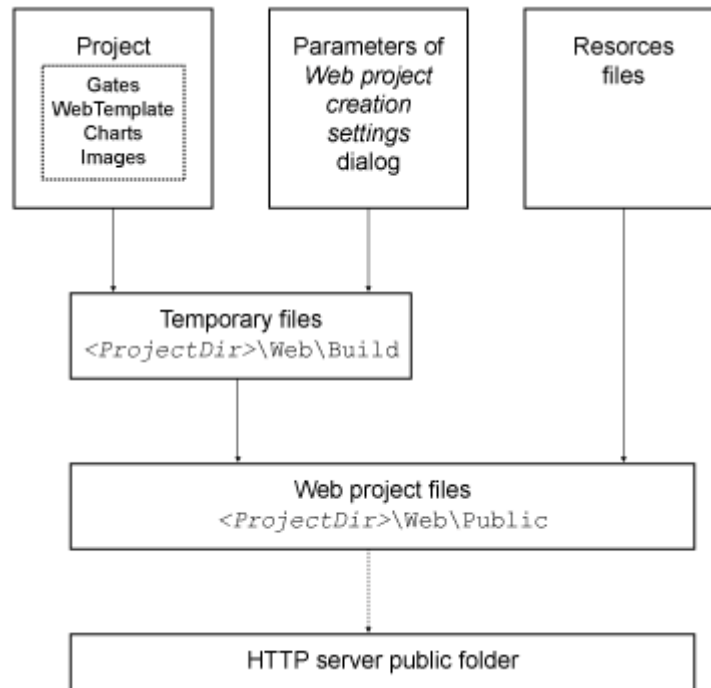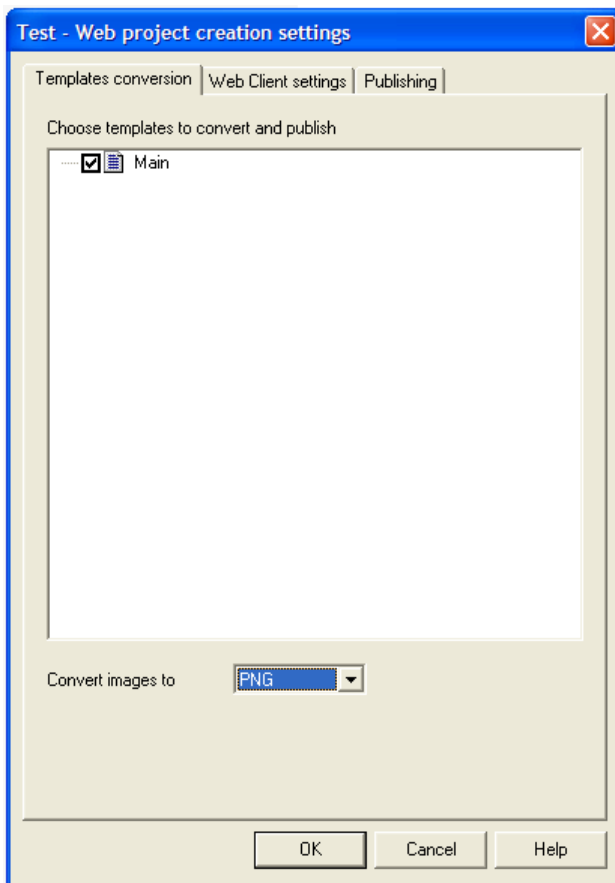

From **Project Manager** select `Create web project` in `Project` menu.
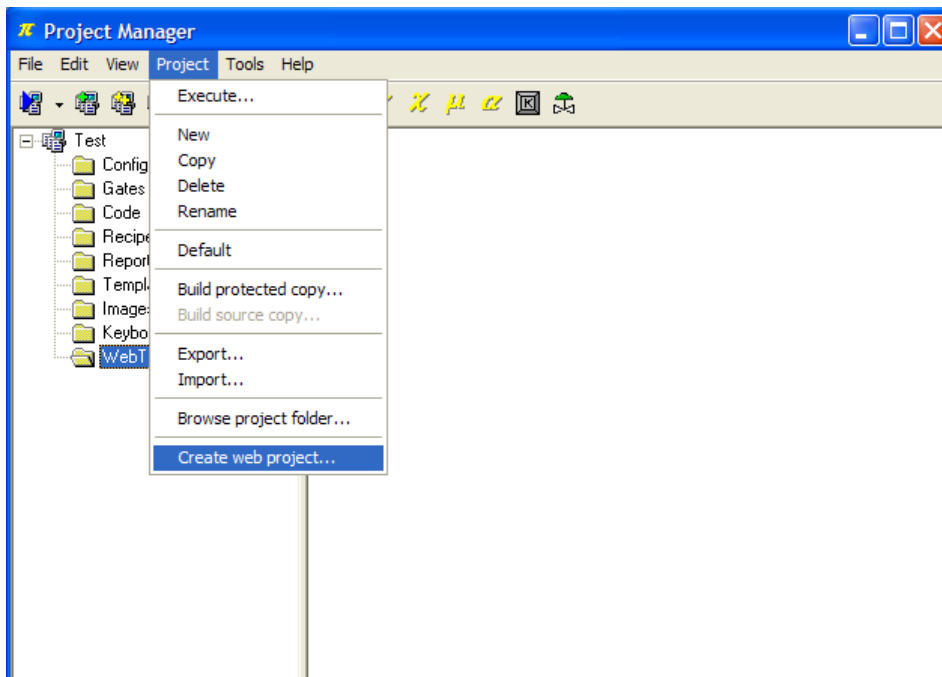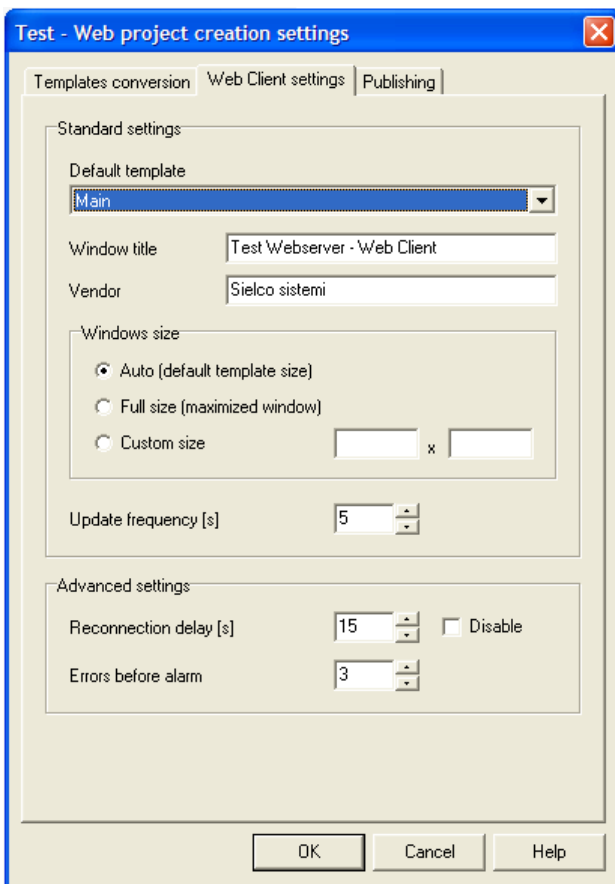

Select from the list which templates you want to convert and publish. Displayed templates are those available in project WebTemplate folder. In our example only Main template.

Web project – Template settings

Now we will set standard configuration parameters:

Web project – Standard settings

Default template: default template is the template opened by Web Client at its start. Choose one template using combo box.

Window title: is the caption of main window of Web Client.

Vendor: insert your name or the name of the company. Inserted text will be showed at start of Web Client.

**Window size**: choose the size of the Web Client window:

- Automatic: Web Client window size is automatically set to the size of default template

- Full screen: Web Client window is maximized

- Custom size: specify size of Web Client window (in pixels).

Update frequency: Web Client refreshes data using this frequency (in seconds).

Reconnection delay: if reconnection is enabled, use this to specify delay (in seconds) from a connection request and the following.

Errors before alarm: specify number of connection errors or read errors allowed. After them an error message will be displayed

Now we will set LAN (intranet) and WAN (internet) parameters:
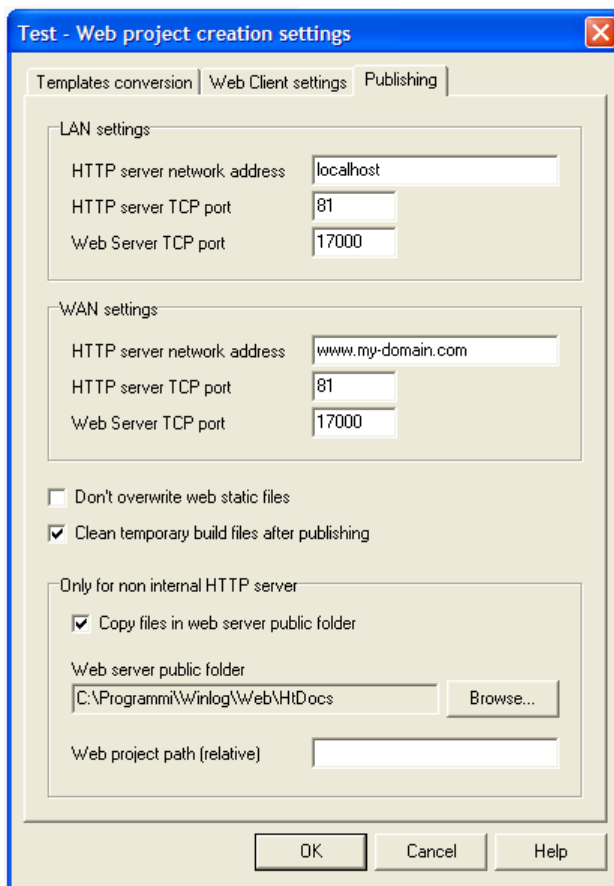
Web project – LAN and WAN settings

LAN settings

Use settings of this group to specify the parameters to allow browser and Web Client of LAN users to access your web project.

- **HTTP server network address**: network address (name or IP address) of the PC running the HTTP server. Using this address a web browser is able to access to HTTP server publishing web project files. Normally HTTP server network address is the same as Runtime network address, because in the standard configuration Runtime, Web Server and HTTP server reside and run on the same machine. This address is used also by Web Client to connect to Web Server.

- **HTTP server TCP port**: listening port of HTTP server. If you use internal HTTP server, this value must be the same as that specified in Project Options, Web Server page, Internal HTTP server group, TCP port parameter. If you insert a value differing from 80 (HTTP protocol default TCP port), users accessing your web project must specify this value in the address bar of the browser.

- **Web Server TCP port**: listening port of Web Server. On this port Web Server listen for Web Client requests. This value must be the same as that specified in Project Options, Web Server page, Web Server group, Main TCP port parameter.

WAN settings

These settings are similar to previous ones, but they refer to accessing web project by users outside your local network (i.e. Internet). Choose them according to your network administrator, because other network devices have to be set to allow access to HTTP server and Web Server from WAN/Internet network.

- **HTTP server network address/HTTP server TCP port**: network address (name or IP address) and TCP port by which WAN users can reach HTTP server.

- **Web Server TCP port**: Web Client on WAN use this port to communicate to Web Server. The network address is the same as HTTP server network address.

In simple network architecture the following settings may properly work:

- **HTTP server network address**: insert the IP address (fixed or dynamic) assigned by your Internet provider. In the case of dynamic IP you can use "dynamic DNS" services; companies as Vitalwerks Internet Solutions (http://www.no-ip.com), Dynamic Network Services (http://www.dyndns.com) and others offer this service for free.

- **HTTP server TCP port and Web Server TCP port**: use the same values inserted into the LAN settings parameters; suggested values are the default (80 and 17000).

In our example we will use TCP 81 and 17000 ports. Press OK and our web application will be finished

Then you must configure your router (or your xDSL modem) to redirect requests on port 81 and port 17000 to the PC running HTTP server and Web Server. To perform this procedure you have to define two "virtual servers" (or "port forwarding).
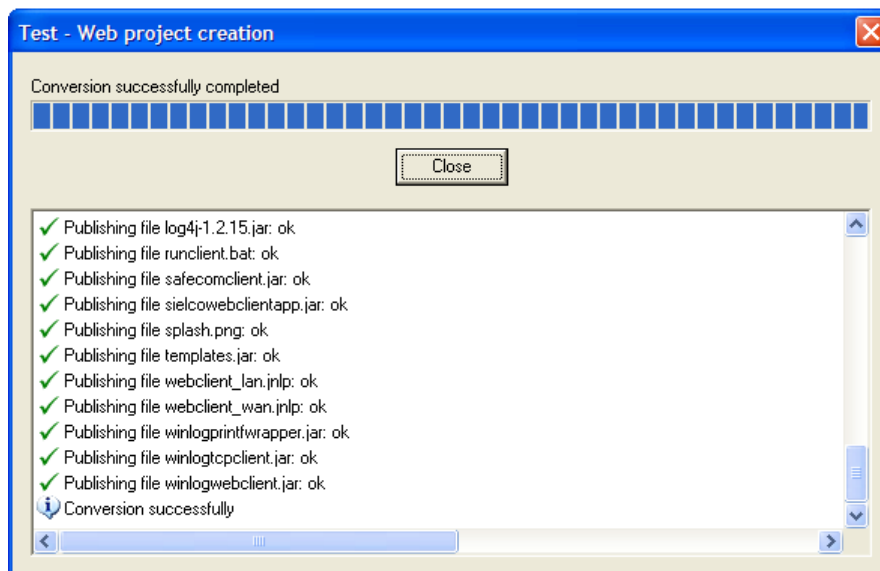
Web project – Creating a project

Our example is complete.

Wire devices to the serial port; to run the project, in **Project Manager** select `Execute...` from `Project menu.`

5 Router Configuration

The broadband router's NAT (Network Address Translation) firewall filters out unrecognized packets to protect your intranet. All hosts behind this firewall are invisible externally. Enabling the Virtual Server Mapping will make some of the host's ports accessible.

A virtual server is defined as a Service Port. All requests to this port will be redirected to the PC that is specified by the Server IP.

Port forwarding sets up public services on your network. When Internet users make requests on your network, the broadband router will forward those requests to the appropriate computer. The broadband router's DHCP function must be disabled to use port forwarding. Port forwarding is generally used to set up a web server, ftp server, or e-mail server on your network.

To add a server using Forwarding, perform the following steps:

1. Enter the port number and the IP Address of the server that you want to allow Internet users to access.

2. Configure as many entries as desired until all the entries are filled in.

3. Click Apply in order to save the settings.

Suppose that this is your configuration:

- HTTP server LAN network address: 192.168.1.10

- HTTP server LAN TCP port: 81

- HTTP server WAN TCP port: 81

- Web Server TCP port: 17000

To configure your router to allow Winlog Pro Web Server to be reachable, you need to specify the following virtual server mapping table:

[Virtual Server]

Virtual Servers currently created:

PVC Name	Protocol	External Packet Port	Internal Host IP Address	Port	Modify	Delete
ppp-0	TCP	17000 (User Define)	192.168.1.10	17000	Modify	Delete
ppp-0	TCP	81 (User Define)	192.168.1.10	81	Modify	Delete

Create a new server

Router configuration

6 Client Connection

To run Winlog Web Client in LAN mode (use this if you are in an intranet), go "http://localhost" using your internet browser.

To run Winlog Web Client in WAN mode (use this if you are in an internet), go "http://www.my-domain.com" using your internet browser ("http://www.my-domain.com" is your HTTP server WAN network address) .

Start page (Web Page)

Client Application (JAVA)