Rexroth Bosch Group

Rexroth WinStudio

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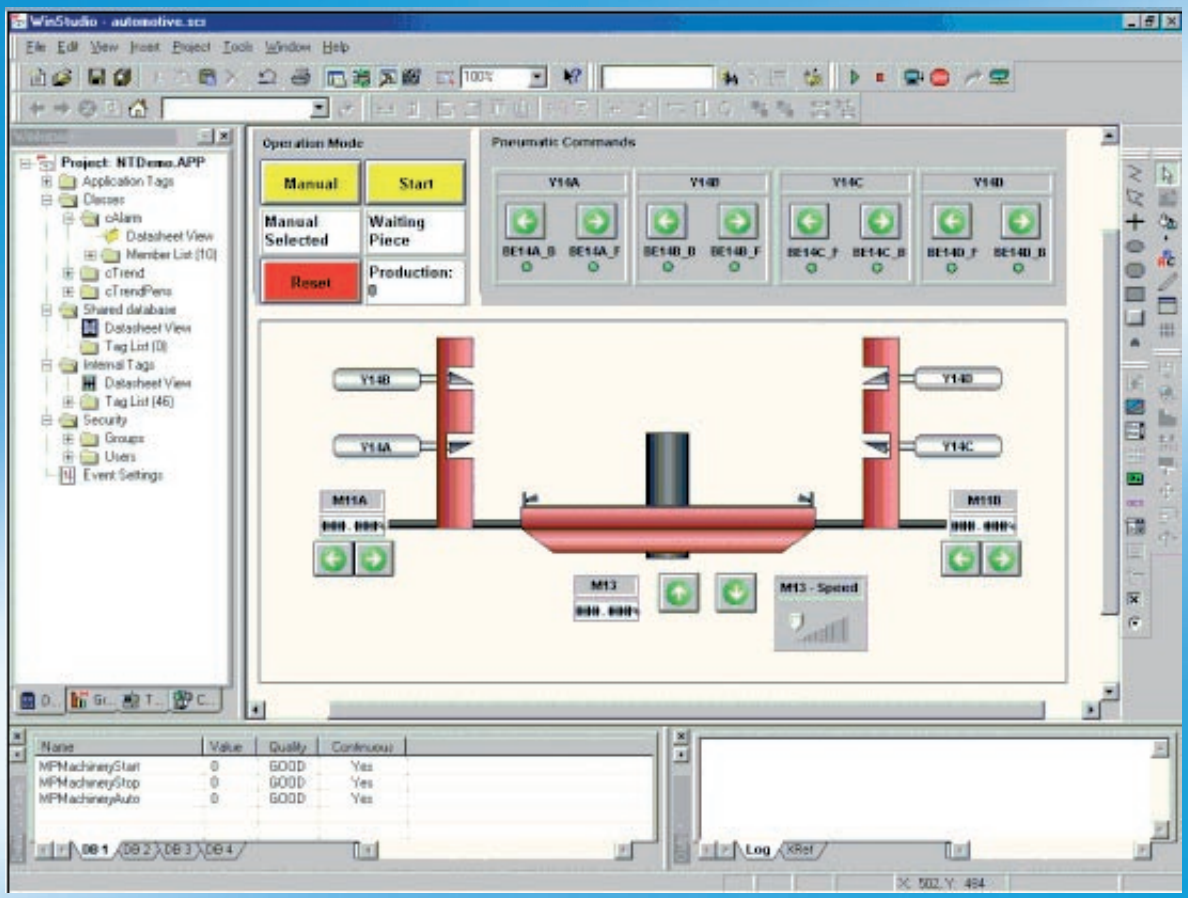
Edition 01

Getting Started Guide



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Purpose of Documentation This documentation is intended to help you quickly familiarize yourself with the basic functions of WinStudio.

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Contents

1 Welcome to WinStudio

1.1 General Information

WinStudio is a powerful tool, that exploits key features of Microsoft® Windows® NT/2000/XP and Windows® CE. These features enable you to build full featured SCADA (Supervisory Control And Data Acquisition) or HMI (Human Machine Interface) applications for your industrial automation business.

1.2 Overview

This Getting Started Guide is intended for individuals using WinStudio for the first time. This publication will help you to familiarize yourself with the basic functions of WinStudio.

Note: WinStudio assumes that you are familiar with the basic functions of the Windows NT/2000/XP operating system. However, if you need assistance, we suggest using the **Help** features in the Windows Desktop **Start** menu.

This Getting Started guide is divided into the following chapters:

- **Chapter 1: Welcome to WinStudio:** Provides a brief overview of the WinStudio product, including its main features and system requirements.
- **Chapter 2: About this Publication:** Provides information about this publication as well as the used conventions and related publications.
- **Chapter 3: Installing the Software:** Explains how to install WinStudio and CEView on your system.
- **Chapter 4: Working with the WinStudio Interface:** Describes all the elements of the WinStudio development environment including menu bars, toolbars, dialog elements, buttons, menus, etc.
- **Chapter 5: Creating a WinStudio Application:** Explains how to create and edit an application. Furthermore, this chapter describes how to create and modify objects, screens and communication drivers as well as the procedure for testing your application.
- **Chapter 6: Running the Web-Based Application:** Explains how to create and start a web-based application.
- **Chapter 7: Running Applications from a Remote Station:** Explains how to manage applications remotely.

1.3 About WinStudio

WinStudio applications consist of animated operator-oriented screens, communication drivers (for PLC connection and I/O protocols, e. g. BUEP, TCP/IP), database tags and additional modules such as alarm monitors, mathematic and logic functions, trend charts, recipes, schedulers, and the security system.

WinStudio applications interface with industrial I/O systems and other Windows applications in the runtime environment using ODBC, DDE, NetDDE, OPC, or TCP/IP protocols. You can also operate the application by means of a standard web browser (Internet Explorer or Netscape).

The product consists of two parts:

- The *development system* software which runs on a desktop, laptop or an industrial PC running Windows NT/2000/XP.
- The r*untime system* software which runs on any workstation running Windows NT/2000/XP or Windows CE.

Note: The runtime system software for Windows CE (CEView) is usually pre-installed on your HMI. If necessary, you can update the development system software by an automatic download.

You can run WinStudio applications on your development workstation or download it to your target workstation (via a serial or TCP/IP connection) and from there start the runtime under WinStudio or CEView. If the application is running, the I/O units configured by the connected control are retrieved by means of the parameters entered in the application and loaded into the control. Then, the control reacts to the data by displaying, saving or updating them.

1.4 Main Features

WinStudio provides the following properties and functions:

- Web interface: Allows you to visualize screens for a standard web browser (Thin Client) and exchange data via the Internet/Intranet with the TCP/IP protocol.
- WinStudio applications which run on all Windows platforms (Windows NT/2000/XP and Windows CE).
- Online and remote management of the application and configuring (download/upload, commands, system and network diagnosis as well as debugging)
- An integrated development environment with toolbars, dialogs, menus, and customizable toolbars
- A user-friendly screen editor that enables you to modify an application also during the runtime (online configuration).
- A library of more than 100 symbols and dynamic objects, such as: frames, icons, motors, pipe elements, meters and gages, LED-style indicators, text and numeric displays, control symbols, sliders, switches, pumps and valves, pushbuttons, vehicles.
- A cross-reference tool to locate tags throughout the application
- Active-X object containers

- Full-featured objects with dynamic and customizable object properties such as bar graphs, color change, resizing, position, rotation, hide/unhide, commands, hyperlinks and text or value input/output
- An open architecture API that exchanges the used tag values with external programs (Microsoft.NET architecture-compliant).
- Easy merging of screens and configuration worksheets into other applications
- Screen and object password-protected runtime security (256 levels)
- OPC Client and Server modules with integrated OPC Browser, DDE Client and Server modules, as well as TCP/IP Client and Server modules to exchange data and configure a system redundancy.
- Standard protocols such as BUEP, TCP/IP
- Mathematic and logic expressions as well as a scripting language with more than 200 functions
- Online/historical alarms, trends, recipe and report functions (text, XML, or RTF-formatted ASCII or UNICODE)
- Event scheduler (based on date, time or tag modifications)
- Translation editor to translate applications into different languages. Online language conversion during runtime is possible.
- **Database Spy** window (local or remote) to monitor or force tag values and to execute functions (test environments)
- LogWin modules (local and remote) to monitor messages initiated by DDE, OPC and TCP/IP transactions, to activate modules, to modify tags etc.
- A powerful and flexible database system with Boolean, Integer, Real, and String tags, array tags, classes (data structures) and indirect tags and pointers
- Contains functionalities to import tags from controls and applications such as ASAP, ISaGRAF, SteepleChase and Think&Do
- Functions to dial-up, trigger and monitor hang-up dial-up connections with remote stations and RAS servers
- Functions to send emails (in WinStudio or CEView)

Note: WinStudio provides different product types (e. g. ranging from Advanced Server to Lite) for different levels of an application. However, WinStudio does not support some features in certain product types (such as CEView).

System Requirements

To develop and run applications with WinStudio, the following hardware and software components must be available:

- IBM-compatible computer with an Intel® Pentium II-compatible processor or higher
- Windows NT/2000/XP operating system for development
- Windows NT/2000/XP or Windows CE 3.00 or Windows CE.NET operating system for runtime
- Minimum of 128 MB RAM (*256 MB or higher recommended*)
- MS Internet Explorer 4.0 or higher
- Minimum of 150 MB free hard disc space (required for the program without any application files); (*300 MB recommended*)
- CD ROM drive: This device can be installed on another connected computer.
- Standard keyboard with function keys F1 to F12
- Parallel printer port (*optional*)
- 100 % IBM-compatible VGA or SVGA graphic card with 32 MB video RAM (VRAM) (*optional for Runtime when running a web-based application*)
- Microsoft-compatible pointer device (such as mouse, trackball or touch screen)
- One or two COM ports and adapter for downloading applications (*optional*)
- Ethernet connection for downloading applications (*optional*)

Note: WinStudio is UNICODE-compliant and will not run on a non-UNICODE-compliant operating system (such as Windows 9x/ME). You can, however, run the Web Thin Clients of WinStudio applications on non-UNICODE-compliant systems.

2 About this Publication

2.1 General Information

This chapter provides the necessary information for a better understanding of this WinStudio Getting Started Guide and other WinStudio publications:

- **Text Conventions:** Describes the conventions for text formattings used in this publication to help you read and assimilate information quickly.
- **Mouse and Selection Conventions:** Describes the conventions used in this publication for using a mouse and selecting objects in a Windows environment.
- **Windows Conventions:** Describes the conventions used in this publication for working in a Windows environment.
- **Related Publications:** A list of further WinStudio publications (available on the WinStudio installation CD ROM) containing related information about WinStudio.

2.2 Text Conventions

This publication uses special formattings to help you quickly identify certain items as follows:

- Titles, labels, and new terms are indicated using *italic* text.
- File names, messages and screen texts are indicated using bold and monospaced text (For example: **`D:\Setup.exe`**).
- Variables and information you must provide are indicated using bold, italic and monospaced text enclosed in < and > brackets (for example: Run the ***`<driver name>.exe`*** file indicates you must provide the name of the driver file)
- Buttons, menu options, and keyboard keys are indicated in **bold**.
- Text requiring special emphasis is indicated in ***bold italic***.
- Some information is divided into **Tip, Note** and **Caution** boxes as follows:
  - **Tips** provide useful information to save development time or to improve application performance.
  - **Note** provides additional information related to the surrounding text, usually the text just preceding the note.
  - **Cautions** provide information necessary to prevent damage or problems, when running the application.

2.3 Mouse and Selection Conventions

As most of the PCs used for application development are Windows-based, this publication assumes you are using a mouse. This publication also assumes that your mouse is configured, so that the left button is the primary button and the right button is the secondary button.

This publication uses the following mouse and selection conventions:

- **Double-click** means to quickly click twice on an object with the left mouse button.
- **Right-click** means to click once on an object with the right mouse button.
- **Click** and **Select** both mean to click once on an object with the left mouse button. In general, you *click* on buttons and *select* from a list.
- **Select** also means to use your pointing device (mouse indication on the screen) to highlight or specify an item on the computer screen. Selecting an object with a touch screen is usually the same as selecting with a mouse, except that you use your finger to touch (select) a screen object or section.
- You can also use keys to select objects/options. For example, you can use the **TAB** key to move between the options, the **Enter** key to open menus, and the **Ctrl** or **Alt** keys in combination with a letter key (for example, **Ctrl+S**) to select a menu option having an underlined letter (**Save**).
- **Drag** means using your mouse to move an object on the computer screen to a new location. For this, position your mouse cursor on the desired object and press the left mouse key. Now, by pressing and holding the right mouse key you can move the object to another location. Thereby, usually, the outline of the object will move along with the cursor. When the object is positioned on the desired location, release the mouse button.

2.4 Windows Conventions

This publication uses the following Windows conventions:

- **Dialog boxes** (or *dialogs*) are windows, that allow you to enter data.
- **Text boxes** (or *fields*) are areas in dialogs, where you can enter texts.
- **Radio buttons** are white circles, in which a black dot ( ) appears or disappears, when you click on the option. Typically, the black dot indicates that the option or function is enabled (active); the absence of a black dot indicates that the option or function is disabled (inactive). Usually, radio buttons are arranged as field, whereby only one option can be selected at the same time; all other options are then disabled.
- **Check boxes** are white squares, in which a check ( ) appears or disappears, when you click on the button. Typically, the check indicates, that this option is enabled (active); the absence of a check indicates that the option is disabled (inactive). It is possible to select several options at the same time.
- **Buttons** are icons in boxes, that appear "pressed", when you click on them.
- **Lists** are panes (white boxes) in windows or dialog boxes containing two or more selectable options.
- **Combo boxes** can be opened/closed when clicking on the arrow key; then, an option list is indicated.

Fig. 2-1: Using a Combo Box

- **Interface** or **Development environment** refers to the entire WinStudio window.
- **Dockable windows** are windows, that you can drag to the edge of another window and thereby merge the two windows to one.
- **Toolbars** are dockable windows, that contain only buttons and text boxes.

Note: The dialog boxes and procedures described in this publication are valid for the operating system Windows 2000. Some terms or views may vary according to the operating system used and depend on the individual country versions and languages.

2.5 Related Publications

The following publications are still in preparation and will be published on the WinStudio CD ROM as soon as possible.

Title	Short text	Part no.
Rexroth WinStudio Bedien- und Programmieranleitung	DOK-CONTRL-WIS*PC**V06-AW..-DE-P	In preparation
Rexroth WinStudio Operator and Programming Guide	DOK-CONTRL-WIS*PC**V06-AW..-EN-P	In preparation

Fig. 2-2: Related publications

Note: For information about the single menu bars, toolbars, dialog elements, buttons and menus refer also to the WinStudio Online Help.

3 Installing the Software

3.1 General Information

This chapter provides the necessary instructions for installing, starting and uninstalling WinStudio and CeView.

- **Installing WinStudio:** Explains how to install WinStudio on your computer.
- **Starting WinStudio:** Explains how to run WinStudio.
- **Installing CEView Software:** Explains how to install CEView on your computer.
- **Uninstalling WinStudio:** Explains how to remove WinStudio and CEView from your computer.

3.2 Installing WinStudio

WinStudio provides development tools for all WinStudio applications and the runtime. Besides the runtime for Microsoft Windows NT/2000/XP operating systems an emulator is also available to operate applications for Windows CE.

You can install WinStudio either from CD ROM or download the newest version of the installation files via the Internet. The Homepage for WinStudio is (*http://193.108.217.183/atproducts/plcwebsite/*). For Windows CE applications you use WinStudio to download CEView (runtime software) to the Windows CE HMI using a serial or TCP/IP link.

The WinStudio installation program creates automatically all necessary directories and subdirectories and copies the required files to your workstation. Furthermore, it creates the necessary icons in your desktop folder.

Note:

- You must have administrator rights on a Windows NT/2000/XP workstation to install WinStudio.
- You must uninstall all previous versions of WinStudio or change the installation path of the new version. Also, you cannot install and operate the same version of WinStudio in two different paths of your computer.

Use the following procedure to install WinStudio from the CD ROM:

1. Turn on the power to your development computer (Windows NT, 2000, or XP), and ensure that no other programs are running.

2. Insert the installation CD ROM into the CD ROM drive.

Note: Now, a CD browser window should be automatically opened. If not, you can start the installation manually via the Windows Explorer. Navigate to the `D:\Installation` directory, where D is the letter of your CD ROM drive. There, run the `Setup.exe` file.

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3. Double-click on the **Installation** folder, and then double-click on the **WinStudio** icon to start the *InstallShield® Wizard*.

4. Follow the instructions provided by the InstallShield Wizard and apply the displayed indications or modify them according to your requirements.

5. If you are prompted to restart, select the **Yes, I want to restart my computer now** radio button, then click on **OK**.

3.3 Starting WinStudio

To run WinStudio, double-click on the WinStudio shortcut on your desktop or select **Start –> Programs –> Rexroth –> WinStudio -> WinStudio**.

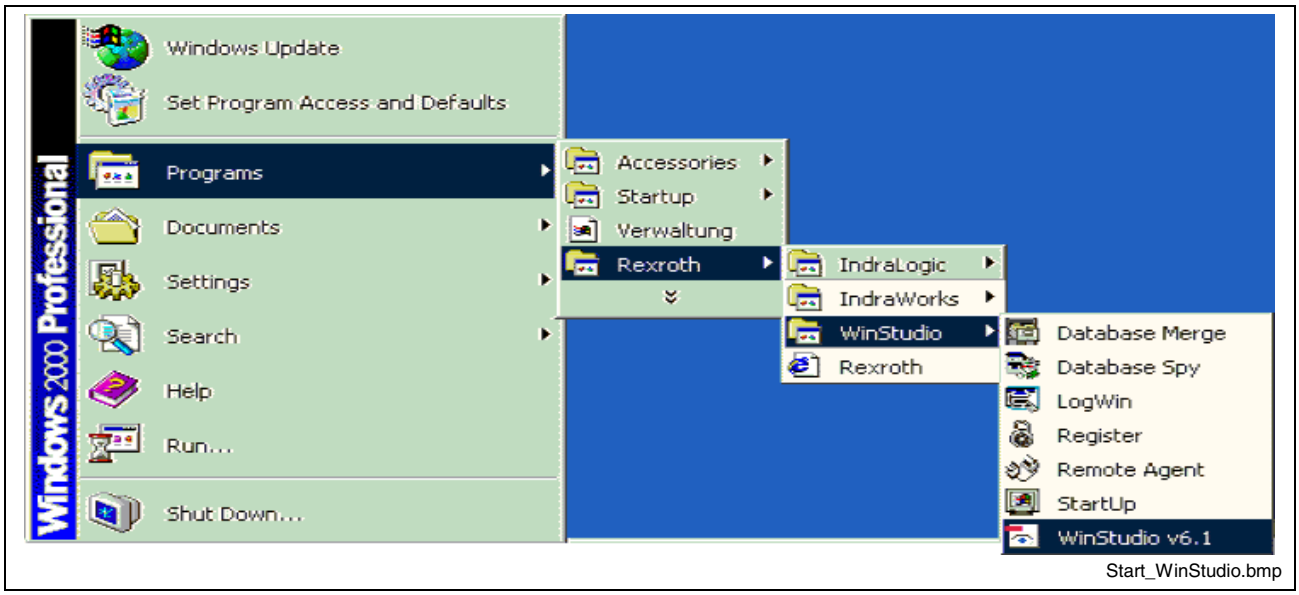

Fig. 3-1: Starting *WinStudio*

Tip: You can run the WinStudio development environment with any display resolution. However, it is recommended to use a resolution of at least 800 x 600 (or higher) with more than 256 colors for a more pleasing environment. The resolution of your application (screen size) is independent of the operating system resolution.

3.4 Installing CEView Software

When installing WinStudio under Windows NT/2000/XP the CEView runtime files are stored in the following folder:

<WinStudio Folder>\Redist\<WinCE version>\<Processor Type>

where:

- ***<WinStudio Folder>*** is the installation directory selected during the installation (**C:\Program Files \ Rexroth \ WinStudio** is the default directory for an English operating system).
- ***<Processor Type>*** is the processor platform used in your CE panel. WinStudio provides CEView runtime for all processor platforms supported by the WinCE operating system. Bosch Rexroth supports Arm, Pocket-Arm, and X86.
- ***<WinCE version>*** is the corresponding Windows CE version. Bosch Rexroth operator terminals use WinCE 4.2.

To install CEView, proceed as follows:

1. Power-on the Windows CE device and launch the Remote Agent dialog, if it is not automatically started. For this, you must copy the **CESERVER.EXE** file of your development workstation from the ***\<WinStudio Folder>\Redist\<WinCE version>\<Processor Type>\BIN***.

2. Paste this file into the *\<non-volatile>* directory of your WinCE device and start this program.

Note: There are different ways to copy this file into your WinCE device, e. g., by using ActiveSync. If you need assistance to do so, please contact the corresponding hardware manufacturer.

After executing the **CESERVER.EXE** file, the **Remote Agent** dialog opens on your WinCE device.

3. Click on the **Setup** button in the **Remote Agent** dialog and select the desired communication (serial or TCP/IP) to link your CE device and your development workstation (Windows NT/2000/XP Computer).

Note: To accelerate the data exchange between the two workstations, WinStudio recommends to use the TCP/IP communication.

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4. Start WinStudio on your development workstation.

5. Select **Project –> Execution Environment** from the main menu bar.

6. If the Execution Environment dialog appears (see Fig. 3-2), select the connection type (**Network IP** or **Serial Port**), choose the corresponding parameters or enter the TCP/IP address of your CE device.

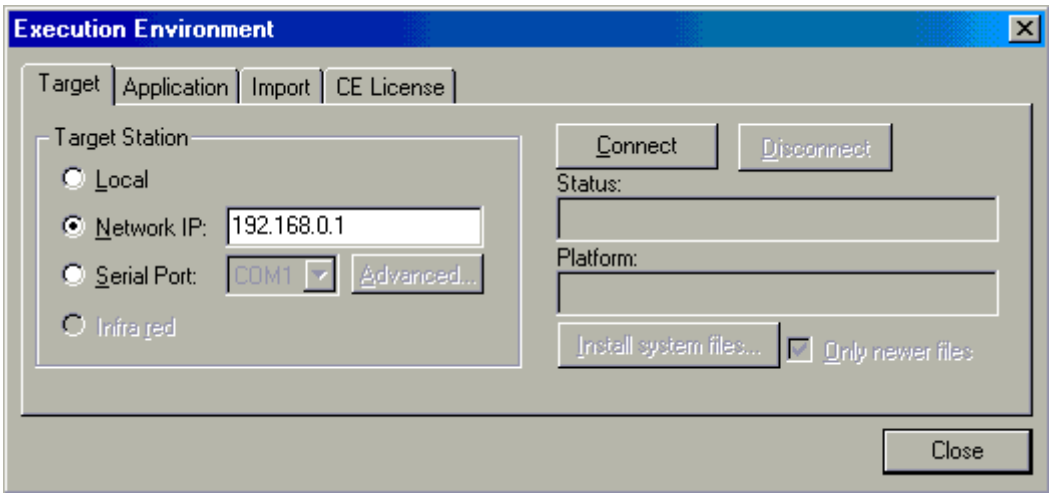


Fig. 3-2: *Execution Environment* dialog box

7. Click on the **Connect** button to connect WinStudio to the WinCE device. For this, please observe the settings of the communication, such as BaudRate, Com Port etc. or the conventions of a TCP/IP connection with regard to the address area.

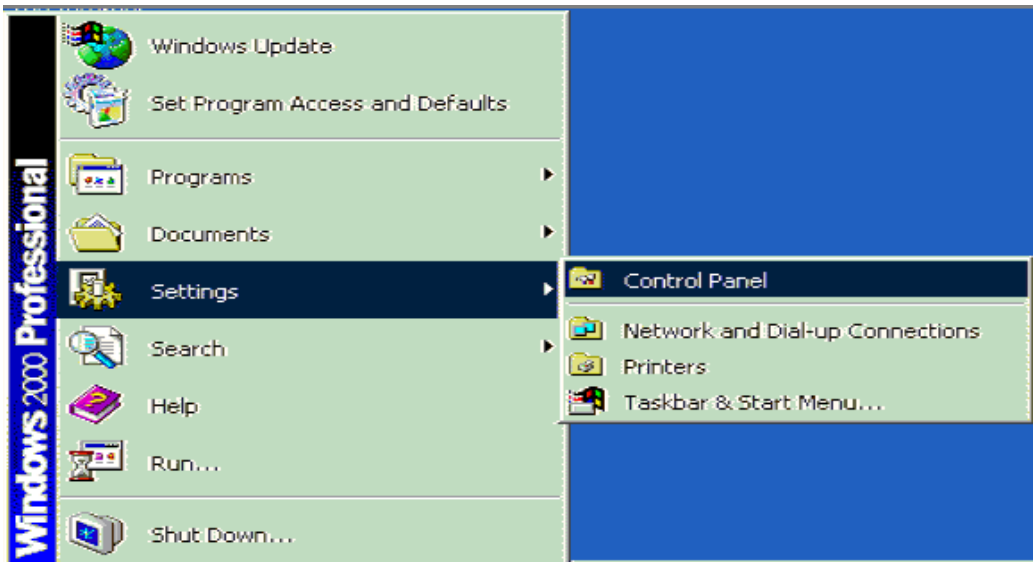
Click on the **Install. System Files** button in the **Execution Environment** window (register **Target**) to download the CEView files to the WinCE device.

3.5 Uninstalling WinStudio

If you must remove WinStudio from your computer, proceed as follows:

Caution: Before uninstalling WinStudio, be sure to back-up any files from the …\ `WinStudio\ Projects\` folder. Also be sure to have the current (newest) WinStudio installation CD, so that you can re-install WinStudio.
You will lose the product softkey license, when you uninstall WinStudio!

1. Select **Start** → **Settings** → **Control Panel**, to open the Control Panel.



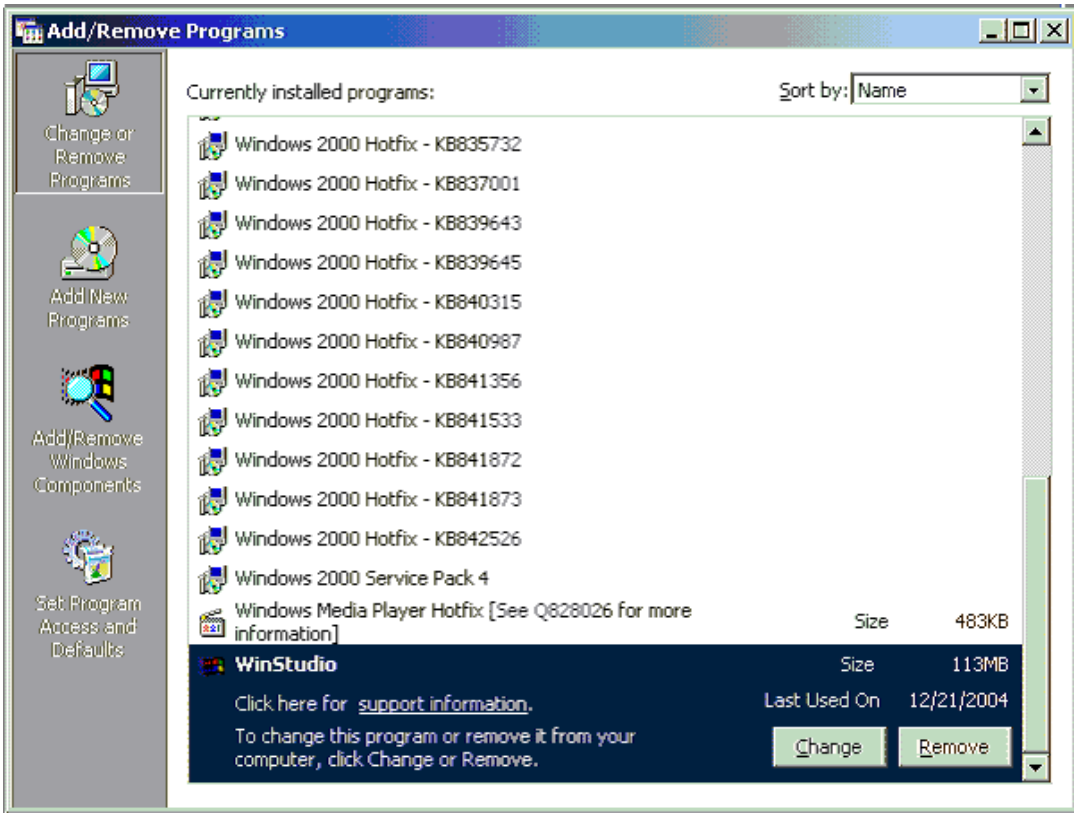
Öffnen_der_Systemsteuerung.bmp

Fig. 3-3: Opening the Control Panel

2. Double-click on the **Add/Remove Programs** icon in the Control Panel.

3. Select **WinStudio** from the list and remove the program.

4. Confirm the request to remove the software by clicking on **Yes**. The *Uninstall Shield Wizard* uninstalls now WinStudio.



Entfernen_des_Programms.bmp

Fig. 3-4: Removing the program

5. If the message *Uninstall successfully completed* appears and the **OK** button becomes active, click on **OK**. Verify that WinStudio is no longer listed in the Add/Remove Programs dialog.

6. Now, close the Control Panel environment completely.

7. Open the *Windows Explorer* and browse to the directory containing the installation directory of *WinStudio*.

8. Verify that all files have been deleted. Possibly, you can manually delete the complete folder.

Note: The uninstall tool should not delete the project data that you created in the …\ `WinStudio\Projects\` directory.

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4 Working with WinStudio

4.1 General Information

This chapter describes the WinStudio *Development environment*:

- **Overview**: Provides a brief description of the tools and interfaces of the WinStudio development environment.
- **Title bar:** Describes the title bar.
- **Status bar:** Describes the status bar.
- **Menu bar:** Describes the different menu options that you can access from the WinStudio main menu.
- **Toolbars:** Describes the WinStudio toolbars.
- **Workspace:** Describes the WinStudio workspace.

4.2 Overview

WinStudio uses standard, Windows-like tools and interfaces to make the product user-friendly. WinStudio also uses an integrated, unique development environment (see figure) for easy access to tools and information.

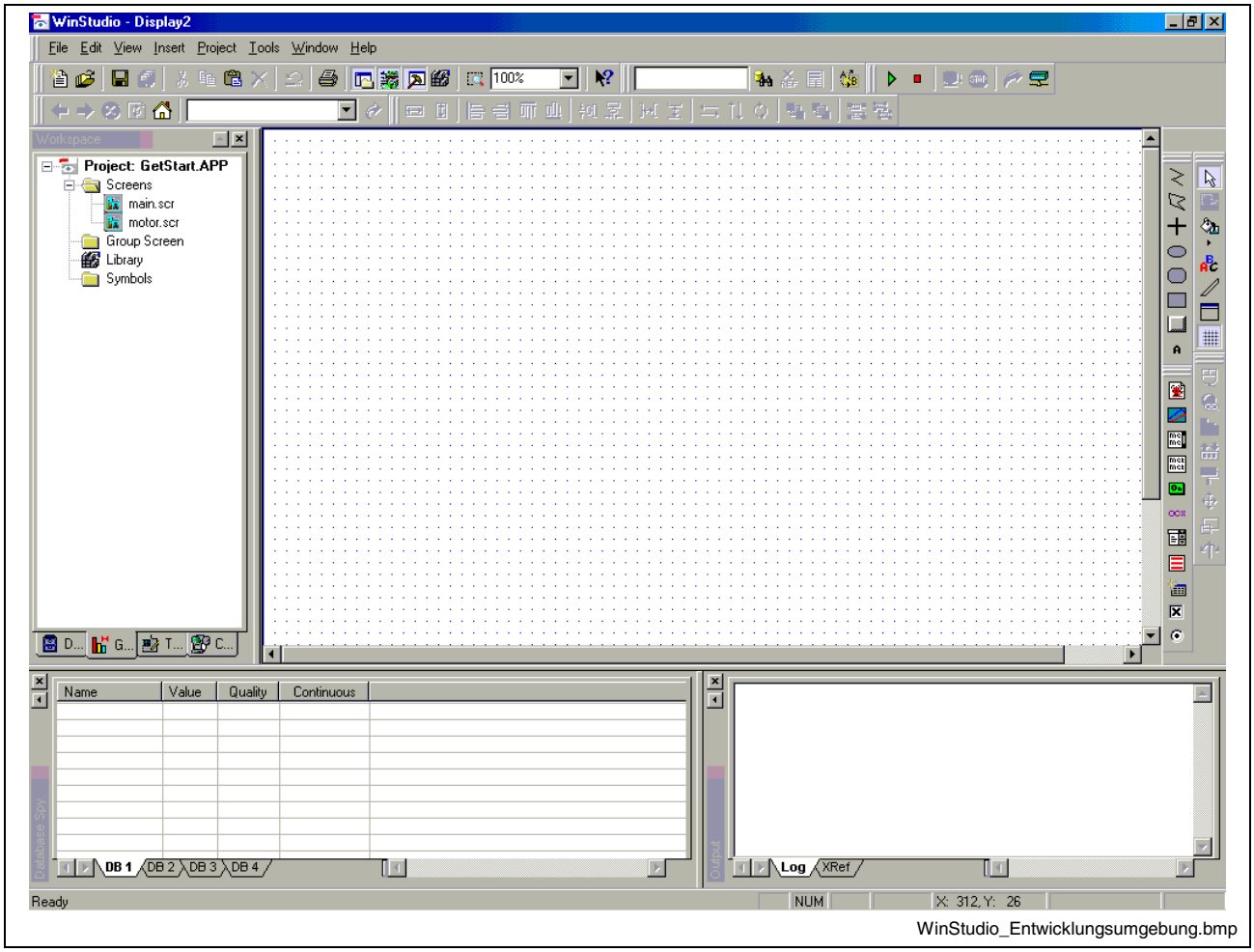

Fig. 4-1: WinStudio development environment

The development environment consists of the following areas:

- **Title bar:** Indicates the active edited screen or configuration sheet.
- **Status bar:** Provides quick access to current information.
- **Menu bar:** Contains the main product options, which you can easily access using the cursor or your keyboard keys.
- **Auxiliary toolbars:** Contains "Shortcuts" to the main commands in the development environment.
- **Graphic toolbars:** Contain features and tools used to create or edit objects and dynamics in the application screen.
- **Workspace:** Shows the tree-structure of the application. From there, you can select all elements of an application.
- **Database Spy** window: Provides a debugging tool, which you can use to monitor and modify the tags of an application. Furthermore, functions can be executed.
- **Output** window: Displays messages to debug or test an application.
- **Displays / Configuration sheets:** Provides an area where you can edit screens and configuration sheets.

Note: The preceding figure shows the default settings of the indicated elements in the development environment.

You will find an overview of the used toolbars via menu **View -> Toolbars**:

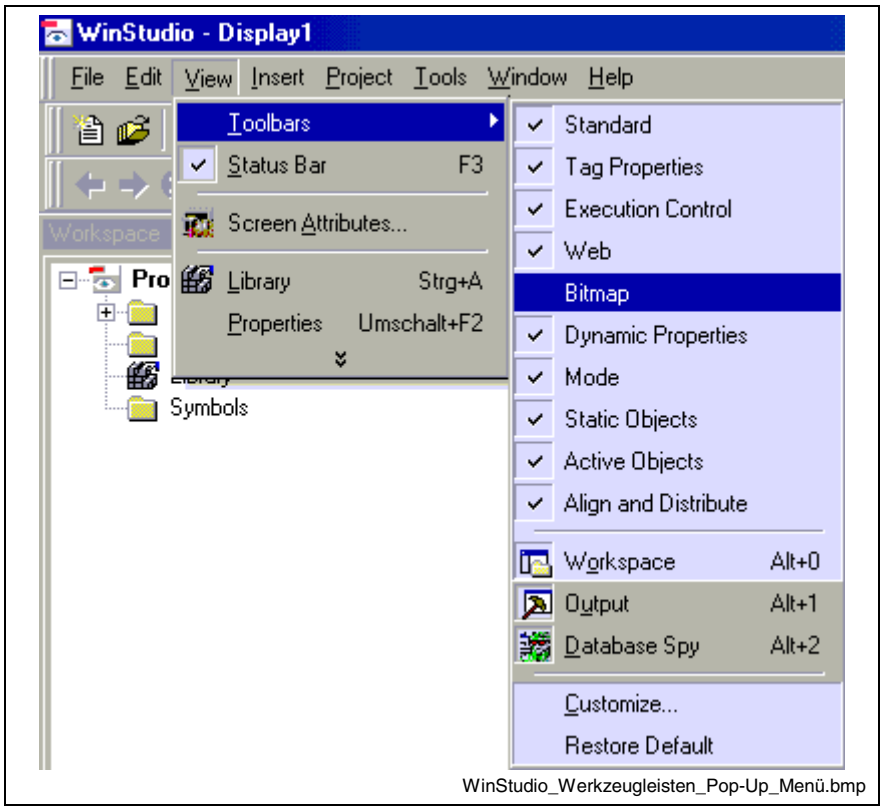

Fig. 4-2: Pop-up menu WinStudio toolbars

4.3 Using the Title Bar

The title bar located along the top of the **WinStudio** window displays the **WinStudio** icon, the product name and the name of the active screen or configuration sheet.

Typische_WinStudio_Titelleiste.bmp

Fig. 4-3: Typical WinStudio title bar

The title bar contains three buttons (from the left to the right):

- **Minimize** button (): Click on this button to minimize the **WinStudio** window.
- **Resize**/**Maximize** button (/): Click on this button to toggle between the two options:
  - **Resize:** Resizes the **WinStudio** window to the last used seize
  - **Maximize:** Maximizes the WinStudio window to fill your computer screen
- **Exit** (or **Close**) button (): Click on this button to save the database automatically and to close WinStudio. If a screen or configuration sheet was still not saved, WinStudio prompts you to save your work. This button function is similar to the **Exit** command in the **File** menu.

Note: Closing the development environment does not close the WinStudio runtime tasks. To close the runtime tasks, click on the **Stop** icon on the *Execution* toolbar or select option **Project / Stop Application** in the main menu bar.

4.4 Reading the Status Bar

The status bar located along the bottom of the **WinStudio** window provides fields containing the status of the keyboard and information about objects in the active screen or configuration sheet (if available).

Fig. 4-4: Example status bar

The fields are arranged as follows (from the left to the right):

- **Hint** field: Provides a short description of any toolbar button or object touched by the mouse pointer.
- **Caps Lock** field: Indicates whether the keyboard Caps Lock key is on (**CAP**) or off (empty).
- **Num Lock** field: Indicates whether the keyboard Num Lock is on (**NUM**) or off (empty).
- **Scroll Lock** field: Indicates whether the keyboard Scroll Lock is on (**SCRL**) or off (empty).
- **ID** field: Displays the ID number of a selected screen object.
- **Screen Coordinate** field: Displays the current position of the cursor (or mouse pointer) on the active screen. If you have selected an object, the coordinates of this object are indicated in this field. Where: ***X*** is the number of pixels from the left edge of the screen and ***Y*** is the number of pixels from the top of the screen.
- **Object Size** field: Indicates the size (in pixels) of the selected object. ***W*** is the width and ***H*** the height (in pixels).
- **No DRAG** field: Indicates whether dragging is disabled (***No DRAG***) or enabled (empty).
- You might want to disable dragging to change the object properties of an object without moving it from its current location.

Tip: You can enable and disable dragging by pressing the key combination **Ctrl+D**. When dragging is enabled, you can click on any object and while pressing the mouse button you can use the arrow keys on the keyboard to move the object pixel by pixel.

4.5 Using the Menu Bar

The menu bar contains the following menus:

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Fig. 4-5: Main menu bar

- **File:** Contains options that enable you to create, open, close, save and print application projects and files. Additionally, here you can close the WinStudio development environment.
- **Edit:** Contains options that enable you to edit your screens and configuration sheets by cutting, copying, pasting, formatting and setting security levels. You can also undo edits, delete, search and replace objects.
- **View:** Contains options that enable you to manage, which toolbars are visible in the development environment. This menu also provides "Shortcuts" to the elements and dialog boxes you open most frequently. Here you can customize your toolbars, restore the default settings, open the object library, set the zoom and call up the screen attributes.
- **Insert:** Contains options that enables you to create and configure a variety of elements such as tags, classes, documents, drivers, users, security settings, screens, and ActiveX objects.
- **Project:** Contains options to execute applications locally or remotely and provides links used to configure the default settings.
- **Tools:** Contains options that provide links to auxiliary tools.
- **Window:** Contains options that enable you to open displays and configuration sheets or set them to the foreground.
- **Help:** Contains options to enable the access to the help file and further information about WinStudio.

Note:

- The menu bar is dockable.
- If you click on the menu bar with the right mouse button, a pop-up menu opens allowing to restore the default settings of the menu bars and toolbars.
- You also can use this pop-up menu to hide toolbars. Thus, the development environment can be customized according to your individual requirements.

4.6 Using the Toolbars

WinStudio provides several toolbars containing icons that enable you to make different settings to initiate actions within the program. This section describes the functions and default location of each toolbar.

Note: All toolbars are dockable screen objects. You can move a toolbar to any different screen location.

The following toolbars contain general-purpose tools, and are located on the top of the workspaces, just below the menu bar:

- **Standard** toolbar: Allows you to perform general actions, such as file management and printing functions.

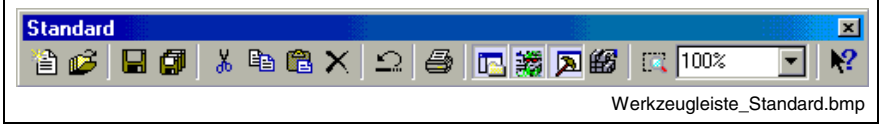


Fig. 4-6: Standard toolbar

- **Tag Properties** toolbar: Allows you to create, locate, and access different tags and their properties.

Fig. 4-7: Tag Properties toolbar

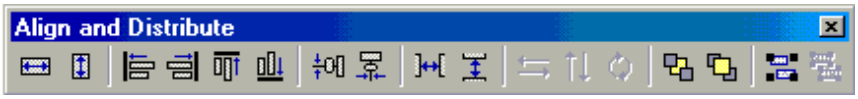
- **Execution Control** toolbar: Allows you to control the start and stop of an application. This applies for local and remote workstations.

Fig. 4-8: Execution Control toolbar

- **Web** toolbar: Allows you to open web files (HTML).

Fig. 4-9: Web toolbar

- **Align and Distribute** toolbar: Allows you to arrange objects in the screens.

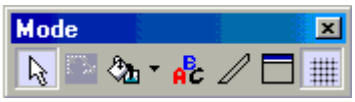


Werkzeugleiste_Ausrichten_und_Anordnen.bmp

Fig. 4-10: Align and Distribute toolbar

The following toolbars contain tools to edit objects in screens. If the default settings are applied, these toolbars are located at the right side of the interface window, and are only enabled while you are editing a screen:

- **Mode** toolbar: Here you can set the default values for the screens.



Werkzeugleiste_Modus.bmp

Fig. 4-11: Mode toolbar

- **Bitmap** toolbar: Allows you to access the bitmap screen editor tools. This toolbar is only available, when the attribute "Background Picture layer" is active.

Werkzeugleiste_Bitmap.bmp

Fig. 4-12: Bitmap toolbar

Note: The *Bitmap* toolbar is hidden by default.

- **Static Objects** toolbar: Allows you to create graphic objects like polygons, rectangles, lines and other objects for your screen.

Werkzeugleiste_Statische_Objekte.bmp

Fig. 4-13: Static Objects toolbar

- **Dynamic Properties** toolbar: Allows you to apply dynamic properties to the static objects and thus, create animations. This properties enable you to modify object properties on the fly. Some objects also enable you to execute commands or insert parameters to the tags.

Werkzeugleiste_Dynamische_Eigenschaften.bmp

Fig. 4-14: Dynamic Properties toolbar

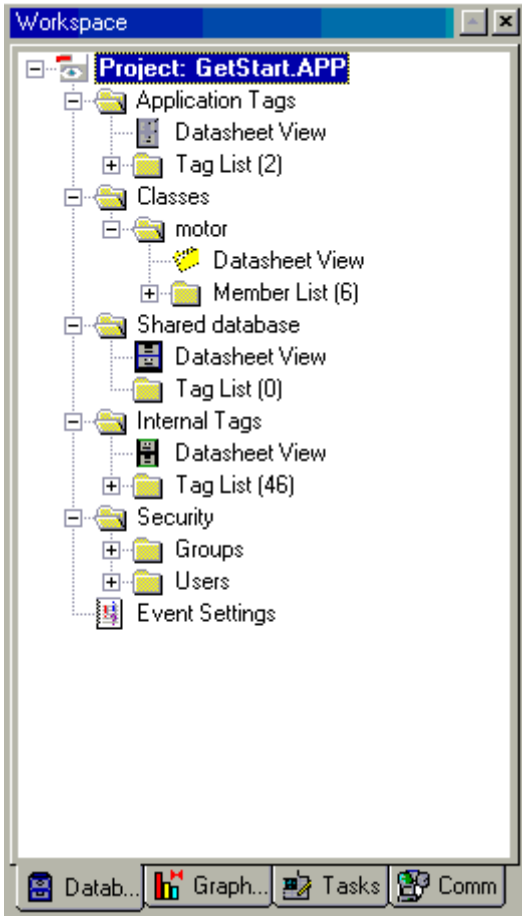
- **Active Objects** toolbar: Allows you to create and edit dynamic objects. Dynamic objects require more parameters than static objects and provide embedded properties.

Werkzeugleiste_Aktive_Objekte.bmp

Fig. 4-15: Active Objects toolbar

4.7 Workspace

The WinStudio workspace window is an user-friendly interface that enables you to access quickly to all components (tags, screens, configuration sheets, etc.) of an application. Application components are organized in a tree-view divided up in groups with further icons. You can move, resize, or hide the **Workspace** window.



WinStudio_Fenster_Arbeitsbereich.bmp

Fig. 4-16: WinStudio Workspace window

Note: The contents of the register button depends on the selected license model!

The workspace window is divided into four tabs:

- **Database** tab: Provides access to all tags of an application and the security system components. This tab contains the following folders:
  - *Application Tags*
  - *Classes*
  - *Shared Database*
  - *Internal Tags*
  - *Security*
- **Graphics** tab: Provides access to all screens and icons in the application. This tab contains the following folders and icons:
  - *Screens*
  - *Group Screen*
  - *Web Pages*
  - *Library*
  - *Symbols*
- **Tasks** tab: Provides access to all configuration sheets in the application. This tab contains the following folders:
  - *Alarms*
  - *Trends*
  - *Recipes*
  - *Reports*
  - *ODBC*
  - *Math (mathematic scripts)*
  - *Scheduler (sequential function chart)*
- **Comm** tab: Provides access to all configuration sheets in the communication. This tab contains the following folders:
  - *Driver*
  - *OPC*
  - *TCP/IP*
  - *DDE*

Note: By clicking on the folders you can open a context menu relating to that folder.

4.8 Working with Tags

This chapter provides the information needed to create and edit tags, including:

- **Naming tags and tag fields**: Explains the required syntax for tag names and tag fields.
- **Working with tag folders:** Explains the purpose of tag folders.
- **Tag types**: Describes the different tag types.
- **Using array tags**: Explains how to use array tags (tag fields).
- **Using indirect tags**: Explains how to use indirect tags (pointer).

4.9 Naming Tags and Tag Fields

This section contains guidelines for naming tags (identification of tags in the database) and *tag fields* (a set of parameters assigned to every tag in the database). Applications use tag fields during runtime.

Tag Syntax

When naming a tag you must observe the following syntax guidelines:

- Use letters, numbers, and the underscore (_) character.
- Do not use the following characters:
- ` ~ ! @ # $ % ^ & * ( ) - = \ + \ [ ] { } < > ?
- Variable names must begin with a letter.
- Maximum tag length is 255 characters. Maximum class member length is 255 characters.
- Tag names must be unique. Do not specify the same name for two different tags.
- WinStudio is not case-sensitive; no distinction is made between upper case and lower case. For better readability, however, we recommend to use upper case characters. For example, use *BlinkFast* instead of *blinkfast*.
- Tag names must be different form internal tag or function names.
- Examples for valid tag names:
  - *Temperature*
  - *Pressure1*
  - *count*
  - *x*

Tag Field Syntax

You can use the **Tag Properties** dialog (open this dialog by clicking on the **Tag Properties** icon  in the toolbar) to specify field parameters of a tag. Use the following syntax to access a tag field:

<TagName>-><TagField> (for example, **second->Max**)

You can access the following tag fields during runtime:

Field name	Description of value associated with each field	Tag type associated with field				R=Read only RW=Read/ Write
		Boolean	Integer	Real	String	
Description	Description of tag configured in the tags database	X	X	X	X	RW
Max	Maximum value that can be written to the tag at runtime	–	X	X	–	RW
Min	Minimum value that can be written to the tag at runtime	–	X	X	–	RW
Quality	Tag quality (192=GOOD; 0=BAD). Is updated every time the tag receives a new value from an expression or a communication (driver or OPC). Invalid expressions (such as division by 0) or reading communication errors set the quality to BAD.	X	X	X	X	R
Size	Array seize. If the tag is not an array tag, the value is returned.	X	X	X	X	R
TimeStamp	Records time and date, when a tag changes value	X	X	X	X	R
Unit	Brief description or measurement unit (max. 9 characters) (such as Kg)	X	X	X	X	RW
AlrStatus	Status (Integer value) of any currently active alarm associated with this tag. Each bit indicates a specific status: Bit 0 (LSB): HiHi alarm active Bit 1: Hi alarm active Bit 2: Lo alarm active Bit 3: LoLo alarm active Bit 4: Rate alarm active Bit 5: 'Deviation+' alarm active Bit 6: 'Deviation-' alarm active For example: **Tag->AlrStatus** = 2, "Hi" alarm is active. **Tag->AlrStatus** = 3, "HiHi" and "Hi" alarms are active simultaneously. **Tag->AlrStatus** = 0, there are no active alarms For Boolean tags only 1 (bit 1), 4 (bit 2) or 16 (bit 4) values are returned.	X	X	X	–	R
B0 … B31	Value (0 or 1) of any of the 32 bits (b0, b1, b2, … b31) of an integer tag (B0: LSB B31: MSB).	–	X	–	–	RW
Ack	Specifies whether alarms associated with a tag require acknowledgement: - **0**: Alarms do not require acknowledgement - **1**: At least one alarm requires acknowledgement	X	X	X	–	RW
AlrDisable	Specifies whether alarms associated with a tag will be enabled or not: **- 0**: Alarms are enabled. - **1**: Alarms are disabled. Even if the alarm condition occurs, the alarm will not become active.	X	X	X	–	RW
HiHi	**-0**, HiHi alarm is inactive. - I**1**, HiHi alarm is active.	–	X	X	–	R

Hi	- **0**, Hi alarm is inactive. - I**1**, Hi alarm is active.	X	X	X	–	R
Lo	**- 0**, Lo alarm is inactive. - **1**, Lo alarm is active.	X	X	X	–	R
LoLo	**- 0**, LoLo alarm is inactive. - **1**, LoLo alarm is active.	–	X	X	–	R
Rate	**- 0**, Rate alarm is inactive. - **1**, Rate alarm is active.	X	X	X	–	R
Devp	**- 0**, 'Dev+' alarm is inactive. - **1**, 'Dev+' alarm is active.	–	X	X	–	R
Devm	**- 0**, 'Dev-' alarm is inactive. - **1**, 'Dev-' alarm is active.	–	X	X	–	R
HiHiLimit	Limit value for HiHi alarm.	–	X	X	–	RW
HiLimit	Limit value for Hi alarm.	–	X	X	–	RW
LoLimit	Limit value for Lo alarm.	–	X	X	–	RW
LoLoLimit	Limit value for LoLo alarm.	–	X	X	–	RW
RateLimit	Limit value for Rate alarm.	–	X	X	–	RW
DevSetpoint	Set point value for Deviation alarms.	–	X	X	–	RW
DevpLimit	Limit value for 'Deviation+' alarm.	–	X	X	–	RW
DevmLimit	Limit value for 'Deviation-' alarm.	–	X	X	–	RW

Fig. 4-17: Tag fields

Note: If an application tries to write a value outside the range specified in the Min and Max fields, the tag database will not accept the new value and sends a warning to the *LogWin*. If the fields **Min** and **Max** are set to 0, any value can be written to the tag.

Caution: You cannot use field designations (e. g. value->MAX) to configure alarm or trend configuration sheets.

4.10 Working with Tag Folders

You can use tags to communicate with a field device such as PLCs, to record calculation results, to monitor alarm conditions, etc. In WinStudio all tags are organized in folders via the **Database** tab. The organization of the folders depends on the origin of the tags (application, internal or "shared"). WinStudio also provides a folder for compound data structure classes.

- **Application tags**: User-defined tags created for screens, to read and write to field devices, for control, auxiliary tags to execute mathematic calculations, etc.
- **Internal tags**: Tags predefined by WinStudio. Internal tags have a predefined signification and contents (such as time, date, acknowledge alarms, storage of the logged-on user name or groups, etc.). This tags cannot be deleted or modified, but can be used in WinStudio at any place.
- **Shared tags**: Tags created and used by certain PC-based control systems. They can be imported into the WinStudio environment. These tags cannot be edited in WinStudio. However, it is possible to modify tags in the respective control system and re-import them into the WinStudio database. The tags can then be used for any WinStudio task.
- **Classes**: These structures contain a set of tags instead of one single value. Classes are created by grouping tags. The tags of a data structure are called *members*. Die maximum number of tags within a structure depends on the license model for WinStudio.

4.11 Tag Types

A tag can be one of the following types:

	Boolean: Boolean or digital tag (0 or 1).
	**Integer:** Integer number (positive, negative, or zero), equivalent to C-type long integer (4 bytes)". For example: 0, 5, -200.
	**Real:** Real number (floating) internally stored as double word, equivalent to C-type double 8 bytes, for example: 2.12, -10.5).
	**String:** Character string up to 256 characters containing letters, numbers, or special characters. For example: Recipe product X123, 01/01/90, *** On ***.
	**Class:** User-defined, compound tag.

Fig. 4-18: Tag types

The preceding icons and the corresponding tag types are located in the **Database** tab.

4.12 Using Array Tags

WinStudio tags can consist of a single value or an array of values.

An a*rray tag* is a set of tags that all have the same name, but use a number to differentiate between each tag. This is a matrix with n lines and a column. The maximum seize of an array depends on the used product type.

You can use the following syntax:

<ArrayName>[ArrayIndex]

For example: **motor[1], motor[2], motor[3],** and **motor[500]**.

Caution: During the declaration of the tag you can specify the maximum number for this array in the **Array Seize** column. Specify seize *n* to indicate that the array tag has positions from 0 to *n*.
For example, if the seize of TagA is 3, the tag position could be:
TagA[0], TagA[1], TagA[2], and **TagA[3]**.

Using arrays can simplify an application.

For example, if you want to display in a screen of several motors three special values, you can create a simple screen with three objects by using 3 arrays and an index tag (motor as index containing the current number of the motor). For example:

Speed[motor], Speed[motor + 1], Motor brake[motor+1].

The used index in the array tag can contain a numerical value or a mathematic expression with the operator **+**.

Note: Use operator + only in combination with the following syntax:
<ArrayTagName>[<NumValue1> + <NumValue2>]
where <***NumValue1***> and ***<NumValue2>*** can contain an integer tag or a number.
For example:

Speed[motor+2], Speed[motor+6], or
Speed[Tag A + Tag B]

Using arrays can save a significant amount of development time. For example, if you want to use conventional tags, the configuration method is:

- **Speed1** **Speed of motor 1**
- **Speed2** **Speed of motor 2**
- **Speed3** **Speed of motor 3**
- **Speed4** **Speed of motor 4**

Using an array, the task reduces as follows:

Speed[j] **Max. speed of motor {j}**

4.13 Using Indirect Tags

WinStudio supports indirect access to tags in the database. For example: Assume there's a tag X of type string. This tag can contain the name of another tag available in the database, i. e. this tag can provide a pointer to any other tag type, including the class type.

The syntax for an indirect tag is:

@<IndirectTagName>

If, for example, tag ***X*** contains as content text **TEMP,** reading and writing with ***@X*** provides the access to the value for the **TEMP** tag.

Note: Any tag created as a string type is a potential indirect tag (pointer).

5 Creating a WinStudio Application

5.1 General Information

This chapter explains how to create an executable WinStudio application and how to configure the OPC communication.

- **Creating a new application:** Explains how to create a WinStudio application.
- **Parameterizing the project settings:** Explains how to set the required parameters for the application.
- **Creating tags:** Explains how to create a new tag and insert it in the database.
- **Creating a start screen (main.scr):** Explains how to create the start screen.
- **Creating an animated screen (motor.scr):** Explains how to create an animated screen.
- **Configuring the OPC communication:** Explains how to set the OPC Client.

5.2 Creating a New Application

To create a new WinStudio application, proceed as follows:

1. Select **File → New** in the main menu.
2. If the **New** dialog window appears, click on the **project** tab.

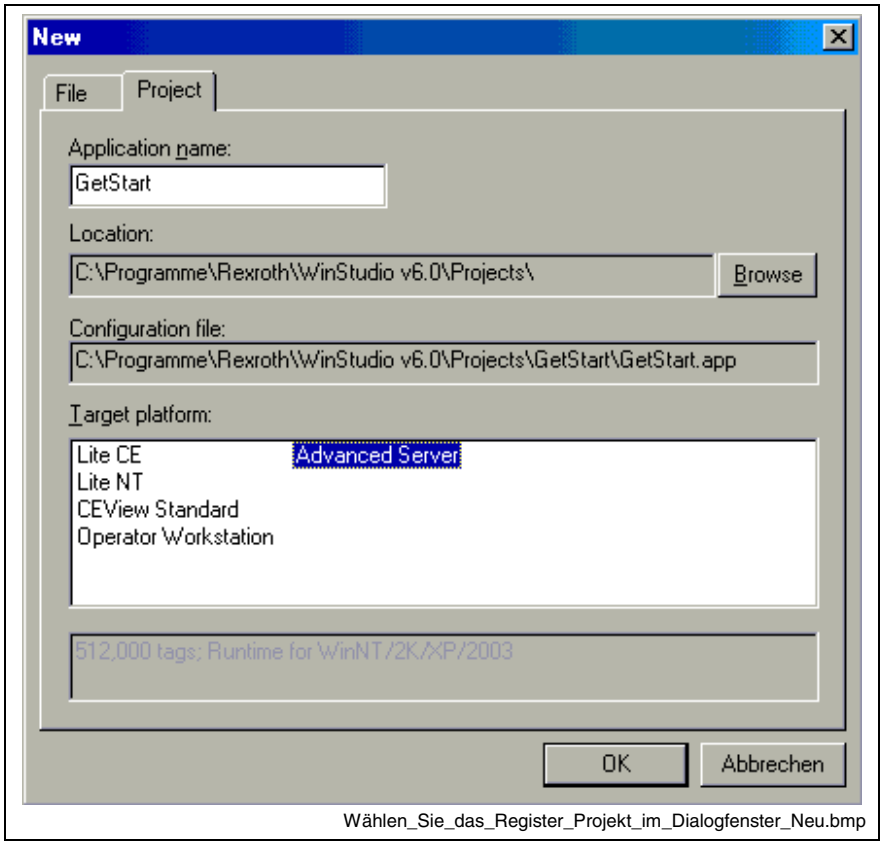


Fig. 5-1: Select the Project tab in dialog window New

3. Enter the name for your application in the **Application Name** field (for this project GetStart).

WinStudio creates automatically a new folder for this application with this name and sets the start options for this application. To select the path where you want to save the application enter the path name in the **Location** field, or choose the path by clicking on **Browse**.

4. Choose a platform (product type) from the **Target Platform** list (for this project **Advanced Server**) and confirm with **OK**.

Note: Primarily, the selection of the product type depends on the number of the used tags. Use CEView Lite, CEView Standard or CEView Pro, to create applications for devices using WinCE as operating system.

5. When the **Project Wizard** window appears, select there **Empty Application** from the *Template* list, click on the resolution **800 x 600** and then on **OK**.

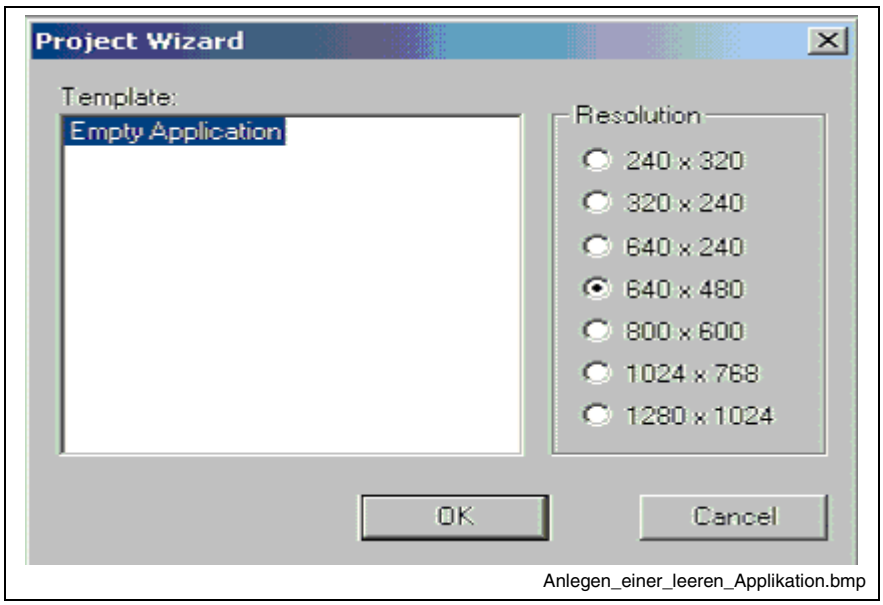


Fig. 5-2: Creating an empty application with a resolution of 640 x 480

The name of the new application now appears in the **Workspace** window.

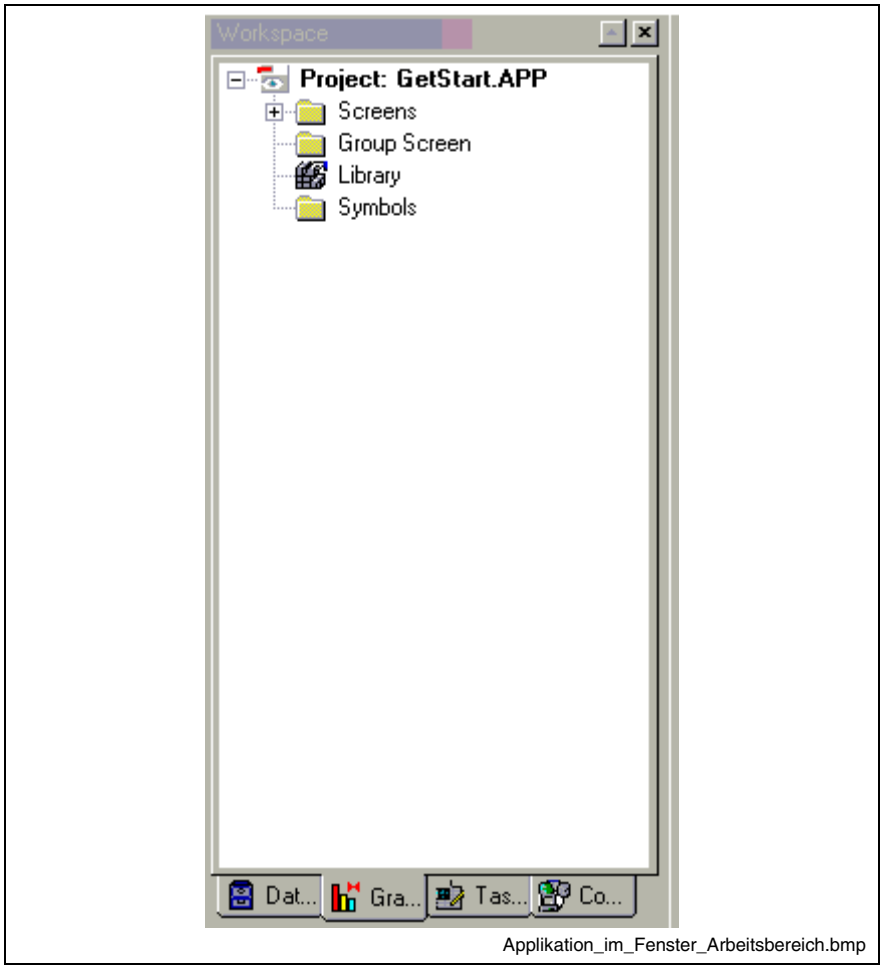


Fig. 5-3: Application in the Workspace window

5.3 Parameterizing the Project Settings

Click with the right mouse button on **Project: GetStart** (or command line: Project → Settings) and open the dialog window. By filling the single fields you can enter the parameters of the whole application.

- Use the **Identification** tab for general specifications to this application (description, company name, revision status, name of the engineer, used field devices and supplementary information).
- Use the **Option** tab to set the following parameters: automatic language translation, historical alarms, communication drivers.
- Use the **Runtime Desktop** tab to enable or disable the parameters for the runtime.
- Use the **Web** tab for the specifications of an application to be used with a WebServer: Data Server IP address, send period (in milliseconds), URL address, tooltips, file compression, logging parameters and IP security properties.
- Use the **Presettings** tab, to activate/deactivate the warnings before downloading the files in the target system.

You can specify the runtime of the projects in the **Runtime Desktop** tab.

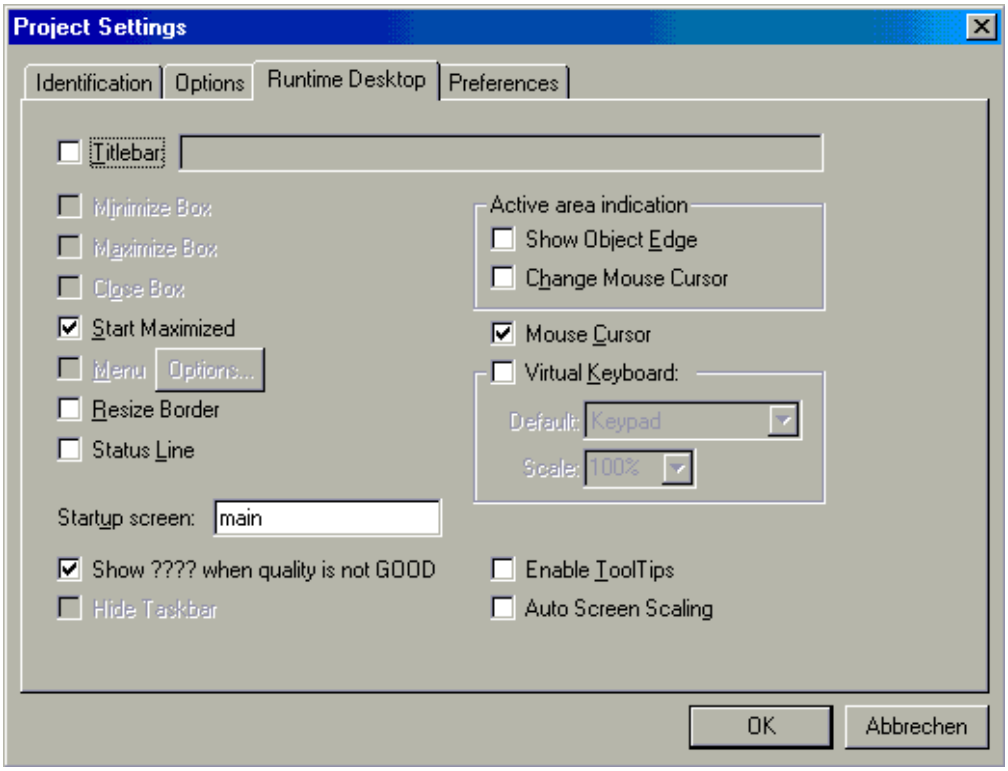


Fig. 5-4: Specification of the start screen

Enter in the startup screen field: main (this screen is opened while starting the application).

5.4 Creating a Tag

You can generate tags anytime while creating an application. All tags are in the *User Tags* folder in the **Database** tab in the **Workspace**:

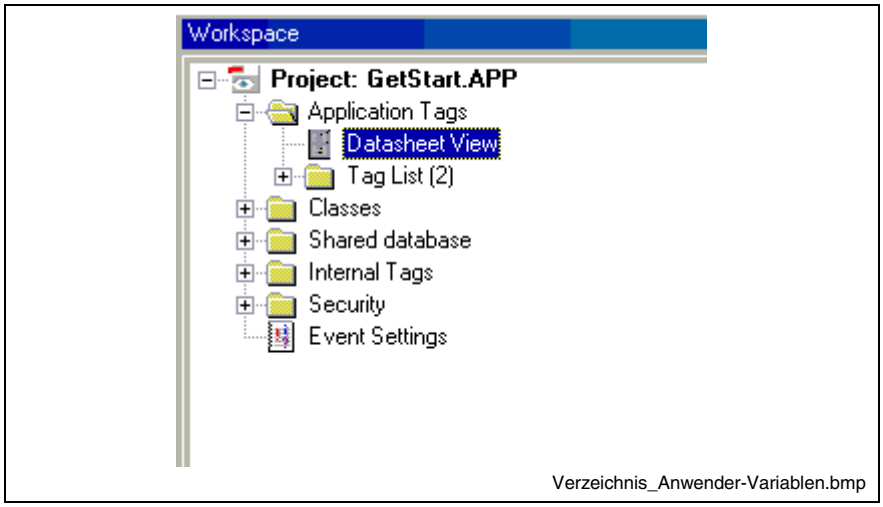


Fig. 5-5: Application tags folder

Note: If the workspace is not visible, you can activate it with command line **View → Toolbars → Workspace** (or ALT+0).

Proceed as follows to create a new tag:

1. Double-click on the **Datasheet View** icon to open the configuration sheet *User Tags*.

2. To create a new tag you must parameterize the following properties:

Name:	Enter a unique name (all tags must have a unique name).
Array seize:	Enter the number of the required elements of an array. If you skip the input of this field, a simple tag with the array value 0 is created.
Type:	Select the type (Boolean, Integer, Real, String, Class).
Description (optional):	Enter here for documentation purposes the desired use of the tag.
Web data:	Select the behavior of the tag for a web application and the communication with a Web Thin Client station.

Select **Local**, if the tag should not be kept synchronously with tags in the Web Thin Client station.

Select **Server**, if the tag should be kept synchronously with tags in the Web Thin Client station.

3. Now, we will declare a class for our example. Click with the right mouse button on the **Class** tab in folder **User Tags**.

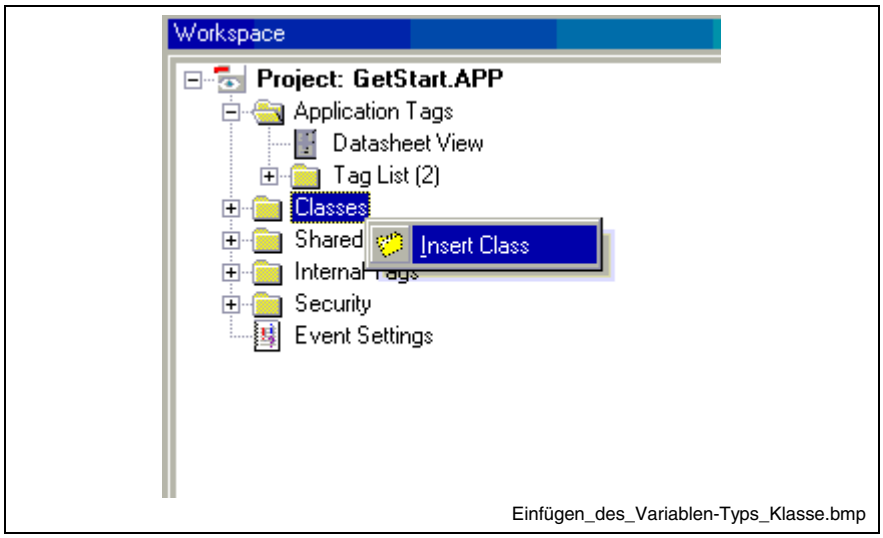


Fig. 5-6: Inserting tag type class

4. Click on **Insert Class** and then, enter the name of the new class. Confirm with **OK**.

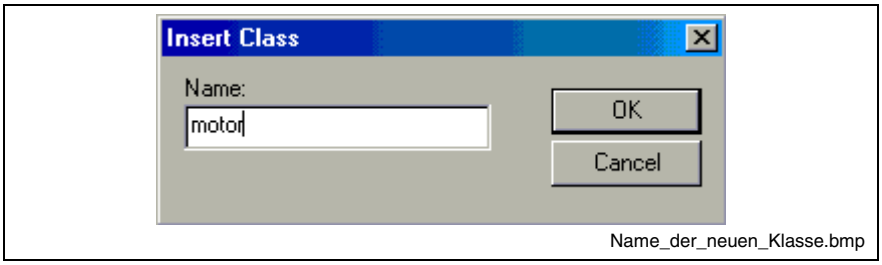


Fig. 5-7: Name of the new class

5. Now, enter the single class elements in the tag form and close it.

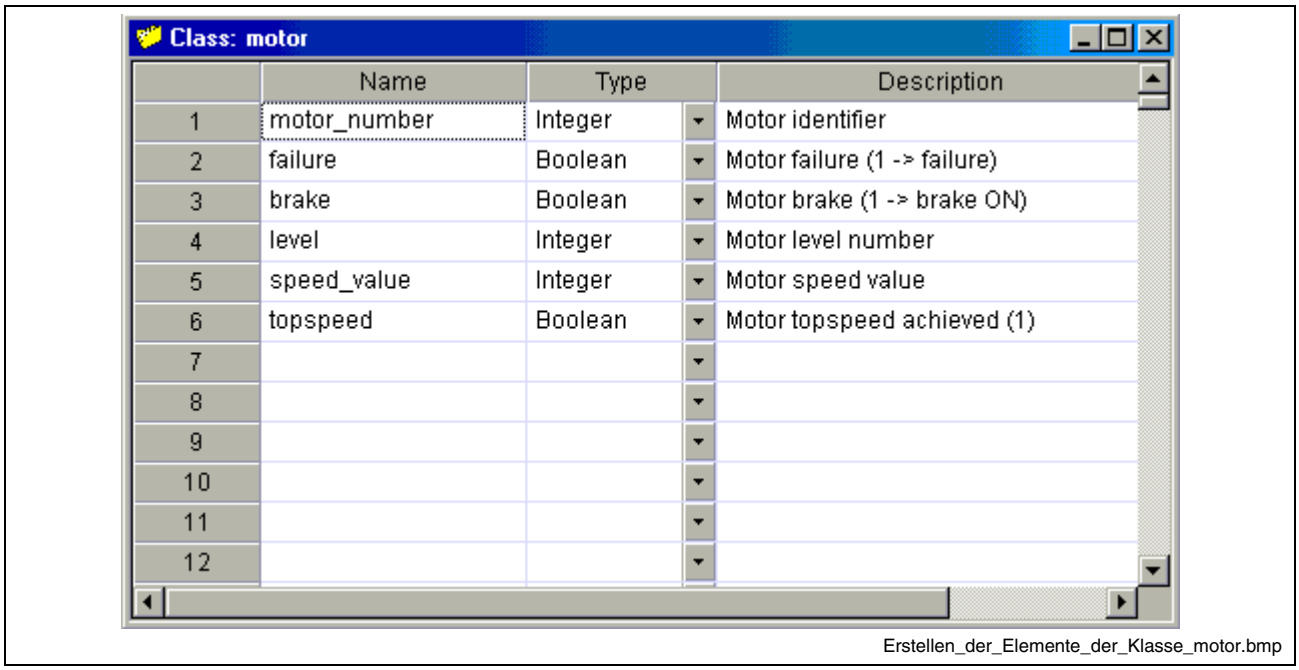


Fig. 5-8: Creating the elements of class "motor"

6. The **Element List** of class *motor* now contains all entered elements.

7. Then, create a variable of type Class. For this, click with the right mouse button on **Datasheet View** in folder *Application Tags*. Then, click on **Open**.

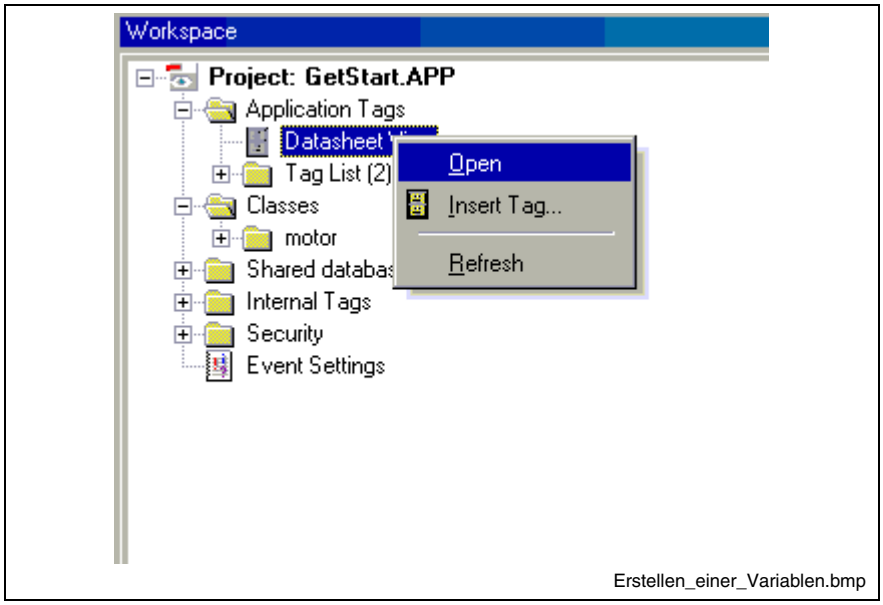


Fig. 5-9: Creating a tag

8. Now, enter tag *motor_status* (array with 10 elements of type class:motor) in the tag form. Extend the tag form by tag *cyclecnt* (PLC cycle counter: simple integer tag). Finally, save the form.

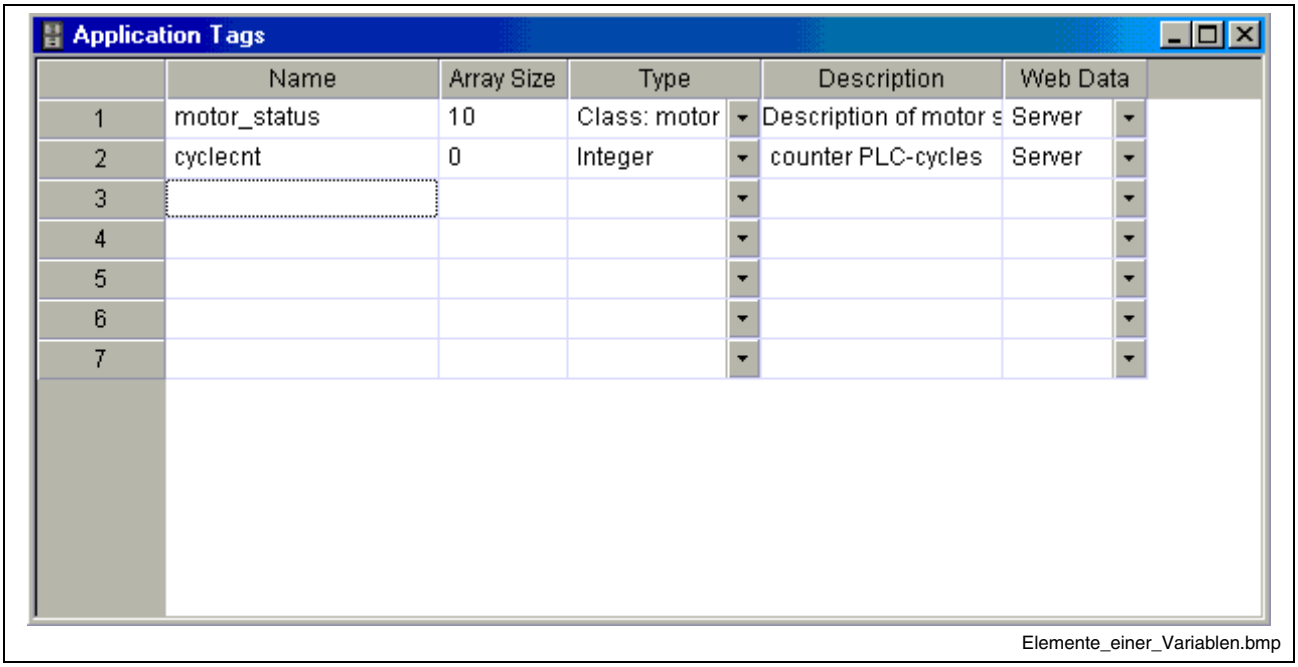


Fig. 5-10: Elements of a tag

Note: The values of a tag entry are only added to the database, if the input field is exited.

5.5 Creating a Start Screen (main.scr)

1. Click in the **Workspace** window on the **Graphics** tab and click with the right mouse button on the **Screen** folder.

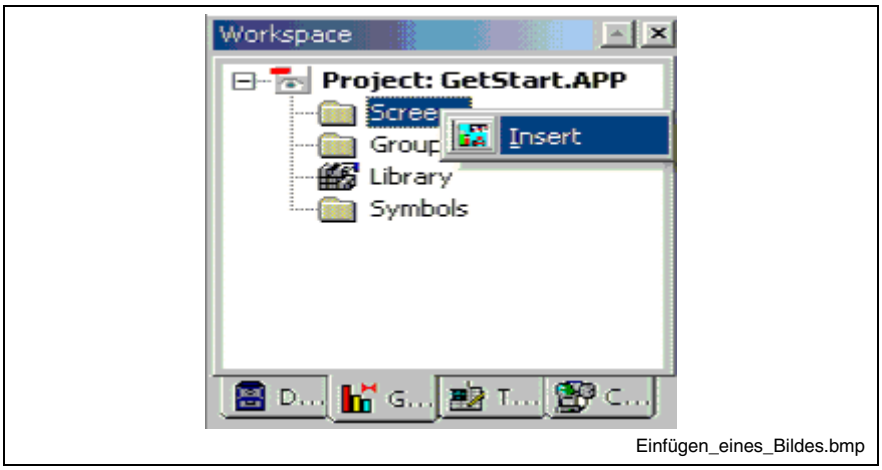


Fig. 5-11: Inserting a screen

2. Click on **Insert** to set the *Screen Attributes*. Enter the description of the screen in the *Description* field. *Seize* and *Location* of the screen are preset. Confirm with **OK**.

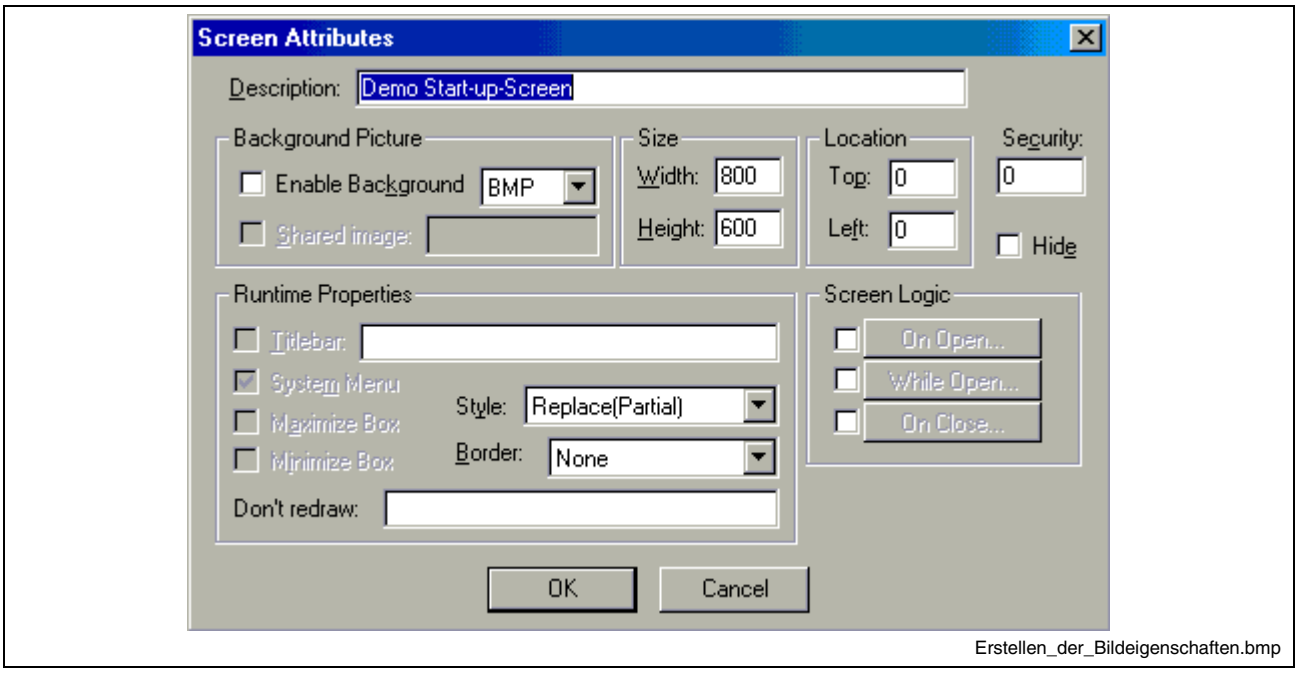


Fig. 5-12: Setting the Screen Attributes

3. A new screen is opened. Click with the right mouse button in the new screen and select there **Background color** from the pop-up menu. Select here *gray* and apply this color as background color by clicking on **OK**.

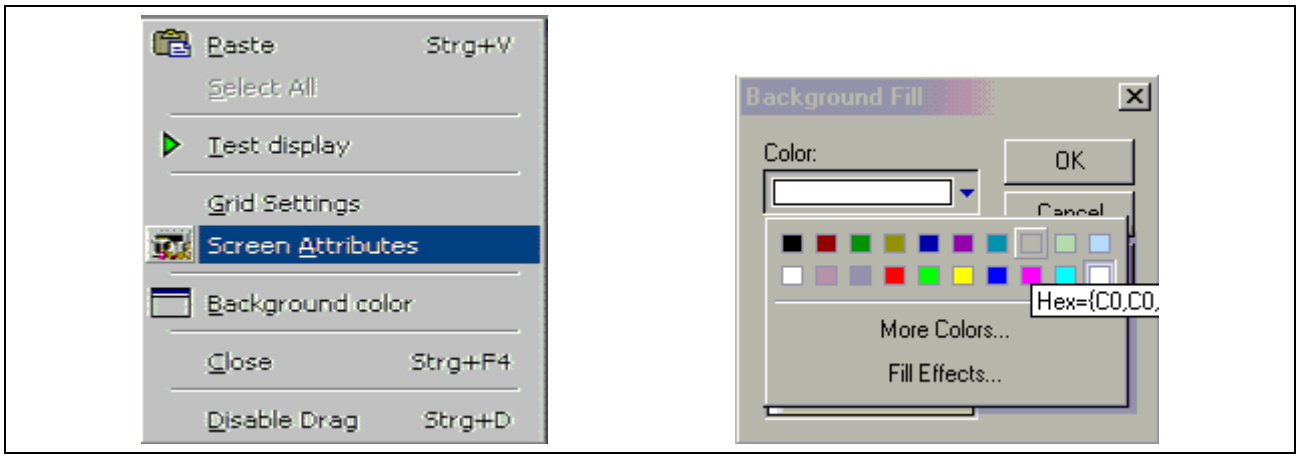


Fig. 5-13: Setting the background color

4. Create a text object by clicking on the text icon of the toolbar.

5. Click on the screen and enter the following text:
   Welcome to the Rexroth - Demo - Application

6. Double-click on the text to open the Object Properties.

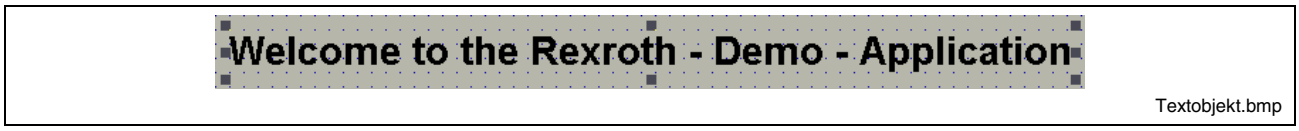


Fig. 5-14: Text object

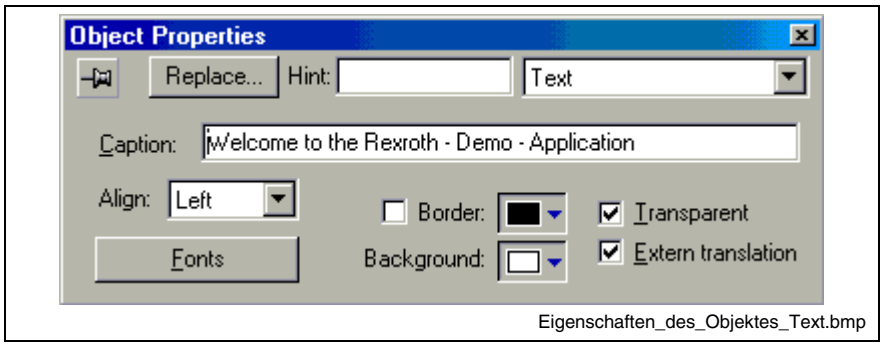


Fig. 5-15: Properties of the object text

7. Select the check box *Transparent* to display the text object without background color.

8. Click on fonts to fix the font type, color and seize.

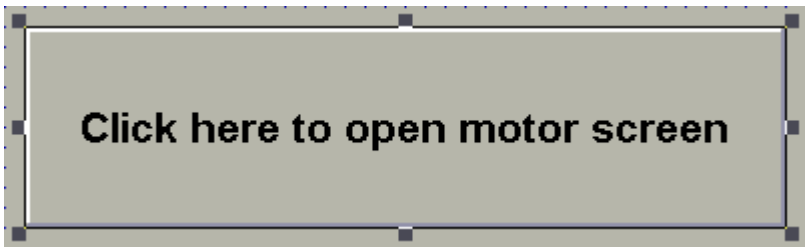
9. Click on the text object and, while pressing the mouse button, drag it to the desired position.

Note: Double-clicking on an object always opens the **Object Properties** window with the parameters belonging to this object. The properties depend on the selected object.

10. Click on the button icon of the toolbar to create a Button object.

11. Click on the screen and, while pressing the mouse button, drag it in the desired shape.

12. Click on the Button object and enter the following text:
Click here to open motor screen

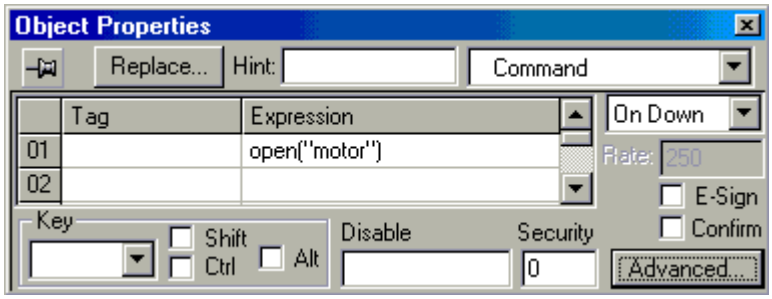


Erstellen_eines_Button_Objektes.bmp

Fig. 5-16: Creating a Button object

13. Select the Button object by clicking on it and choose then in the toolbar the command icon to assign the dynamic property COMMAND to this object.

14. Double-click on the Button object to open the object properties. Now, enter the following instruction in the Expression field: open("motor").



Erstellen_der_Kommando-Eigenschaften_eines_Buttons.bmp

Fig. 5-17: Creating the command property of a button

Note: By opening the drop-down list all object properties become visible.

If a user presses this button during runtime, in the phase "While pressing" the screen "*motor.scr*" is opened. With entry *SHIFT + M* in the **Key** field, a shortcut is assigned to the button.

15. Finally, save the created screen with **File → Save**; enter *main* as file name and *Screen files (*.scr)* as file type.

16. To close the screen, click with the right mouse button on the screen and select **Close** in the pop-up menu.

5.6 Creating the Screen Motor (motor.scr)

The screen *motor.scr* is provided to illustrate clearly the properties of motors. The screen **"motor.scr"** is created by the following steps:

1. Select the **Graphics** tab and click with the right mouse button on the **Screen** folder.
2. Select Insert from the pop-up menu and the **Screen Attributes** dialog appears automatically.
3. Use this dialog to determine all screen attributes, in our case confirm the presetting by clicking on **OK**.
4. Select by clicking on the right mouse button **Background color** in the new screen, choose *gray*; and apply the background color with **OK**.
5. Click on the text  icon, click on the empty space in the screen and enter there:
   Motor screen
6. Double-click on the text object to open the **Object Properties** window.
7. Select the check box *Transparent* to display the text object without background color.
8. Click on fonts to fix the font type, color and seize.
9. Click on the text object and, while pressing the mouse button, drag it to the desired position.

Bildtitel_des_Bildes_Motor.bmp

Fig. 5-18: Screen title of the Motor.scr

10. Click on the text  icon to create an identification text for the motor. Click on an empty space in the screen and enter there:
    Motor ID: ####

Note: The character **#** is provided in WinStudio as wild card character for a text input and output (Text I/O). The number of the wild card characters determines the number of the text characters to be input or output.

11. Double-click on the text object to open the **Object Properties** window.

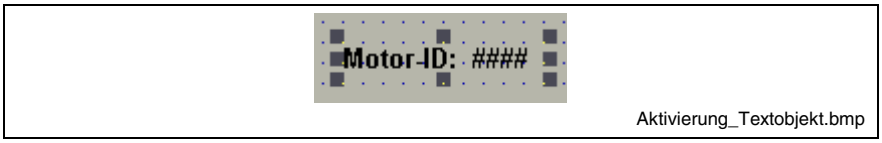


Fig. 5-19: Activating the text object

12. Click on the Text I/O on/off icon of the toolbar. Enter the following tag in the Tag/Expression field of the Text I/O's object properties; you can write the tag or search it in the database with the tag selection:
    Motor_status[0].motor_number

Explanation of tag *Motor_status[0].motor_number*:

The tag motor_status is declared as tag of type Class:motor with field seize 10; motor_status[0] is the first array element; the number in the square brackets is the field index. The element operator (.) refers to the class element motor_number of the Class:motor.

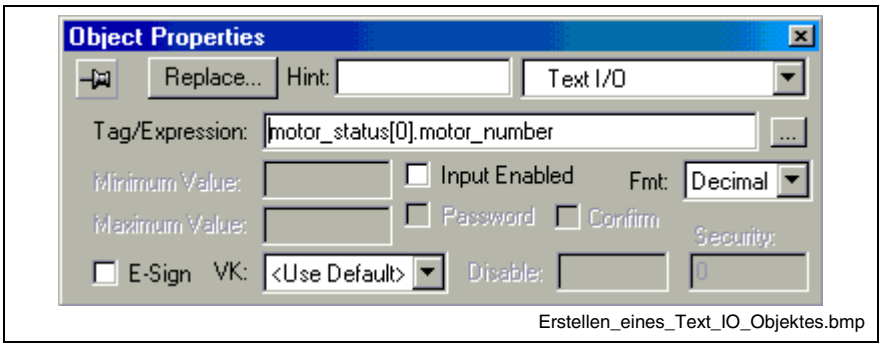


Fig. 5-20: Creating a text I/O object

13. The *Input possible* and *E-Sign* fields of the object properties remain unselected, format *Fmt* remains **Decimal**.

14. The error status of the motor is to be illustrated in a colored manner in a library element. For this, select **Library** folder in the **Graphics** tab of the *Workspace* by double-clicking on it. Now, select **motors**.

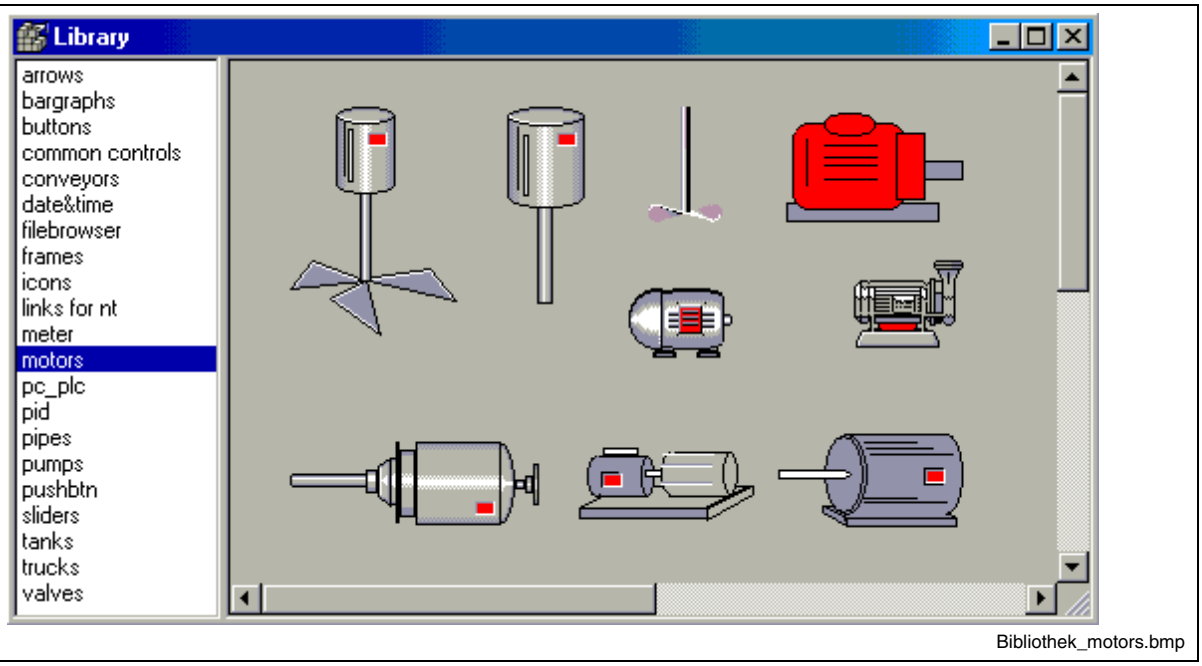


Fig. 5-21: Library "motors"

15. Click on the motor element and drag it in your screen while pressing the mouse button. Close the **Library** window.

16. Double-click on the motor to open the **Object Properties** window.

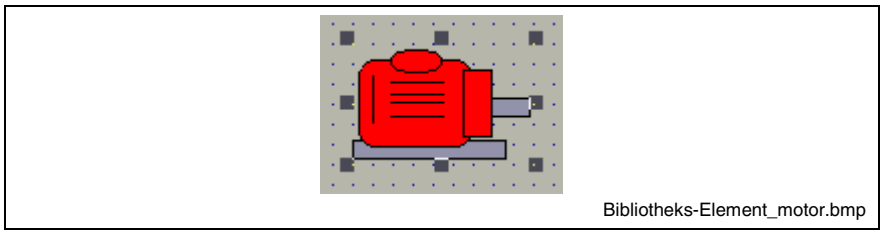


Fig. 5-22: Library element "motor"

17. To illustrate the error status of the motor in a colored manner, assign a tag via the *Tag/Expression* field to the *Object properties* **Color**: **Motor_status[0].failure**

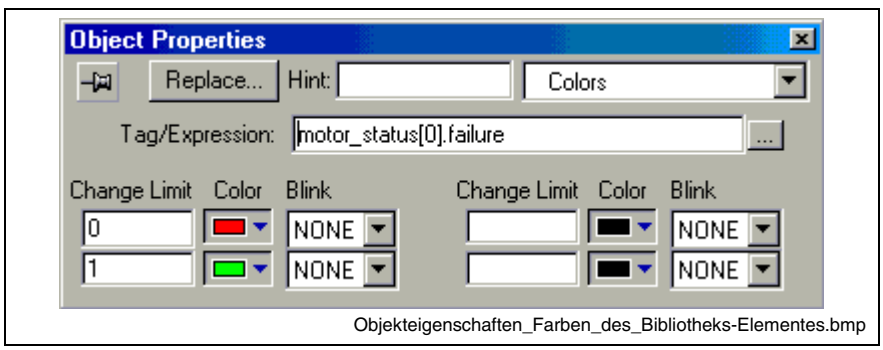


Fig. 5-23: Object properties Color of the library element

18. Click on the motor element and drag it to the desired position within the screen.

19. Click on the text icon, to create the following text:
    Brake

20. Double-click on the text object, and select the check box *Transparent*, to indicate the text object without a background color.

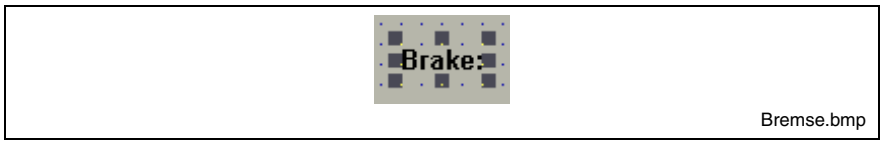


Fig. 5-24: Brake

21. Click on the ellipse icon of the toolbar. Click on an empty field in the screen and, while pressing the mouse button, drag the ellipse to the desired seize.

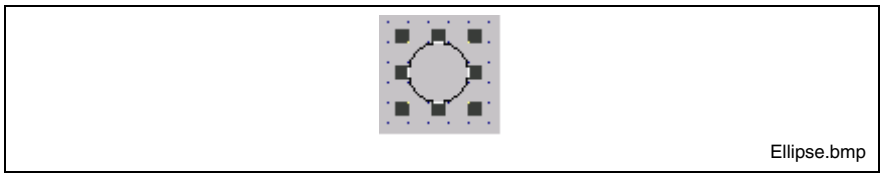


Fig. 5-25: Ellipse

22. Double-click on the ellipse object and open the **Object Properties** window.

23. Click on the color icon of the toolbar and enter the following tag in the *Tag/Expression* field:
    Motor_status[0].brake

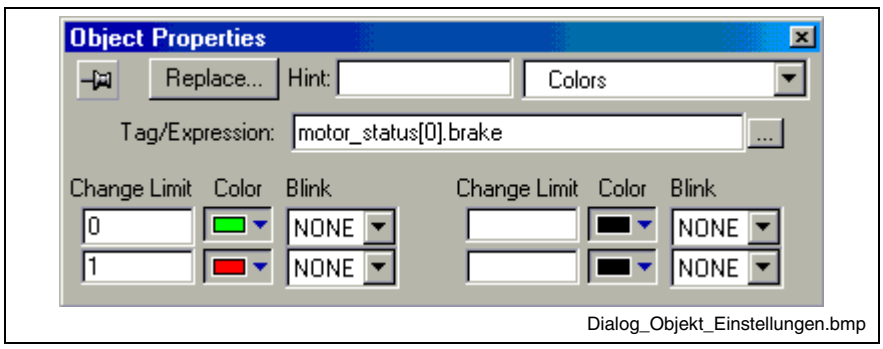
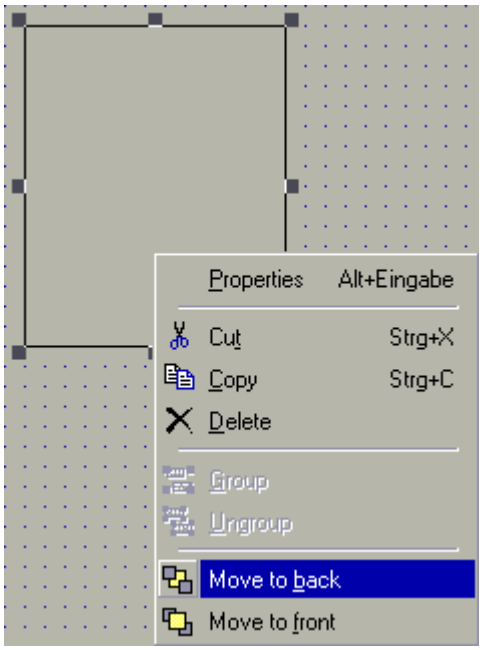


Fig. 5-26: Object properties dialog

24. Select the ellipse object by clicking on it and, while pressing the mouse button, position it besides the text object *Brake.*

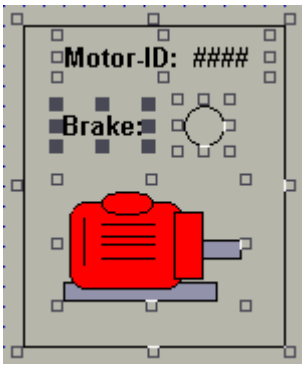
25. Position the identification text, the ellipse including text and the library element for motor according to your requirements. Click on the rectangle  icon of the toolbar. Click on an empty field besides your arrangement and, while pressing the mouse button, drag the rectangle over the elements. Double-click on the rectangle and select in the pop-up menu **In Background** to position the rectangle behind the other objects.



Rechteck_Objekt_im_Hintergrund.bmp

Fig. 5-27: Rectangle: arrange object in the background

26. Click on the selection  icon of the toolbar. Keep the SHIFT key pressed and click on all objects to be selected (you can rope all objects while pressing the left mouse button).



Markieren_ausgewählter_Objekte.bmp

Fig. 5-28: Marking selected objects

27. Click in the Align and Distribute toolbar on the group  icon. Group all selected objects into a group object.

28. To be able to finish the application, the "shutdown() function" is assigned to an EXIT symbol. Double-click in the **Graphics** tab of the **Workspace** on the **Library** folder. Select there under *icons* the EXIT icon and, while pressing the mouse button, drag it into the screen.

Fig. 5-29: EXIT icon

29. Close the **Library** window and double-click on the EXIT object.

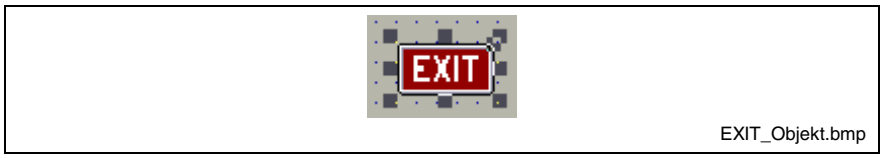


Fig. 5-30: EXIT object

30. Click on the command  icon of the toolbar. Now, enter the following instruction in the Expression field:
shutdown()

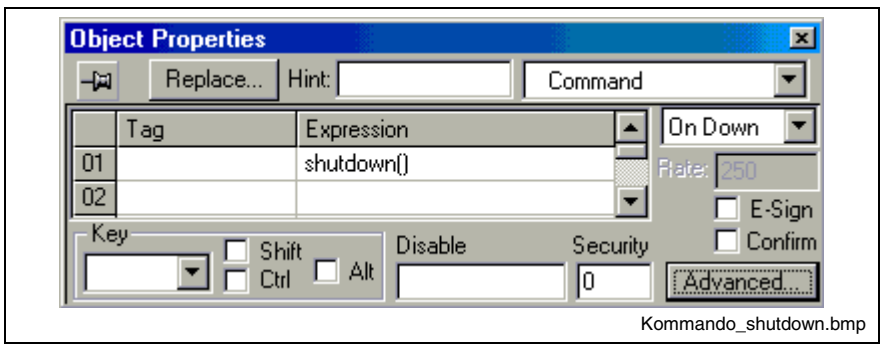


Fig. 5-31: Command shutdown()

31. Finally, save the created screen with **File → Save**; enter *motor* as file name and *Screen files (*.scr)* as file type.

32. To close the screen, click with the right mouse button on the screen and select **Close** in the pop-up menu.

5.7 Realizing a Process Connection

The connection of the PLC control tags to the visualization occurs by the OPC communication. WinStudio has created driver sheets for this communication.

1. Double-click in the **Comm** tab of the **Workspace** on the **OPC** folder. Then, click on **Insert**.

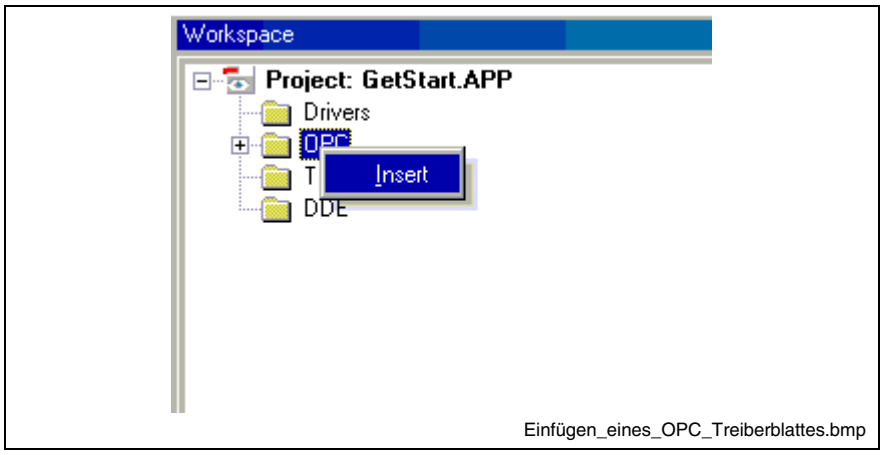


Fig. 5-32: Inserting an OPC driver sheet

2. The OPC driver sheet is opened. Enter in the *Description* field a description of this driver sheet.

3. Select the used OPC server in the *Server Selection* field.

Note: For this example the control Rexroth IndraLogic L40 was used. This PLC uses the OPC server IndraLogic.OPC.02.

4. Enter 200 ms for the reading clock in the *Update Rate* field.

5. Double-click in the *Tag name* field. The tag selection indicates all visualization tags. Our example requires the tag **motor_status**. Confirm the tag with **OK**.

6. Click with the right mouse button in the *Element* field. Select **OPC Browser** from the pop-up menu. A list of all OPC elements managed by the OPC server appears.

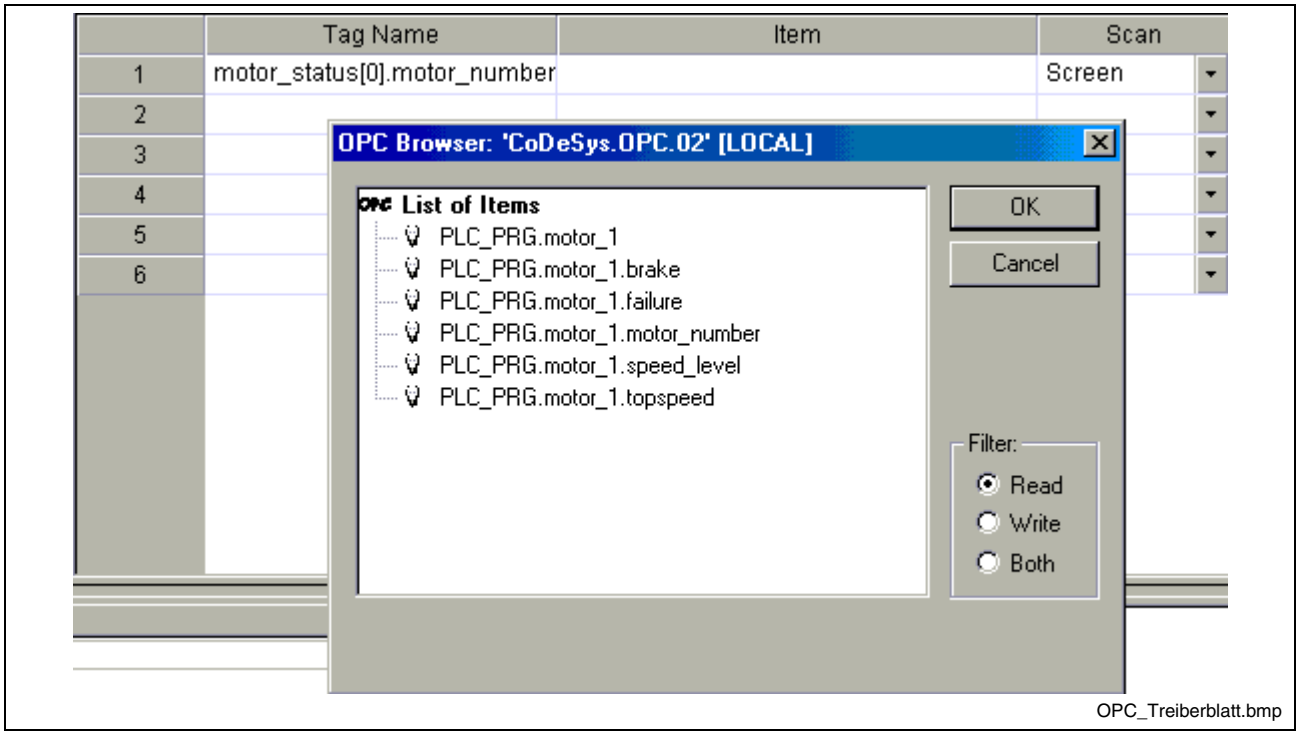


Fig. 5-33: OPC driver sheet

Note: If an empty element list is illustrated after activating the OPC browser, the OPC configuration and the symbol download into the control must be verified.

7. Fill in the OPC driver sheet according to the example requirements; enter the following visualization tags with corresponding process connection into the driver sheet:

Motor_status[0].motor_number	→	PLC_PRG:motor_1.motor_number
Motor_status[0].brake	→	PLC_PRG:motor_1.brake
Motor_status[0].failure	→	PLC_PRG:motor_1.failure

Note: The names of the PLC control tags can be different in your PLC project; however, they are in any case provided for use in the OPC browser.

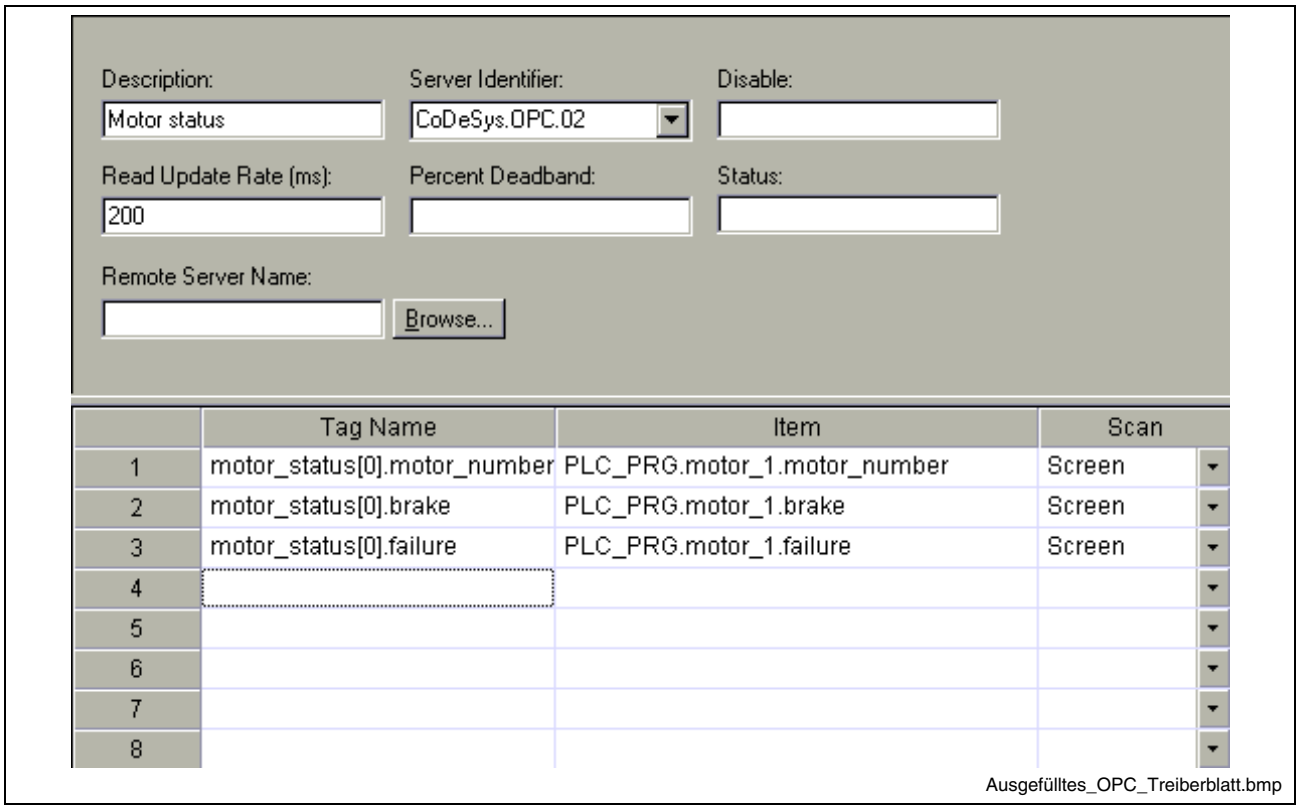


Fig. 5-34: Filled OPC driver sheet

8. Finally, you finish the establishment of the process connection by **File → Save as**; for this, in the dialog box **Sheet number 1** is indicated. Apply this value with **OK**. Now, you have created the driver sheet OPCCL001.OPC.

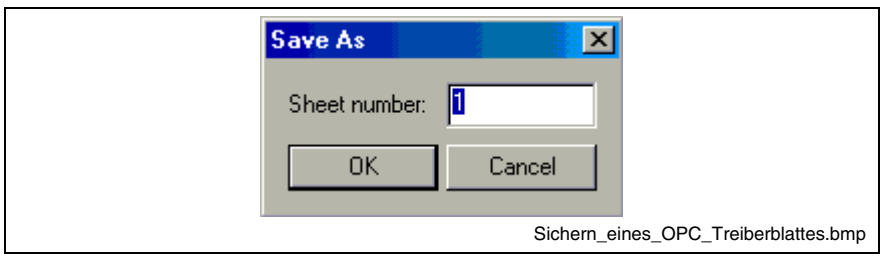
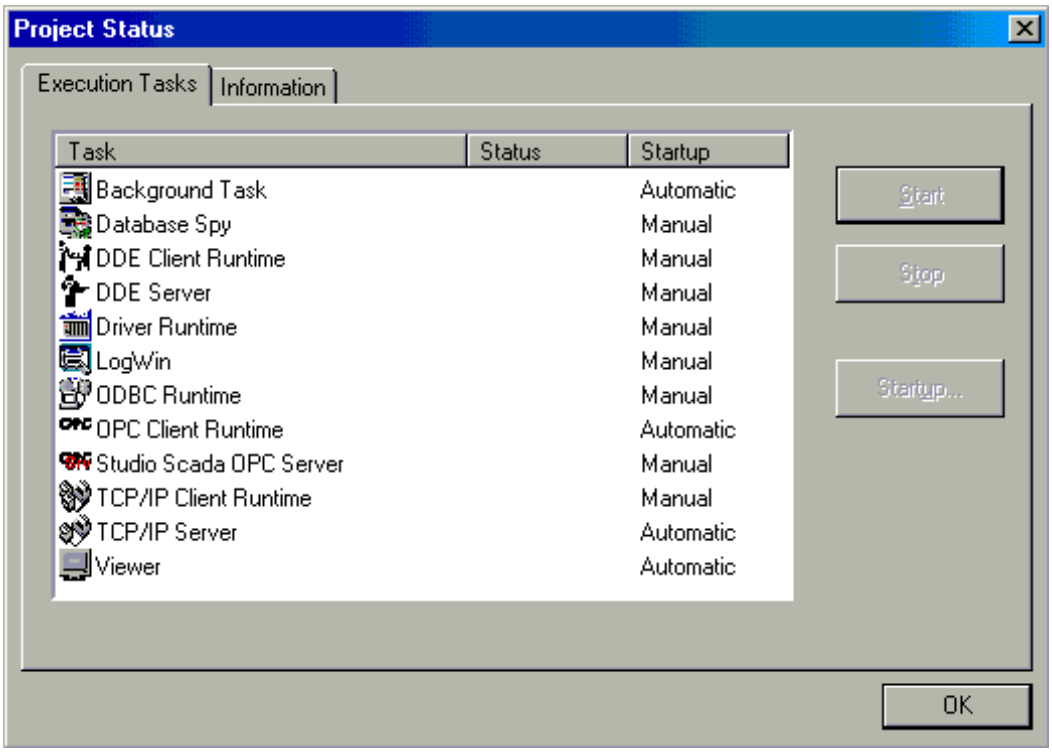


Fig. 5-35: Save the OPC driver sheet

5.8 Test of the Application

At last, the application is tested.

1. Verify in **Project** → **Status**, if all required execution tasks (Background Task, OPC Client Runtime, Viewer) are automatically started.



Dialog_Projekt_Status.bmp

Fig. 5-36: Dialog: Project Properties → Status

Note: In Project → Status you can decide which tasks are automatically or manually launched, when the visualization is started. The management of the startup can be modified by activating the **Startup** button.

2. Click in the Execution Environment toolbar on the *Start Application*  icon.

3. The application is started with the set start screen "main".

6 Running the Web-Based Application

6.1 General Information

This chapter explains how to prepare your application to run it via the web functions.

6.2 Instruction to Run a Web-Based Application

To enable the application tags to be used on the web, follow the instruction below.

1. Open the application tags database and specify the ***"Server"*** option instead of ***"Local"*** in the ***"Web data***" column for all tags, that must exchange data between the Server station and the Web Thin Client station.

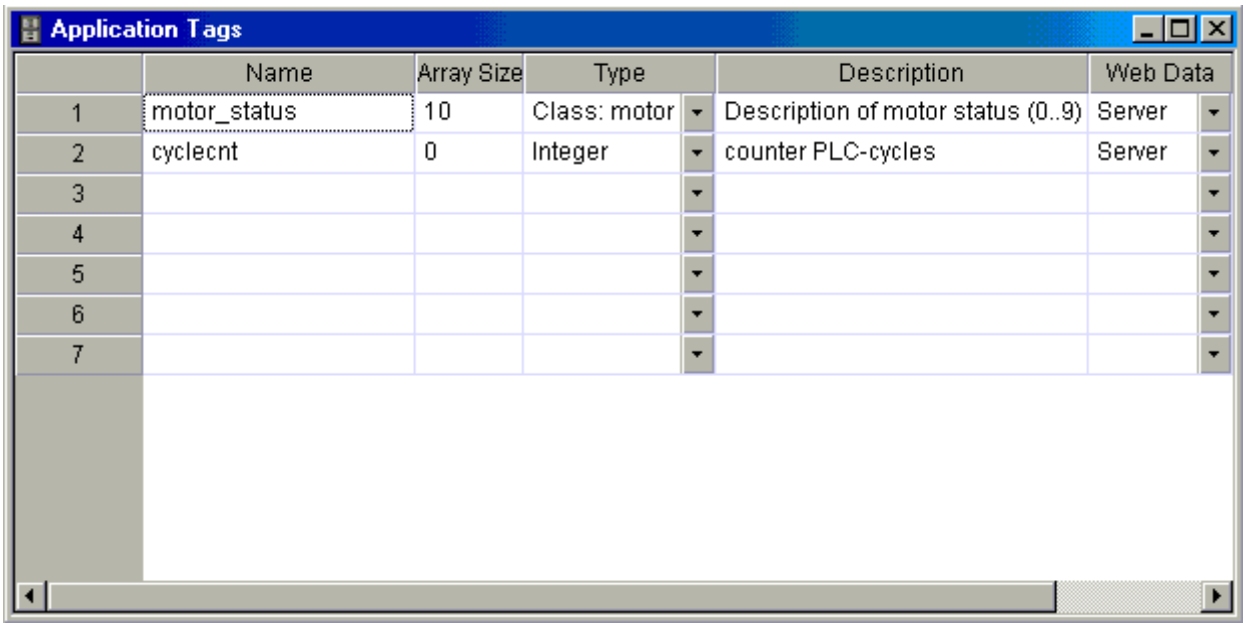


Fig. 6-1: Application tag database

Note: WinStudio stores all application screens in the **Screens** folder located in the **Graphics** tab in the **Workspace**.

To open your **Screen** folder, proceed as follows:

1. Expand the **Screen** folder by clicking on the plus sign and double-click on **`main.scr`**.

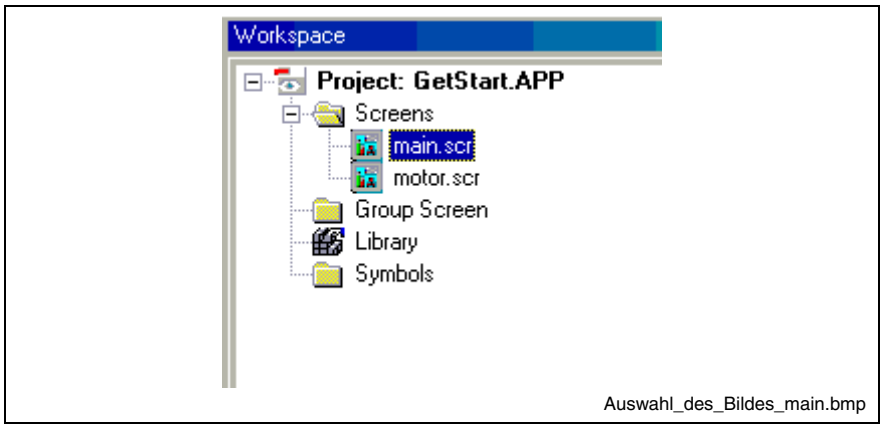


Fig. 6-2: Select **main.scr**.

2. Select **File** → **Save as HTML** to save the screen in HTML format.

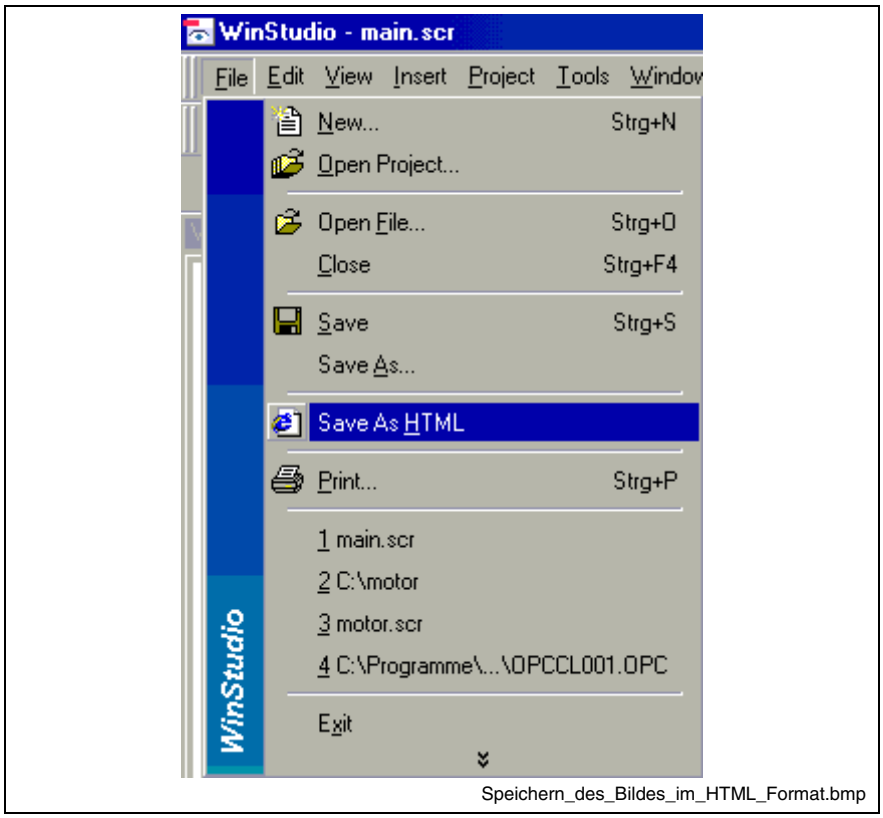


Fig. 6-3: Saving screens in HTML format

3. After executing this command, the screen is stored in the **Web** subfolder of the application directory.

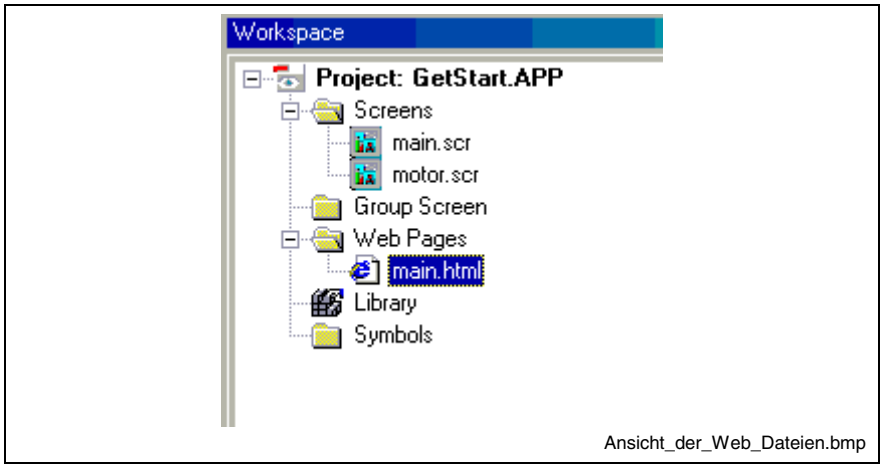


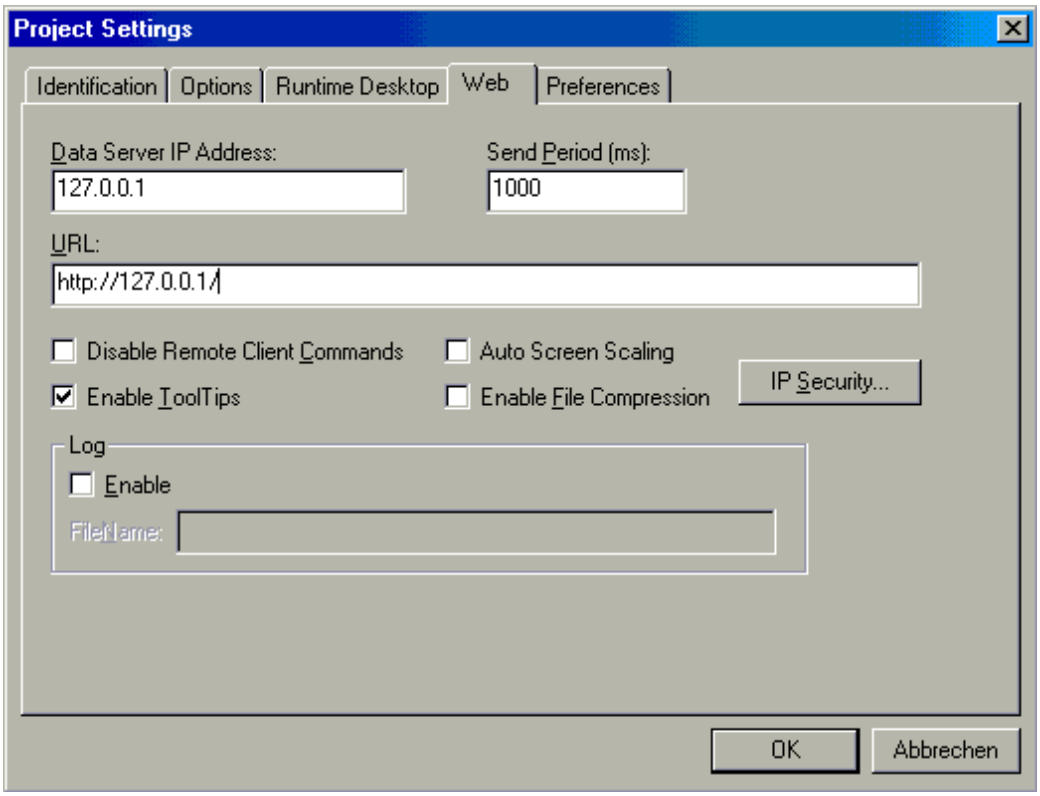
Fig. 6-4: Viewing web data

4. Select **"Project"** ➔ **"Status"** from the main menu and click on ***"Startup Mode"*** ***"Automatic"*** for ***"TCP/IP Server".***

5. Select **Project** –> **Settings** in the main menu and click on the **Web** tab.

6. Now, you must specify the IP address of the server station. The server station is the device, on which you want to run WinStudio or CeView runtime with this application. Enter this address in the **Data Server / IP Address** field. The Web Thin Client station exchanges online the tag values specified in this field with the station.

7. You also must specify the "URL path" of the web data (in subfolder **Web**) in the **URL** field. The URL depends on the home directory configured for your Web Server station.
   If the subfolder **Web** of the application is the home directory, you can take over the following specifications:



Spezifikation_in_den_Projekteinstellungen.bmp

Fig. 6-5: Specifying the project settings

Note: Microsoft provides Web Server for all Microsoft operating systems. Consult your Microsoft documentation for information about installing and configuring a Web Server.

8. After configuring the Web parameters, click on **OK** to close the **Project Settings** dialog.

9. Close all screens in your screen editor (**File -> Close All**) and then select **Tools** → **Verify Application** to update the **Web** settings for the Web pages with the parameters.

Caution: You must always execute the command **Tools** → **Verify Application** after having changed a parameter in the **Project Settings**.

To test your web-based application, proceed as follows:

1. Click on the **Run Application** icon in the WinStudio toolbar to start the application locally on the server station.

2. Open an Internet browser (Microsoft Internet Explorer or Netscape) and enter there the URL address to open the *main.html* screen on the server station (for example: *http://127.0.0.1/main.html*).

3. When the **Log On** dialog appears in the browser (see the following figure), enter "guest" in the **User Name** field and click on **Ok** to open the ***"main.html"*** dialog in the browser.

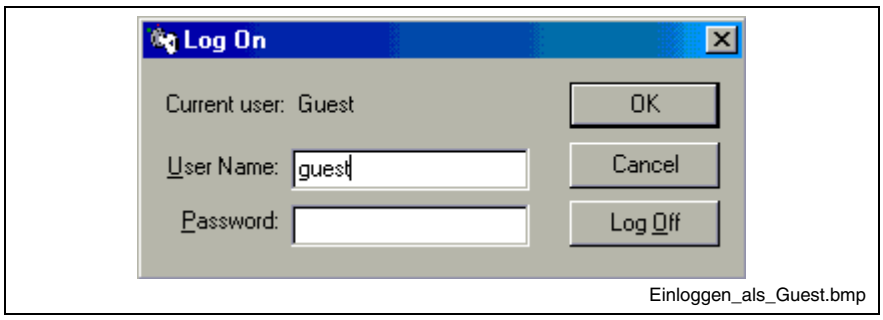


Fig. 6-6: Logging on as guest

Note: The Web Thin Client requires for the animation an ActiveX component (***ISSymbol.ocx***). If you have Internet connection, this component is downloaded and registered automatically.
Otherwise, you must copy the ***"ISSymbol.cab"*** file from the WinStudio's **BIN** subfolder and paste it into the ***\<OSPath\>\System32*** directory on the Web Thin Client station. Use WinZip® to unzip (extract) the file into this directory. After that, you have to register the file ***ISSymbol.ocx*** with command **regsvr32 ISSymbol.ocx**.

7 Running Applications from a Remote Station

7.1 General Information

This chapter explains how to run your application from a remote station.

After configuring an application and testing it locally on the development workstation, you can download it to the remote target workstation. This is possible, if one of the following versions is installed on the target workstation: WinStudio in Windows NT/2000/XP or CEView in Windows CE.

7.2 Instructions to Run an Application from a Remote Station

1. From your remote target workstation select **Start** → **Program Files** → **Rexroth** → **WinStudio** → **WinStudio** → **Remote Agent** and verify, that the "Remote Agent" (**CEServer.exe**) is running.
2. If the following window appears, click on the **Setup** button.

Fig. 7-1: Verifying the remote agent

3. Now, select **Serial Port** or **TCP/IP** depending on the existing communication and specify the necessary serial port.

Fig. 7-2: Specifying the communication

Note: WinStudio recommends using TCP/IP for performance reasons.

4. Click on **OK** and keep the remote agent running on this station.

5. Select **Project** → **Execution Environment** from the main menu of your development workstation to open the following window:

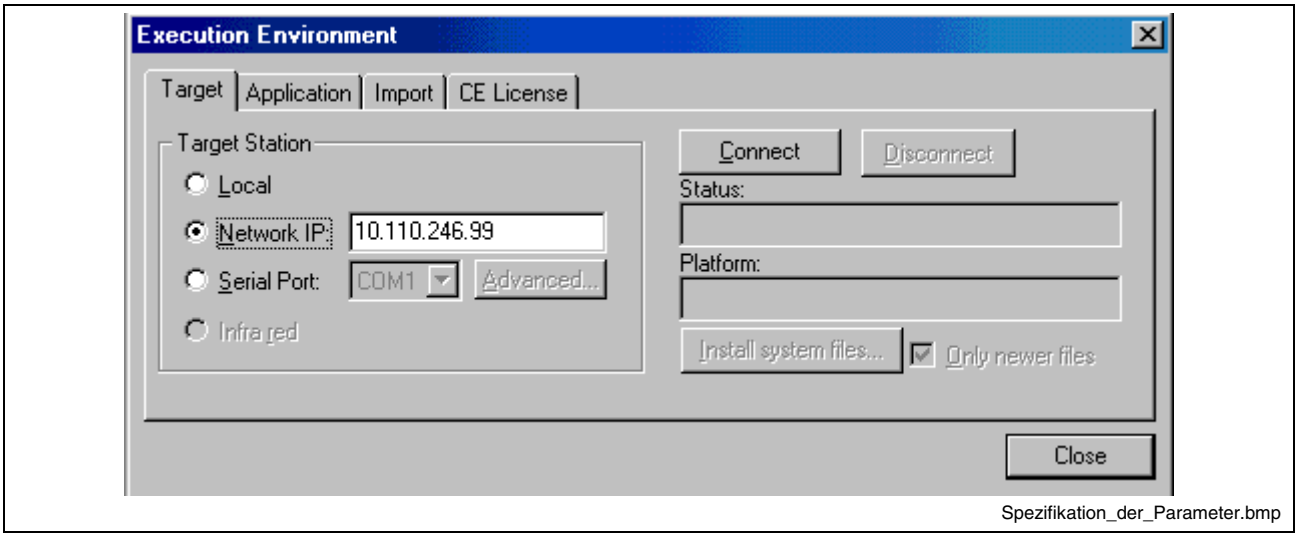


Fig. 7-3: Specifying the parameters

6. Select here also the communication type in the target workstation (**Network IP** or **Serial Port**). If necessary, enter the IP address of your remote station.

7. Click on the **Connect** button to connect to the remote station.

Note: If the remote station is a CE device, click on the **Install System Files** button. **System Files** to transmit the runtime modules to the CE device.

8. Return to the **Execution Environment** dialog and select the **Application** tab. Click on the **Send to Target** button to download the application to the remote station.

After transmitting all files start the application by clicking on **Run**.

8 List of Figures

9 Index

10 Service & Support

10.1 Helpdesk

Unser Kundendienst-Helpdesk im Hauptwerk Lohr am Main steht Ihnen mit Rat und Tat zur Seite. Sie erreichen uns

Our service helpdesk at our headquarters in Lohr am Main, Germany can assist you in all kinds of inquiries. Contact us

- telefonisch - by phone: **+49 (0) 9352 40 50 60**
  über Service Call Entry Center Mo-Fr 07:00-18:00
  - via Service Call Entry Center Mo-Fr 7:00 am - 6:00 pm
- per Fax - by fax: **+49 (0) 9352 40 49 41**
- per e-Mail - by e-mail: **service.svc@boschrexroth.de**

10.2 Service-Hotline

Außerhalb der Helpdesk-Zeiten ist der Service direkt ansprechbar unter

After helpdesk hours, contact our service department directly at

+49 (0) 171 333 88 26

oder - or **+49 (0) 172 660 04 06**

10.3 Internet

Unter **www.boschrexroth.com** finden Sie ergänzende Hinweise zu Service, Reparatur und Training sowie die **aktuellen** Adressen *) unserer auf den folgenden Seiten aufgeführten Vertriebs- und Servicebüros.

Verkaufsniederlassungen
Niederlassungen mit Kundendienst

Außerhalb Deutschlands nehmen Sie bitte zuerst Kontakt mit unserem für Sie nächstgelegenen Ansprechpartner auf.

*) Die Angaben in der vorliegenden Dokumentation können seit Drucklegung überholt sein.

At **www.boschrexroth.com** you may find additional notes about service, repairs and training in the Internet, as well as the **actual** addresses *) of our sales- and service facilities figuring on the following pages.

sales agencies
offices providing service

Please contact our sales / service office in your area first.

*) Data in the present documentation may have become obsolete since printing.

10.4 Vor der Kontaktaufnahme... - Before contacting us...

Wir können Ihnen schnell und effizient helfen wenn Sie folgende Informationen bereithalten:

1. detaillierte Beschreibung der Störung und der Umstände.
2. Angaben auf dem Typenschild der betreffenden Produkte, insbesondere Typenschlüssel und Seriennummern.
3. Tel.-/Faxnummern und e-Mail-Adresse, unter denen Sie für Rückfragen zu erreichen sind.

For quick and efficient help, please have the following information ready:

1. Detailed description of the failure and circumstances.
2. Information on the type plate of the affected products, especially type codes and serial numbers.
3. Your phone/fax numbers and e-mail address, so we can contact you in case of questions.

10.5 Kundenbetreuungsstellen - Sales & Service Facilities

Deutschland – Germany

vom Ausland: (0) nach Landeskennziffer weglassen!
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Vertriebsgebiet Mitte Germany Centre	SERVICE AUTOMATION	SERVICE AUTOMATION	SERVICE AUTOMATION
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