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Getting Started

Introduction

Starting TrendWorX32

Starting TrendWorX32 Container

Using the Mouse and Keyboard

Mouse Functions

Shortcut Keys

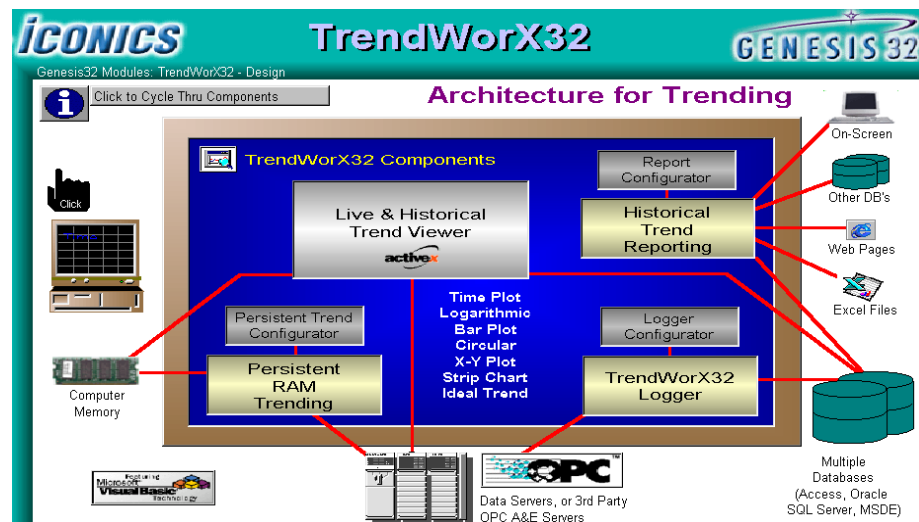
Introduction

TrendWorX™32 is a powerful collection of real-time trending, historical data logging, reporting, and analysis tools that seamlessly integrates with enterprise-wide information systems. Based on the OPC Historical Data Access specification for creating Plug and Play historical data servers and clients, TrendWorX32 offers an open solution to applications requiring scalable and distributed real-time performance.

The powerful Microsoft based ADO/OLEDB data-logging provider is at the core of TrendWorX32. OPC HDA provides the standard COM and OLE interface for ICONICS Trend ActiveX Viewer Control to display real-time and historical data, separately or simultaneously.

Several trend display types are supported, including time plots, XY plots, logarithmic plots, bar plots, the popular strip chart recorder, and even circular charts! Acquire thousands of data points and organize them into groups for very fast and efficient replay of historical and real-time information. You can use the built in Visual Basic Application to create reports, calculations, and data analysis.

TrendWorX32 integrates with Microsoft Access, Microsoft SQL 7.0, Microsoft SQL 2000, and Oracle using ADO and OLEDB database technologies. In addition, TrendWorX32 supports MSDE 7.0 and MSDE 2000.



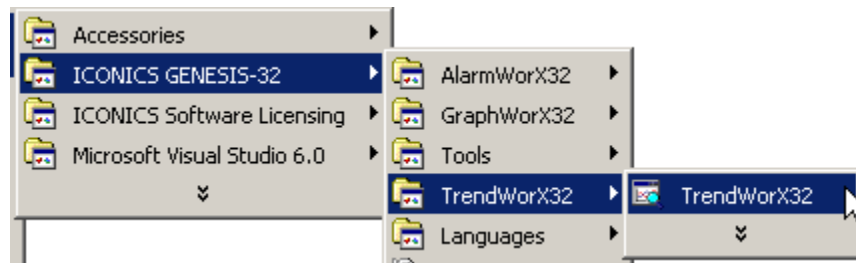
TrendWorX32 Architecture

Starting TrendWorX32

You can use TrendWorX32 Container as a stand-alone software tool connected directly to your third-party software application, or in conjunction with the GENESIS Control Series or GENESIS for Windows products available from ICONICS. This user's guide assumes that you are using TrendWorX32 as a stand-alone application accessed directly from your desktop.

Starting TrendWorX32 Container

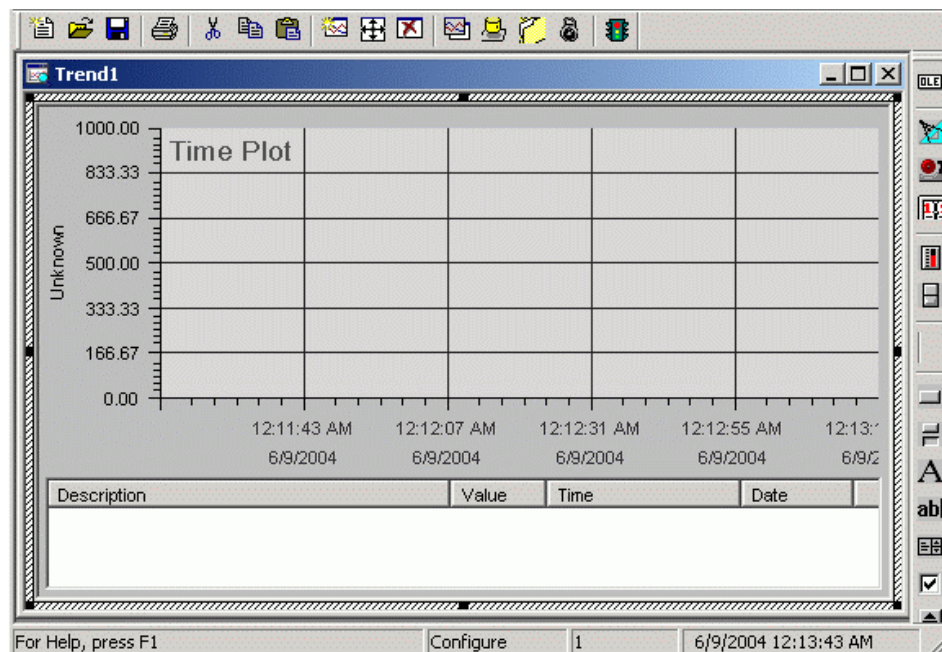
To start the TrendWorX32 Container from the Windows **Start** menu, select **Programs > ICONICS GENESIS32 > TrendWorX32 > TrendWorX32**, as shown in the figure below.



Starting the TrendWorX32 Container

If you do not install an ICONICS Software License, you will only be able to run TrendWorX32 Container in a two hour Demo mode. If you have a software license and do not wish to run in Demo mode, make sure that the license is properly installed.

When you start TrendWorX32, the TrendWorX32 Container screen will open and a **Trend Viewer** window will appear as shown in the figure below.



TrendWorX32 Container Screen and Trend Window

The table below lists the basic TrendWorX32 Container screen components and their functions. Refer to the **Screen Features** section for a complete description of the menu bar, toolbar, and status bar functions.

Component	Function
Title bar	Displays the name of the application and the name of the current screen displayed. To reposition the screen, click the title bar using the left mouse button and drag the screen to the desired location.
Control-menu box	Displays the Windows Control menu. Refer to your Windows documentation for more information about the control menu.
Minimize button	Reduces the window to an icon.
Maximize button	Enlarges the active application window to fill the entire screen.
Menu bar	Contains the various menus through which you can access TrendWorX32 Container features, such as printing and saving to a file.
Toolbar	Contains toolbar buttons for certain useful menu items.
Work area	Displays the various TrendWorX32 Container screens as you select them.
Status bar	Displays context-sensitive help, display mode, and the current time and date.

Using the Mouse and Keyboard

You can use both the mouse and the keyboard to control TrendWorX32. This section explains how to use the mouse and lists keyboard shortcuts for TrendWorX32 Container.

Mouse Functions

In Windows, you use the mouse to move a pointer (usually an arrow) on the screen. The pointer shows you where you are on the screen and enables you to point to and select application items.

In the TrendWorX32 Container, you can use the mouse to:

- Select icons, buttons, and other screen objects.
- Resize TrendWorX32 Container screens.
- Reposition windows and dialog boxes.
- Scroll through list boxes.
- Display context-sensitive help in the status bar for screen objects, such as icons, command buttons, and parameter fields.

The table below lists various mouse functions and descriptions with which you need to be familiar.

Function	Description
Left-click	Position the mouse pointer over an object, such as an icon or a command button, and press the left mouse button once.
Right-click	Inside a Trend window, press the right mouse button once to view ActiveX properties.
Double-click	Position the mouse pointer over an object, and press the left button twice in quick succession.
Drag-and-drop	Click an object, and with the button still depressed, move the object to the desired location and release the button.
Select	Click an object once with the left mouse button, highlighting the object (enclosing the object in a rectangle with a dotted rule or in reverse color).
Move pointer over	Place the mouse pointer on top of an object, such as an icon or a command button, to display context-sensitive help for that object in the status bar.

Shortcut Keys

The keyboard is used to enter information into dialog boxes and to select menu options. The table below lists the available shortcut keys and their related functions (English version only).

Key	Function
ALT+F	Displays the File menu options available for the displayed screen
ALT+E	Displays the Edit menu options available for the displayed screen
ALT+V	Displays the View menu options available for the displayed screen
ALT+A	Displays the Actions menu options available for the displayed screen
ALT+SHIFT+T	Displays the Tools menu options available for the displayed screen
ALT+W	Displays the Window menu, which contains a list of available TrendWorX32 Container screens
ALT+H	Displays the available Help menu options
CTRL+N	Opens a new Trend window
CTRL+O	Opens an existing Trend window

CTRL+S	Saves the active Trend window
CTRL+P	Prints the current screen
CTRL+X	Cuts a selected item from the display
CTRL+C	Copies a selected item from the display
CTRL+V	Pastes a selected item from the display
CTRL+1	Adds a Time Plot to the display
CTRL+2	Adds an XY Plot to the display
CTRL+3	Adds a Bar Plot to the display
CTRL+4	Adds a Log Plot to the display
CTRL+5	Adds a Strip Chart to the display
CTRL+6	Adds a Circular Chart to the display
DEL	Deletes an object from the display
F12	Inserts a new object in the display
F4	Displays the properties of the active Trend window
F3	Shows the display preferences for the active Trend window
F2	Displays the application preferences
CTRL+T	Toggles all toolbars
CTRL+SHIFT+T	Displays the Main toolbar
CTRL+SHIFT+Y	Displays the ActiveX toolbar
CTRL+B	Displays the status bar
CTRL+F	Sizes an ActiveX object to the display
CTRL+G	Tiles all ActiveX objects in the display
CTRL+H	Cascades all ActiveX objects in the display
CTRL+SHIFT+G	Shows grids
CTRL+ALT+U	Displays language selections
CTRL+A	Animates the active Trend window in the display
CTRL+U	Activates runtime mode
CTRL+E	Activates persistent trend mode
CTRL+R	Activates reporting mode
CTRL+M	Activates logging mode
ALT+F8	Starts the Macros dialog
ALT+F11	Starts the Visual Basic editor
CTRL+W	Starts TrendWorX32 Logger Configurator
SHIFT+L	Connects to TrendWorX32 SQL Data Logger
CTRL+K	Launches TrendWorX32 Persistent Trending

CTRL+Q	Launches TrendWorX32 History Reporting
F6	Launches security login in runtime mode
F7	Starts the Security Configurator
F8	Sets the GENESIS32 working directory
F1	Opens the Help topics file



New Features in the TrendWorX32 Container

About the TrendWorX32 Container

Screen Features

Creating New Trend Displays

Editing Trend Windows

Application Preferences

ActiveX Toolbar

TrendWorX32 OLE Automation

TrendWorX32 Security

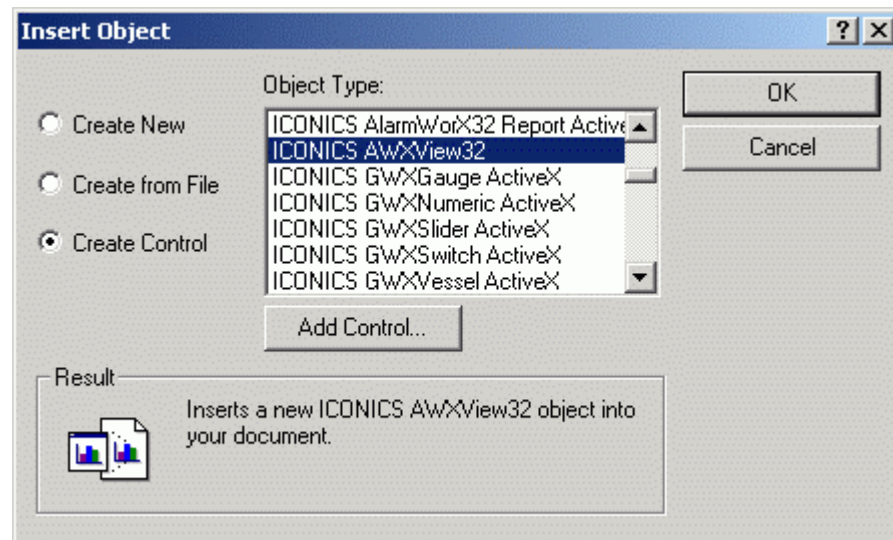
New Features in the TrendWorX32 Container

TrendWorX32 includes many new features that not only add functionality to the product but also make it easier to use. For a list of the new features for each application within TrendWorX32, see the documentation for that application.

About the TrendWorX32 Container

The TrendWorX32 Container is a fully VBA-enabled application, which allows for a high degree of customization and functionality. A container is an application that supports embedding of ActiveX objects, which are available from the **Edit** menu and the **ActiveX** toolbar.

To insert an ActiveX object from the **Edit** menu, choose **Insert New Object**, or press the shortcut key **F12**. This opens the **Insert Object** dialog box, which is shown in the figure below. You can select an existing ActiveX object from the list, or you can create a new ActiveX object. You can also open the **Insert Object** dialog box by clicking the **OLE** button on the **ActiveX** toolbar. You can also insert an ActiveX object by choosing from the **Add Trend** submenu in the **Edit** menu.



Insert Object Dialog Box

Screen Features

Menu Bar

Printing

Status Bar and Toolbars

Menus

This section explains the various features available from the menu bar, toolbar, and status bar that allow you to manage your database records and use TrendWorX32 easily and efficiently.

The menus in the TrendWorX32 Container enable you to change the default settings for many elements of the container. You can also use the menus to add new trends and open different elements of the TrendWorX32 application.

- **File menu**
- **Edit menu**
- **View menu**
- **Actions menu**
- **Tools menu**
- **Window menu**
- **Help menu**

Note: The **File** menu functions vary according to the screen that is displayed. (This is documented where appropriate.)

File Menu

The **File** menu commands are listed in the table below.

Note: If a **Trend** window is not open, the **Close**, **Save**, and **Print** commands are disabled.

File Menu Commands

Command	Shortcut Keys	Function
New	CTRL+N	Creates a new trend display.
Open	CTRL+O	Opens an existing trend display.
Close		Closes the current trend display.
Save	CTRL+S	Saves the current display file.
Save As		Saves current display file with a new name or file extension.

Print	CTRL+P	Prints the current trend display.
Print Preview		Displays a preview of the screen before printing.
Print Setup		Configures printer settings.
Recent File		Lists the last four files opened in TrendWorX32.
Exit		Closes the application.

Edit Menu

The **Edit** menu commands are listed in the table below.

Edit Menu Commands

Command	Shortcut Keys	Function
Cut	CTRL+X	Cuts the selected object from the current view and places it on the clipboard.
Copy	CTRL+C	Copies the selected object to the clipboard.
Paste	CTRL+V	Pastes the last object placed on the clipboard.
Paste Special		Pastes the last object placed on the clipboard (with special options).
Add Trend		Provides a selection of supported Trend ActiveX Viewer styles that you can insert directly into the Trend window.
Time Plot	CTRL+1	Adds a time plot to the display.
XY Plot	CTRL+2	Adds an XY plot to the display.
Bar Plot	CTRL+3	Adds a bar plot to the display.
Log Plot	CTRL+4	Adds a log plot to the display.
Strip Chart	CTRL+5	Adds a strip chart to the display.
Circular Chart	CTRL+6	Adds a circular chart to the display.
Delete Object	DEL	Deletes the selected object from the Trend window.

Insert New Object	F12	Opens the Insert Object dialog box, which allows you to embed an ActiveX control in the Trend window.
Links		Edits linked objects.
Properties		Opens the ActiveX Properties dialog box.

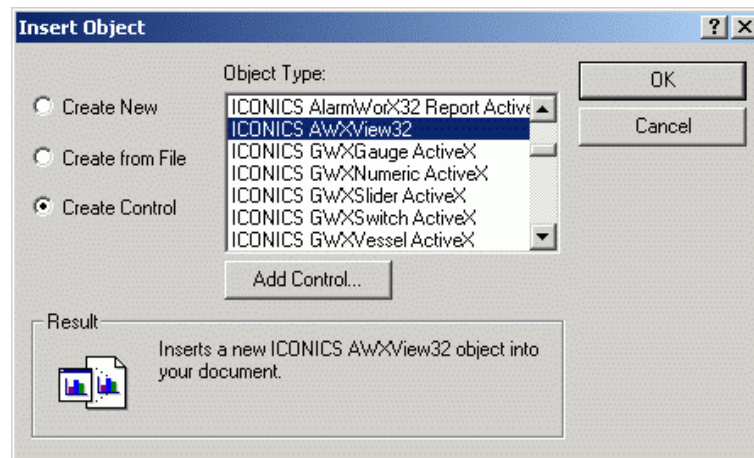
The **Cut**, **Copy**, **Delete Object**, and **Properties** commands affect the currently selected ActiveX object in the **Trend** window. The **Add Trend** submenu provides a selection of supported Trend ActiveX Viewer styles that you can insert directly into the **Trend** window. The **Paste** and **Paste Special** commands paste ActiveX objects into the **Trend** window. The **Properties** command opens the **TWXView32 ActiveX Properties** dialog box. The **Properties** dialog box is described in detail in the **TrendWorX32 Viewer** section.

Inserting Objects

Selecting **Insert Object** from the **Edit** menu opens the **Insert Object** dialog box, shown in the figure below, which allows you to embed an ActiveX control in the container window. Alternatively, integrated ActiveX Controls can be inserted by selecting the corresponding button on the **ActiveX** toolbar. To configure the properties for an object, either double-click on that object or right-click and select the **Properties** from the pop-up menu.

The following options are available in the Insert Object dialog box:

- **Create New:** Inserts the selected object into the container. Selecting this tab brings up the following dialog, which offers a list of object types to choose from as shown below:
- **Create From File:** Inserts a user-specified object into the container that is created from an existing file. Click the **Browse** button to select a file.
- **Create Control:** Adds an ActiveX control to the **Object Type** list. Click the **Add Control** button to browse for a file.



Inserting an Object Into the Container

View Menu

The **View** menu commands are listed in the table below.

View Menu Commands

Command	Shortcut Keys	Function
Properties Window	F4	Opens the Properties window, which shows alphabetical and categorical properties for the currently selected ActiveX object.
Display Preferences	F3	Opens the Display Preferences dialog.
Application Preferences	F2	Opens the Application Preferences dialog.
Toggle Toolbars	CTRL+T	Switches between the TrendWorX32 Main toolbar and the ActiveX toolbar.
Main Toolbar	CTRL+SHIFT+T	Toggles the TrendWorX32 Main toolbar.
ActiveX Toolbar	CTRL+SHIFT+Y	Toggles the ActiveX toolbar.
Status Bar	CTRL+B	Toggles the status bar, which indicates the status of the container, which mode you are in (configuration or runtime), and the date and time. When navigating through the menu items, whichever item the mouse is over will be displayed in the status bar.
Object Layout		Controls the positioning of currently selected ActiveX objects.
Size to Display	CTRL+F	Maximizes the size of the currently selected ActiveX object within the open Trend window.
Tile to Display	CTRL+G	Changes the size of all ActiveX objects to fit them evenly into the Trend window.
Cascade	CTRL+H	Overlaps all of the open ActiveX objects.
Grid	CTRL+SHIFT+G	Toggles the grids available in configuration mode.

Select Language	CTRL+ALT+U	Specifies the language to be used in the from the Select Language dialog box. Select the language you wish to use for your system and click OK . For navigation purposes, use the radio buttons and check boxes in the List section.
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The **Properties Window** command opens the **Properties** dialog box for the currently selected ActiveX object. The **Display Preferences** and **Application Preferences** commands open the dialog boxes for configuring the TrendWorX32 display and application-level preferences. The **Toggle Toolbars** command toggles both the TrendWorX32 **Main** toolbar and the **ActiveX** toolbar. The **Main Toolbar** and the **ActiveX Toolbar** commands toggle each toolbar individually. The **Status Bar** command toggles the status bar.

The **Object Layout** submenu controls the positioning of currently selected ActiveX objects. The **Size to Display** command maximizes the size of the currently selected ActiveX object within the open **Trend** window. This command is not available if an object is not selected. The **Tile to Display** command changes the size of all ActiveX objects to fit them evenly into the **Trend** window. This is helpful if you want to compare the data in different objects or move between objects. The **Cascade** command overlaps all of the open ActiveX objects.

The **Grid** command toggles the grids available in Design mode. The **Select Language** command opens a dialog box that enables you to select the user language. If a language resource .dll is present in the TrendWorX32 Bin directory, TrendWorX32 will automatically load the language and switch the menus and dialog boxes to the chosen language. It will also start up in that language.

Actions Menu

The **Actions** menu commands are listed in the table below.

Actions Menu Commands

Command	Shortcut Keys	Function
Animation Mode	CTRL+A	Animates or deanimates the active Trend window in the display.
Runtime Mode	CTRL+U	Activates runtime mode for all Trend windows.
Persistent Trend Mode	CTRL+E	Toggles runtime mode for the TrendWorX32 Persistent Trending application, if it is loaded.
Reporting Mode	CTRL+R	Toggles runtime mode for the TrendWorX32 Reporting application, if it is loaded.

Logging Mode	CTRL+M	Toggles data-logging mode for the TrendWorX32 SQL Data Logger application, if TrendWorX32 Container is already connected to it.
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Note: You can also toggle between configuration mode and runtime mode by using the **Traffic Light** button on the **Main** toolbar. When the light is showing Red, the application is in configuration mode. When the light is showing Green, the application is in runtime mode.

Tools Menu

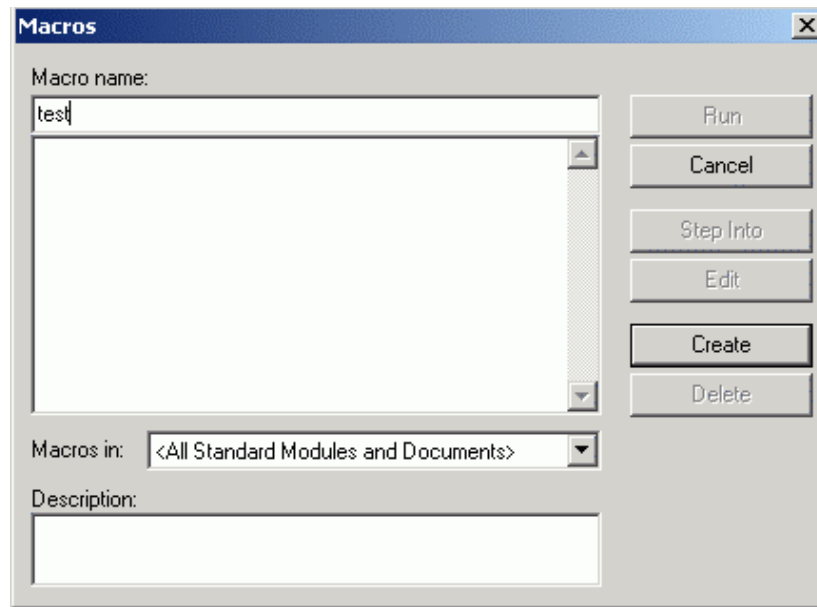
The **Tools** menu commands are listed in the table below.

Tools Menu Commands

Command	Shortcut Keys	Function
Macros	ALT+F8	Runs a macro using the Macros dialog box.
Visual Basic Editor	ALT+F11	Opens the Visual Basic for Applications (VBA) IDE environment for developing customized VBA modules.
TrendWorX32 Configurator	CTRL+W	Starts the TrendWorX32 Configurator application, which has all the tools required for configuring data logging and provides a comprehensive set of tools for data logging monitoring and troubleshooting.
Connect to Logger	SHIFT+L	Starts the TrendWorX32 SQL Data Logger and establishes a connection to it. Note that, in this case, the TrendWorX32 SQL Data Logger will run in the background and will not be visible.
Persistent Trending	CTRL+K	Launches the TrendWorX32 Persistent Trending application.
Reporting	CTRL+Q	Launches the TrendWorX32 Reporting application.
Security Login	F6	Opens the security login screen for logging into the Security Server (runtime mode only).
Security	F7	Launches the Security Server

Configuration		Configurator (configuration mode only).
Set Working Directory	F8	Specifies a custom directory in which all application configuration files will be stored and retrieved.
VCRWorX32 Data Replay		Launches the VCRWorX Control Panel, which enables you to replay historical data. For more information, please see the VCRWorX32 help documentation.
Publish to HTML		Launches the Web Publishing Wizard, which allows you to export (generate) an HTML file based on your TrendWorX32 display file and/or publish the HTML file to a Web server. For more information, please see the Web Publishing Wizard Help documentation.
Configure for Windows CE		Starts configuration mode for Pocket TrendWorX.
Windows CE Preferences		Configures settings for downloading the configuration to a Pocket PC or CE device.

Selecting **Macros > Macros** from the **Tools** menu opens the **Macros** dialog box, as shown in the figure below. Type a name for the macro and then click the **Create** button. This opens the Microsoft Visual Basic Editor, where you can create a new macro. You can run an existing macro by entering the name of the macro in the **Macro Name** field and clicking the **Run** button.



Creating and Running Macros

The **TrendWorX32 Configurator** command starts the TrendWorX32 Configurator application. The TrendWorX32 Configurator has all the tools required for configuring data logging, and it provides a comprehensive set of tools for data logging monitoring and troubleshooting.

The **Security** submenu allows for the configuration of the ICONICS Security Server, if the TrendWorX32 application is currently in configuration mode, or for login to the ICONICS Security Server, if the TrendWorX32 application is currently in runtime mode.

The **Windows CE** submenu refers to the capability of configuring Pocket TrendWorX displays to be downloaded to the CE device. To start Pocket TrendWorX configuration mode, choose **Configure for Windows CE** from the **Windows CE** submenu. The Windows CE options are not available if Pocket TrendWorX is not installed on your PC. The CE features are further explained in the Pocket TrendWorX documentation.

IMPORTANT NOTE: The TrendWorX32 Container has support for starting the TrendWorX32 Configurator, which enables TrendWorX32 data-logging configuration and administration. Although the GENESIS32 Security Server protects this menu action, the TrendWorX32 Configurator itself has not been interfaced with the GENESIS32 Security Server. It is recommended that floor operators do not have access to the TrendWorX32 Configurator, since they might accidentally delete data-logging configurations and/or stop data logging.

Window Menu

The **Window** menu commands are listed in the table below.

Window Menu Commands

Command	Shortcut Keys	Function
Close		Closes the active Trend window.
Close All		Closes all open Trend windows.
Cascade		Overlaps all open Trend windows.
Tile		Changes the size of all open Trend windows to fit them evenly into the Container screen as non-overlapping tiles. This is helpful if you want to compare the data in different Trend windows or move between Trend windows.
Arrange Icons		Arranges icons at the bottom of the window.

The **Window** menu also contains a list of all open **Trend** windows. In this list, the active window is indicated by a check mark. You can display a window by selecting it from this list.

Help Menu

The **Help** menu commands are listed in the table below.

Help Menu Commands

Command	Shortcut Keys	Function
Help Topics	F1	Launches the online help for TrendWorX32.
About Application		Launches the About Box , which contains the product version number, copyright, and available disk space, and contact information.

Printing

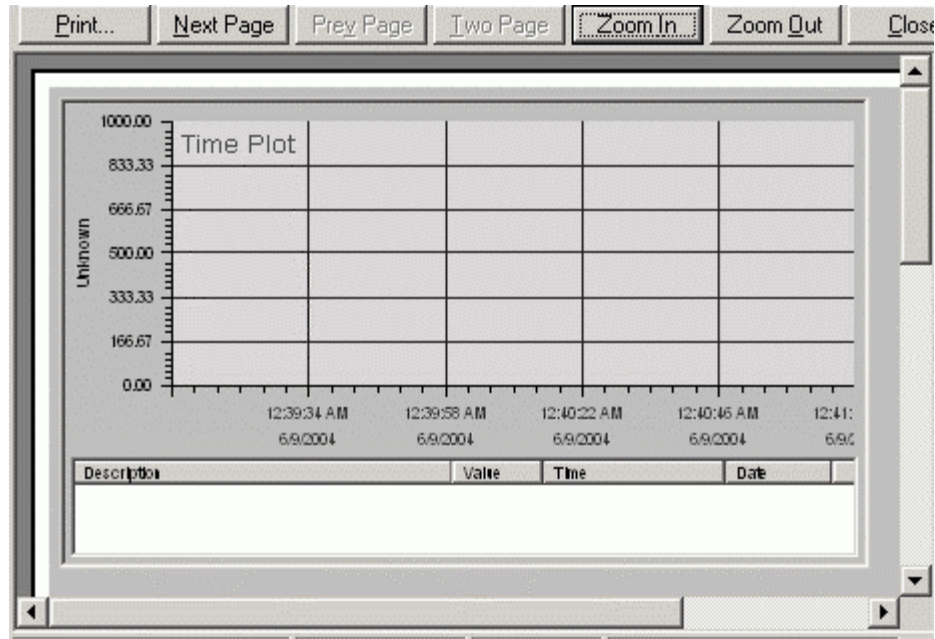
Using TrendWorX32, you can perform any of the following printer functions:

- Print the current window.
- Preview the screen information before printing. Refer to the **Print Preview** section for more information.
- Print only the **Help** instructions for the currently selected trend.

To configure a printer, you need to define the appropriate parameters in the Microsoft Windows Control Panel. Refer to your Windows documentation for complete information.

Print Preview

To preview the screen information before printing, choose **Print Preview** from the **File** menu. The **Print Preview** screen will appear as shown below. The figure below shows a print preview of the **Trend** window for a time plot. The title bar indicates the file that is currently displayed.



Print Preview Screen

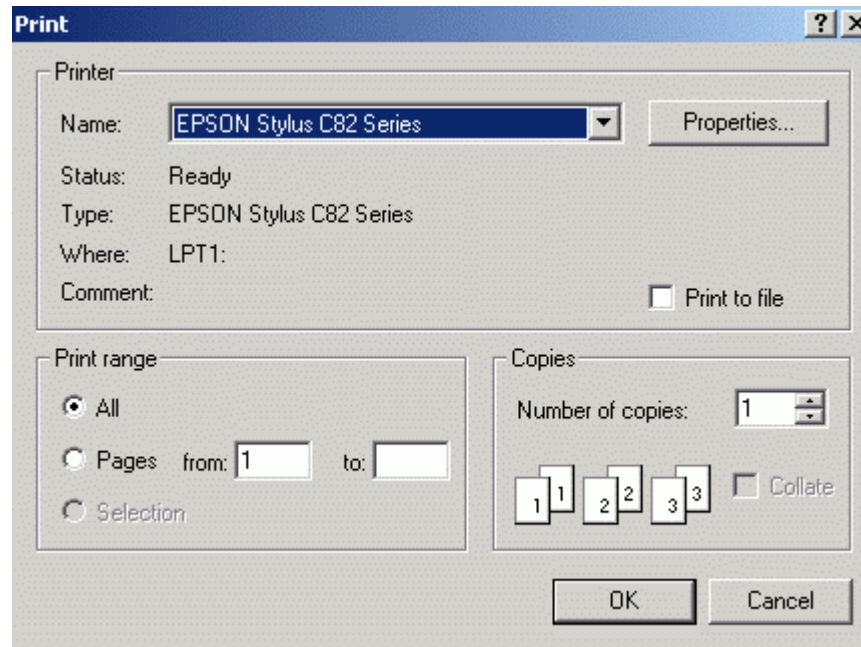
The table below lists the command buttons found in the **Print Preview** screen and their functions. These buttons enable you to view the print preview information before you print.

Button	Function
Print	Displays the Print dialog box
Next Page	Displays the next page in a multiple-page print preview
Previous Page	Displays the page that immediately precedes the current page in a multiple-page print preview
Two Page	Displays two pages simultaneously in a multiple-page print preview
Zoom In	Enlarges the view of the Print Preview screen from normal view
Zoom Out	Decreases the view of the Print Preview screen to a full-page view, enabling you to see how the entire printed page will look
Close	Exits the Print Preview screen and returns to the normal view

To print the document, click **Print** to display the **Print** dialog box. For more information on printing, refer to the **Printing Screen Information** section. If you decide not to print, click **Close** to exit the Print Preview screen.

Printing Screen Information

To print the information on the screen, choose **Print** from the **File** menu, or press the shortcut keys **CTRL+P**. The **Print** dialog box will appear on the screen as shown below. When you are ready to print, click **OK**. TrendWorX32 prints all records contained within the scroll window on the screen.



Print Dialog Box

When the information is sent to the print queue, the **Printing Status** dialog box appears on the screen. The **Printing Status** dialog box indicates the number of records printed and the page that is printing.

The **Print** dialog box indicates the configured printer to which this information prints. Refer to your Windows and printer documentation for complete information about how to configure a printer.

Cancel Printing

To cancel printing, click **Cancel** in the Printing Status dialog box. This immediately halts printing, and the print job is removed from the print queue.

Status Bar and Toolbars

The status bar and toolbar are objects in the TrendWorX32 Container screen. The information contained in the status bar varies depending upon the current screen displayed and the current system configuration and activity. The toolbars provide a convenient way to choose commands that are also available in the menu bar.

Status Bar

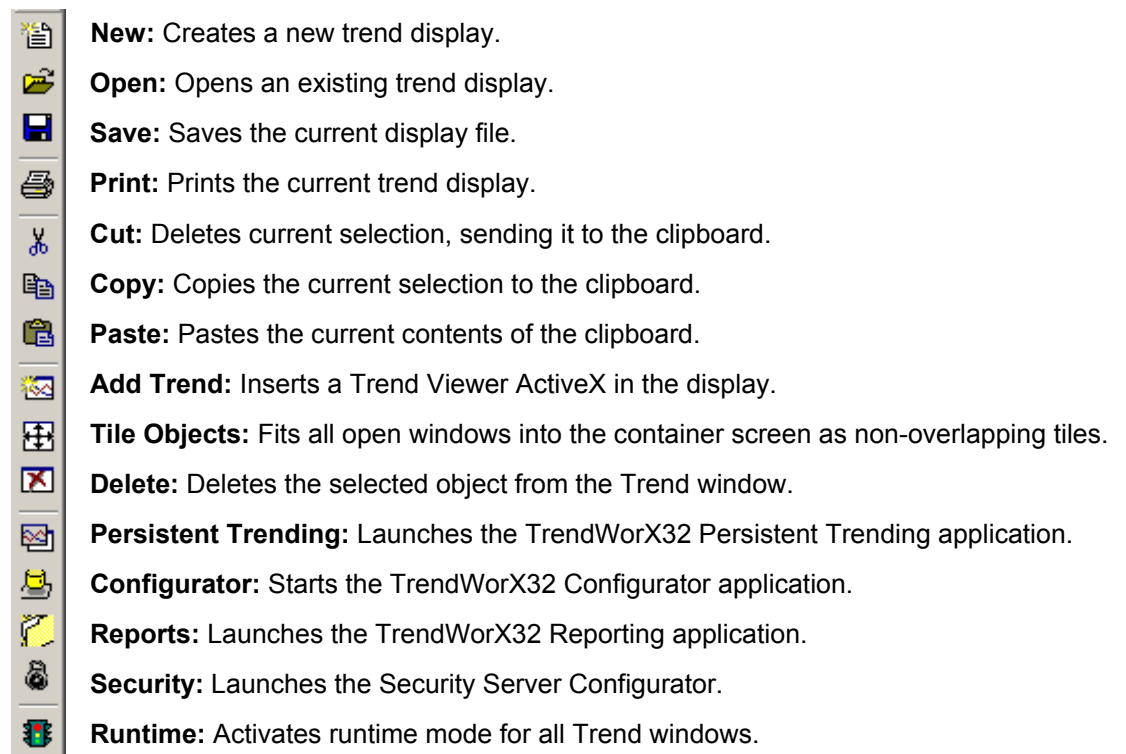
The status bar, shown in the figure below, is located at the bottom of the TrendWorX32 screen. To display or hide the status bar, choose the **Status Bar** command in the **View** menu, or press the shortcut keys **CTRL+B**. The left side of the status bar describes the functions of menu commands as you navigate through each menu. This side also describes the functions of toolbar buttons. When you move the mouse pointer over a toolbar button, the function of the button is displayed in the status bar. The status bar also indicates the display mode (runtime or configure), the number of open ActiveX objects, the current time, and the current date.



Status Bar

Toolbars

The **Main** toolbar is located below the menu bar. As shown in the figure below, the **Main** toolbar contains buttons for different functions available in TrendWorX32.



The **ActiveX** toolbar enables you to select ActiveX objects. For more information, refer to the **ActiveX Toolbar** section.

Creating New Trend Displays

You must create a new **Trend ActiveX Viewer** before adding and editing pens. Refer to the **Pens** section for more information about selecting pens. From the **Add Trend** submenu in the **Edit** menu, choose one of the following Trend ActiveX Viewer types:

- Time plot
- XY plot
- Bar plot
- Log plot
- Strip chart
- Circular chart

When you select a Trend ActiveX Viewer, it is inserted into the **Trend** window. The object type is displayed in the upper left-hand corner.



You can also click the **Add Trend** button on the **Main** toolbar to create a new **Time Plot**.

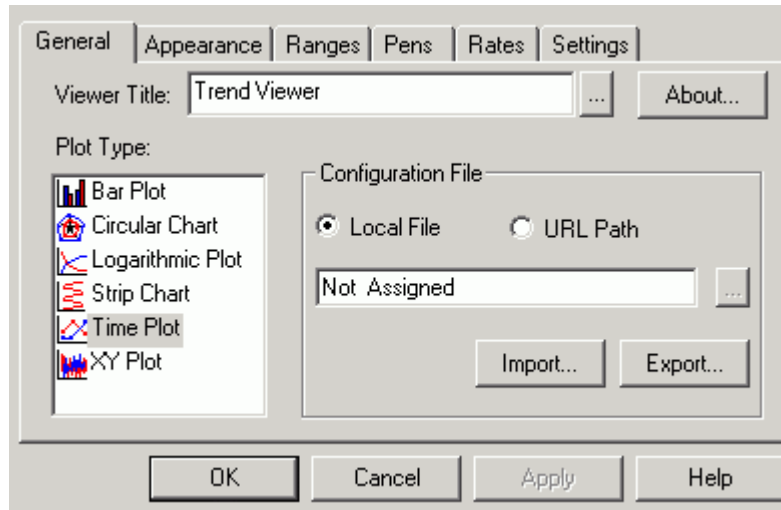
Trend ActiveX Viewer Types

TrendWorX32 offers the following Trend ActiveX Viewer types:

- **Time plot.** This is a variable-versus-time plot. This is the default setting for new **Trend** windows.
- **XY plot.** This is a variable-versus-variable plot. You can select any pen to be the x-axis (horizontal axis) pen.
- **Bar plot.** This is a variable plot in bar form.
- **Logarithmic plot.** This is a plot that uses a logarithmic scale. The ranges set in the first pen used always determine the logarithmic axis. TrendWorX32 determines the nearest factor of 10 and scales all grids accordingly. Any negative values are clamped to 0.10. All values in the details field at the bottom of the Trend ActiveX are displayed in decimal form, while all curves are drawn in logarithmic scale.
- **Strip chart.** Like the time plot Trend Viewer, this is a variable-versus-time plot. However, in a strip chart the time data are plotted on the y-axis (vertical axis).
- **Circular chart.** This is a plot of signal values in a circular field.

Editing Trend Windows

You can display the properties of a selected TrendWorX32 Viewer ActiveX by double-clicking the ActiveX object. This opens the **TrendWorX32 Viewer ActiveX Properties** dialog box, which is shown in the figure below. You can also open this dialog box by choosing **Properties** from the **Edit** menu. Alternatively, you can right-click using the right mouse button and select **Properties**.



Trend Viewer ActiveX Properties Dialog Box

As you can see, the **TrendWorX32 Viewer ActiveX Properties** dialog box contains the following tabs:

- General
- Appearance
- Ranges
- Pens
- Rates
- Settings

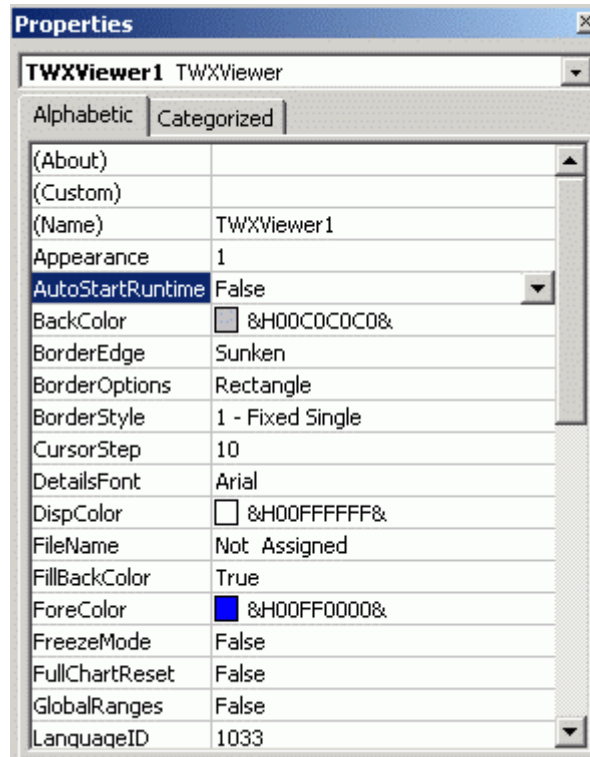
You can use these tabs to edit or modify the properties of the selected ActiveX object.

For a complete description of each of these tabs, see the **TrendWorX32 Viewer** documentation.

Properties Window

To view the ActiveX object properties, choose **Properties Window** from the **View** menu, or press the shortcut key **F4**. Alternatively, you can right-click using the right mouse button and select **Show Property Window** from the menu. Each of these commands opens the **Properties** window, which is shown in the figure below.

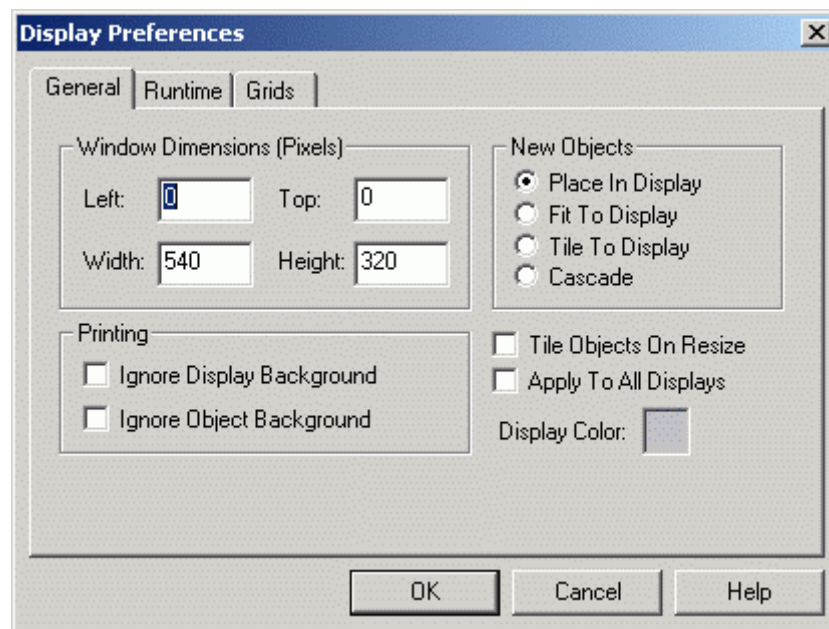
The **Properties** window contains all configurable options for the selected ActiveX object or the entire display. You can switch between ActiveX objects by choosing them from the drop-down list at the top of the **Properties** window. To modify a property, click the field for that property. You can either use the available options or simply type in your changes.



Properties Window

Display Preferences

To configure the display properties, choose **Display Preferences** from the **View** menu, or press the shortcut key **F3**. This opens the **Display Preferences** dialog box, shown in the figure below.



Display Preferences Dialog Box

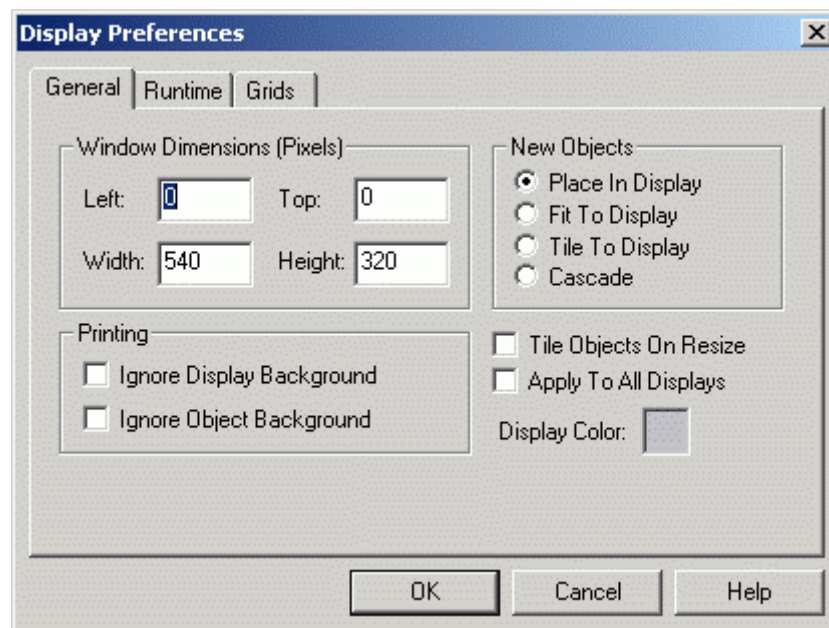
As you can see, the **Display Preferences** dialog box contains the following tabs, which enable you to modify the display:

- **General tab**
- **Runtime tab**
- **Grids tab**

General Tab

The **General** tab in the **Display Preferences** dialog box, shown in the figure below, enables you to:

- Set the size of the **Trend** window.
- Choose how to arrange open Trend ActiveX Viewers and/or other ActiveX objects.
- Change the display background color.
- Configure the display for printing. This last option has been implemented to save ink while printing Trend displays.



Display Preferences: General Tab

Window Dimensions

The **Window Dimensions** field specifies dimensions (in pixels) from the left and the top of the window, as well as the width and the height of the window.

New Objects

The **New Objects** section positions the object with respect to the display. You can place the object in the display, size the object to the display, tile the object to the display, or arrange the object in the cascade mode.

Printing Options

If **Ignore Display Background** is checked upon printing a display, the background color of the entire display will be temporarily changed to white. The original display background color will be restored immediately after printing.

If **Ignore Object Background** is checked upon printing a display, all background colors of each individual area within a Trend ActiveX Viewer will be temporarily changed to white. The original colors will be restored immediately after printing.

Apply to All Displays

If checked, the parameters defined in the **General** tab of the **Display Preferences** dialog box will be applied to all displays.

Tile Objects on Resize

If checked, objects in the display are automatically tiled when the display is resized.

Display Color

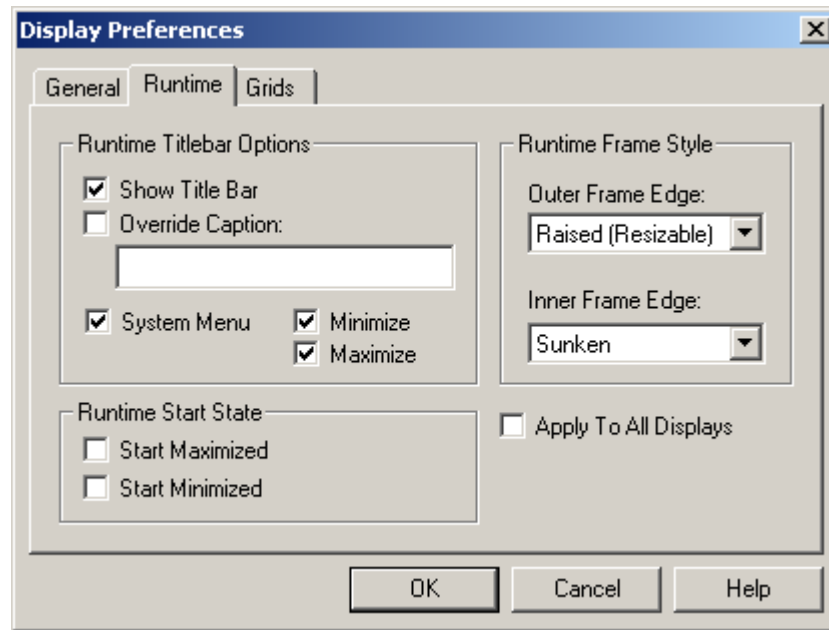
The **Display Color** field allows you to choose a color for the display. Click the color box to open the Color Palette.

Runtime Tab

The **Runtime** tab in the **Display Preferences** dialog box, shown in the figure below, configures the way the **Trend** window will appear in runtime mode. As you can see, the **Runtime** tab contains the following features:

- Runtime title bar options
- Runtime frame style
- Runtime start state

Note: Checking the **Apply To All Displays** check box applies the settings to all currently open displays.



Display Preferences: Runtime Tab

Runtime Title Bar Options

If the **Show Title Bar** box is checked, the title bar of the **Trend** window will be displayed during runtime mode. Similarly, if the **Override Caption** box is checked, you may enter a caption that you would like to appear in the title bar during runtime.

The **System Menu**, **Minimize**, and **Maximize** options all refer to buttons that may appear in the title bar during runtime. When all of these boxes are checked, all of the indicated buttons show up in the title bar. If you do not want a button to appear in the title bar, simply click the box that applies to that button to remove the check mark. Hiding these buttons helps to ensure the functionality of the **Trend** window during runtime mode because the operator can neither close nor change the size of the window.

Runtime Frame Style

The **Outer Frame Edge** drop-down list enables you to choose from the following three frame styles:

- None
- Raised (resizable)
- Raised (fixed size)

Selecting the **Raised (Fixed Size)** option helps to maintain the functionality of the **Trend** window in runtime mode because the operator is not allowed to change the configured display.

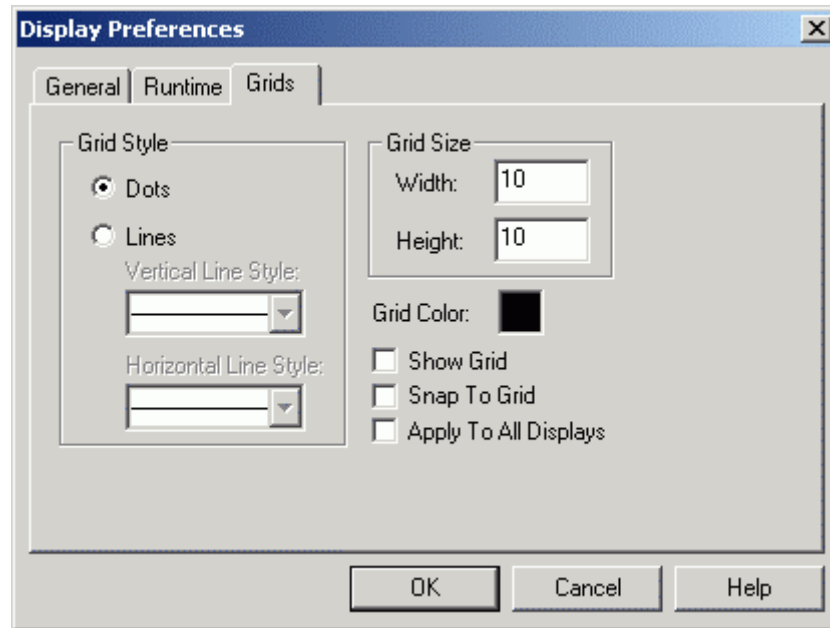
The **Inner Frame Edge** drop-down list gives you the option to have a sunken inner frame edge.

Runtime Start State

The **Runtime Start State** feature enables you to choose how the **Trend** window will appear during runtime mode. Check the appropriate box to minimize or maximize the **Trend** window.

Grids Tab

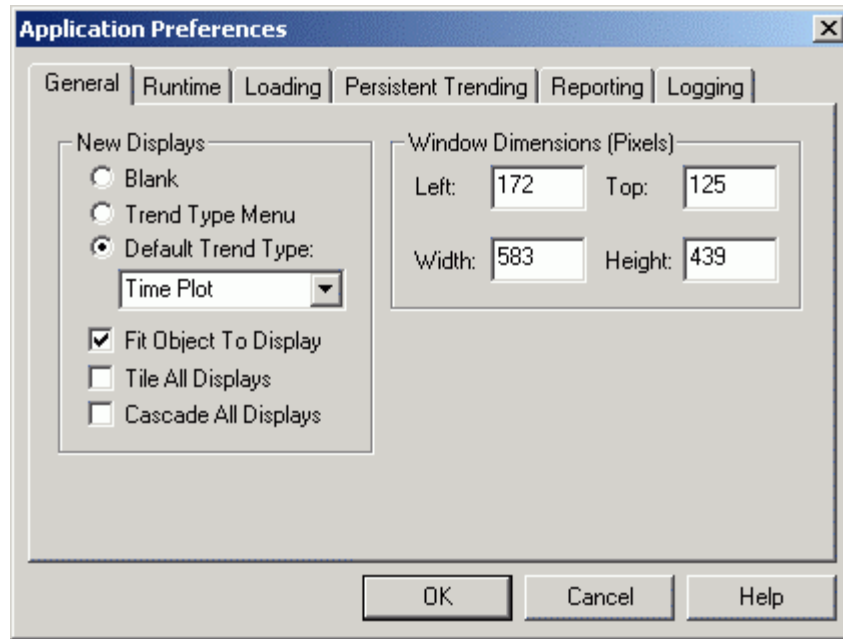
The **Grids** tab, shown in the figure below, configures the type, style, size, and color of the display grid. Selecting **Show Grid** makes the grid visible. Selecting **Snap To Grid** makes all borders of the display objects align with the grid lines when they are moved across the display area. The grids are not available when the display is in animation mode.



Display Preferences: Grids Tab

Application Preferences

To configure or change the application preferences, select **Application Preferences** from the **View** menu, or press the shortcut key **F2**. This opens the **Application Preferences** dialog box, as shown in the figure below.



Application Preferences Dialog Box

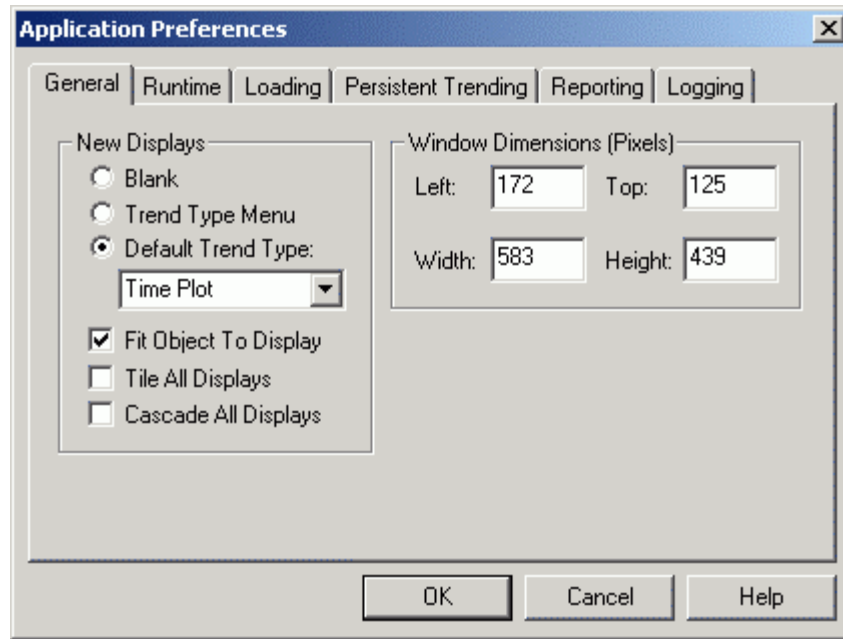
As you can see, the **Application Preferences** dialog box contains the following tabs, which enable you to modify the display:

- **General tab**
- **Runtime tab**
- **Loading tab**
- **Persistent trending tab**
- **Reporting tab**
- **Logging tab**

General Tab

The **General** tab in the **Application Preferences** dialog box, shown in the figure below, enables you to:

- Configure new displays.
- Select a default Trend type, such as a time plot or a bar plot.
- Define how a new Trend will be placed in the display.
- Define the size of the **Trend** window.



Application Preferences: General Tab

New Displays

You can choose to have the new display by default appear either as a **Blank** window or as a window with an embedded Trend Viewer.

Checking **Fit Object to Display** maximizes the size of the object in the container window.

Checking **Tile All Displays** changes the size of your objects to fit them into the evenly into the display window. This is helpful if you want to compare data in different objects or if you are moving back in forth from object to object.

Checking **Cascade All Displays** resizes all of the open objects and overlaps them so that you can see the top and left side of every open object window.

Window Dimensions

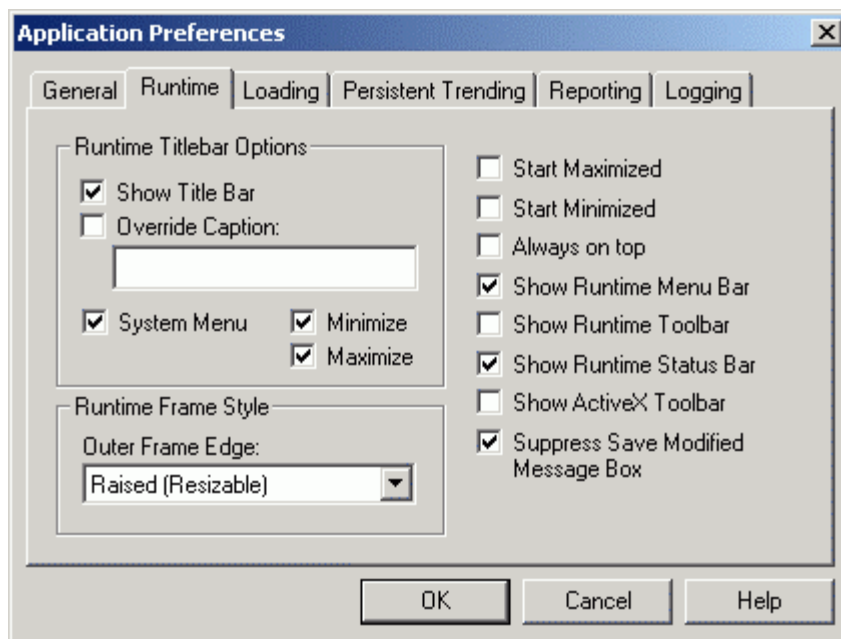
The **Window Dimensions** field specifies dimensions (in pixels) from the left and the top of the window, as well as the width and the height of the window.

Runtime Tab

The **Runtime** tab in the **Application Preferences** dialog box, shown in the figure below, configures runtime mode options for the entire TrendWorX32 application. As you can see, the **Runtime** tab contains the following features:

- Runtime title bar options
- Runtime frame style
- Runtime settings

The right side options allow you to decide how the application will start in runtime and how you want the application to appear in runtime mode. Additionally, the last two options let the you decide if you want to view the ActiveX Toolbar (described later) and if you want the save changes dialog to appear when you make changes in runtime and then exit the application. If the **Suppress Save Modified Message Box** check box is checked, you will not be warned to save all changes made to a display while in runtime mode, and these changes will be lost.



Application Preferences: Runtime Tab

Runtime Title Bar Options

If the **Show Title Bar** box is checked, the title bar of the TrendWorX32 Container screen will be displayed during runtime mode. Similarly, if the **Override Caption** box is checked, you may enter a caption that you would like to have appear in the title bar during runtime.

The **System Menu**, **Minimize**, and **Maximize** options all refer to buttons that may appear in the title bar of the TrendWorX32 Container screen during runtime. When all of these boxes are checked, all of the indicated buttons show up in the title bar. If you do not want a button to appear in the title bar, simply click the box that applies to that button to remove the check mark.

Runtime Frame Style

The **Outer Frame Edge** drop-down list enables you to choose from the following three frame styles for the TrendWorX32 Container screen:

- None
- Raised (resizable)
- Raised (fixed size)

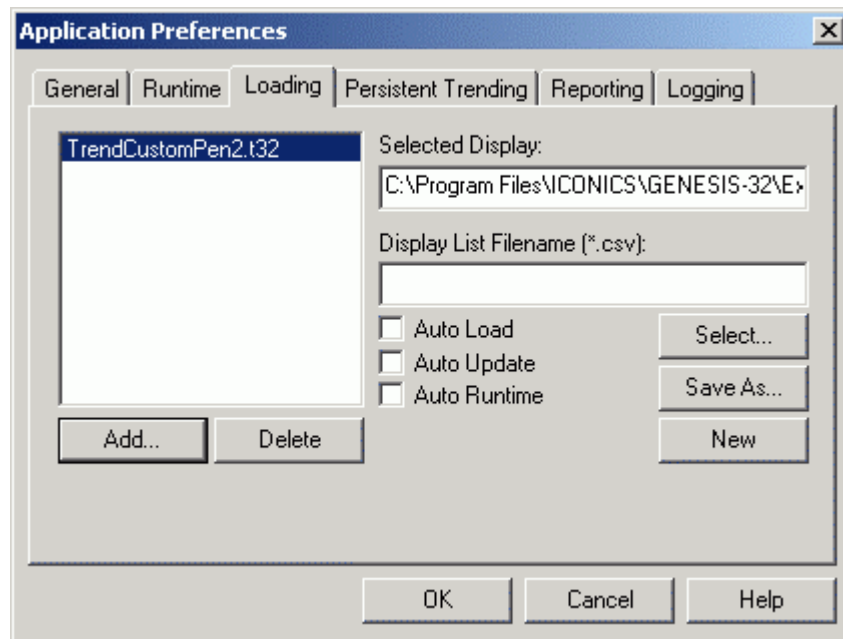
Runtime Settings

The runtime settings (listed along the right side of the **Runtime** tab) enable you to choose how the TrendWorX32 Container screen will appear during runtime mode. For example, check the appropriate box to minimize or maximize the TrendWorX32 Container screen. You can also choose whether to have menu bars, toolbars, or the status bar showing during runtime mode.

Loading Tab

The **Loading** tab, shown in the figure below, enables you to add or delete previously created Trend displays during startup. If **Auto Load** is checked, the selected displays will be loaded upon startup of TrendWorX32. If **Auto Update** is checked, TrendWorX32 will automatically add the existing displays to the list of displays to be loaded during the next startup. If **Auto Runtime** is checked, the selected displays will automatically start in runtime mode upon startup.

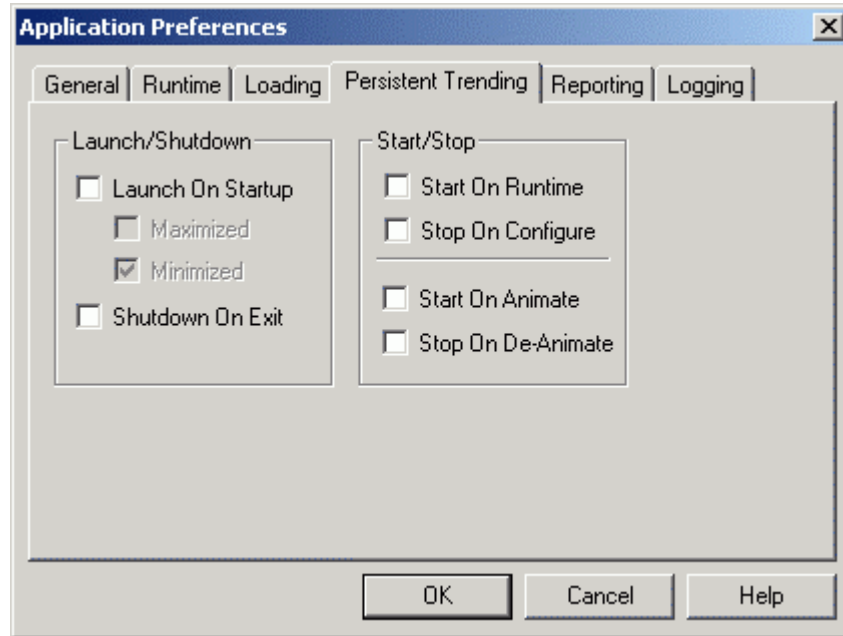
You can also select displays to add to the display startup list by simply clicking **Add**, which will open a **Display** dialog box. Similarly, you can delete a display from the startup list by selecting it and then clicking **Delete**. For this feature to go into effect, the user must first save the display startup list as a .csv file. You can do this by clicking **Save As** to choose a directory for the .csv file that contains all the names of the TrendWorX32 displays to be loaded at startup. In addition, the user can click **Select** to select a previously saved .csv file with the names of displays to be loaded the next time TrendWorX32 starts up.



Application Preferences: Loading Tab

Persistent Trending Tab

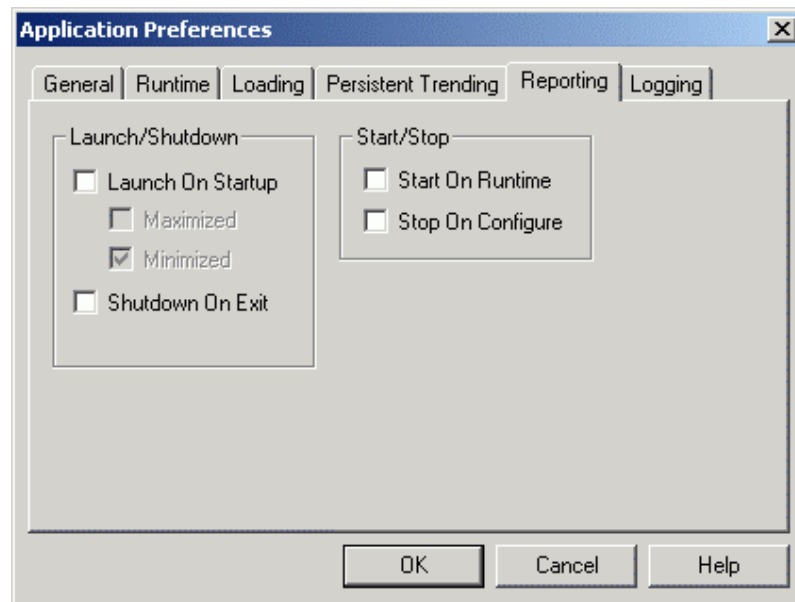
The **Persistent Trending** tab, shown in the figure below, sets when TrendWorX32 Persistent Trending is started, stopped, launched, and shut down.



Application Preferences: Persistent Trending Tab

Reporting Tab

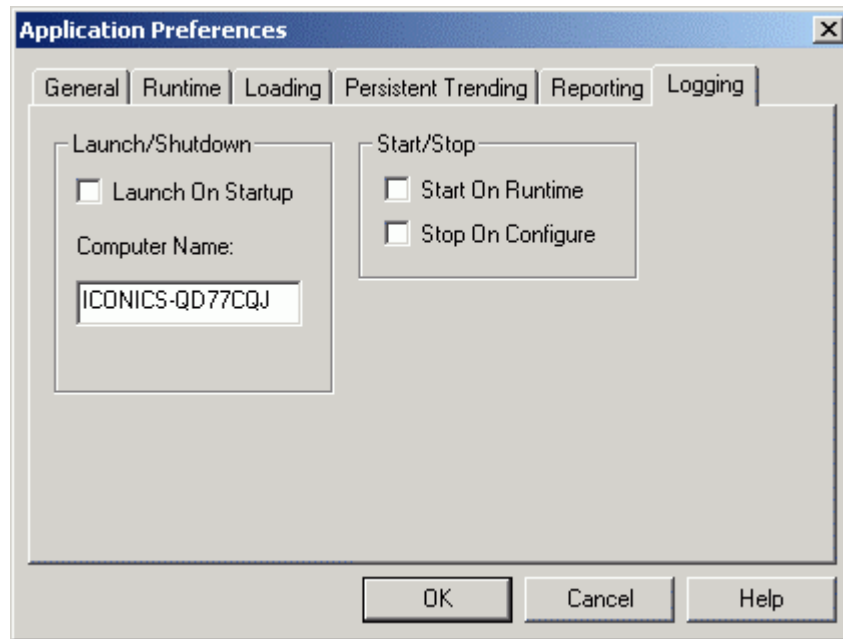
The **Reporting** tab, shown in the figure below, configures when TrendWorX32 Reporting is started, stopped, launched, and shut down.



Application Preferences: Reporting Tab

Logging Tab

The **Logging** tab, shown in the figure below, enables you to interface with the TrendWorX32 SQL Data Logger. Note that the TrendWorX32 Container will connect to the SQL Data Logger via a COM interface. As a result, when the TrendWorX32 SQL Data Logger is loaded, it will not be visible. The most important feature on this tab is the **Computer Name** field, which allows the user to choose which machine on the network they want to start the TrendWorX32 SQL Data Logger. It is assumed that all components are properly registered and DCOM properly configured for this function to work.



Application Preferences: Logging Tab

ActiveX Toolbar

The **ActiveX** toolbar consists of two main parts. The **OLE** button is used to display the ActiveX Control Selection dialog, while the next five buttons represent ICONICS ActiveX controls:

- GraphWorX32 ActiveX Control
- AlarmWorX32 ActiveX Control
- TrendWorX32 SQL Tool ActiveX Control
- GraphWorX32 Gauge ActiveX Control
- GraphWorX32 Switch ActiveX Control



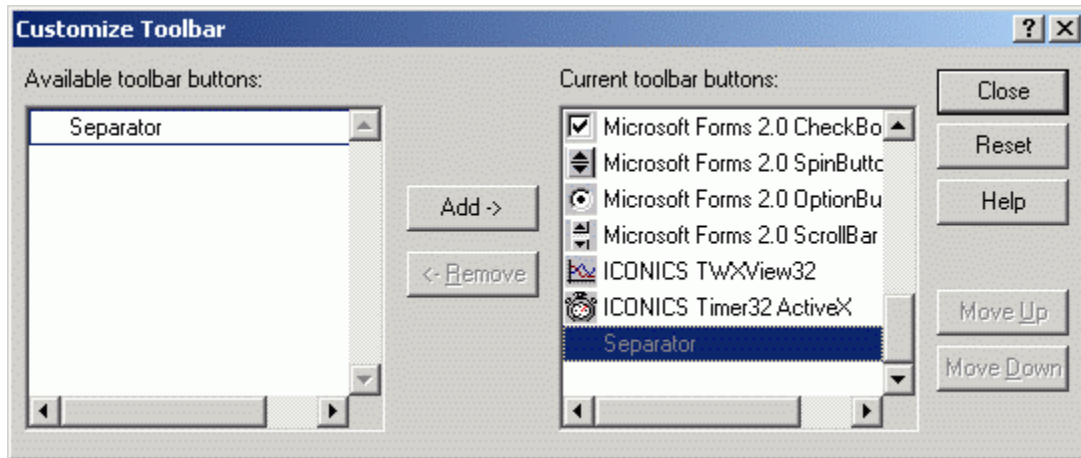
ActiveX Toolbar

The other buttons represent common ActiveX controls, which are supported by and can be referenced in VBA.

The **TrendWorX32 SQL Tool ActiveX Control** is an invisible-at-runtime control used to retrieve TrendWorX32 historical data on a per-tag basis.

Customizing the ActiveX Toolbar

You can add, remove, or relocate items on the **ActiveX** toolbar within TrendWorX32. To access the **Customize Toolbar** dialog box, shown in the figure below, simply right-click the toolbar and the dialog box will appear.



Customize Toolbar Dialog Box

To remove a button from the **ActiveX** toolbar, select the button from the **Current toolbar buttons** list on the right and click **<-Remove**. Similarly, if you wish to add a button to the toolbar, select the button from the **Available toolbar buttons** on the left and click **Add->**.

Click **Move Up** and **Move Down** to relocate buttons on the toolbar. This feature is helpful because there may be a button on the toolbar that you do not use, in which case it should be removed.

Note: All functions of the **ActiveX** toolbar will either be in the list of available buttons or in the list of current toolbar buttons. It is impossible to remove a function entirely from the dialog box.

TrendWorX32 OLE Automation

TrendWorX32 Container exposes a rich and useful set of OLE Automation properties and methods. The various OLE objects exposed are:

- **Application Object (Twx32App)**
- **Documents Object (Twx32Documents)**
- **Document**

Application Object (Twx32App)

The **Application Object** has the following properties and methods:

Properties

- **BSTR Name**
- **boolean Visible**
- **boolean RuntimeMode**
- **IDispatch* Application**
- **IDispatch* Documents**

Methods

- **boolean EnterRuntime()**
- **boolean ExitRuntime()**
- **void Quit()**
- **boolean LoadBgTrend()**
- **boolean ShutDownBgTrend()**
- **void CloseAllDocuments()**

Documents Object (Twx32Documents)

The **Documents** property exposes another OLE object, which can be used to manipulate individual TrendWorX32 displays. It has the following properties and methods:

Properties

- **long Count**

Methods

- **boolean Open(BSTR FilePath)**
- **boolean Add(BSTR Caption)**
- **boolean RunDocument(BSTR Item)**
- **boolean CfgDocument(BSTR Item)**
- **boolean PrintDocument(BSTR Item)**
- **boolean IsDocRunning(BSTR Item)**
- **boolean CloseDocument(BSTR Item)**
- **boolean CloseSaveDocument(BSTR Item)**

Document

TrendWorX32 Container supports the following properties, methods, and events at the **Document** (Display) level:

Properties

- **IDispatch* Application**
- **BSTR FullName**
- **BSTR Path**
- **boolean Saved**
- **boolean RuntimeMode**
- **boolean VBADesignMode**
- **boolean Maximized**
- **BSTR Caption**
- **boolean Visible**
- **boolean IgnoreBackColor**
- **boolean IgnoreObjectBackColor**
- **boolean GridsOn**

Methods

- **void EnterRuntime()**
- **void ExitRuntime()**
- **long NumberOfObjects()**
- **void Activate()**

- **void Save()**
- **void SaveAs(BSTR fileName)**
- **void Print() ***

* **Note:** For the document print method, use the following code in a VBA application:

```
Private Sub CommandButton1_Click()
Dim Twx32App As Twx32.Application
Dim Twx32Documents As Twx32.Documents
Dim strName As String
' Get Doc Name
strName = This Document.Caption
' Get Application
Set Twx32App = ThisDocument.Application
' Get Documents Collection
Set Twx32Documents = Twx32App.Documents
' Print
Twx32Documents.PrintDocument strName
```

Events

- **void Open()**
- **void Close()**
- **void Runtime()**
- **void Configure()**
- **void NewTrend()**
- **void NoSecurity()**
- **void NoKey()**
- **void Print()**

OLE Automation Examples and Samples

TrendWorX32 includes a set of VBA examples under the "ICONICS\GENESIS-32\Examples\TrendWorX32 Examples" directory. The following folders located inside the "Examples" directory are associated with the Viewer.

Aliasing. The files in this folder demonstrate the use of the OLE Automation interface of the TrendWorX32 Viewer ActiveX within a VBA-enabled application, such as GraphWorX32, in aliasing.

Excel Templates. The files in this folder are example Excel templates that can be used when creating Excel workbooks to be used with TrendWorX32 Reporting.

Real-Time Trend Configuration. The files in this folder demonstrate the use of the OLE Automation interface of the TrendWorX32 Viewer ActiveX within a VBA-enabled application, such as GraphWorX32. It demonstrates how to add pens "on the fly" by reading the pen configuration from a Microsoft Access database (.mdb) file and utilizing the OLE Automation properties of the TrendWorX32 ActiveX through VBA scripts.

TrendWorX32 Data Logging and Reporting. This folder contains sample TrendWorX32 data-logging configuration, a sample historical database, as well as sample reporting and historical replay displays.

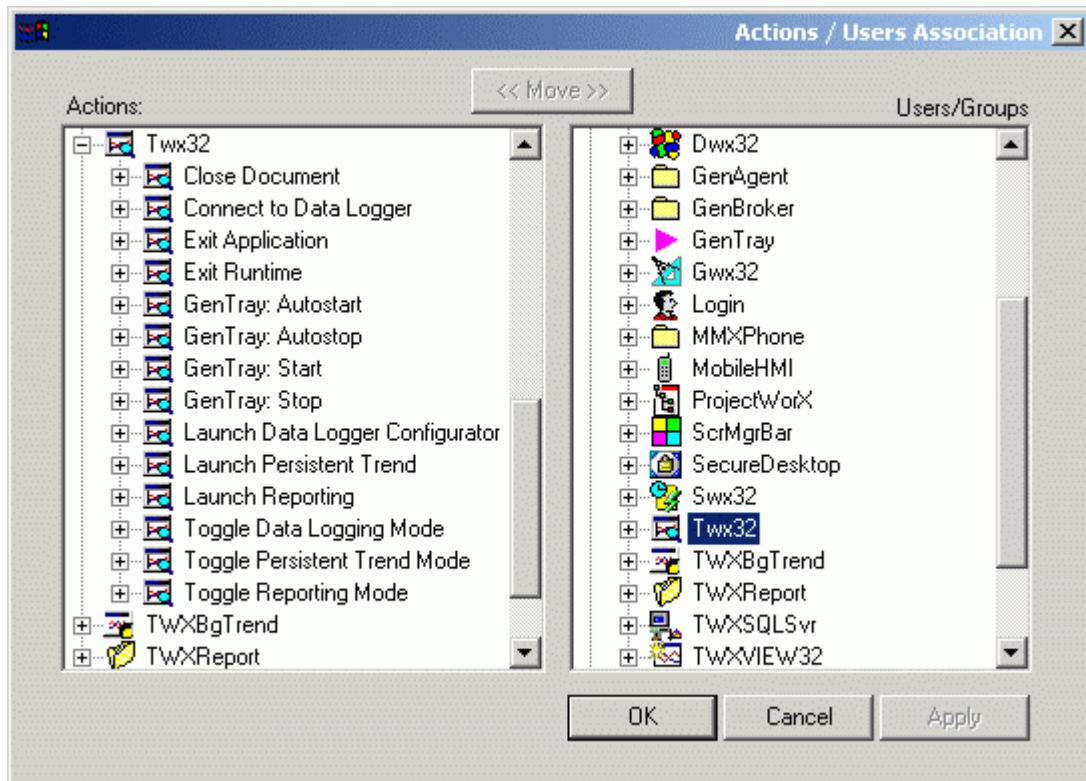
TrendWorX32 Backgrounds. This folder contains several image files that can be used as backgrounds for the TrendWorX Viewer ActiveX display.

TrendWorX32 VBA Examples. This folder contains various examples that demonstrate the use of the OLE Automation interface of the various TrendWorX32 modules and components.

VB Script Examples. This folder contains a **TWX-VBScriptEx.gdf** display that uses VB scripting.

TrendWorX32 Security

TrendWorX32 has an interface with the GENESIS32 Security Server and currently supports the security actions shown in the dialog box below.



Security Server

Important Note

The TrendWorX32 container has support for starting the TrendWorX32 Configurator application, which enables TrendWorX32 data-logging configuration and administration. Although the Security Server protects this menu action, the TrendWorX32 Configurator itself has not been interfaced to the ICONICS Security Server. It is recommended that floor operators do not have access to the TrendWorX32 Configurator, because they can accidentally delete data-logging configurations and/or stop data logging.

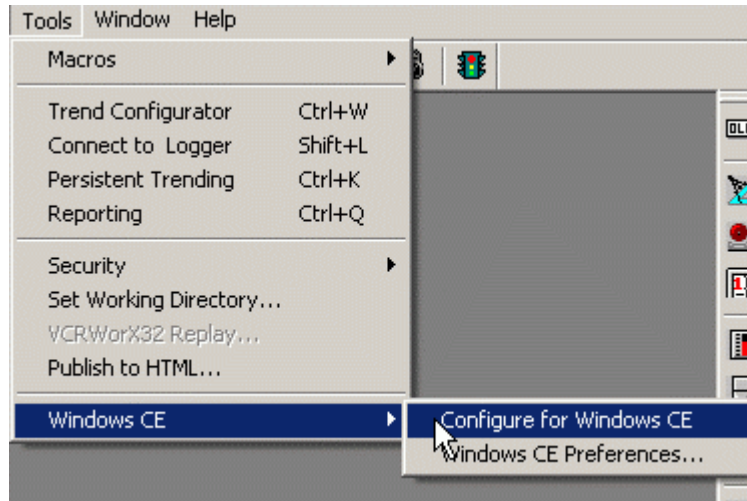
Download to Windows CE Support

All display files for Pocket GENESIS are first configured on a desktop PC using a GENESIS32 application (such as GraphWorX32, TrendWorX32, and AlarmWorX32) and then saved in a format that is compatible with Pocket PC and Windows CE. A display file is then downloaded to the Pocket PC or Windows CE device to be viewed during runtime. Once you open the display file in the corresponding Pocket GENESIS application (i.e. Pocket GraphWorX, Pocket TrendWorX, or Pocket AlarmWorX) in runtime mode, you can execute all runtime functional dynamics that have been added during configuration. With

a few exceptions, Pocket GENESIS applications have the same basic runtime functionality as their counterpart GENESIS32 applications.

Configuring for Windows CE in GENESIS32

To configure for Windows CE in GraphWorX32, TrendWorX32, and AlarmWorX32, select **Windows CE > Configure for Windows CE** from the **Tools** menu, as shown in the figure below. If you have just installed Pocket GENESIS, this will be checked by default.



Configuring for Windows CE

Once you have configured your display, select **Save As** from the **File** menu. This opens the **Save As** dialog box, which allows you to save your configuration as a display for Windows CE file. Give the file a name and select one of the following file types from the **Save As Type** box:

- In GraphWorX32, select either "GraphWorX32 Displays for WinCE (*.gdc)" or "GraphWorX32 Templates for WinCE (*.gdc)."
- In AlarmWorX32, select "AWXview32 CE File (*.ace)."
- In TrendWorX32, select "TWXviewerCE File (*.tce)."

Click the **Save** button. Upon saving your configuration file for Windows CE, features that are not supported by Pocket PC or Windows CE will be removed from the Pocket GENESIS display.

Note: When opening a Pocket GENESIS display in GENESIS32, you must specify the proper Windows CE file extension.

Remote Connections

In order to connect remotely to OPC servers over a network, you must install and use GenBroker. Please see the GenBroker Help documentation for more information about configuring GenBroker.

Downloading GENESIS32 Configuration Files to Your Pocket PC

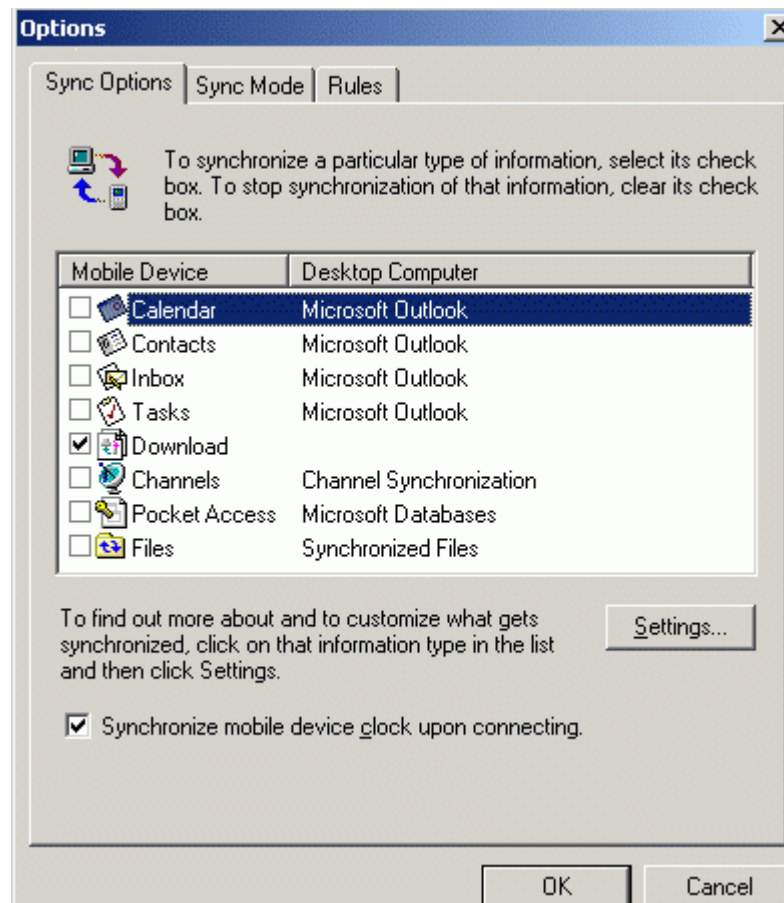
Once you have configured your application in GENESIS32 and saved the Pocket GENESIS display file, you can use the file Download to Windows CE Utility in GENESIS32 to download configuration files from GraphWorX32, TrendWorX32, and AlarmWorX32 to your Pocket or CE device. When developing a configuration file for a Pocket GENESIS application, this feature allows you to download the configuration file to a Windows CE or Pocket PC device. The file download function uses Microsoft ActiveSync to connect to the CE device.

Setting up the Download

The download to CE tool requires modules on both a desktop or workstation PC as well as a Pocket PC or CE device, because Microsoft ActiveSync services are used for connecting and authenticating the CE device.

Configuring the Desktop

The desktop is the only part that has to be configured. If the file download tool is installed properly, it will be listed in the ActiveSync Manager list of ActiveSync modules in the **Sync Options** tab of the Windows **Options** dialog box. You must enable the file download ActiveSync module in the ActiveSync Manager by checking the **Download** box, as shown in the figure below.

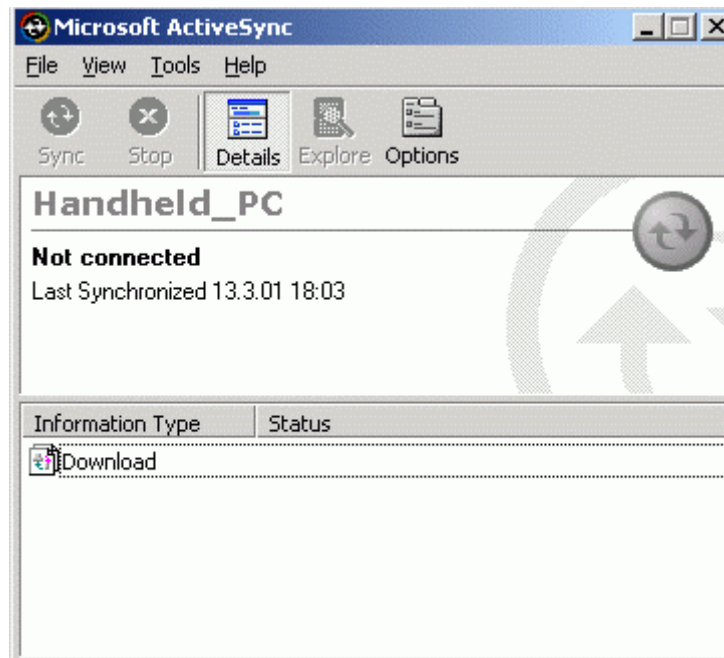


Windows Options Dialog Box

An association with the CE device must be created to synchronize the download ActiveSync modules, as shown in the figure below. When the CE device responds without any problems, the download synchronization module is active.

When enabled, the file download tool immediately downloads the configuration file for Windows CE to the CE device. When disabled, the configured file will only be saved.

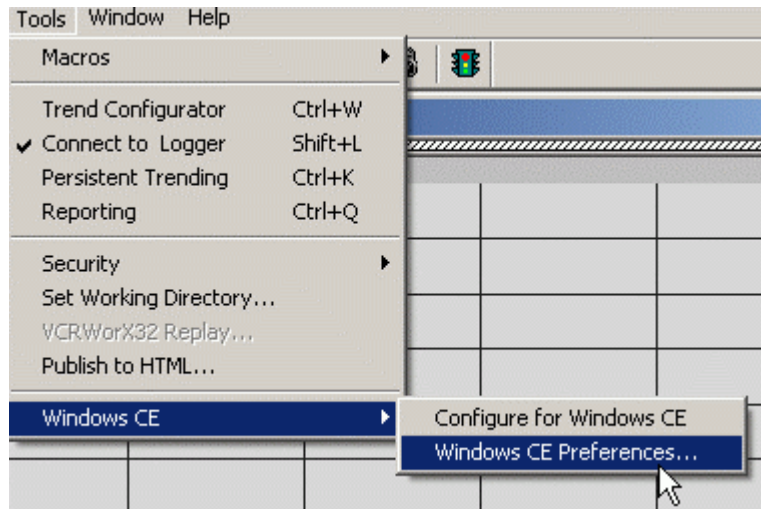
For more information about Microsoft ActiveSync services, please refer to the Microsoft ActiveSync help documentation.



Microsoft ActiveSync

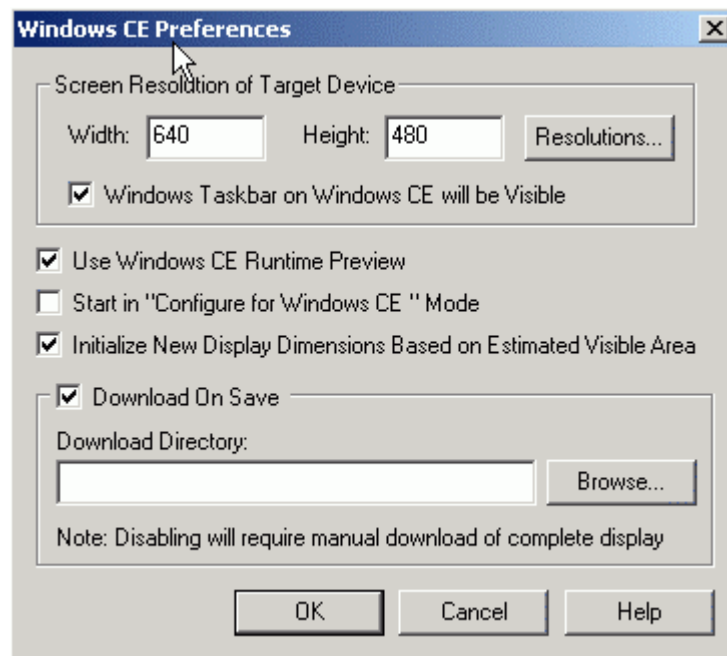
File Download Application Configuration

GraphWorX32, TrendWorX32, and AlarmWorX32 have their own version of the file download tool. In these applications, choose **Tools > Windows CE > Windows CE Preferences**, as shown in the figure below.



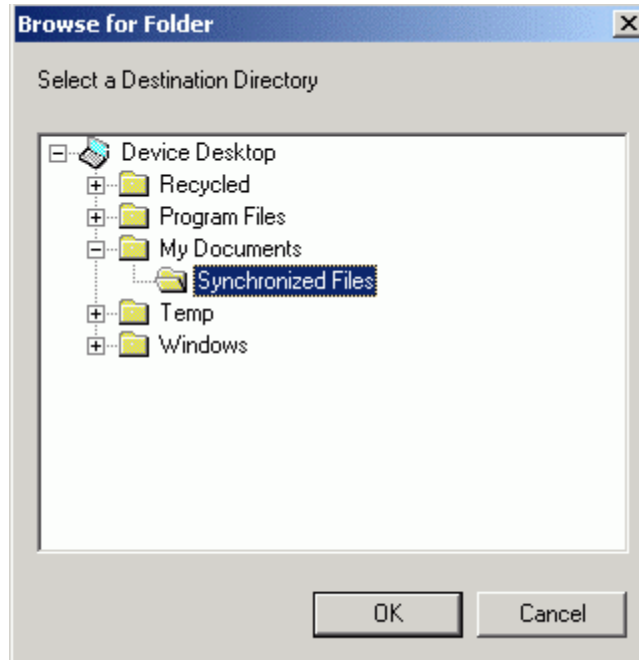
Starting the Windows CE Download Tool

This opens the **Windows CE Preferences** dialog box, which allows you to enable or disable the file download tool. To enable this tool, check the **Download On Save** check box. Then select the destination directory on the CE device by entering the path name in the **Download Directory** field, as shown in the figure below.



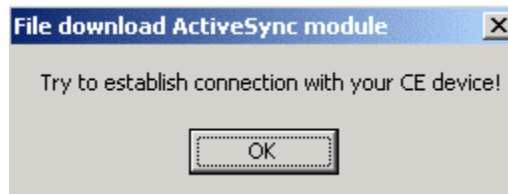
Setting Windows CE Preferences

You can also click the **Browse** button to select the destination directory. Clicking the **Browse** button opens the **Browse for Folder** dialog box, which shows the CE device directories, as shown in the figure below. A warning message box will be displayed when the file download ActiveSync module is inactive.



Browsing for a Folder on the CE Device

To establish a connection with the CE device, click **OK**, as show in the figure below.



File Download ActiveSync Module

You can also use the **Windows CE Preferences** dialog box to configure other settings for the CE device. You can set the resolution of the target device by clicking the **Resolution** button. This displays a list of resolutions from 200 x 320 up to 1024 x 768.

Downloading the File to the CE Device

When you have finished configuring a display file and would like to save it to Windows CE, choose **Save As** from the **File** menu. This opens the **Save As** dialog box.

- In GraphWorX32, enter the file name and select either "GraphWorX32 Displays for WinCE (*.gdc)" or "GraphWorX32 Templates for WinCE (*.gdc)" from the **Save As Type** box.
- In AlarmWorX32, enter the file name and select "AWXview32 CE File (*.ace)" from the **Save As Type** box.
- In TrendWorX32, enter the file name and select "TWXviewerCE File (*.tce)" from the **Save As Type** box.

The ICONICS **Import File** dialog box will be displayed, indicating that the files are downloading to the Windows CE device.

Starting Pocket GENESIS Applications on Your Pocket PC

Once you have downloaded your GraphWorX32, AlarmWorX32, or TrendWorX32 configuration files from your desktop PC to your Pocket PC or CE device, you can run the applications on your Pocket PC. Open the Pocket GENESIS client applications (Pocket GraphWorX, Pocket AlarmWorX, and Pocket TrendWorX) you wish to run, and then select **Open** from the **File** menu. Browse for the desired .gdc, .ace, or .tce file.

VCRWorX32 Data Replay

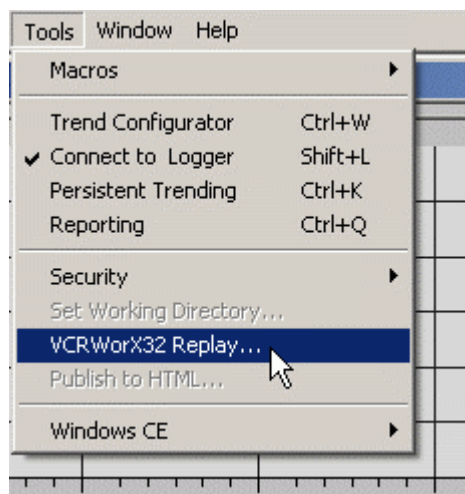
VCRWorX32 is a powerful tool in GENESIS32 that enables the replay and reanimation of graphical, historical and alarm data. Features of VCRWorX replay include:

The VCRWorX Control Panel, shown in the figure below, is the user interface that enables you to configure your historical data replay time and date settings. You can:

- See what the operator saw through replay of graphical displays.
- Specify time and date ranges for replay.
- Fast forward and rewind.
- Change the replay speed.
- Search for key events, tags, or expressions.
- Customize the layout and appearance using skins.

To launch the VCRWorX Control Panel from TrendWorX32 during runtime mode:

1. Select **VCRWorX32 Replay** from the TrendWorX32 **Tools** menu, as shown in the figure below.



Launching the VCRWorX Control Panel

2. This opens the **VCRWorX Control Panel**, as shown in the figure below. The TrendWorX display goes into VCRWorX historical replay mode based on the time and date you provided. You can see the process point values and ActiveX controls update in the TrendWorX display, and you can see the time/date field of the VCRWorX Control Panel in replay, or "playback," mode, as shown in the figure below.



VCRWorX Control Panel

For more information about VCRWorX, please see the VCRWorX help documentation.