

Vijeo Designer Tutorial

Version 6.2

03/2014

© 2014 Schneider Electric. All rights reserved.

Table of Contents



	Safety Information	5
	About the Book	7
Part I	Vijeo Designer at a Glance	9
Chapter 1	General	11
	Software Overview	12
	Vijeo Designer's Main Tools	14
	Installing Vijeo Designer	16
	Software Version Compatibility	17
	Uninstalling Vijeo Designer	18
Chapter 2	Project creation	19
	Description of Requirements	20
	Project Construction Steps	21
	The Application at a Glance	22
	Starting Vijeo Designer	26
	Basic Settings	27
	Creating Variables	29
	Creating Panels	34
	Numeric and Text Displays	37
	Graphical Objects	41
	Creating Recipes	47
	Creating the "Curves" Panel	52
	Creating the "Alarms" Panel	54
	Creating an Action	58
	Simulation	62
Chapter 3	Project Download	63
	Validating, Building, and Correcting Errors	64
	Downloading a Project	66
	Index	69

Safety Information



Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result in** death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

About the Book



At a Glance

Document Scope

This manual introduces you to the fundamentals of Vijeo Designer, a software package that lets you develop and configure applications for the iPC/XBT GC/XBT GT/XBT GK/XBT GTW/XBT GH/HMIGTO/HMIGTU/HMISTO/HMISTU families of HMI panels.

It is written to help new users get started, and as a quick reference for users who are already familiar with the software. For detailed descriptions of the software's features and functions, refer to the Vijeo Designer online help.

Validity Note

The data and illustrations found in this book are not binding. We reserve the right to modify our products in line with our policy of continuous product development. The information in this document is subject to change without notice and should not be construed as a commitment by Schneider Electric.

Related Documents

You can access all related documentation from the Vijeo Designer DVD.

You can download these technical publications and other technical information from our website at www.schneider-electric.com.

Part I

Vijeo Designer at a Glance

Purpose of this section

This section describes the software's main functions and installation.

What Is in This Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
1	General	11
2	Project creation	19
3	Project Download	63

Chapter 1

General

Purpose of this chapter

This chapter describes the Vijeo Designer software application.

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Software Overview	12
Vijeo Designer's Main Tools	14
Installing Vijeo Designer	16
Software Version Compatibility	17
Uninstalling Vijeo Designer	18

Software Overview

About Vijeo Designer

Vijeo Designer is a software application with which you can create operator panels and configure operating parameters for human machine interface (HMI) devices. It provides all the tools needed to design an HMI project, from the data acquisition to the creation and display of animated drawings.

Minimum System Requirements

Processor	Pentium 4 - 2GHz or faster recommended)
Memory	1 GB minimum, 2 GB or more recommended
Available Disk Space	2 GB or more on hard disk
Operating system	Microsoft Windows XP Professional (Service Pack 2 or greater) Microsoft Windows Vista Business Edition 32 Bits (Service Pack 1 or greater) Microsoft Windows 7 32 Bits
Web browser	Microsoft Internet Explorer 6.0 (Recommend version 7 or higher)

Features

Data reuse

Vijeo Designer uses two types of data:

- internal data created in the user application
- data provided by external devices such as PLCs and remote I/O modules

Graphical objects, scripts, and panels created with Vijeo Designer can be saved in the Toolchest (*see page 14*) so that they can be reused in other projects. The ability to reuse this data can help you optimize the development of new applications and standardize screens in applications that are co-developed.

Multi-PLC connectivity

With Vijeo Designer you can configure your HMI panel to simultaneously communicate with several different Schneider Electric and third-party devices.

HMI screen creation

Vijeo Designer enables you to create dynamic screens for the HMI panel. It combines various functions such as moving objects, zooms, level indicators, on/off indicators, and switches in a simple application. Animated symbols can be used to build and edit a graphical screen very simply.

Actions

Vijeo Designer allows you to perform actions, such as setting a variable or running a script, at run time.

Properties

Vijeo Designer incorporates an advanced function that simplifies the management of variables used in the animation screens. Working in a Property Inspector window ([see page 14](#)), you can configure or modify the variables and characteristics of objects.

Multi-language messaging

Vijeo Designer can store text strings for alarms, labels, and text objects in the same application for up to 10 different languages. A simple switch can change the display to the selected language.

Editing variables from other applications

Vijeo Designer can import/export variables and recipes as CSV files. Similarly, variables created in Vijeo Designer can be exported to other applications.

Target Terminal Models

The following HMI units can be designed and configured with Vijeo Designer:

- XBT GC Series
- XBT GT Series
- XBT GK Series
- XBT GTW Series
- XBT GH Series
- Compact iPC Series
- Smart iPC Series
- HMIGTO Series
- HMIGTU Series
- HMISTO Series
- HMISTU Series

Vijeo Designer's Main Tools

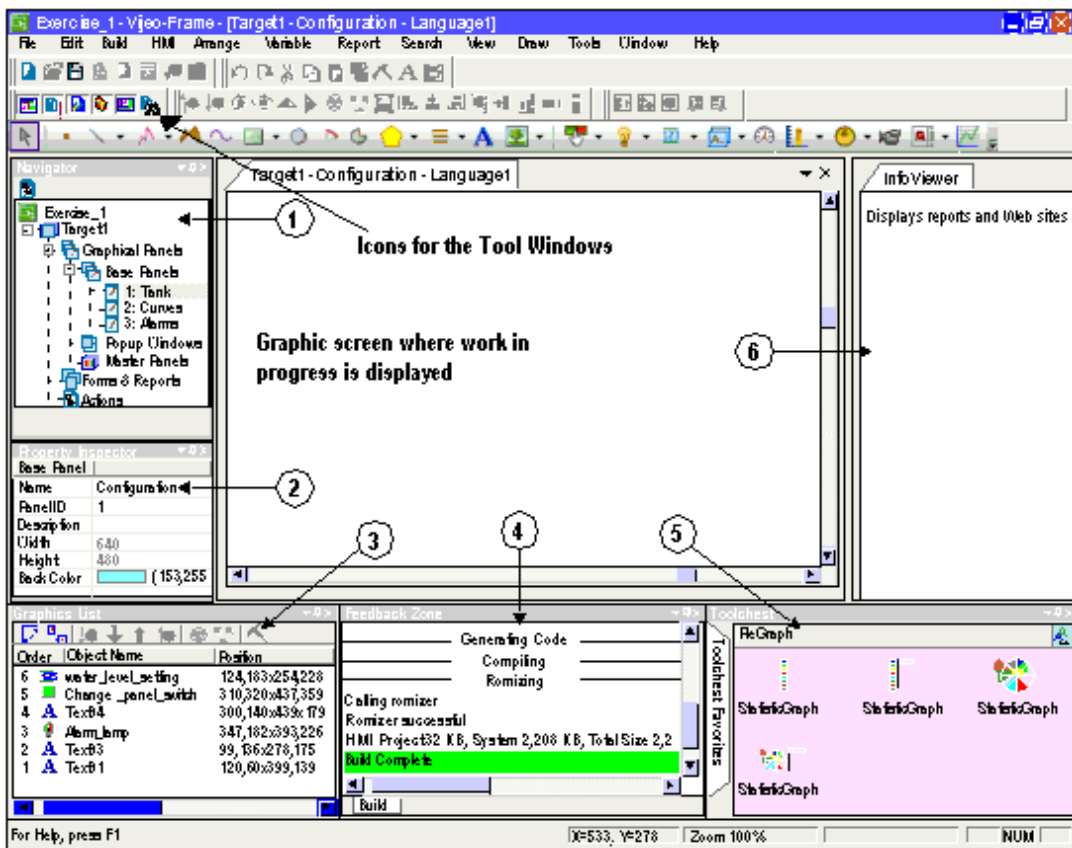
At a Glance

Vijeo Designer's main tools can be accessed from the program's main screen. Six tool windows enable you to develop your project quickly and easily. Each window provides information pertaining to the project or to a specific object in the project.

You can customize your work environment by resizing or moving the windows. Icons associated with the windows are located in the toolbar.

The Main Screen







The Vijeo Designer environment looks like this:



NOTE: Your screen may appear different from the one above depending on how you choose to arrange and display the tool windows in Vijeo Designer.

Tool Window Icons

The tool window icons act as toggle switches to display or hide the working windows (identified in the illustration above by the numbers 1-6):

Item	Screen/Icon name	Description
1	Navigator 	Used to create applications. Information about each project is listed hierarchically in a document explorer.
2	Property Inspector 	Displays the selected object's parameters. When more than one object is selected, only those parameters common to all objects are displayed.
3	Graphics list 	Lists all the objects appearing in the drawing, giving their: <ul style="list-style-type: none"> ● creation order ● object name ● position ● animations ● other associated variables <p>The highlighted object in the list is selected in the drawing. Information is displayed similarly for a group of objects (i.e., order, object name, position). To display a list of the objects in a group, click the + icon beside the group name. Each object can be selected separately.</p>
4	Feedback Zone 	Displays the progress and results of the error check, compilation, and load. When an error occurs, the system displays an error message or a warning message. To view the error's location, double-click the error message.
5	Toolchest 	A library of components (bar chart, timers, etc.) provided by the manufacturer and/or created by you. To place a component in the drawing, select the component in the Toolchest and drag it into the drawing. Your own components can be exported and/or imported.
6	InfoViewer 	Displays the contents of a report or the web.

Installing Vijeo Designer

Prerequisites

Vijeo Designer software should be installed by a system administrator.

Installation Procedure

Step	Action	Result
1	Close any applications running on the desktop.	
2	Insert the DVD into your computer's DVD-ROM drive.	Vijeo Designer's Autorun program should automatically start the installation program. If the installation does not begin automatically, click Start → Run , enter <code>x:\INSTALL.EXE</code> in the Open text box, and click OK (where x represents your DVD-ROM's drive letter).
3	Select an installation language and click the Vijeo Designer button.	The InstallShield Wizard Welcome screen appears.
4	Follow the Wizard's on-screen instructions to install Vijeo Designer, which include: accepting the terms of the license agreement; entering customer information, the product reference and serial number; and selecting the installation folder, project folder, application languages, and whether you want to create a shortcut on the desktop.	At the prompt to select the installation folder on your computer, you can choose the default, <code>c:\Program Files\Schneider Electric</code> , or another folder. At the prompt to select the project folder on your computer, you can choose the default or another folder.
5	Click the Finish button when the installation is complete. Then click the Exit button to return to your desktop.	

NOTE: At the end of the installation process, the program may ask you to restart your computer. You must restart to update all newly installed components in the system.

Software Version Compatibility

Title of Overview Block

Once the software has been installed (*see page 16*), you as a user need to understand how this version of Vijeo Designer works with previous versions of the software.

NOTE: Before starting Vijeo Designer for the first time, view the ReleaseNotes.chm file. Click **Start** → **Programs** → **Schneider Electric** → **Vijeo Designer** → **Release Notes**.

Compatibility with Older Versions of the Software

Projects created in this version of Vijeo Designer are not backward-compatible with previous versions of the software. A new project created and opened with this version of Vijeo Designer cannot be opened with an earlier version.

Projects created with an earlier version of Vijeo Designer are forward-compatible with this version. However, before opening an application that was created with an earlier version of Vijeo Designer, you should perform a complete backup of the initial project using the **export** feature.

Uninstalling Vijeo Designer

Two Ways to Uninstall the Software

Vijeo Designer may be uninstalled in either of two ways:

- using the **Uninstall** utility in the software
- with the **Add/Remove** utility on your computer's Control Panel

Using the Uninstall Utility

Step	Action
1	Close any applications running on the desktop.
2	Click Start → Programs → Schneider Electric → Vijeo Designer → Uninstall (Vijeo-designer)
3	Click the OK button.
4	At the end of the uninstall process, restart your computer to update the system.

Using the Add/Remove Programs Utility

Step	Action
1	Close any applications running on the desktop.
2	Click Start → Settings → Control Panel .
3	Select Vijeo Designer from the list of programs and click the Remove button.
4	At the end of the uninstall process, restart your computer to update the system.

Chapter 2

Project creation

Purpose of this Chapter

This chapter describes how to produce a simple application using Vijeo Designer's main functions.

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Description of Requirements	20
Project Construction Steps	21
The Application at a Glance	22
Starting Vijeo Designer	26
Basic Settings	27
Creating Variables	29
Creating Panels	34
Numeric and Text Displays	37
Graphical Objects	41
Creating Recipes	47
Creating the "Curves" Panel	52
Creating the "Alarms" Panel	54
Creating an Action	58
Simulation	62

Description of Requirements

At a Glance

In order to discover some of the things you can do with Vijeo Designer, we are going to develop a project. To do this, we need to describe the requirements or specifications for our project.

The application must satisfy the following criteria:

- manage the filling of a **tank** according to a filling setpoint and an alarm level. The setpoint and alarm level are selected by the user from a range of presets. We will use the **recipes** function for the selection of presets,
- empty the tank by opening/closing the bottom valve when a **button** is pressed,
- **view** the setpoint values in a **numeric display** and as a **trend graph**,
- have an overview of the variation in level over time. To do this, we use a **trend graph**,
- inform the user when a threshold is exceeded via a **lamp** and an **alarm page**.

Project Construction Steps

At a Glance

The following steps must be taken and the following points addressed to create our project:

- launch Vijeo-Designer,
- create a new project,
- configure the project,
- declare the variables,
- create the different panels and screen jumps,
- create the numeric and textual displays,
- use the graphical objects from the toolchest,
- create the recipe,
- create the trend graphs,
- create alarm management,
- create a script action,
- generate and simulate the project.

The Application at a Glance

At a Glance

The project to be designed is called "manual".

It consists of three screen panels:

- "Tank",
- "Curves",
- "Alarms".

The "Tank" (*see page 22*) panel consists of:

- a tank taken from the animation **toolchest**,
- two **numeric displays** (the level value and the alarm setpoint),
- two types of **recipe** commands which can be used to define the fill values and tank level alarms,
- a tank emptying valve controlled by a **button**,
- an upper threshold alarm **lamp**,
- and a set of **buttons** used to switch from one screen to another.

The "Curves" (*see page 24*) panel consists of:

- a **trend graph** object in which the tank level and alarm setpoint are animated,
- and a set of buttons used to switch from one screen to another.

The "Alarms" (*see page 24*) panel consists of:

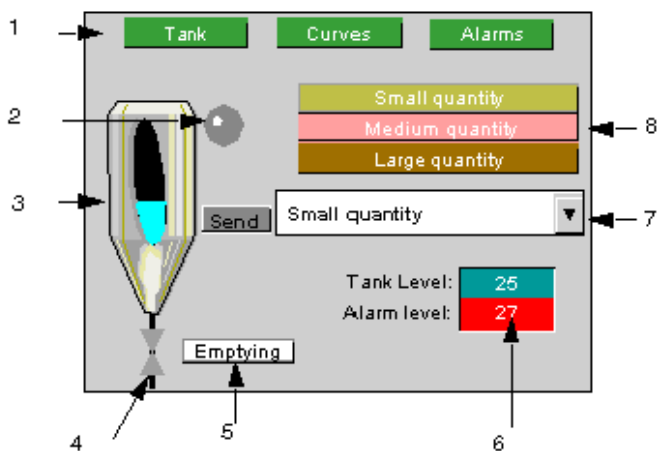
- an **alarm** object which displays a high level alarm if the tank level is higher than the alarm setpoint,
- and a set of buttons used to switch from one screen to another.

The "Tank" Panel

This is the main screen of the project. Here, the tank is filled to a selected product quantity (small, medium and large quantity), managed by a **recipe**. The recipe also manages the threshold not to be exceeded depending on the desired quantity (alarm setpoint). You can modify the alarm setpoint by clicking (for a simulation) or by touching (on the target's tactile screen at runtime) the **numerical display** for the "level of alarm". The high level alarm is activated if the tank level is higher than the alarm setpoint. A **lamp** lights up red once the threshold is exceeded and the alarm is activated.

An "emptying" **button** enables you to empty the tank via the bottom valve. The valve animates as you empty the tank. When closed the valve is shown in gray. When open it is shown in red.

The following is a diagram of the "Tank" panel:

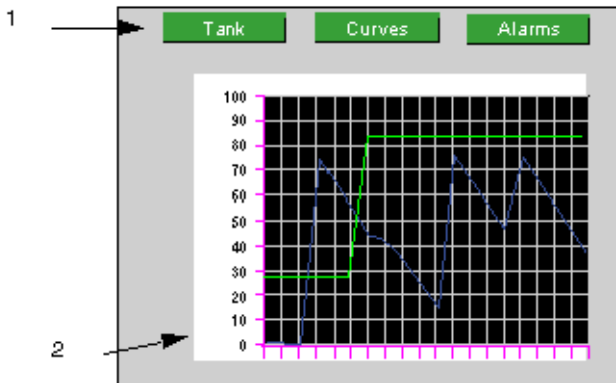


Number	Description
1	Screen browser buttons
2	High level lamp
3	Tank with animated level
4	Tank bottom valve
5	Tank emptying button
6	Data entry zone for setpoint using numerical keypad
7	Recipe selector
8	Recipe command buttons

The "Curves" Panel

This screen displays the variation in the tank level and the alarm setpoint in graphic form.

The following is a diagram of the "Curves" panel:

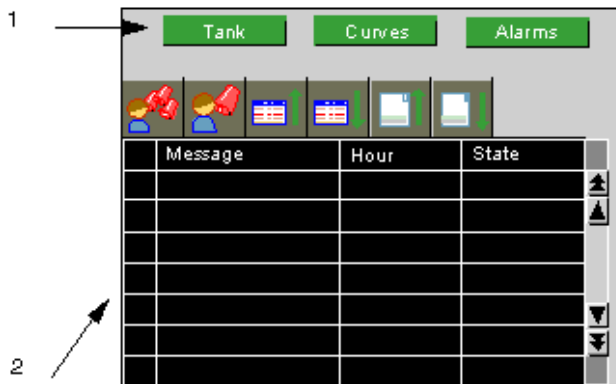


Number	Description
1	Screen browser buttons
2	Trend graph showing the tank level and setpoint

The "Alarms" Panel

This screen enables you to view the state of the level alarm.

The following is a diagram of the "Alarms" panel:



Number	Description
1	Screen browser buttons

Number	Description
2	Alarm table for viewing active, acknowledged or elapsed/resolved alarms

Starting Vijeo Designer

Procedure

To start Vijeo Designer, select **Start** → **Programs** → **Schneider Electric** → **Vijeo-Designer** → **Vijeo-Designer** or double-click the Vijeo Designer icon on the desktop.

Basic Settings

At a Glance

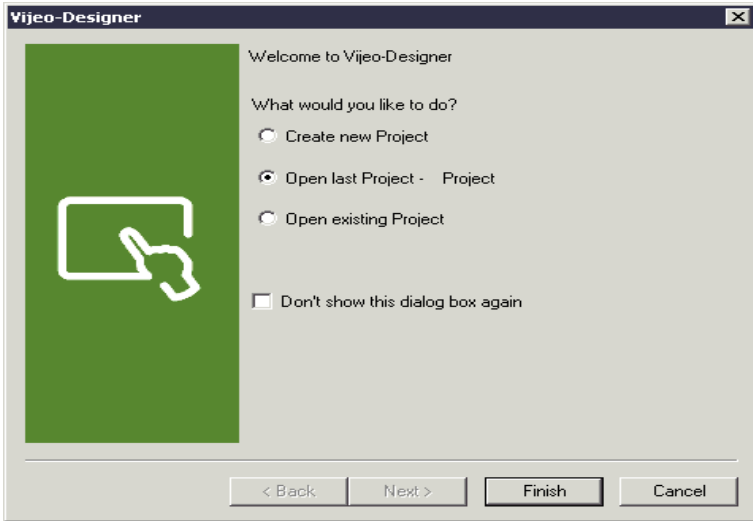
Configuring your project correctly is essential before you begin to create a drawing. This project uses internal and external variables.

A project created in Vijeo Designer is a simple chain of information (database). Within a project, the target terminals are configured and organized in a hierarchical structure.

Each target shows the hardware environment (PLC device) in which the project will be run.

Create a Project and Configure its Target

The following table describes how to create a project and select the remote device:

Step	Action
1	<p>This dialog box appears when you start Vijeo Designer. Make sure Create new project is selected and click "Next" to continue.</p>  <p>Note: If the above dialog box is not displayed when you start Vijeo Designer, you must select the "Vijeo-Manager" tab in the navigator, then right-click "Vijeo-Manager" and select "New Project".</p>

Step	Action
2	<ul style="list-style-type: none"> ● Enter the name of your project and click Next. In our case, type "Manual". ● Select the target type, XBTGT2000 Series, and the model, XBT GT2330. Click Next ● Select the IP address if the model uses an Ethernet port then click Next. ● Select the relevant driver for the device type using the Add button. In our example, select Schneider Electric Industrie SAS as the Manufacturer, Modbus_(RTU) as the driver, and Modbus Equipment as the Equipment. Then click on Finish. <p>New folders (panels, scripts, alarms, popup windows, languages, data files, etc.) are created.</p> <p>Note: To add another "Target" to the project, right-click "Manual" then select "New Target".</p>
3	<p>Configure the IEC 61131 Syntax in the Equipment Configuration dialog box. To do this, under the [IO Manager] in the [Navigator] window, double-click the equipment for a driver to open the Equipment Configuration dialog box. Then select the [IEC61131 Syntax] check box.</p>
4	<p>Save your project.</p>

Creating Variables

At a Glance

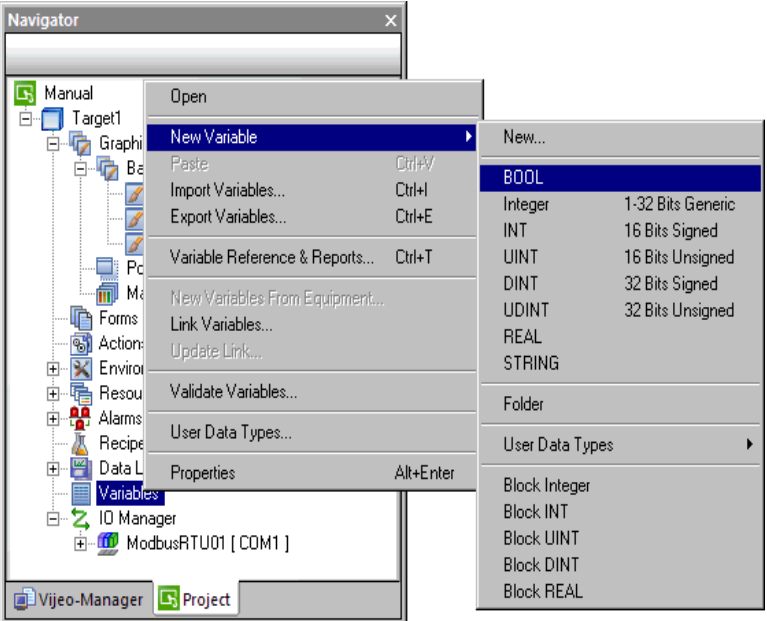
A variable is a memory address indicated by a name. Vijeo Designer handles the following types of variables:

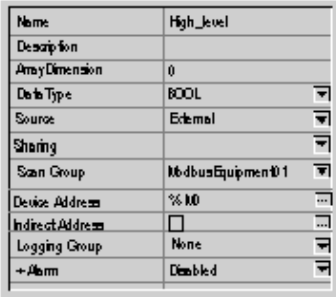
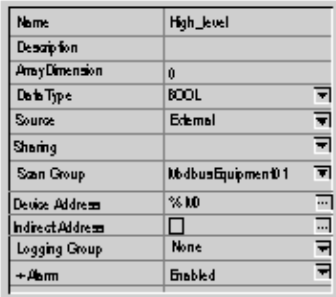
- BOOL
- INT (16 bit signed integer)
- UINT (16 bit unsigned integer)
- DINT (32 bit signed integer)
- UDINT (32 bit unsigned integer)
- Integer (1-32 bit generic integer)
- REAL
- STRING
- User Data Type (Array or Structure)
- Folder
- Block INT (16 bit signed block integer)
- Block UINT (16 bit unsigned block integer)
- Block DINT (32 bit signed block integer)
- Block Integer (1-32 bit generic block integer)
- Block REAL

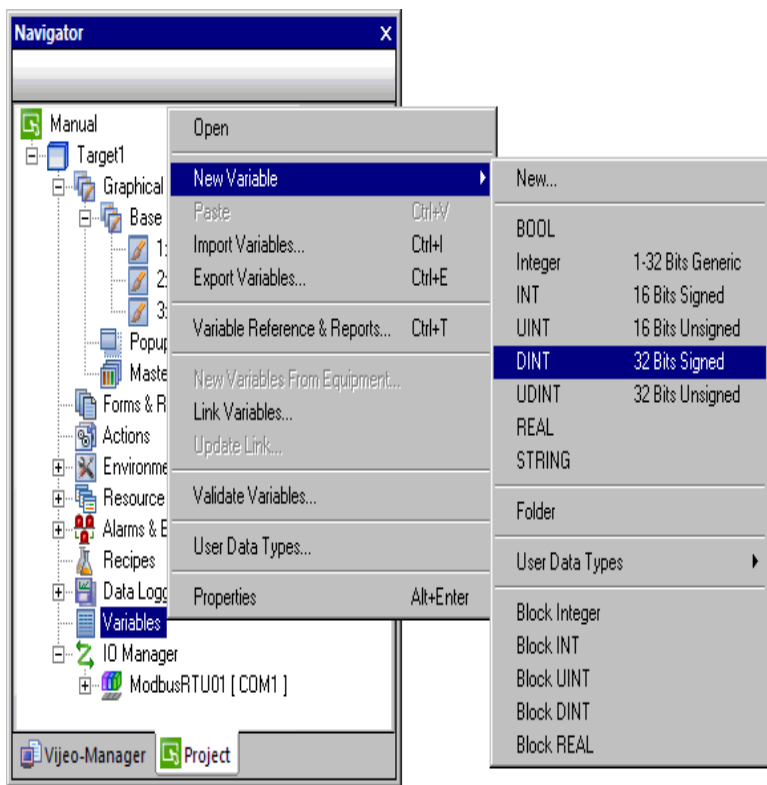
Vijeo Designer uses the variables to communicate with devices. You can also define internal variables that will only be used by Vijeo Designer.

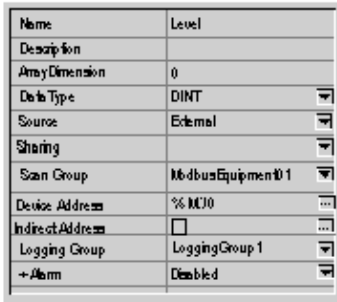
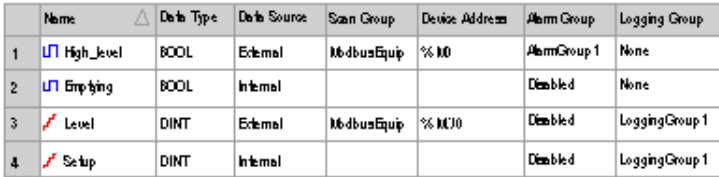
In our project, we are going to create two internal variables and two external variables that communicate with the Modbus device.

The following table describes how to create variables:

Step	Action
1	<p>Right-click the "Variables" node in the "Navigator" window, select "New Variable" and click "BOOL".</p>  <p>The screenshot shows the 'Navigator' window with a tree view containing nodes like Manual, Target1, Graphi, Ba, Pc, Me, Forms, Action, Environ, Resou, Alarms, Recipe, Data L, Variables, IO Manager, and ModbusRTU01 [COM1]. A right-click context menu is open over the 'Variables' node. The menu items include: Open, New Variable (highlighted), Paste (Ctrl+V), Import Variables... (Ctrl+I), Export Variables... (Ctrl+E), Variable Reference & Reports... (Ctrl+T), New Variables From Equipment..., Link Variables..., Update Link..., Validate Variables..., User Data Types..., Properties (Alt+Enter), and New... (highlighted). The 'New...' submenu is also open, showing options: BOOL (highlighted), Integer (1-32 Bits Generic), INT (16 Bits Signed), UINT (16 Bits Unsigned), DINT (32 Bits Signed), UDINT (32 Bits Unsigned), REAL, STRING, Folder, User Data Types (with a right arrow), Block Integer, Block INT, Block UINT, Block DINT, and Block REAL.</p>

Step	Action																								
2	<p>In the Variables Property Inspector, change the name of the Boolean-type "BOOL01" variable to "High_level". Specify the variable source (external in this case). In the Device Address property, type %M0. To obtain the address syntax, you must have configured the [IEC61131 Syntax] property in the Equipment Configuration dialog box, when you created the project and configured the target.</p>  <table border="1"> <thead> <tr> <th>Name</th> <th>High_level</th> </tr> </thead> <tbody> <tr> <td>Description</td> <td></td> </tr> <tr> <td>Array Dimension</td> <td>0</td> </tr> <tr> <td>Data Type</td> <td>BOOL</td> </tr> <tr> <td>Source</td> <td>External</td> </tr> <tr> <td>Sharing</td> <td></td> </tr> <tr> <td>Scan Group</td> <td>ModbusEquipment01</td> </tr> <tr> <td>Device Address</td> <td>%M0</td> </tr> <tr> <td>Indirect Address</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Logging Group</td> <td>None</td> </tr> <tr> <td>+ Alarm</td> <td>Disabled</td> </tr> </tbody> </table>	Name	High_level	Description		Array Dimension	0	Data Type	BOOL	Source	External	Sharing		Scan Group	ModbusEquipment01	Device Address	%M0	Indirect Address	<input type="checkbox"/>	Logging Group	None	+ Alarm	Disabled		
Name	High_level																								
Description																									
Array Dimension	0																								
Data Type	BOOL																								
Source	External																								
Sharing																									
Scan Group	ModbusEquipment01																								
Device Address	%M0																								
Indirect Address	<input type="checkbox"/>																								
Logging Group	None																								
+ Alarm	Disabled																								
3	<p>The "High_level" variable is an alarm. In its properties enable the Alarms function.</p>  <table border="1"> <thead> <tr> <th>Name</th> <th>High_level</th> </tr> </thead> <tbody> <tr> <td>Description</td> <td></td> </tr> <tr> <td>Array Dimension</td> <td>0</td> </tr> <tr> <td>Data Type</td> <td>BOOL</td> </tr> <tr> <td>Source</td> <td>External</td> </tr> <tr> <td>Sharing</td> <td></td> </tr> <tr> <td>Scan Group</td> <td>ModbusEquipment01</td> </tr> <tr> <td>Device Address</td> <td>%M0</td> </tr> <tr> <td>Indirect Address</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Logging Group</td> <td>None</td> </tr> <tr> <td>+ Alarm</td> <td>Enabled</td> </tr> </tbody> </table>	Name	High_level	Description		Array Dimension	0	Data Type	BOOL	Source	External	Sharing		Scan Group	ModbusEquipment01	Device Address	%M0	Indirect Address	<input type="checkbox"/>	Logging Group	None	+ Alarm	Enabled		
Name	High_level																								
Description																									
Array Dimension	0																								
Data Type	BOOL																								
Source	External																								
Sharing																									
Scan Group	ModbusEquipment01																								
Device Address	%M0																								
Indirect Address	<input type="checkbox"/>																								
Logging Group	None																								
+ Alarm	Enabled																								
4	<p>Repeat steps 1 and 2 to create the following internal variable of type BOOL: "Emptying". You have now created two BOOL variables.</p> <table border="1"> <thead> <tr> <th></th> <th>Name</th> <th>Data Type</th> <th>Data Source</th> <th>Scan Group</th> <th>Device Address</th> <th>Alarm Group</th> <th>Logging Group</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>High_level</td> <td>BOOL</td> <td>External</td> <td>ModbusEquip</td> <td>%M0</td> <td>AlarmGroup 1</td> <td>None</td> </tr> <tr> <td>2</td> <td>Emptying</td> <td>BOOL</td> <td>Internal</td> <td></td> <td></td> <td>Disabled</td> <td>None</td> </tr> </tbody> </table>		Name	Data Type	Data Source	Scan Group	Device Address	Alarm Group	Logging Group	1	High_level	BOOL	External	ModbusEquip	%M0	AlarmGroup 1	None	2	Emptying	BOOL	Internal			Disabled	None
	Name	Data Type	Data Source	Scan Group	Device Address	Alarm Group	Logging Group																		
1	High_level	BOOL	External	ModbusEquip	%M0	AlarmGroup 1	None																		
2	Emptying	BOOL	Internal			Disabled	None																		

Step	Action
5	<p>Right-click the "Variables" node in the "Navigator" window, and select "DINT".</p>  <p>The screenshot shows the 'Navigator' window with a tree view containing nodes like Manual, Target1, Graphical, Base, 1:, 2:, 3:, Popu, Mast, Forms & R, Actions, Environme, Resource, Alarms & E, Recipes, Data Logg, Variables, IO Manager, and ModbusRTU01 [COM1]. The 'Variables' node is selected. A context menu is open over it, with 'New Variable' selected. This opens a 'New...' submenu where 'DINT' (32 Bits Signed) is highlighted. Other options in the 'New...' submenu include BOOL, Integer (1-32 Bits Generic), INT (16 Bits Signed), UINT (16 Bits Unsigned), UDINT (32 Bits Unsigned), REAL, STRING, Folder, User Data Types, Block Integer, Block INT, Block UINT, Block DINT, and Block REAL.</p>

Step	Action																																								
6	<p>Change the name of the "DINT" type variable, "DINT01", to "Level" in the Property Inspector. In this window, specify the variable source (external in this case). In the Device Address property, type %MW0. Set the Logging Group property to "LoggingGroup1".</p>  <table border="1" data-bbox="359 337 696 636"> <thead> <tr> <th>Name</th> <th>Level</th> </tr> </thead> <tbody> <tr> <td>Description</td> <td></td> </tr> <tr> <td>Array Dimension</td> <td>0</td> </tr> <tr> <td>Data Type</td> <td>DINT</td> </tr> <tr> <td>Source</td> <td>External</td> </tr> <tr> <td>Sharing</td> <td></td> </tr> <tr> <td>Scan Group</td> <td>ModbusEquipment01</td> </tr> <tr> <td>Device Address</td> <td>%MW0</td> </tr> <tr> <td>Indirect Address</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Logging Group</td> <td>LoggingGroup1</td> </tr> <tr> <td>+ Alarm</td> <td>Disabled</td> </tr> </tbody> </table>	Name	Level	Description		Array Dimension	0	Data Type	DINT	Source	External	Sharing		Scan Group	ModbusEquipment01	Device Address	%MW0	Indirect Address	<input type="checkbox"/>	Logging Group	LoggingGroup1	+ Alarm	Disabled																		
Name	Level																																								
Description																																									
Array Dimension	0																																								
Data Type	DINT																																								
Source	External																																								
Sharing																																									
Scan Group	ModbusEquipment01																																								
Device Address	%MW0																																								
Indirect Address	<input type="checkbox"/>																																								
Logging Group	LoggingGroup1																																								
+ Alarm	Disabled																																								
7	<p>Repeat steps 5 and 6 to create the following internal variable of DINT type: "Setup". Now, in the Variable Editor, you will see the following list.</p>  <table border="1" data-bbox="351 773 1071 948"> <thead> <tr> <th></th> <th>Name</th> <th>△ Data Type</th> <th>Data Source</th> <th>Scan Group</th> <th>Device Address</th> <th>Alarm Group</th> <th>Logging Group</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>UT High_Level</td> <td>BOOL</td> <td>External</td> <td>ModbusEquip</td> <td>%M0</td> <td>AlarmGroup1</td> <td>None</td> </tr> <tr> <td>2</td> <td>UT Emptying</td> <td>BOOL</td> <td>Internal</td> <td></td> <td></td> <td>Disabled</td> <td>None</td> </tr> <tr> <td>3</td> <td>Level</td> <td>DINT</td> <td>External</td> <td>ModbusEquip</td> <td>%MW0</td> <td>Disabled</td> <td>LoggingGroup1</td> </tr> <tr> <td>4</td> <td>Setup</td> <td>DINT</td> <td>Internal</td> <td></td> <td></td> <td>Disabled</td> <td>LoggingGroup1</td> </tr> </tbody> </table>		Name	△ Data Type	Data Source	Scan Group	Device Address	Alarm Group	Logging Group	1	UT High_Level	BOOL	External	ModbusEquip	%M0	AlarmGroup1	None	2	UT Emptying	BOOL	Internal			Disabled	None	3	Level	DINT	External	ModbusEquip	%MW0	Disabled	LoggingGroup1	4	Setup	DINT	Internal			Disabled	LoggingGroup1
	Name	△ Data Type	Data Source	Scan Group	Device Address	Alarm Group	Logging Group																																		
1	UT High_Level	BOOL	External	ModbusEquip	%M0	AlarmGroup1	None																																		
2	UT Emptying	BOOL	Internal			Disabled	None																																		
3	Level	DINT	External	ModbusEquip	%MW0	Disabled	LoggingGroup1																																		
4	Setup	DINT	Internal			Disabled	LoggingGroup1																																		

NOTE: It is possible to access the variable properties by double-clicking on the variable's row number. The **Variable Properties** window appears, which makes variable configuration easier to access and understand.

Creating Panels

Illustration

In this section, you will create the 'Tank' Panel, the 'Curves' Panel, and the 'Alarms' Panel. You will also create buttons to switch from one panel to another.

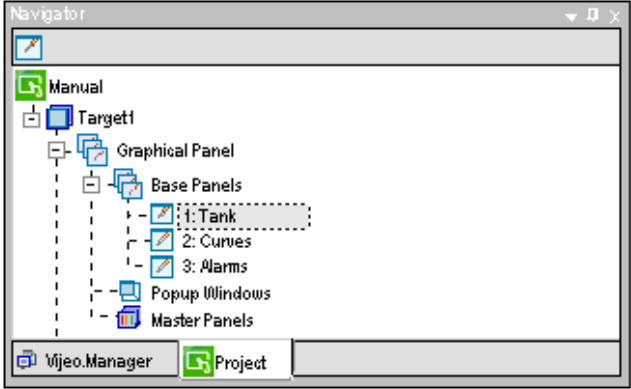
The graphic below shows how the panels should look at the end of this section:



Procedure


The following table describes how to create the panels:

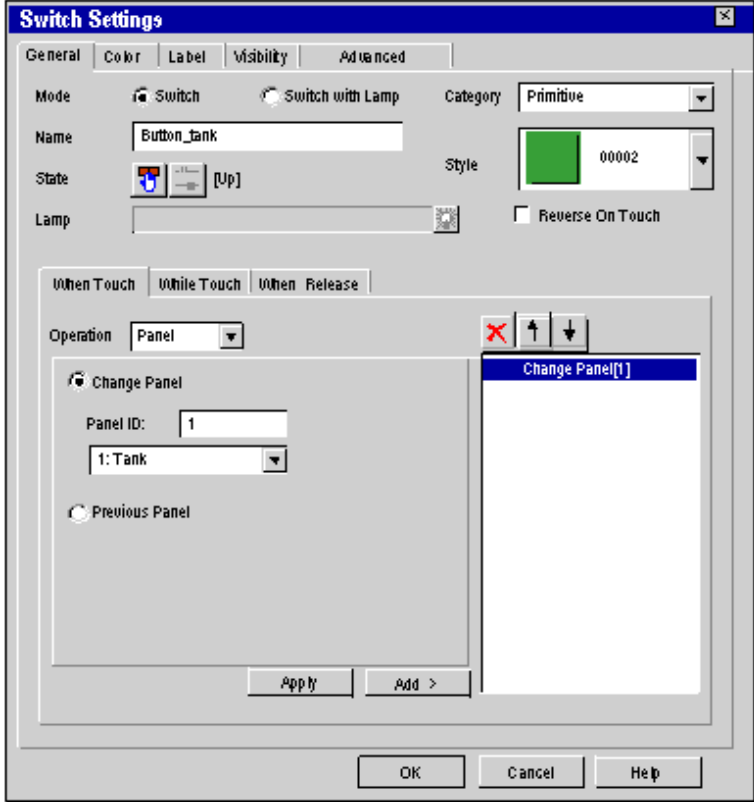
Step	Action
1	Click the " Project " tab in the navigator.
2	Double-click " Graphical Panels " to expand the folder. Double-click " Base Panels " to expand the folder.

Step	Action
3	<ul style="list-style-type: none"> Click on "1:Panel1". Rename "1:Panel1" to "1:Tank". 
4	In the Tank Panel's " Properties " window, change Back Color to light gray, RGB code, " 192,192,192 ".
5	Create two other panels using the same background colour as the Tank panel. Right-click Base Panels and select New Panel for each new panel. Rename Panel2 to Curves and Panel3 to Alarms.

Create a Panel Browser Button

The following table describes how to create buttons to switch between panels:

Step	Action
1	<p>Select the "Switch" icon in the toolbar and draw an area on the panel where the button will be placed.</p>  <p>To define an area where the object is to be placed, simply:</p> <ul style="list-style-type: none"> left-click in the screen where you wish to position your object, release the left mouse button, drag the mouse to obtain the desired size of your object on the screen, left-click in the screen to complete the drawing.

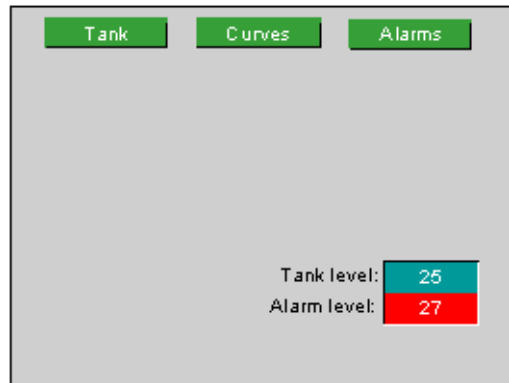
Step	Action
2	<p>When the "Switch Settings" window is displayed, in the General tab:</p> <ul style="list-style-type: none"> ● type "Button_tank" for the name, ● select the category primitive and the button style 00002, ● under When Touch , select Panel in Operation, select Change Panel for Tank (Id=1) then click on Add. 
3	In the Color tab, select a dark green, 0,128,0 , for the foreground color.
4	In the Label tab, set the label type to static and type Tank in the free text field.
5	Click on OK to confirm the configuration.
6	Repeat the operation for the buttons for the Curves panel (Id=2) and the Alarms panel (Id=3).
7	You now have 3 buttons that enable you to jump between pages. Select these 3 buttons to copy (Ctrl+C) and paste (Ctrl+V) them into the two other panels.

Numeric and Text Displays

Illustration


In this section, you will add text and numeric display objects to the Tank Panel to display the tank level and the alarm set point.

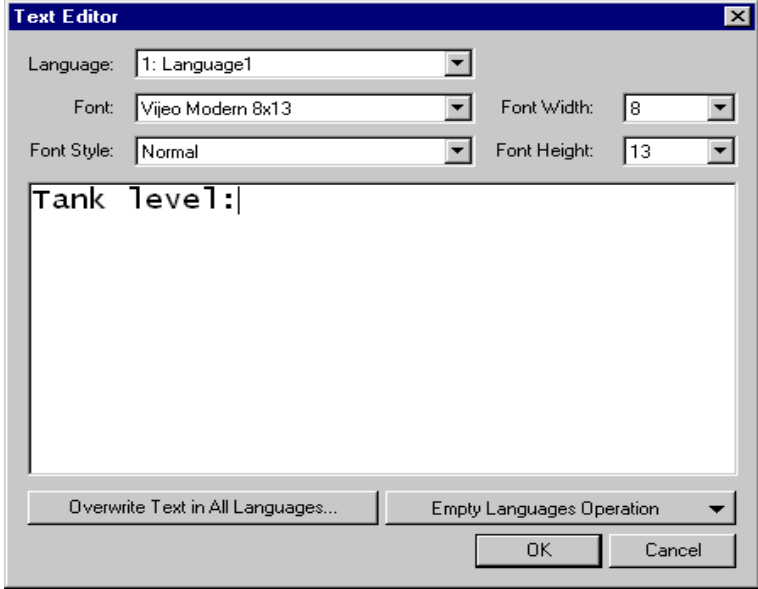
The graphic below shows how the panel should look at the end of this section:



Create Text


The following table describes how to create a text object:

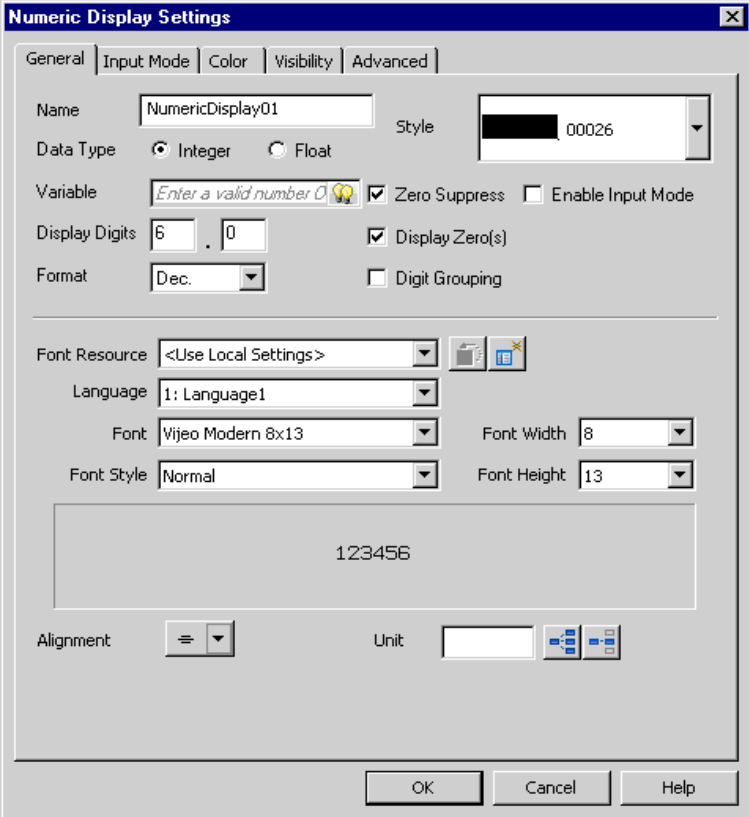

Step	Action
1	Select the "Text" icon in the toolbar and draw an area on the screen where the text will be placed. 

Step	Action
2	<p>The Text Editor window is displayed. Configure the text properties as shown in the screen below and click on OK:</p> 
3	In the " Properties " window, change the Text Color to black, 0,0,0 .
4	Do the same for the text Alarm level.

Create a Numeric Indicator

The following table describes how to create a numeric display:

Step	Action
1	<p>Select the "Data Display" icon in the toolbar and draw an area on the screen where the numeric window will be placed.</p> 

Step	Action
2	<p>The Numeric Display Settings window is displayed. Configure the properties as shown in the screen below:</p> 
3	<p>In the "General" tab:</p> <p>Click the  icon then:</p> <ul style="list-style-type: none"> ● double-click on the "Level" variable, then on OK in the expression editor, ● type 3.0 in the "Display Digits" field,
4	<p>In the "Color" tab:</p> <ul style="list-style-type: none"> ● select the color dark blue, 0,128,128, for the "Plate".
5	<p>Click OK.</p>

Step	Action
6	Repeat these steps for the 'Setup' variable. For the 'Setup' variable, check Enable Input Mode in the Input Mode tab. This allows you to change the value at runtime. The option Display Popup Keypad is automatically selected. This displays a numeric keypad you can use to change the value of the numeric display. Select the color red, 255,0,0 , for the "Plate" .
7	Save your project.

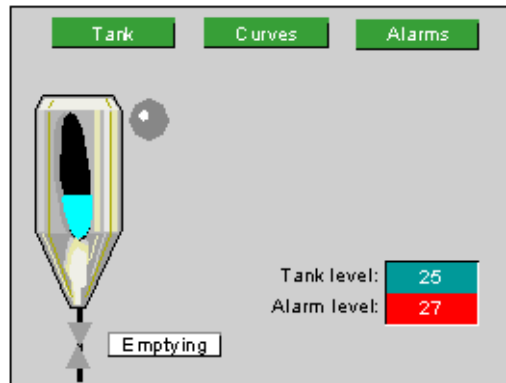
NOTE: You can access and modify an object's settings in the **"Properties"** window.

Graphical Objects

Illustration

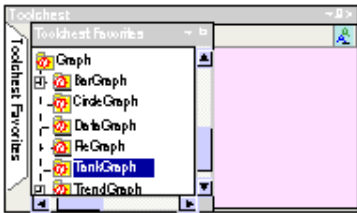
In this section, you will add the tank, the bottom valve, the valve piping, the open and close valve button and the high level indicator.


The graphic below shows how the panel should look at the end of this section:



Import an Object from the Toolchest

The following table describes how to use an object from the toolchest which provides a schematic representation of the tank:

Step	Action
1	<ul style="list-style-type: none"> • In the Toolchest window, select the Toolchest Favorites tab. • Select Graph and then TankGraph. • Drag-and-drop the TankGraph_0001 object into the Tank panel. • Resize the object as required by dragging any of the points that appear around the object when you select it. 

Step	Action
2	In the TankGraph "Properties" window, by the "Variable" property, click on the  button. The Variable List window is displayed. Double-click on the 'Level' variable to animate the tank level.

Create a Line

The following table describes how to create a line representing the piping of the bottom valve:

Step	Action
1	Select the "line" icon from the tool bar and draw a line from the bottom of the tank to the bottom of the screen. Adjust the position of the line using the arrow keys on your keyboard.
2	In the "Properties" window, enter: <ul style="list-style-type: none"> ● black, 0,0,0, as the line color, ● "4" as the line width.



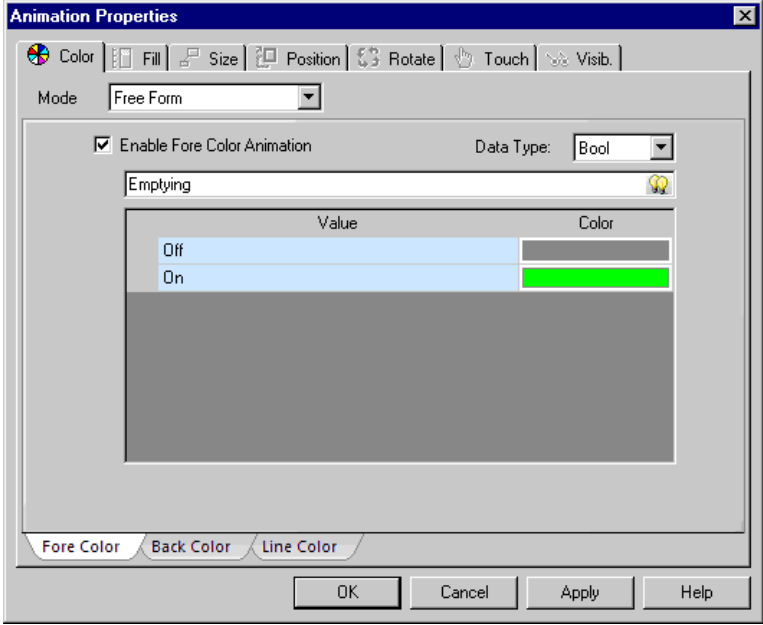

Create Valve

A **polygon** shape will represent the **valve**. It animates depending on whether it is open (green) or closed (gray).

The following table describes how to create the valve:

Step	Action
1	Select the "Polygon" icon in the toolbar and use it to draw a valve , defining an area on the screen where the valve will be placed.





Step	Action						
2	<p>The Animation Properties window is displayed. Configure the properties as shown in the screen below:</p>  <p>The screenshot shows the 'Animation Properties' dialog box with the following settings:</p> <ul style="list-style-type: none"> Mode: Free Form Enable Fore Color Animation: <input checked="" type="checkbox"/> Data Type: Bool Variable: Emptying Value/Color mapping table: <table border="1" data-bbox="463 479 1015 730"> <thead> <tr> <th>Value</th> <th>Color</th> </tr> </thead> <tbody> <tr> <td>Off</td> <td>Gray</td> </tr> <tr> <td>On</td> <td>Green</td> </tr> </tbody> </table> Sub-tab: Fore Color 	Value	Color	Off	Gray	On	Green
Value	Color						
Off	Gray						
On	Green						
3	<p>In the "Color" tab, select Free Form for the mode.</p> <p>In the "Fore Color" tab:</p> <ul style="list-style-type: none"> ● check Enable Fore Color Animation. <p>Click the  icon then:</p> <ul style="list-style-type: none"> ● double-click the BOOL variable "Emptying" then click "OK", ● change the colors of OFF to gray, 192,192,192, and ON to green, 0,128,0. 						
4	Click OK .						

Create Warning Signal

We will use a lamp for signaling the "High_level" alarm. It animates depending on whether the alarm is triggered (red) or untriggered (grey) for "High_level".


The following table describes how to create the lamp:

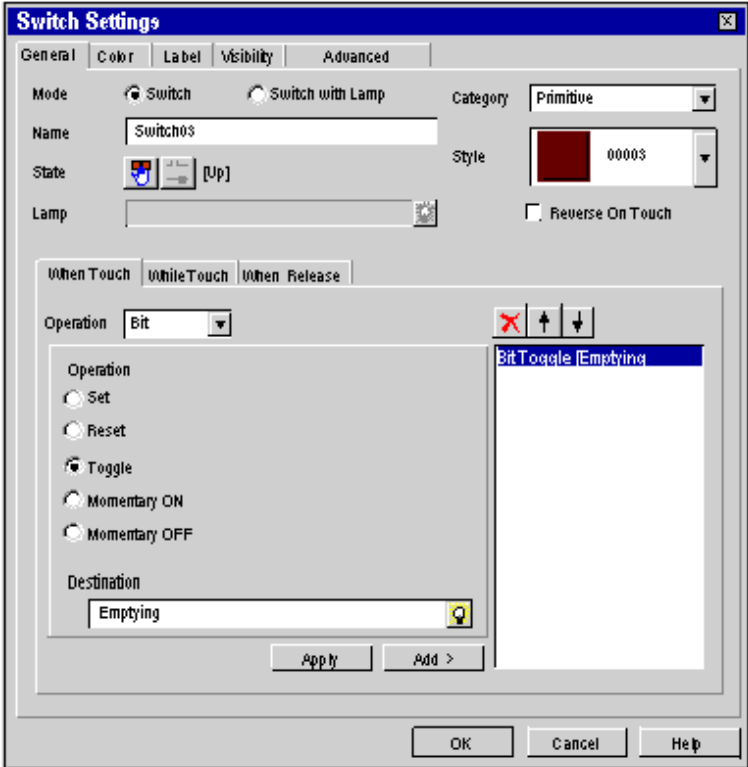

Step	Action
1	<p>Select the "Lamp" icon in the toolbar and use it to draw a Lamp, defining an area on the screen where the lamp will be placed.</p> 
2	<p>In this window, from the "General" tab:</p> <p>Click the  icon then:</p> <ul style="list-style-type: none"> ● select the "BOOL" "High_level" variable, ● retain the lamp style 10001.
3	<p>In the "Color" tab:</p> <ul style="list-style-type: none"> ● select dark gray, 128,128,128, for the foreground color of the OFF state, ● select red, 255,0,0, for the foreground color of the ON state combined with fast blink.
4	Click OK .

Create a Command Button

The "emptying" button enables or disables the "emptying" variable. It also animates the bottom valve.

The following table describes how to create the "emptying" button:

Step	Action
1	<p>Select the "Switch" icon in the toolbar and use it to draw a rectangle, defining an area on the screen where it will be placed.</p> 

Step	Action
2	<p>The Switch Settings window is displayed. Configure the properties as shown in the screen below:</p> 
3	<p>In the General window:</p> <ul style="list-style-type: none"> ● select 00003 as the switch style. <p>Under the "When Touch" tab, click the  icon and:</p> <ul style="list-style-type: none"> ● select the "BOOL" "Emptying" variable, ● select Toggle which will switch ON the Emptying bit when the button is first pressed and switch it OFF when the button is pressed again. ● click Add to confirm the selection.
4	<p>In the "Label" tab:</p> <ul style="list-style-type: none"> ● select static for the label type, ● Type 'Emptying' in the data entry window,

Step	Action
5	In the "Color" tab: <ul style="list-style-type: none"><li data-bbox="307 224 817 250">● select white, 255,255,255, as the foreground color,<li data-bbox="307 250 677 276">● select black, 0,0,0, as the text color.
6	Click OK .

Creating Recipes

Illustration

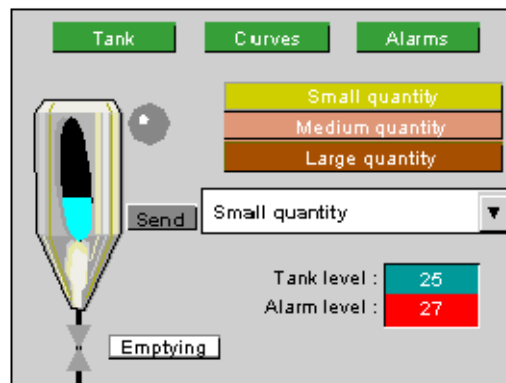
This sections explains two ways of implementing recipe commands:

- using buttons for each recipe,
- using the recipe selector.

We will create 3 recipes to set the level and alarm set point values according to the selected recipe:

- Small quantity is the first recipe. It fills the tank to 25% of its capacity and sets the alarm level at 27%,
- Medium quantity is the second recipe. It fills the tank to 50% of its capacity and sets the alarm level at 52%,
- Large quantity is the third recipe. It fills the tank to 80% of its capacity and sets the alarm level at 82%.

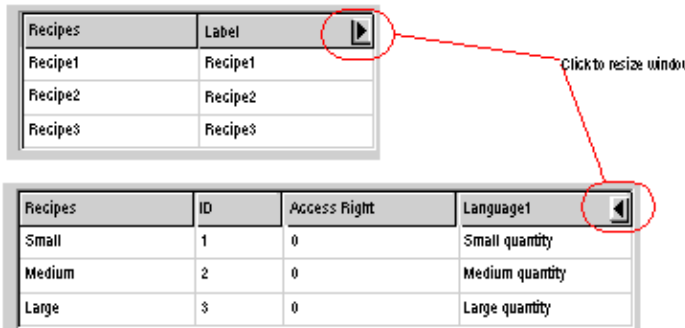
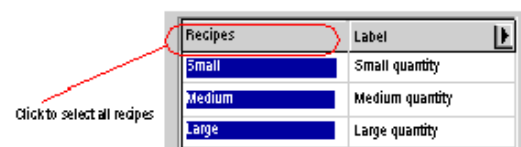
The graphic below shows how the panel should look at the end of this section:



Create the Recipe

The following table describes how to create the recipes:

Step	Action
1	In the navigator, right-click " Recipes ".
2	Create a new recipe group.
3	Rename the new recipe group 'Tanksetting'.


Step	Action
4	<p>Configure the recipe names as follows:</p>  <ul style="list-style-type: none"> ● Right-click on Recipes and select New Recipe to create recipe 2 ● Right-click on Recipes and select New Recipe to create recipe 3 ● Click on the arrow, as shown in the graphic, to expand the window, ● Rename Recipe1 to Small and, in the Language1 column, type Small quantity, ● Rename Recipe2 to Medium and, in the Language1 column, type Medium quantity, ● Rename Recipe3 as Large and, in the Language1 column, type Large quantity, <p>3 recipes are now created.</p>
5	<p>Configure the recipe names as follows:</p>  <ul style="list-style-type: none"> ● Click on the arrow, as shown in the above graphic, to minimize the window, ● Click on Recipes, as shown in the graphic, to select all the recipes and perform the following configuration steps,

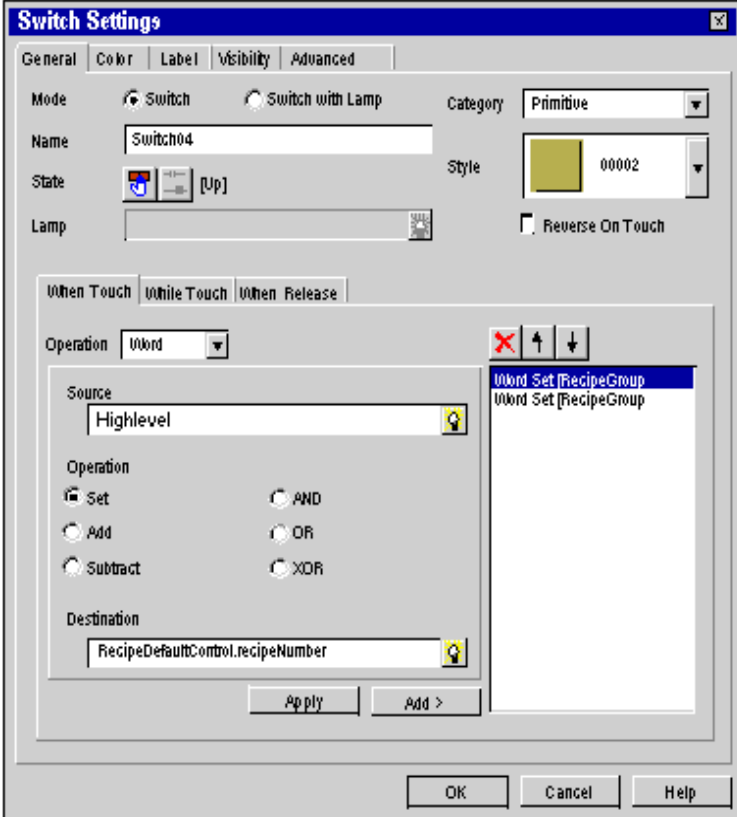

Step	Action																											
6	<p>Configure the recipes as follows:</p> <table border="1"> <thead> <tr> <th></th> <th>Ingredients Vaia...</th> <th>Label</th> <th>Editable</th> <th>Min</th> <th>Max</th> <th>Small</th> <th>Medium</th> <th>Large</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Level</td> <td>Level</td> <td><input type="checkbox"/></td> <td>0</td> <td>100</td> <td>25</td> <td>50</td> <td>80</td> </tr> <tr> <td>2</td> <td>Setup</td> <td>Alarm setup</td> <td><input checked="" type="checkbox"/></td> <td>0</td> <td>100</td> <td>27</td> <td>52</td> <td>82</td> </tr> </tbody> </table> <p>Fill in line 1 by double-clicking to enter data, Add an ingredient by right clicking on line 1 and selecting New Ingredient which enables you to create line 2 Fill in line 2 by double-clicking to enter data.</p>		Ingredients Vaia...	Label	Editable	Min	Max	Small	Medium	Large	1	Level	Level	<input type="checkbox"/>	0	100	25	50	80	2	Setup	Alarm setup	<input checked="" type="checkbox"/>	0	100	27	52	82
	Ingredients Vaia...	Label	Editable	Min	Max	Small	Medium	Large																				
1	Level	Level	<input type="checkbox"/>	0	100	25	50	80																				
2	Setup	Alarm setup	<input checked="" type="checkbox"/>	0	100	27	52	82																				
7	Save your project.																											

Create Button-Operated Recipe Command

Create three buttons, one for each recipe.

The following table describes how to create a button for a recipe:

Step	Action
1	<p>Select the "Switch" icon in the toolbar and use it to draw a rectangle on the panel.</p> 

Step	Action
2	<p>The Switch Settings window is displayed. Configure the properties as shown in the screen below:</p>  <p>The screenshot shows the 'Switch Settings' dialog box with the following configuration:</p> <ul style="list-style-type: none"> General Tab: <ul style="list-style-type: none"> Mode: <input checked="" type="radio"/> Switch, <input type="radio"/> Switch with Lamp Name: Switch04 State: [Up] Category: Primitive Style: 00002 Reverse On Touch: <input type="checkbox"/> When Touch Tab: <ul style="list-style-type: none"> Operation: Word Source: Highlevel Operation: <input checked="" type="radio"/> Set, <input type="radio"/> AND, <input type="radio"/> Add, <input type="radio"/> OR, <input type="radio"/> Subtract, <input type="radio"/> XOR Destination: RecipeDefaultControl.recipeNumber
3	<p>In the General window:</p> <ul style="list-style-type: none"> ● select 00002 as the switch style. <p>Under the "When Touch" tab:</p> <ul style="list-style-type: none"> ● select a Word operation, ● enter 1 in Source. ● in Destination, click the  icon and select RecipeDefaultControl.RecipeNumber. ● click Add to confirm selection of recipe number 1. ● Repeat the operation, enabling source 1 for the destination RecipeDefaultControl.Operation, ● click Add to confirm the choice to send a recipe command.

Step	Action
4	In the " Label " tab: <ul style="list-style-type: none"> ● select static for the label type, ● type 'Small quantity' in the data entry window,
5	In the " Color " tab: <ul style="list-style-type: none"> ● select black, 0,0,0, as the text color, ● select yellow, 255,255,0, as the foreground color,
6	Click OK .
7	Save your project.

Repeat these steps to create buttons for the Medium and Large recipes using the following assignment table:

	Small	Medium	Large
RecipeDefaultControl.RecipeNumber (Recipe number)	1	2	3
RecipeDefaultControl.operation (recipe operation)	1	1	1
Button color and color code	yellow 255,255,0	salmon pink 255,128,64	brown 128,128,0
Button label	Small quantity	Medium quantity	Large quantity

Create a Recipe Selector

The recipe selector can be found in the toolchest.

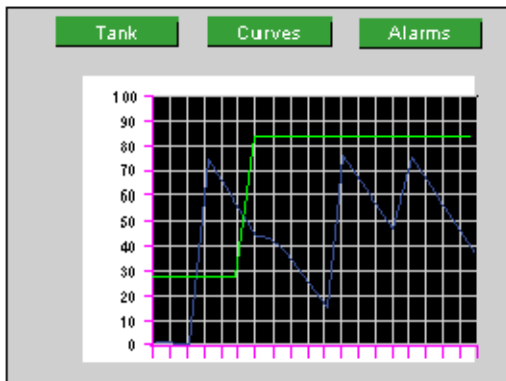
- In the **Toolchest** window, select the **Toolchest Favorites** tab.
- Select **Recipe**.
- Drag-and-drop the "Recipeselect" object and the "send" object into the "Tank" panel.

Creating the "Curves" Panel

Illustration


The 'Curves' panel and the 'page jump' button group have already been created (see page 35). The purpose of this section is to add the **trend graph** object and configure the "Level" and "Setup" variables to be able to view their values in the graph.

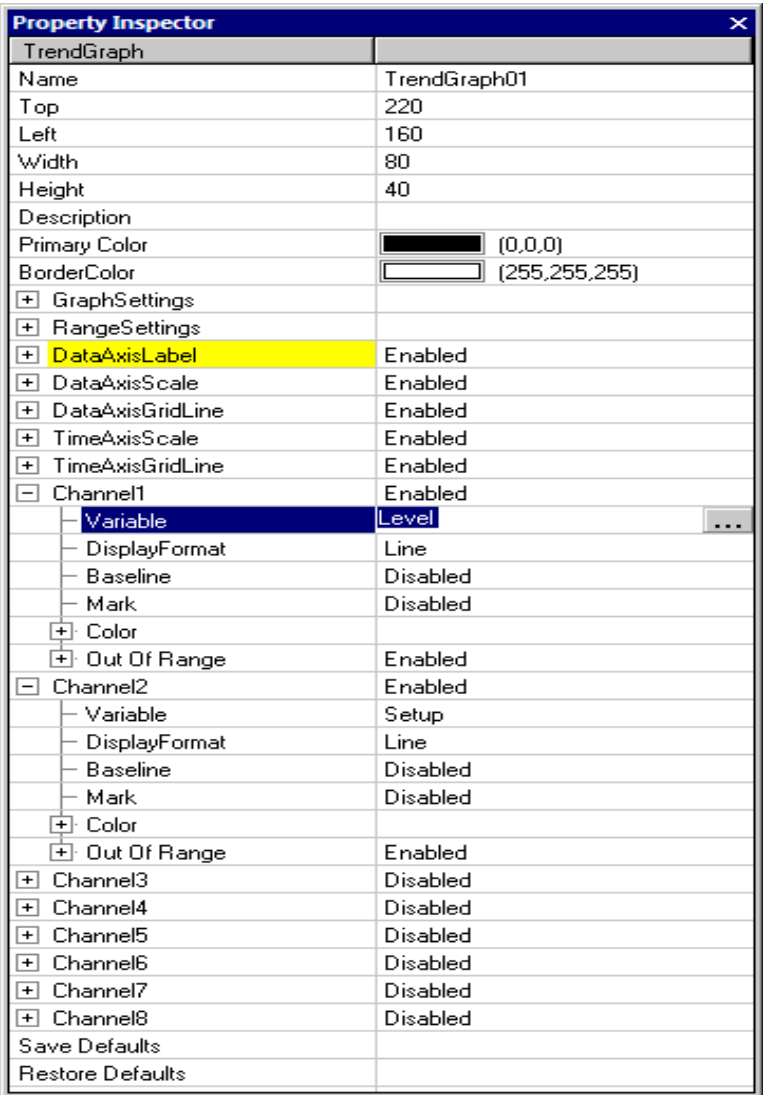
The graphic below shows how the panel should look at the end of this section:



Create Trend Graph

The following table describes how to create the trend graph for the 'Curves' panel:

Step	Action
1	Select the " Trend Graph " icon in the toolbar and draw an area on the panel where the object will be placed. 

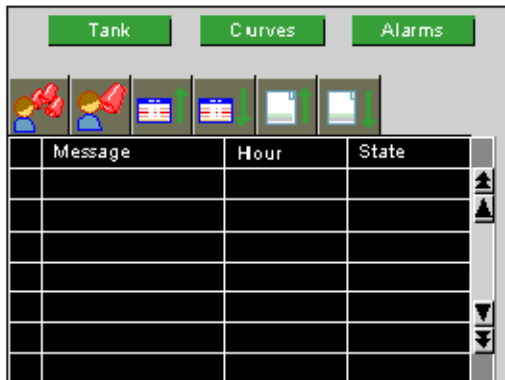
Step	Action
2	<p>Configure the trend graph in the properties window:</p> <ul style="list-style-type: none"> • select the "Level" variable for channel1, • Enable channel2 and select the "Setup" variable.  <p>The screenshot shows the 'Property Inspector' window for 'TrendGraph01'. The 'DataAxisLabel' property is highlighted in yellow and is set to 'Enabled'. Under the 'Channel1' section, the 'Variable' property is set to 'Level'. Under the 'Channel2' section, the 'Variable' property is set to 'Setup'.</p>
3	Save your project.

Creating the "Alarms" Panel

Illustration


The Alarms panel and the 'page jump' button group have already been created (see page 35). The purpose of this section is to demonstrate how to use the **alarm** object and configure it to view alarms on this screen.

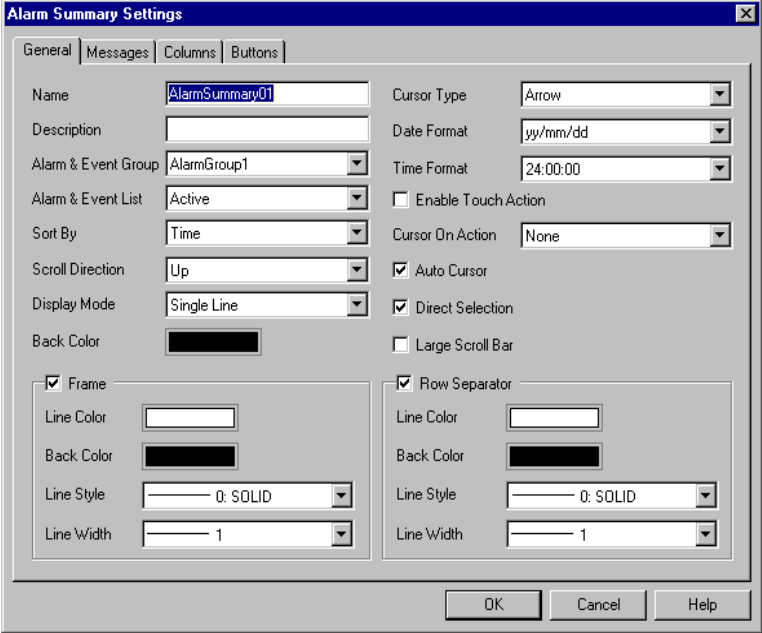
The graphic below shows how the panel should look at the end of this section:



Import and Configure Alarm Object

The following table describes how to create an alarm summary:

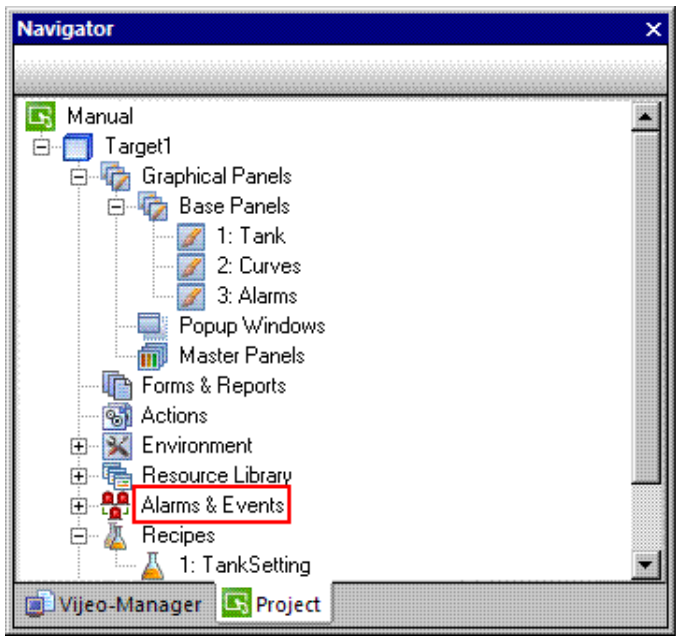
Step	Action
1	<p>Select the "Alarm Summary" icon in the toolbar and draw an area on the screen where the object will be placed.</p> 

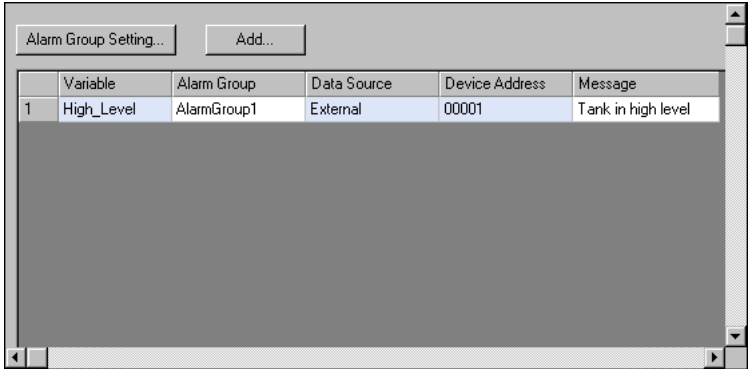
Step	Action
2	<p>Double-click the object to open the Alarm Summary Settings window.</p> <p>In the General tab:</p> <ul style="list-style-type: none"> select Log for the Alarm List property (history, active, log) to display changes in alarm state (active, acknowledged, unacknowledged, and returned to normal). 

NOTE: The column display may be configured as required. In this Alarms page, we have chosen to display the message with a column width of 120, and the alarm date and time with column widths of 80.

Configure Alarm Group

The following table describes how to configure the alarm group:

Step	Action
1	Select the " Project " tab in the Navigator window.  The screenshot shows the 'Navigator' window with a tree view. The tree structure is as follows: Manual (expanded) -> Target1 (expanded) -> Graphical Panels (expanded) -> Base Panels (expanded) -> 1: Tank, 2: Curves, 3: Alarms. Other folders under Target1 include Popup Windows, Master Panels, Forms & Reports, Actions, Environment, Resource Library, Alarms & Events (highlighted with a red box), and Recipes. Under Recipes, there is a sub-item '1: TankSetting'. At the bottom of the window, the 'Project' tab is selected, and the 'Vjeco-Manager' icon is visible on the left.
2	Double-click " Alarms & Events " to open the folder.
3	Select " AlarmGroup1 " to open the alarm group configuration window.

Step	Action												
4	<p data-bbox="336 201 1053 250">For High_level alarm, add the message "Tank in high level" as shown in the following screen:</p>  <table border="1" data-bbox="353 337 1061 391"><thead><tr><th></th><th>Variable</th><th>Alarm Group</th><th>Data Source</th><th>Device Address</th><th>Message</th></tr></thead><tbody><tr><td>1</td><td>High_Level</td><td>AlarmGroup1</td><td>External</td><td>00001</td><td>Tank in high level</td></tr></tbody></table> <p data-bbox="336 708 1098 756">When the alarm is triggered, "Tank in high level" will be displayed in the message column.</p>		Variable	Alarm Group	Data Source	Device Address	Message	1	High_Level	AlarmGroup1	External	00001	Tank in high level
	Variable	Alarm Group	Data Source	Device Address	Message								
1	High_Level	AlarmGroup1	External	00001	Tank in high level								
5	Save your project.												

Creating an Action

At a Glance

Actions can define a procedure that runs when a condition is met.

For this project, we create three actions:

- The first action triggers when the target powers up. It is used to select recipe number 1.
- The second action triggers when the "Emptying" variable activates. This action simulates emptying of the tank.
- The third action triggers when the "Level" variable exceeds the value of the "Setup" variable. This action toggles the "High_level" alarm **ON** and **OFF**.

Create the Startup Action

The following action executes once on startup.

The following table describes how to create the startup action:

Step	Action
1	In the Navigator window, select the "Project" tab , then right-click on "Actions" and select "New Action"
2	<p>In the Action Settings dialog box:</p> <ul style="list-style-type: none"> • Select "Event" in the "Trigger Type" field, • Select "On Startup" in the "Trigger Event" field, • Click Next to continue.

Step	Action
3	Select Script in the Operation field. Click the New Script button to open the script window. Type the following script: //Set Recipegroup _RecipeControlDefault.RecipeGroupNumber.write(1);
4	Click Add-> to add the script to the action.
5	Click Finish to save the action.

Create the Emptying Action

The following action executes every 0.3 seconds when the "Emptying" variable is enabled, by pressing the **Emptying** button. This action simulates emptying of the tank.


The following table describes how to create the emptying action:

Step	Action
1	In the Navigator window, select the Project tab, then right-click on Actions and select New Action
2	<p>In the Action Settings dialog box:</p> <ul style="list-style-type: none"> ● Select Periodic in the Trigger Type field, ● Check Enable Interlock and select "Emptying" for the variable, ● Enter 0.3 for the Frequency, ● Select Low in the Scheduling field, ● Click Next to continue.

Action Settings

TriggerType:

Publish To:
Web Gate property must be enabled when publishing to Web Gate

Enable Interlock: 
Actions run when expression is true

Frequency (sec):

Scheduling:

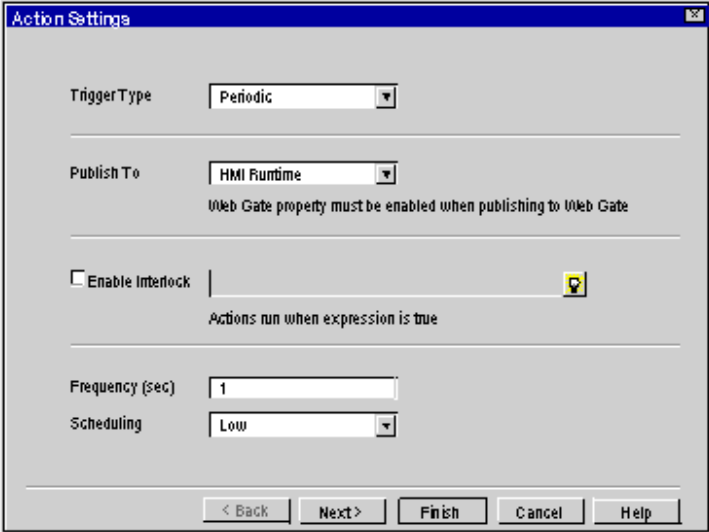
Step	Action
3	Select Script in the Operation field. Click the New Script button to open the script window. Type the following script: <pre>//creating temporary variable int tmp; int tmp; //Set value of Level in tmp tmp = Level.getIntValue (); //If value of level>0 if (tmp>0) { //then decrement tmp tmp --; //Then write tmp's value in Level variable Level.write (tmp); }</pre>
4	Click Add-> to add the script to the action.
5	Click Finish to save the action.

Create the Alarm Action

The following action executes periodically every second. This action toggles the "High_level" alarm **ON** and **OFF**.

The following table describes how to create the alarm action:

Step	Action
1	In the Navigator window, select the Project tab, then right-click on Actions and select New Action

Step	Action
2	<p>In the Action Settings dialog box:</p> <ul style="list-style-type: none"> ● Select "Periodic" in the "Trigger Type" field, ● Enter 1.0 for the Frequency, ● Select "Low" in the "Scheduling" field, ● Click Next to continue. 
3	<p>Select "Script" in the "Operation" field. Click the New Script button to open the script window. Type the following script:</p> <pre data-bbox="353 1003 891 1157"> //If Level > Setup of alarm if (Level.getIntValue() > Setup.getIntValue()) //Then Alarm (High_level) activated else alarm deactivated High_level.write(1); else High_level.write(0); </pre>
4	Click Add-> to add the script to the action.
5	Click Finish to save the action.
6	Save your project.

Simulation

Simulating your Project

The simulation function can be used to display your project without downloading it to an iPC/XBT GC/XBT GT/XBT GK/XBT GTW/HMIGTO/HMIGTU/HMISTO/HMISTU terminal. It is a good way to check and validate your project, and make sure things are the way you want.

Start Simulation

The following table describes how to run the simulation and check your project:

Step	Action	Result
1	Click the Project tab in the Navigator window.	
2	Right-click Target 1 .	
3	Select Start Device Simulation .	The initial screen of your project appears.
4	Test your project as it is so far.	<p>It should behave as outlined in the requirements established at the beginning of the Tutorial. For example:</p> <ul style="list-style-type: none"> ● Choose a recipe. Does the value appear on the tank graphically and in the numeric display? ● Click on the numeric display (level of alarm) and enter number 10 with the keypad that pops up. When the alarm appears, does the light blink? ● Click the navigation button to move to the second screen. Do the values appear on the curve? ● Click the alarms button to move to the third screen. Do you get there? ● Return to the first screen. Click the emptying button. Does the tank empty?
5	To stop the simulation, press either CTRL+Z or ALT+F4 or click the Close button of the simulation windows.	If you find that some elements are not working properly, go back to the appropriate panel, select the element(s) and review the properties.
6	When everything is fine, test other parts of the application such as the alarms. Note: When testing your project after making corrections, you must close the simulation window before running a new one.	

Chapter 3

Project Download

Purpose of this Chapter

This chapter describes the different project build types and the various project download modes.

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Validating, Building, and Correcting Errors	64
Downloading a Project	66

Validating, Building, and Correcting Errors

Types of Data Transfer

Use one of the following methods to transfer a customer application to a terminal:

Type	Procedure
Ethernet	The project is transferred to products equipped with an Ethernet port over the network.
Tool port	The project is transferred to the device connected to the PC using XBT ZG915 or XBT ZG925 cables.
USB port	The project is transferred to the device connected to the PC using XBT ZG935 cable.
User Application Installer	The project is transferred to a file, which is installed onto the iPC target machine using the User Application Installer.
CompactFlash card	The project (on a PC equipped with a PCMCIA card reader) is transferred by copying to a CompactFlash card. The card is then inserted in the terminals.
Local simulation	The project is stored locally for simulating the application during its fine-tuning phase.

Validating the Target

To make sure that all the parameters of the project you want to build are present and correct, use the **Build** → **Validate all** command from the main menu.

Building the Target

Build compiles the project created with the Vijeo Designer graphical editor, into a program that can run on the supported HMI panel.

Before starting the build, use the **Build** → **Clean All** command. This command cleans the project folder for each target and/or project so that they are free of unnecessary files.

After cleaning the target folders, use the **Build** → **Build All** command to build your target.

Vijeo Designer can build a program in any of four possible ways:

Type	Procedure
Build	Rebuilds the project completely.
Start Simulation (Build)	Rebuilds the project completely. When the build is complete, the simulation starts. Does not allow you to simulate external addresses.
Start Device Simulation	Rebuilds the project completely. When the build is complete, the simulation starts. Allows you to simulate external addresses.
Download To	Rebuilds the project completely. If no errors are detected, the user application files are transferred to the target machine.

Error Correction

When the build process completes, the **Feedback zone** window opens automatically, and all detected errors and warnings are displayed. Errors are displayed in red, and warnings are displayed in yellow. When there are no errors or warnings, the result is displayed in green.

To view detailed information on a specific error or warning, double-click on the error or warning message.

Downloading a Project

Data Download Types

To send an application to its target, you can use one of several download methods:

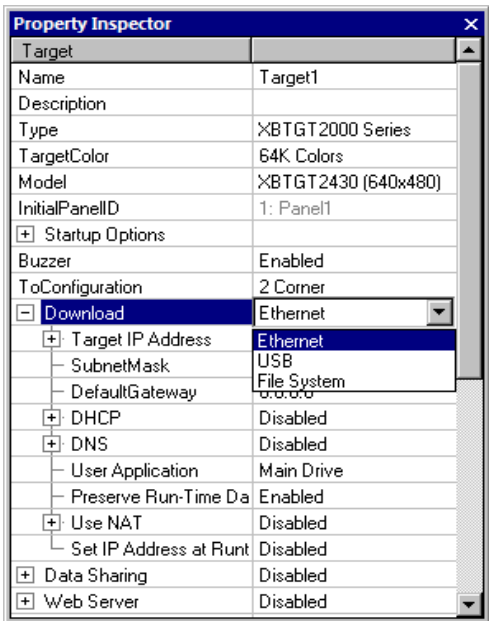
- downloading over an Ethernet network
- a file system method, where data is downloaded to a CF card, USB drive, or network folder
- using the unit's serial port to download directly to the target
- using the unit's USB port to download directly to the target.

Select the method you want to use in the **Target properties**.

For more information on downloading a project, see the online help.

Download Procedure

The following table describes how to download an application to a target:

Step	Action
1	Click the Project tab in the Navigator window, and click Target1 .
2	<p>In the Download field of the Property Inspector window, select the download method appropriate for your target: USB, Serial, File system, or Ethernet.</p>  <p>The screenshot shows the 'Property Inspector' window for 'Target1'. The 'Download' dropdown menu is open, showing the following options: Ethernet (selected), USB, File System, and Serial. Other properties visible include: Name: Target1, Type: XBTGT2000 Series, TargetColor: 64K Colors, Model: XBTGT 2430 (640x480), InitialPanelID: 1: Panel1, Buzzer: Enabled, ToConfiguration: 2 Corner, DHCP: Disabled, DNS: Disabled, User Application: Main Drive, Preserve Run-Time Data: Enabled, Use NAT: Disabled, Set IP Address at Runtime: Disabled, Data Sharing: Disabled, and Web Server: Disabled.</p> <p>Check your hardware manual for your supported download method and download cables.</p>
3	Configure the download settings for the download method.
4	In the Navigator window, right click Target1 and select Download To...
5	<p>Check your target machine unit to see if the application is displayed correctly. Note: If an error message appears in the Feedback zone, the download has failed. You need to solve the problem before trying to download data again. Double-click on the error message displayed in the Feedback zone to locate the position of the error.</p>

Exit Vijeo Designer

Before you exit Vijeo Designer, save your project. Then select **File** → **Exit** from the main menu.



A

actions, 12

B

building, 64

C

checking for errors, 64
Configuration, 27
connectivity, 12

D

data reuse, 12
data transfer, 64
Display, 37
downloading a project, 66

E

editing variables, 13
errors, 64
Ethernet, 64

G

generation, 64
graphical panel, 12
Graphical Panel
 Alarm, 54
 Curves, 52
 Tank, 34

H

HMI, 12
HMI panels that use Vijeo Designer, 13

I

Installation, 16

M

messaging
 in multiple languages, 13
multi-language messaging, 13

O

Object, 41

P

properties, 13

R

Recipe, 47
reusing data, 12

S

Script, 58
simulation, 62
Starting Vijeo Designer, 26

T

target devices, 13

U

Uninstall, 18

V

validating, 64
variable editing, 13

Variables, 29