Getting started

Creating a TCP-IP protocol Client application

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1. Introduction

In this guide we propose, as an example, the design of a simple Client supervision application TCP/IP protocol based; 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 TCP/IP protocol based Client that 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 Server

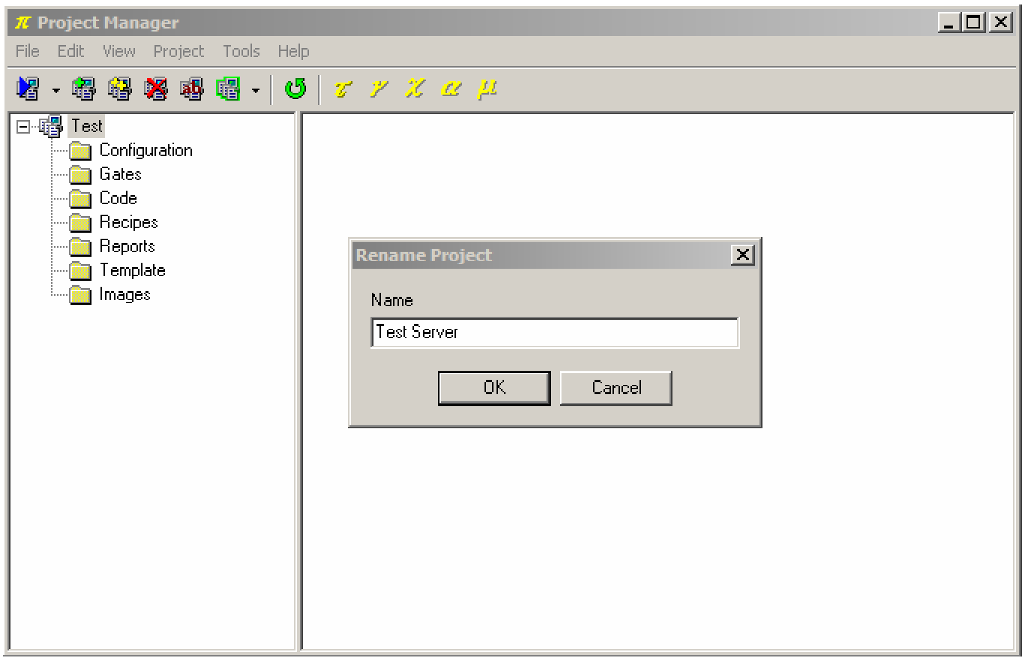
2. Server application configuration

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 own icon from Start menu.

Create `Test` project as described in the previous guides

Then select `Rename` from `Project` menu and insert `Test Server` as new project name.



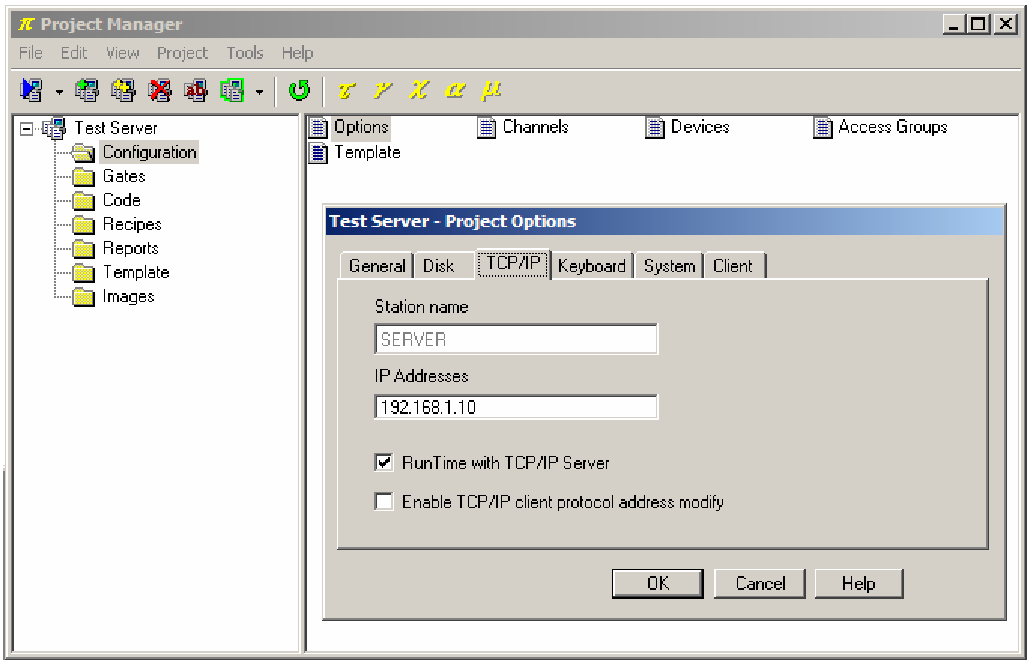
Name

Test Server

Server project

Between `Configuration` folder elements select `Options`.

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



Station name

SERVER

IP Addresses

192.168.1.10

☑ RunTime with TCP/IP Server

☐ Enable TCP/IP client protocol address modify

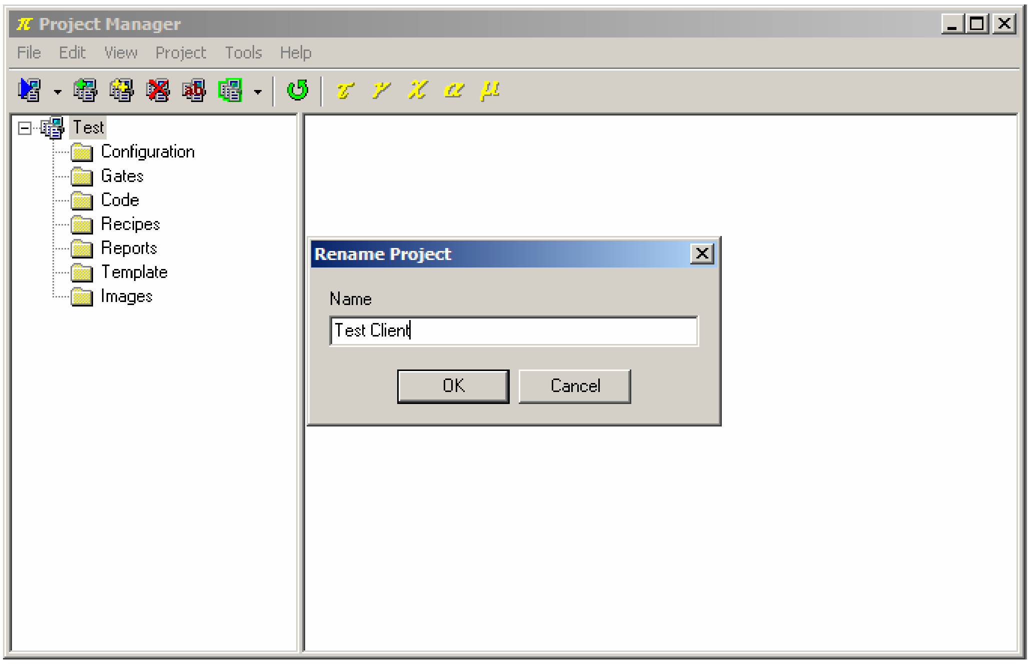
TCP/IP Server configuration

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

3. Client application configuration

Use again the same `Test` project created as described in the previous guides

Then select `Rename` from `Project` menu and insert `Test Client` as new project name.

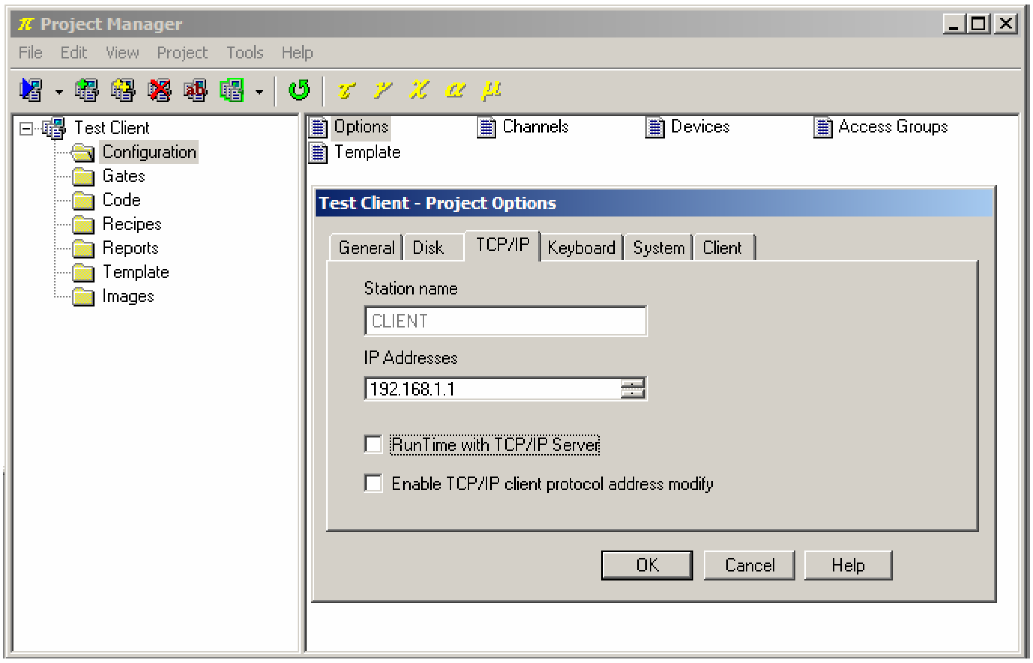


Name: Test Client

Client project

Between `Configuration` folder elements select `Options`.

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



Station name: CLIENT

IP Addresses: 192.168.1.1

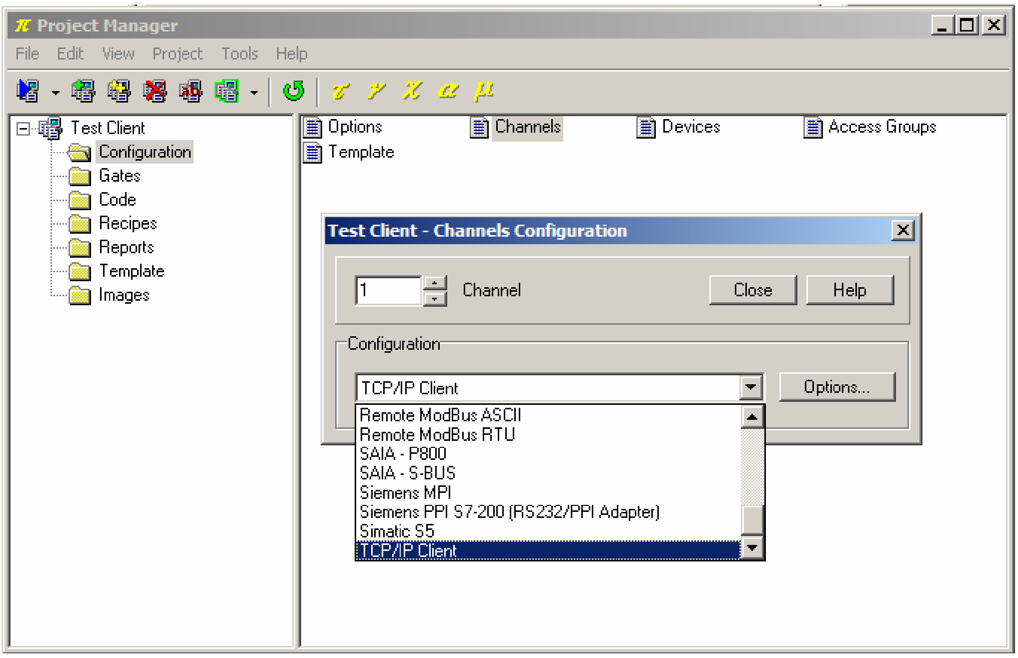
□ RunTime with TCP/IP Server

□ Enable TCP/IP client protocol address modify

TCP/IP Client configuration

Between `Configuration` folder elements select `Channels`.

Define the logic channel 1 to communicate using `TCP/IP Client` protocol.



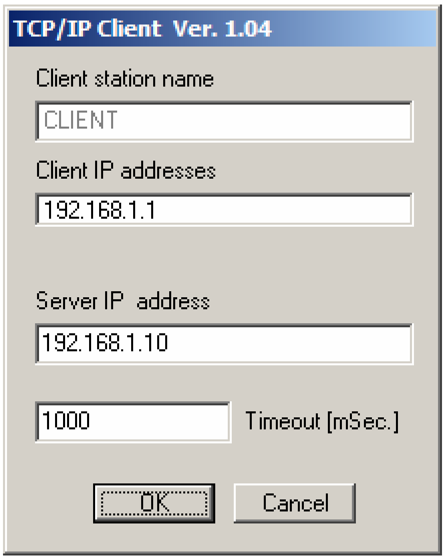
Test Client - Channels Configuration

Channel: 1

Configuration: TCP/IP Client

Protocol configuration

It is also necessary to configure TCP/IP connection specifying s `Sever IP address` e `Timeout` (an example is shown in the picture).



TCP/IP Client Ver. 1.04

Client station name: CLIENT

Client IP addresses: 192.168.1.1

Server IP address: 192.168.1.10

Timeout [mSec.]: 1000

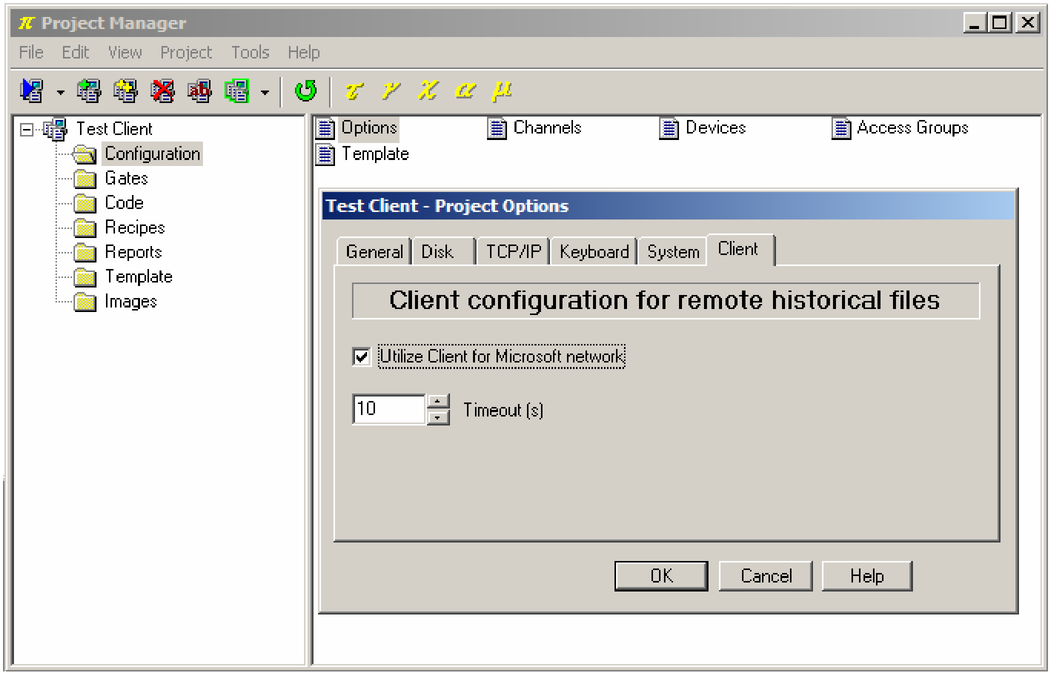
Protocol configuration

This application must be installed ed executed on the Clientstation (es. CLIENT - IP Address: 192.168.1.1)

4. Creating variables database

It is possible to configure Client application to read historical files (variables database and Alarm/Events database) from local archive or from Sever application archive.

In case your network is provided with Microsoft support, between `Configuration` folder elements, select `Options` and in `Client` select `Use Client for Microsoft network`



Client configuration for remote historical files

☑ Utilize Client for Microsoft network

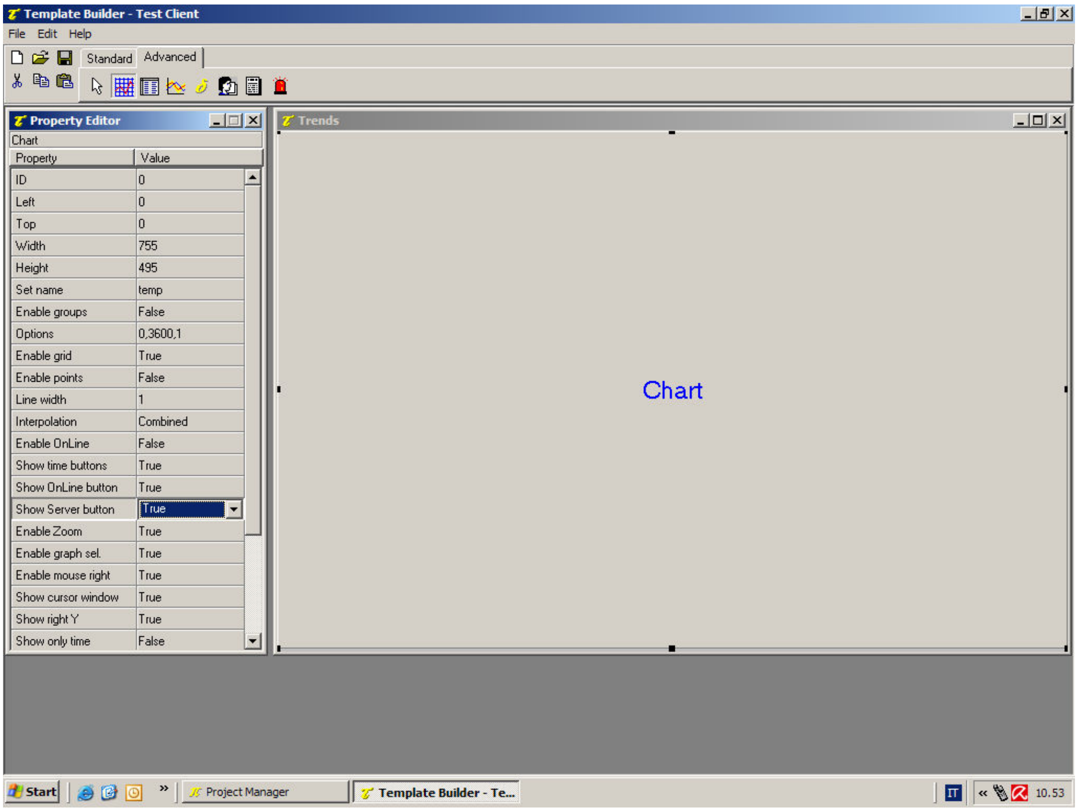
10 Timeout (s)

Network configuration

As example we can create a template for variables historical analysis (Trends).

From **Project Manager** select `Template` folder and create a new template, selecting the item `New>File` from `Edit` menu. Rename the just created template using the name `Trends`, do this selecting it and then using `Rename` item from `Edit` menu.

The next step is to insert into the created template a chart; select *Chart* object among the ones on the upper bar (▦), then click into the template choosing the right size. To enable the option the allows to download historical files from a Server station, use Property Editor, click alongside of the property `Show Server Button` and select `True`.



Chart

Property	Value
ID	0
Left	0
Top	0
Width	755
Height	495
Set name	temp
Enable groups	False
Options	0,3600,1
Enable grid	True
Enable points	False
Line width	1
Interpolation	Combined
Enable OnLine	False
Show time buttons	True
Show OnLine button	True
Show Server button	True
Enable Zoom	True
Enable graph sel.	True
Enable mouse right	True
Show cursor window	True
Show right Y	True
Show only time	False

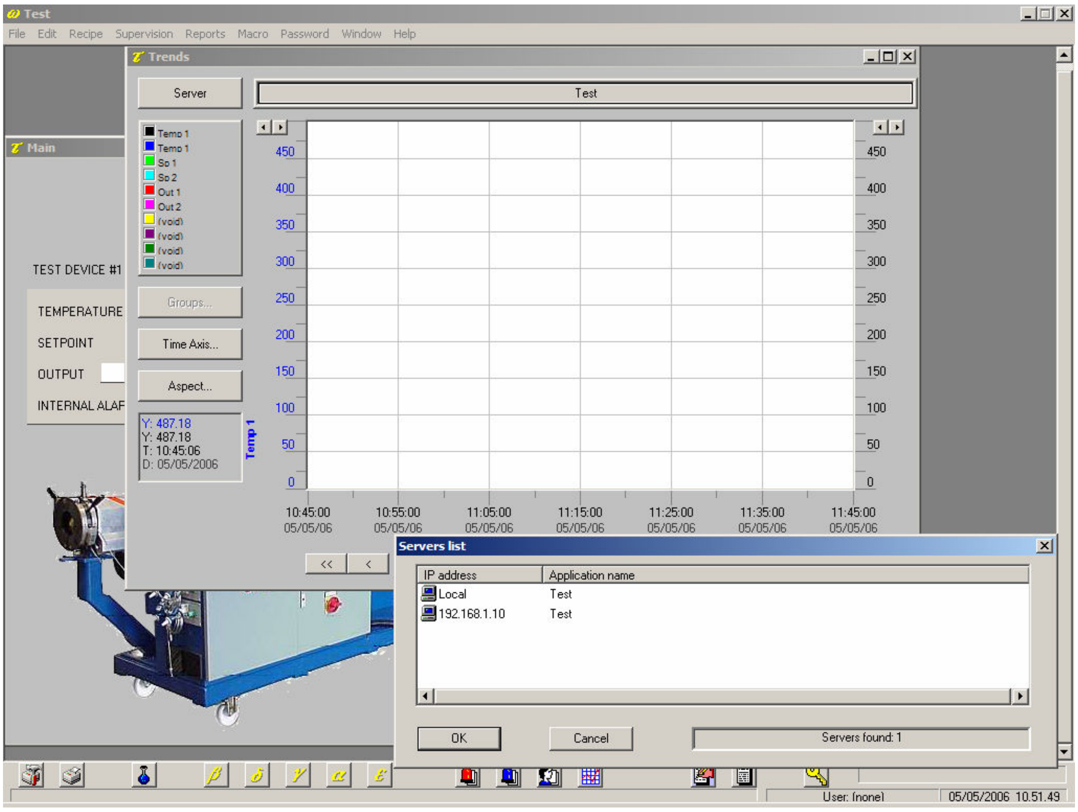
Trends template creating

Now run the project Test Client, in **Project Manager** select `Execute...` from `Project menu`.

Now we are entering in the "run-time" phase that is application execution mode. **Winlog Pro** Client samples Sever variables using TCP/IP .

At project startup, main template will appear automatically.

From `Supervision` menu recall *Trends* template (`Templates...`) in which it will be possible to choose pressing `Server` button, to use local historical data or Server station historical data for charts.



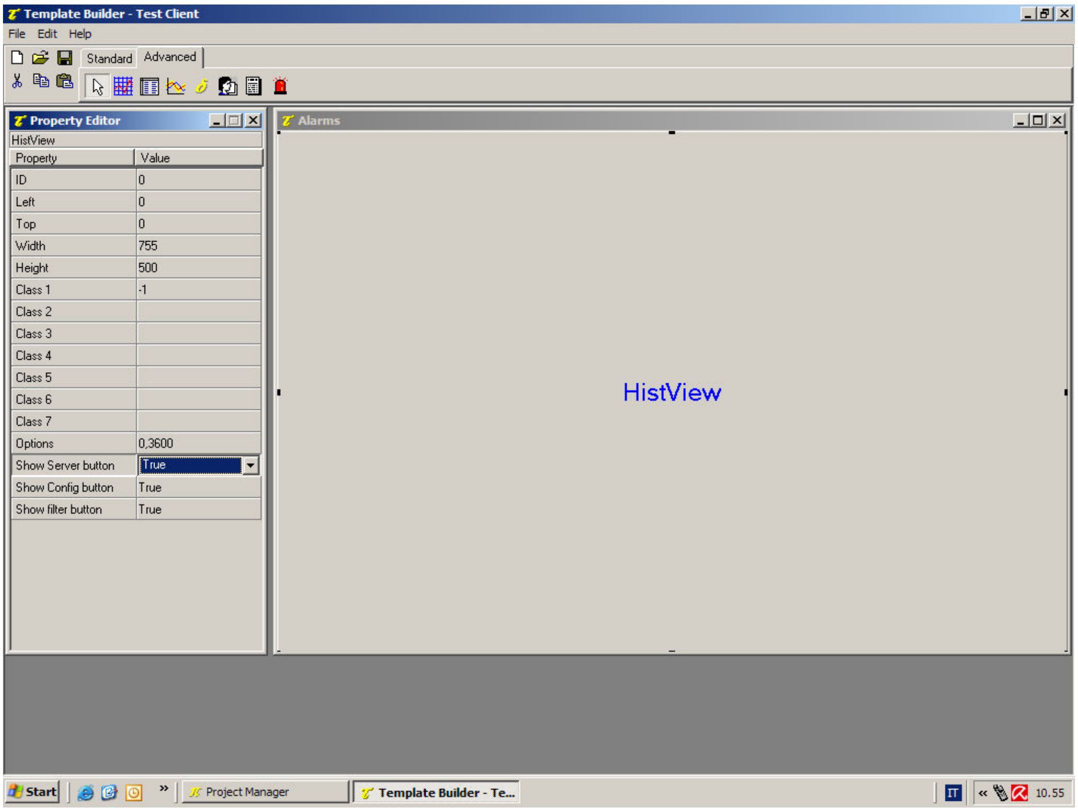
IP address	Application name
Local	Test
192.168.1.10	Test

Trends template

As example we can create a template for alarms historical analysis (Alarms).

From **Project Manager** select `Template` folder and create a new template, selecting the item `New>File` from `Edit` menu. Rename the just created template using the name `Alarms`, do this selecting it and then using `Rename` item from `Edit` menu.

The next step is to insert into the created template an alarm table; select *Histview* object among the ones on the upper bar (▤), then click into the template choosing the right size. To enable the option the allows to download historical files from a Server station, use Property Editor, click alongside of the property `Show Server Button` and select `True`.

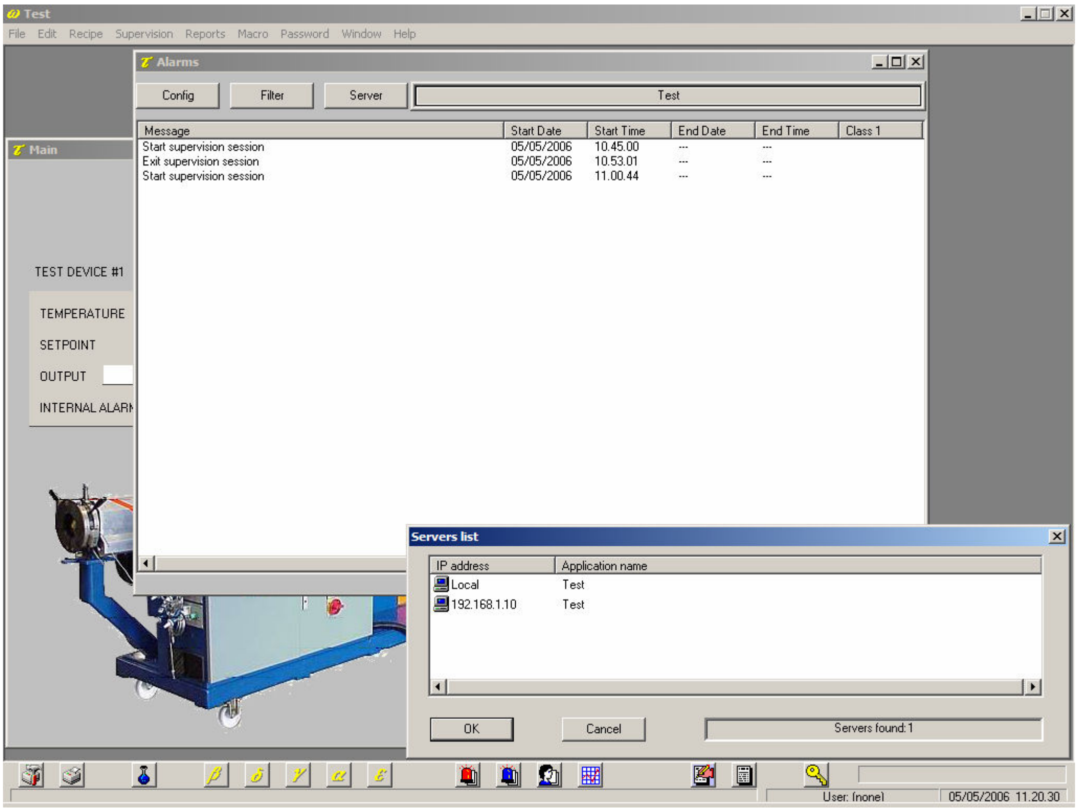


HistView

Property	Value
ID	0
Left	0
Top	0
Width	755
Height	500
Class 1	-1
Class 2	
Class 3	
Class 4	
Class 5	
Class 6	
Class 7	
Options	0,3600
Show Server button	True
Show Config button	True
Show filter button	True

Alarms template creating

Now run again the project Test Client and from `Supervision` menu recall *Alarms* template (`Templates...`) in which it will be possible to choose pressing `Server button,` to use local historical data or Server station historical data.



Message	Start Date	Start Time	End Date	End Time	Class 1
Start supervision session	05/05/2006	10.45.00	---	---	
Exit supervision session	05/05/2006	10.53.01	---	---	
Start supervision session	05/05/2006	11.00.44	---	---	

IP address	Application name
Local	Test
192.168.1.10	Test

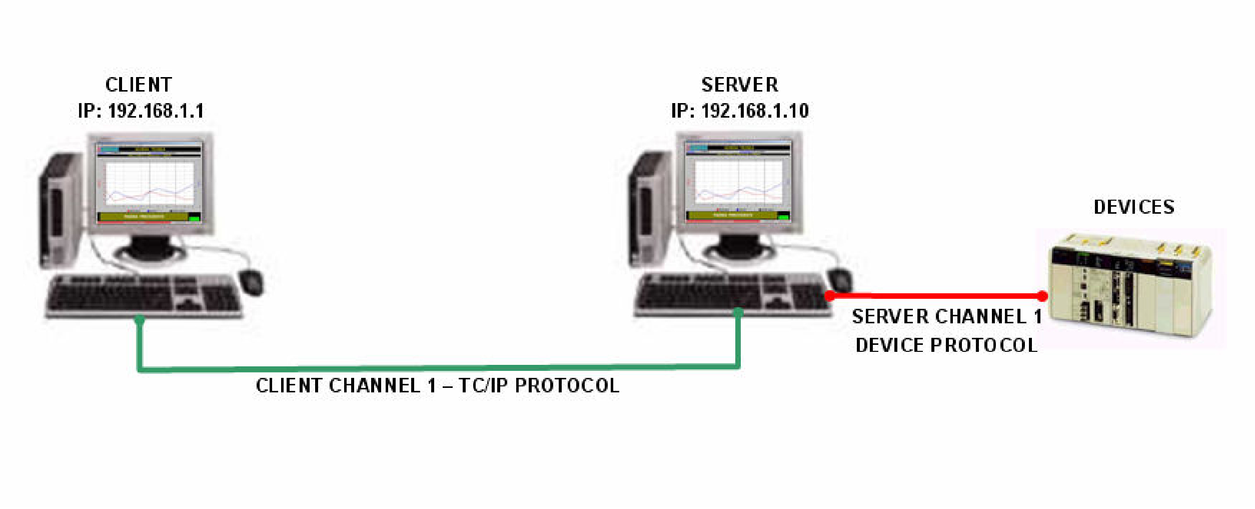
Servers found: 1

Alarms template

The possibility to read historical data directly from a Server station is particularly useful when Client station is not always connected so all process historical data are not available in its archive.

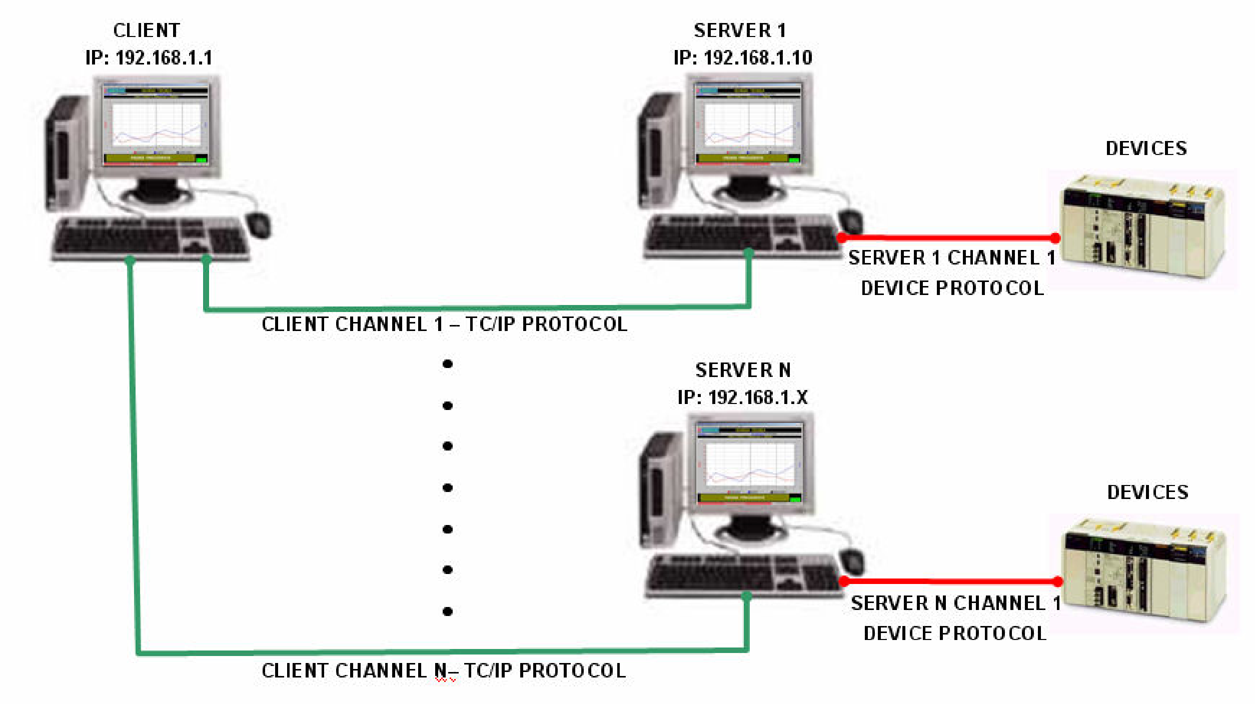
5 Client/Server link examples

In this example we have created a Client application that simply repeats the user interface available on the Server station.



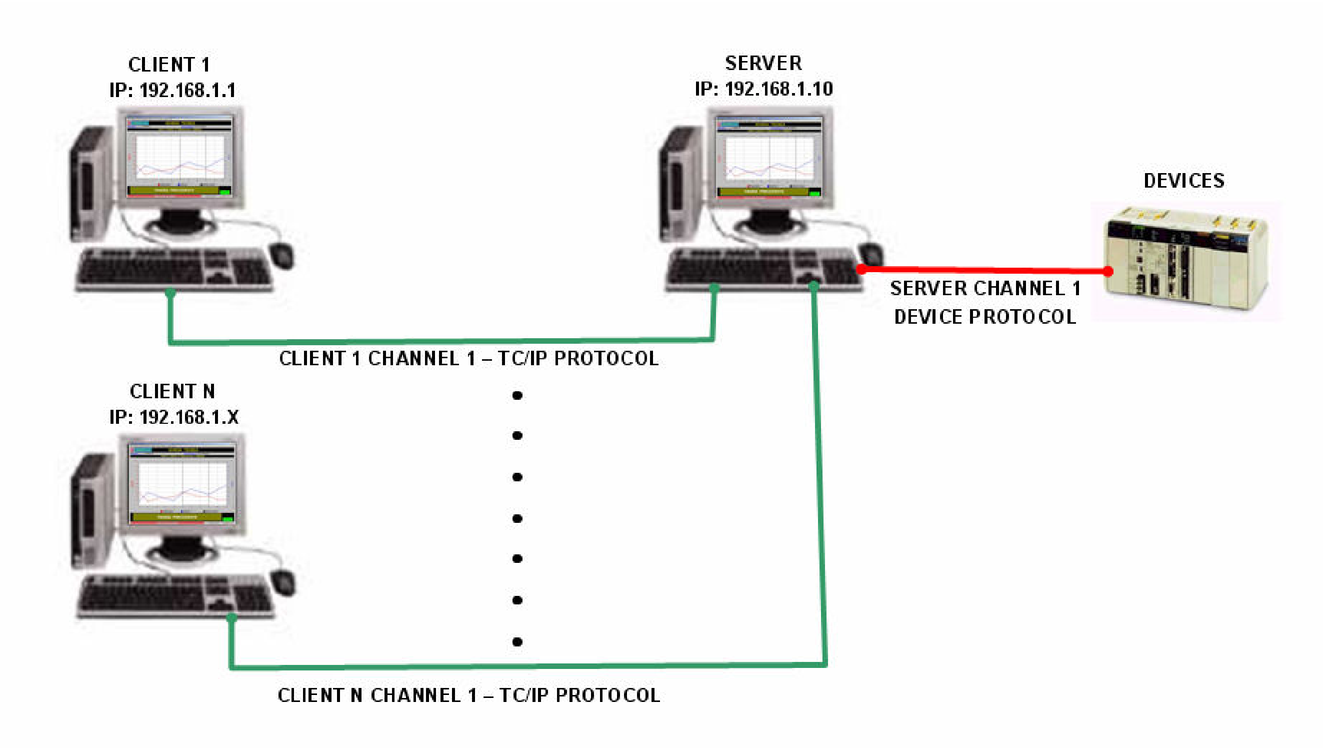
One Client – one Server configuration

Obviously it is not obligatory to create, as described in the example, a Client application just alike to the Server one; it is possible to read and write even only a subset of the variables available on the Server and to create different templates to analyse process variables; furthermore a Client application can be even Server, so it is possible to create more complex network architectures (see the following examples).



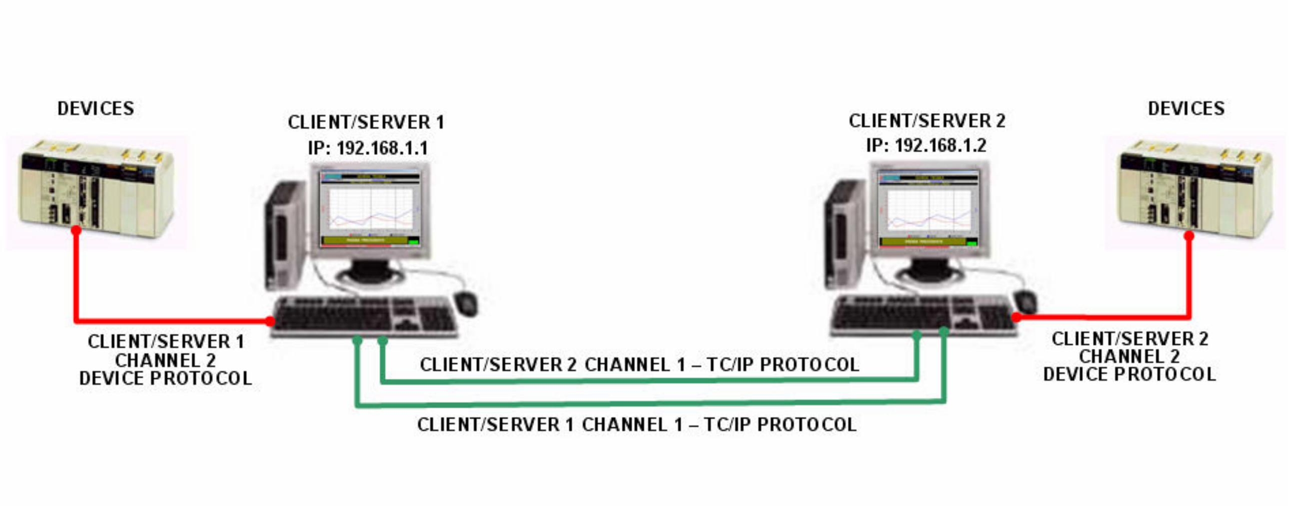
One Client – N Servers configuration

The same Client application can be connected, using different logical channel (from 1 to N), to N Server stations each one connected to its peripheral devices; in this case, for each Server, must be defined on Client station a TCP/IP protocol logical channel configured with the Server station IP address.



N Client – one Server configuration

N Client stations can be connected to the same Server station; in this case, for each Client station, must be defined a TCP/IP protocol logical channel configured with the Server station IP address.



One Client/Server – one Client/Server configuration

Two or more Server stations connected to their devices (for example using logical channel 2), can be even Clients; for each Client station, must be defined a TCP/IP protocol logical channel (for example logical channel 1) configured with the Server station IP address.