Contents

Manual Design

Welcome! InFocus is a Man Machine Interface (MMI) that provides a flexible & friendly operator interface to PLC devices for process monitoring and control. It has been developed for the popular Windows NT/95 operating systems and will integrate with other productivity tools running in the Windows environment.

Below is a description of the topics in this manual.

Introduction	Manual outline, System requirements
Installation	Guides you through program installation
Program Basics	Basic user information
Program Setup	System setup information
Program Configuration	Creating forms and applications
Reference	Navigation reference and index

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System Requirements

The list below outlines the the minimum hardware and software requirements needed to run this application.

Hardware requirements:

- An Intel based computer with an Intel 486DX, 66MHz processor or higher
- 16 Mb or more of RAM
- A VGA (or higher) monitor
- 10 Mb free disk space
- A mouse is recommended, but not required.

Software requirements:

- Microsoft Windows 95 or Windows NT
- Winsock compliant TCP/IP interface

PLC interface requirements:

- PLC interface that supports Modicon Modbus or Common ASCII Message Protocol (CAMP) over TCP/IP

Program Installation

To install InFocus, turn your computer on and ensure Windows has started correctly.   Then follow the procedure below:

1   Insert InFocus Setup Disk 1 in your computer's diskette drive
2   Then run the setup.exe program on Disk 1
3   Follow the prompts from the install program, change disks when necessary.
4   Before the program can run you must attach a security key to the printer port on your computer

Security Key Installation

Key Installation

What is the Security Key?

The security key is a hardware device that plugs onto your printer port. It provides the software license information and special security information needed by the programs security manager.

Installation of the security key will not stop you from attaching a printer to your computer.

Follow the procedure below to install the security key

1   Determine the printer port you want to connect the key to.
2   Disconnect other security devices or cables from the port.
3   Connect the security key.
4   Re-attach other devices and cables if necessary.

You are nearly ready to go! before you start the application for the first time it is wise to ensure you have a network connection to your PLC's. Although this is not necessary to run InFocus, If you want to start reading data you need PLC Connectivity.

PLC Connectivity

PLC Connectivity

For InFocus to read data from PLC's there must be a healthy network connection between the PLC's and the PC's running InFocus

Check the following points to ensure PLC connectivity:

- PC's must be physically connected to the network
- PLC's must be physically connected to the same network
- PC's must have TCP/IP configured correctly

To test that you will be able to connect to the PLC's, use the ping utility. For example :

ping *<host-address>*

If you get a 'request timed out' then InFocus will not be able to connect to that PLC

Navigation

Basic navigation in InFocus is similar to any other Windows application. It can be run either in MDI or SDI mode. Allowing you to start InFocus in the mode that suits the experience of your operators.

Operators that use InFocus will primarily interact with the controls on the forms, not directly with the InFocus menus and dialog boxes.

This section will describe the functions available when the program is run in view mode. If you need to edit or create display files, or edit system properties, you must be in Design mode. This is done by selecting Design from the security manager mode selector on the tool bar.

In view mode the InFocus security manager limits the menu and toolbar options that are available to the user. In view mode users generally navigate by selecting pagelink buttons that you place on your displays to allow users to jump from page to page.

In view mode users can:

- Interact with display view controls
- Send mail
- Start program items in the tools menu if they have correct security options
- Open close, cascade and tile display views
- View program help and About box
- Exit application if permitted from system settings

Drag and Drop

Drag and Drop

You can use the Windows File Manager or Explorer to drag a file with the mouse and drop it on to a InFocus window. InFocus will then open the file and display it in the Runtime view. If you have sufficient security privileges, you may select to edit the file in the Graphical Edit View.

 For more information on using a mouse in the Windows environment, or using Windows Drag and Drop, Refer to your Windows documentation.
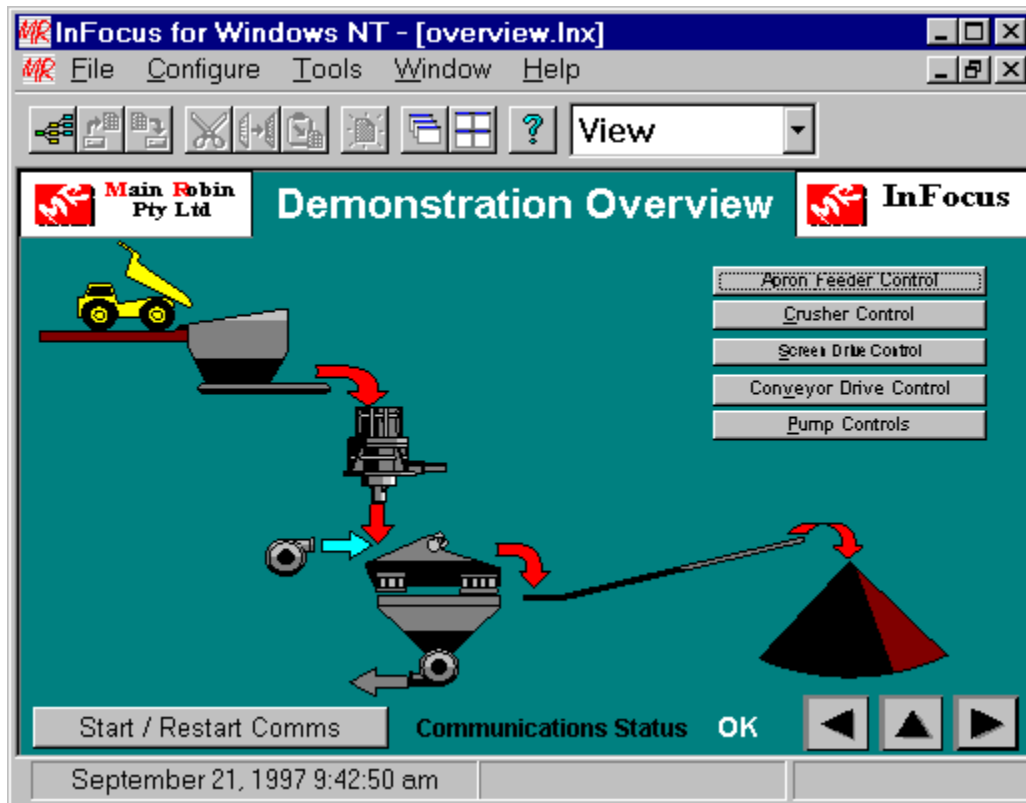
See also:

Runtime View
Graphical Edit View

Runtime View

Runtime views are the display windows that contain the controls. The controls indicate what state plant devices are in. Operators can interact with controls that take input.

See also:

Navigation
Menus
Toolbar

Menus

The menu item descriptions are listed below.

File Menu:

New	Create a new LNX document
Open	Open an existing LNX document
Close	Close an open LNX document and it's views
Save	Save an LNX document to current file
Save As	Save an LNX document to a new file name
Send	Send email message
Exit	Exit the application

Edit Menu:

Cut	Cut the selected control to clipboard
Copy	Copy the selected control to the clipboard
Paste	Paste a control from the clipboard
Clear All	Clears all controls in document

View Menu:

Refresh	Update display
Controls	Show/Hide the controls on display
Control Frames	Show/Hide control frames
Control Palette	Show/Hide the control palette
Grid	Show/Hide layout

Configure Menu:

Add Control	Display the Add Control Dialog
Modify Control	Display control properties
Delete Control	Delete selected control
Autotab Order	Automatic tab ordering of controls
Page Details	Display PageLink properties
System Configuration	Display system configuration dialog

Tools Menu

Configure	Configure tools menu

Window Menu

Cascade	Cascade all open views
Tile	Tile all current views
Arrange Icons	Arrange all icons
Close All	Close all open views
Add View	Add new view of the current document

Help Menu

Contents	Display contents page of help
Using Help	Display Help file for Windows Help
About	Display copyright and version details.

Toolbar

The Toolbar is a row of buttons at the top of the main window which represent application commands. Clicking one of the buttons is a quick alternative to choosing a command from the menu. Buttons on the toolbar activate and deactivate according to the state of the application.

The security manager mode selection control is also located on the toolbar. The function of this control is described in the security configuration section.

Load the default main menu

Locate and open a LNX file

Save the active document

Cut the selected control to the clipboard

Copy the selected control to the clipboard

Paste control from clipboard

Cascade open view windows

Tile open view windows

Switch between runtime and edit view

Display the InFocus help file

Graphical Edit View

The Graphical Edit View is used to create new displays or edit existing displays. Graphical Edit View functions similar to the Form Designer in Microsoft Access.

Available Functions:

- Drag and drop controls
- Position controls in form
- Edit control and page properties
- Cut, Copy and Paste controls from clipboard
- Arrange control tab ordering
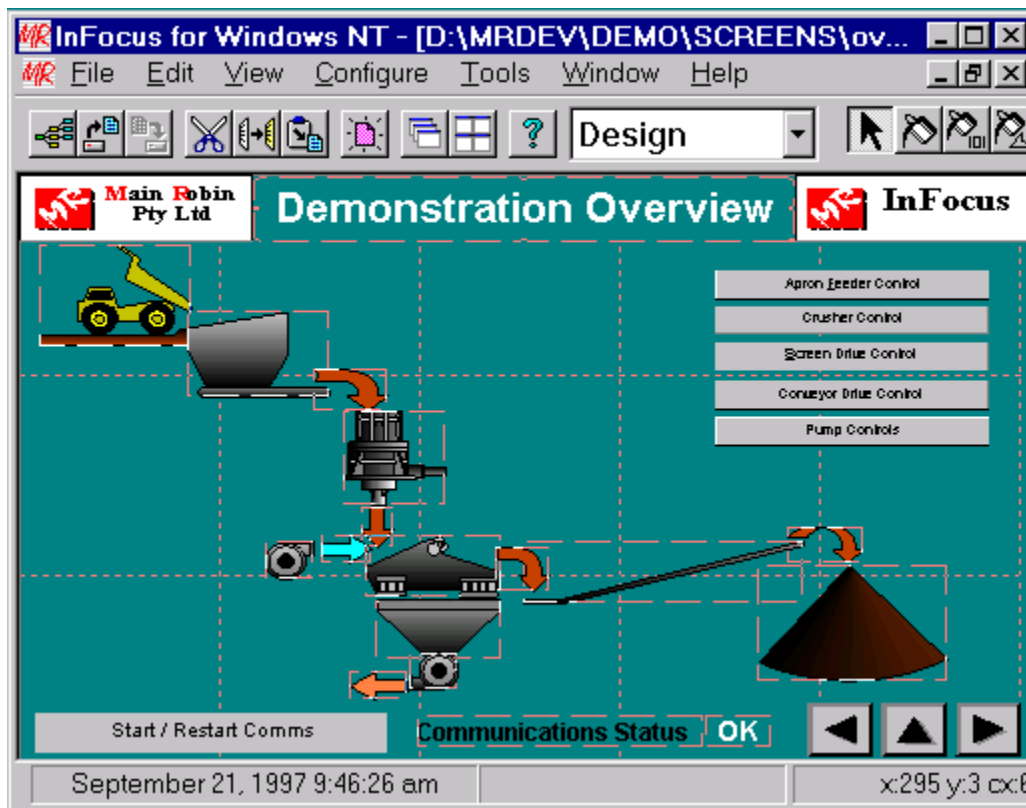
Control Positioning may be done with the mouse or using the arrow keys, when positioning controls with the arrow keys the control will move one point at a time. If you hold down the CTRL key then press the arrow key the control will move 10 points at a time.

You can access control properties from the poup menu that appears when you press the right mouse button over the selected control or by accessing the **Configure** sub menu from the menu bar.

Use the **View** sub menu to enable or disable the alignment grid, control palette or other items.

See also:

Creating Display Views

Display views   are created in the Graphical Edit View. Displays are saved as LNX files and contain Controls and other data attributes.

The steps used to create a typical display include.

1. Create a suitable background metafile in WMF format (optional).

2. Create a new device entry for PLC if it does not exist.

3. Create a LNX file and add Controls to file with Graphical Edit View.

4. Edit Pagelink details for newly created LNX file.

5. Link page to other existing pages.

See also:

Display Pagelink Details
Graphical Edit View
Memory Types

Display PageLink Properties

Each LNX file has embedded pagelink properties that define the following attributes of a display.

- Home key page link
- Page up key page link
- Page down key page link
- End key page link
- Display background metafile
- Window caption text

To change these properties select **Configure|Page Link** from the InFocus menu bar of a Graphical Edit view of your file, or right click the mouse on the display background then select **Properties**.

Memory Types

InFocus supports several memory types. Most controls can read the virtual PLC in any of the defined memory types

Memory Type	Description
Digital	Digital value
Analog16	16 bit analog value
Analog32	32 bit analog value
IEEE Float	IEEE floating point
Status	Virtual PLC status counters

Control Palette

The control palette allows you to add new controls to a display in the Graphical Edit View. To add a new control to a view you can select a control from the palette and place the new control on the display. Clink on the control icons below for more details of each control.

Select Tool

The   control selection tool is used to select a control for moving, sizing or editing its properties. to use the tool, simply select the icon and then click on the control you want to select. A selection frame will be drawn around the control selected. You can then move or resize the control with the mouse, or right click the control to see a popup menu of actions that can be performed on the control.

Control Types

This section defines the available Control types that are available in InFocus. The topics below describe the behaviour and characteristics of each control. As well as providing useful hints in configuration of the control.

Color Link
Multistate Link
Value Link
Text Link
Bar Link
Image Link
Label Link
Graph Link
Polyfill Link
Push Button
Multistate Button
Pagelink Button
Winexec Button
Numeric Edit

Color Link

The Color Link control is a read only control that provides indication of the status of analog or digital memory by mapping a colour to a value range. You can specify up to 8 different colours to a V memory location.

The control can by used to simulate LED type indicators or fill an area of an object.

Characteristics:

- Supports the following shapes - Rectangle, Round Rectangle, Ellipse.
- Supports up to 8 colour ranges
- Supports flashing colour combinations
- Displays grey pattern to indicate a communications failure

This procedure steps you through adding a Color Link control to your display.

1   Select the Color Link button from the tool palette , or Select **Configure|Add Control** from the menu bar of a Graphical Edit view of your file.
2   Position mouse cursor where you want the control to be
3   Press left mouse button to anchor the control
4   Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size.
5   Select, then right click the control to access the properties configuration dialog
6   Select the Colour value tab of the dialog box
7   Enter the value ranges and select the associated colours.
8   Select the Style tab of the dialog box
9   Select the control shape and enter a description
10 Select the Memory Detail tab of the dialog box
11 Select associated device and V memory address for control

Note:

For a flashing colour selection, select different colours for foreground and background
For a solid colour selection, select the same colour for foreground and background.

For a digital memory address :
The index 0 color selection will be displayed for a 0 value.
The index 1 color selection will be displayed for a 1 value.

If the device you want is not in the list. It has not been configured. You must define the device before you can select it from this list.

Multistate Link

The MultiState Link control is a read only control that provides indication of the status of digital memory by mapping a colour to a value range. The control uses logic based on a 3 of 8 decoder to map up to 8 different colours to the logical result.

The control can by used to simulate LED type indicators or fill an area of an object.

Characteristics:

- Supports the following shapes - Rectangle, Round Rectangle, Ellipse.
- Supports up to 8 colour ranges
- Supports flashing colour combinations
- Control displays grey pattern to indicate a communications failure

This procedure steps you through adding a MultiState Link control to your display

1   Select the MultiState Link button from the tool palette , or Select **Configure|Add Control** from the menu bar of a Graphical Edit view of your file.
2   Position the mouse cursor where you want the control to be
3   Press the left mouse button to anchor the control
4   Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size
5   Select, then right click the control to access the properties configuration dialog box
6   Select the Colour value tab of the dialog box
7   Select the associated colours for each value
8   Select the Style tab of the dialog box
9   Select the control shape and enter a description
10 Select the Memory Detail tab of the dialog box
11 Select associated device and V memory address for control

Note:

For a flashing colour selection, select different colours for foreground and background
For a solid colour selection, select the same colour for foreground and background.

Because this value used 3 digital values, The index number indicates the value to colour mapping. Not the range value

The index 0 colour selection will be displayed for a 0 value.
The index 1 colour selection will be displayed for a 1 value.
The index 8 colour selection will be displayed for an 8 value.

If the device you want is not in the list. It has not been configured. You must define the device before you can select it from this list.

This control only uses digital memory types. You must specify 3 memory locations from either different devices, or the same device.

Value Link

The Value Link control is a read only control that displays the value of a PLC memory location on the display screen numerically.

Characteristics:

- Supports scaling of raw value to engineering units.
- Supports scaling to TI type raw range 6400 - 32000
- Can select from any true type fonts installed on machine
- Supports display of signed or unsigned value
- Supports Analog16, Analog32, IEEE Float and digital memory
- Supports up to 8 colour ranges for text colour and background colour
- Displays grey pattern to indicate a communications failure
- Displays grey pattern to indicate an out of range input value

This procedure steps you through adding a ValueLink control to your display

1 Select the Value Link button from the tool palette , or **Select Configure|Add Control** from the menu bar of a Graphical Edit view of your file
2 Position the mouse cursor where you want the control to be
3 Press the left mouse button to anchor the control
4 Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size
5 Select, then right click the control to access the properties configuration dialog box
6 Select the Colour value tab of the dialog box
7 Enter the value ranges and select the associated colours
8 Select the Style tab of the dialog box
9 Select the select scaling options and ranges and enter a description
10 Select Font Details tab of the dialog box
11 Select the font style and attributes
12 Select the Memory Detail tab of the dialog box
13 Select associated device and V memory address for control

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Note:

If the color range checkbox is checked, the control uses the colour range data for font colour, else it uses the Tfontdata for font colour

If the scaling checkbox is checked, the control uses range and scale variables to calculate a scaled value.

If the add offset checkbox is checked, the control will calculate the scaled value based on the TI

6400-32000 raw units (scaling should also be checked)

If the signed checkbox is checked, the control will show signed values.

If the device you want is not in the list. It has not been configured. You must define the device before you can select it from this list.

Scaling Algorithm:

The scaling algorithm used in this control is defined below:

IF offset THEN

    Span = RangeHigh - RangeLow

    X = (Value - RangeLow) / Span * (ScaleHigh - ScaleLow) + ScaleLow

ELSE

    X = (Value / RangeHigh - RangeLow)　 * (ScaleHigh - ScaleLow) + ScaleLow

Text Link

ABC

The TextLink control is a read only control that displays a text string that is associated with a value of a V memory location on the display screen.

Characteristics:

- Can select from any true type fonts installed on machine
- Supports analog and digital memory
- Supports up to 8 colour ranges for text colour and background colour
- Control displays grey pattern to indicate a communications failure

This procedure steps you through adding a TextLink control to your display

1   Select the Text Link button from the tool palette , or Select **Configure|Add Control** from the menu bar of a Graphical Edit view of your file
2   Position the mouse cursor where you want the control to be
3   Press the left mouse button to anchor the control
4   Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size
5   Select, then right click the control to access the properties configuration dialog box
6   Select the Text value tab of the dialog box
7   Enter the value range and text messages
8   Select the Colour value tab of the dialog box
9   Enter the value ranges and select the associated colours
10 Select the Style tab of the dialog box
11 Select the justification and style options and enter a description
12 Select Font Details tab of the dialog box
13 Select the font style and attributes
14 Select the Memory Detail tab of the dialog box
15 Select associated device and V memory address for control

Note:

If the device you want is not in the list. It has not been configured. You must define the device before you can select it from this list.

Bar Link

The BarLink control is a read only control that displays a bar on the display that reflects the current value of a V memory location.

Characteristics:

- Supports scaling of raw value to engineering units.
- Supports scaling from TI type raw range 6400 - 32000.
- Supports up to 8 colour ranges for bar colour and background colour.
- The bar can move left,right,up or down.
- Control displays grey pattern to indicate a communications failure.
- Control displays grey pattern to indicate an out of range input value.

This procedure steps you through adding a BarLink control to your display.

1   Select the Bar Link button from the tool palette , or Select **Configure|Add Control** from the menu bar of a Graphical Edit view of your file.
2   Position the mouse cursor where you want the control to be
3   Press the left mouse button to anchor the control
4   Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size.
5   Select, then right click the control to access the properties configuration dialog box
6   Select the Colour value tab of the dialog box
7   Enter the value ranges and select the associated colours.
8   Select the Style tab of the dialog box
9   Select the select scaling, direction options and ranges and enter a description
10 Select the Memory Detail tab of the dialog box
11 Select associated device and V memory address for control

Note:

If the scaling checkbox is checked, the control uses range and scale variables to calculate a scaled value.

If the add offset checkbox is checked, the control will calculate the scaled value based on the TI 6400-32000 raw units (scaling should also be checked)

If the device you want is not in the list. It has not been configured. You must define the device before you can select it from this list.

Only analog memory types are valid.

Scaling Algorithm:

The scaling algorithm used in this control is defined below:

IF offset THEN

    Span = RangeHigh - RangeLow

    X = (Value - RangeLow) / Span * (ScaleHigh - ScaleLow) + ScaleLow

ELSE

    X = (Value / RangeHigh - RangeLow)　* (ScaleHigh - ScaleLow) + ScaleLow

If value is not in display range, bar will display background color.

Image Link

The Image Link control is a read only control that allows you to place a Windows metafile anywhere on the display view.

Characteristics:

- Supports standard, enhanced and placeable metafile formats

This procedure steps you through adding a Image Link control to your page.

1 Select the Image Link button from the tool palette , or Select **Configure|Add Control** from the menu bar of a Graphical Edit view of your file.
2 Position the mouse cursor where you want the control to be
3 Press the left mouse button to anchor the control
4 Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size
5 Select, then right click the control to access the properties configuration dialog box
6 Select the Style tab
7 Select the metafile name and enter a description

Label Link

The Label Link writes a text label on the display. This control is not linked to a memory location, it is a static control.

Characteristics:

- Can select from any true type fonts installed on machine.

This procedure steps you through adding a LabelLink control to your display.

1   Select the Label Link button from the tool palette , or Select **Configure|Add Control** from the menu bar of a Graphical Edit view of your file
2   Position the mouse cursor where you want the control to be
3   Press the left mouse button to anchor the control
4   Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size
5   Select, then right click the control to access the properties configuration dialog box
6   Select the Style tab
7   Select the justification and style options and enter a label and description
8   Select Font Details tab of the dialog box
9   Select the font style and attributes

Graph Link

The Graph Link control is a read only control that displays a single line trace of a V memory value to reflect a value trend over time.

Configuration:

- Supports scaling of raw value to engineering units.
- Supports scaling from TI type raw range 6400 - 32000.
- Pen and background colour is user selectable.
- The rate for redraw is user selectable
- Control displays grey pattern to indicate a communications failure
- Control displays grey pattern to indicate an out of range input value

This procedure steps you through adding a GraphLink control to your display.

1   Select the Graph Link button from the tool palette , or **Select Configure|Add Control** from the menu bar of a Graphical Edit view of your file.
2   Position the mouse cursor where you want the control to be
3   Press the left mouse button to anchor the control
4   Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size.
5   Select, then right click the control to access the properties configuration dialog box
6   Select the Style tab of dialog box
7   Select the select pen colour, scaling and ranges and enter a description.
8   Select the Memory Detail tab of dialog box
9   Select associated device and V memory address for control

Note:

If the scaling checkbox is checked, the control uses range and scale variables to calculate a scaled value.

If the add offset checkbox is checked, the control will calculate the scaled value based on the TI 6400-32000 raw units (scaling should also be checked)

If the device you want is not in the list. It has not been configured. You must define the device before you can select it from this list.

Only analog memory types are valid.

Scaling Algorithm

IF offset THEN

    Span = RangeHigh - RangeLow

X = (Value - RangeLow) / Span * (ScaleHigh - ScaleLow) + ScaleLow

ELSE

X = (Value / RangeHigh - RangeLow)   * (ScaleHigh - ScaleLow) + ScaleLow

If value is not in display range, bar will display background color.

Polyfill Link

The PolyFillLink control is a read only control that provides indication of the status of analog or digital memory by mapping a colour to a value range. The colorfill area is defined as a polygon with up to 8 points. You can specify up to 8 different colours to a V memory location.

The control can by used to fill an area of an object with a colour to reflect the state of PLC memory.

Characteristics:

- Supports 3 - 8 point polygons
- Supports up to 8 colour ranges
- Displays grey pattern to indicate a communications failure

This procedure steps you through adding a Polyfill Link control to your display.

1   Select the PolyFill Link button from the tool palette , or **Select Configure|Add Control** from the menu bar of a Graphical Edit view of your file
2   Position the mouse cursor where you want the first point of the polygon to be
3   Press the left mouse button to mark the first point of the polygon
4   Move the mouse to each point of the polygon and click the mouse to define each point
5   Double click the left mouse button to define the last point of the polygon.
6   Select ,then right click the control to access the properties configuration dialog box
7   Select the Colour value tab of the dialog box
8   Enter the value ranges and select the associated colours
9   Select the Style tab of the dialog box
10   Enter a description
11   Select the Memory Detail tab of the dialog box
12   Select associated device and V memory address for control

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Note:

For a flashing colour selection, select different colours for foreground and background
For a solid colour selection, select the same colour for foreground and background.

For a digital memory address :
The index 0 colour selection will be displayed for a 0 value.
The index 1 colour selection will be displayed for a 1 value.

If the device you want is not in the list. It has not been configured. You must define the device before you can select it from this list.

Push Button

The PushButton control is a write only control that sets a value to a V memory location when the user presses the button.

Characteristics:

- The user can select their own metafiles to be used as the button faces.
- All button face metafiles are stored in the WMF directory configured in the system configuration dialog.
- The user can specify a value for the up and down state of the button
- The user can select different cursor styles
- The user can select the focus rectangle style
- The user can select the security level needed for control activation
- The user can add tool tip text for the control
- The user can make control display a confirmation dialog

This procedure steps you through adding a PushButton control to your display.

1   Select the PushButton button from the tool palette , or Select Configure|Add Control from the menu bar of a Graphical Edit view of your file.
2   Position the mouse cursor where you want the control to be
3   Press the left mouse button to anchor the control
4   Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size.
5   Select, then right click the control to access the properties configuration dialog box
6   Select the Button Attributes tab of dialog box
7   Select cursor, focus rectangle style and security level
8   Select the Style tab of dialog box
9   Select the button face files and write values then enter a description
10 Select the Memory Detail tab of dialog box
11 Select associated device and V memory address for control

Note:

If the device you want is not in the list. It has not been configured. You must define the device before you can select it from this list.

Multistate Button

The MultiStateButton control is a read/write control that sets a value to a V memory location when the user presses the button. Feedback of the current value displayed via the button face.

Characteristics:

- Supports 2,3 and 4 state buttons
- Supports standard and owner drawn WMF button faces
- All button face metafiles are stored in the WMF directory configured in the system configuration dialog
- The user can specify a value for each state transition of the button
- Supports several cursor styles
- Supports several focus rectangle styles.
- Supports security levels for control activation
- The user can add tool tip text for the control
- The user can make control display a confirmation dialog

This procedure steps you through adding a PushButton control to your display.

1   Select the MultiStateButton button from the tool palette , or **Select Configure|Add Control** from the menu bar of a Graphical Edit view of your file.
2   Position the mouse cursor where you want the control to be
3   Press the left mouse button to anchor the control
4   Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size.
5   Select, then right click the control to access the properties configuration dialog box
6   Select the Button Attributes tab of dialog box
7   Select cursor, focus rectangle style and security level
8   Select the Style tab of dialog box
9   Select the button face files and write values then enter a description
10 Select the Memory Detail tab of dialog box
11 Select associated device and V memory address for control

Note:

If the device you want is not in the list. It has not been configured. You must define the device before you can select it from this list.

Pagelink Button

The PageLinkButton control allows the user to load another display view by pressing the button.

Characteristics:

- Supports transparent, standard and owner drawn WMF button faces.
- All button face metafiles are stored in the WMF directory configured in the system configuration dialog.
- The user selects an LNX file to load from the files in the LNX directory configured in the system configuration dialog.
- Supports several cursor styles.
- Supports several focus rectangle styles.
- Supports security levels for control activation.
- The user can add tool tip text for the control
- The user can make control display a confirmation dialog

This procedure steps you through adding a PageLinkButton control to your display.

1   Select the PageLinkButton button from the tool palette , or **Select Configure|Add Control** from the menu bar of a Graphical Edit view of your file.
2   Position the mouse cursor where you want the control to be
3   Press the left mouse button to anchor the control
4   Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size.
5   Select, then right click the control to access the properties configuration dialog box
6   Select the Button Attributes tab of dialog box
7   Select cursor, focus rectangle style and security level
8   Select the Style tab of dialog box
9   Select the button face files and LNX file then enter a description

Winexec Button

The WinExecButton allows the user to run another program when the button is pressed.

Characteristics:

- Supports standard and owner drawn WMF button faces.
- All button face metafiles are stored in the WMF directory configured in the system configuration dialog.
- Supports several cursor styles
- Supports several focus rectangle styles.
- Supports security levels for control activation.
- The user can add tool tip text for the control
- The user can make control display a confirmation dialog

This procedure steps you through adding a WinExecButton control to your display.

1   Select the WinExecButton button from the tool palette , or **Select Configure|Add Control** from the menu bar of a Graphical Edit view of your file
2   Position the mouse cursor where you want the control to be
3   Press the left mouse button to anchor the control
4   Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size
5   Select, then right click the control to access the properties configuration dialog box
6   Select the Button Attributes tab of dialog box
7   Select cursor, focus rectangle style and security level
8   Select the Style tab of dialog box
9   Select the button face files and command line then enter a description

Numeric Edit

The NumericEdit control allows the user to write a value to a V memory location.

Characteristics:

- Supports option popup menu of valid values to enter.
- Supports optional field clearing when loosing focus.
- Supports optional field update when PLC value changes.
- Supports selectable upper and lower limits for range validation.
- Supports several cursor styles
- Supports several focus rectangle styles
- Supports security levels for control activation.
- The user can add tool tip text for the control
- The user can make control display a confirmation dialog

**This procedure steps you through adding a NumericEdit control to your display.**

1   Select the NumericEdit button from the tool palette , or Select **Configure|Add Control** from the menu bar of a Graphical Edit view of your file.
2   Position the mouse cursor where you want the control to be
3   Press the left mouse button to anchor the control
4   Move mouse while holding the left mouse button down to size the control, then release the left mouse button when the control is the correct size
5   Select, then right click the control to access the properties configuration dialog box
6   Select the Edit Attributes tab of dialog box
7   Select cursor, focus rectangle style and security level
8   Select the Style tab of dialog box
9   Select the edit options and valid number range then enter a description
10 Select the Memory Detail tab of dialog box
11 Select associated device and V memory address for control

Note:

If the device you want is not in the list. It has not been configured. You must define the device before you can select it from this list.

Concepts

InFocus has been designed to be as flexible as possible without compromising system performance. Performance, stability and ease of use were the most important design criteria for InFocus. This section explains some of the design features of InFocus. An understanding of these concepts will help you when using and configuring InFocus.
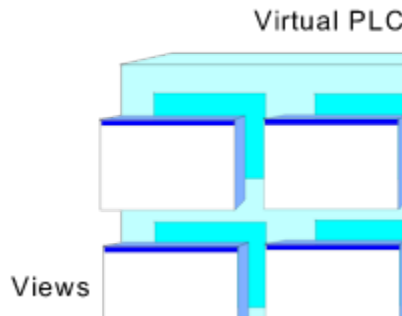
- **Virtual PLC** - The virtual PLC is a special object within InFocus. Data is read into the virtual PLC from devices that are configured in the registry. For performance reasons, only data mapped to the scan window is read. You can configure the rate that the scan window is read.
- **Display views** - Data is presented graphically by using controls. The controls are placed on Display Views to build a virtual mimic display. If InFocus is started in multiple document mode (MDI) you can have multiple views on the screen at the same time. There are three view types : Runtime, Graphical Edit and Alarm view. They are individually detailed in later topics
- **Controls** - Controls are placed on views and linked to virtual memory elements within the virtual PLC. The controls then graphically reflect the value of a PLC memory location with animation.
- **LNX files** - LNX files store the controls and attributes for each view
- **WMF files** - InFocus uses Windows Meta Files (WMF) to draw a background image for each display. By using WMF's the display can be resized without loosing image quality.
- **Scan Window** - The memory address range in the PLC that is mapped by the Virtual PLC. (see illustration below)

Command Line

You can specifiy parameters on the command line when you start InFocus to nominate what mode it starts up in.

Command Line Syntax:

InFocus -[M | S | C] [Filename]

Where the optional parameters are described below:

-M (default mode)	OnScan in MDI mode
-S	OnScan in SDI mode
-C	Offscan in Configuration mode
Filename	LNX filename to load

MDI means Multiple Document Interface where multiple view windows can be opened inside the main frame window allowing users to see multiple plant areas on the screen.

SDI means Single Document Interface where a single view window is opened inside the main frame window allowing users to see a single plant view on the screen. This mode is available for novice users who are not as familiar with Windows navigation.

System Setup

The system setup dialog allows you to configure the application registry settings. They include:

- Startup properties
- Display view properties
- Device properties

To access the system setup dialog you must be in Design mode, Then select **Configure|System configuration** from the menu.

See Also:

System Tab
View Tab
Device Tab
Registry Settings
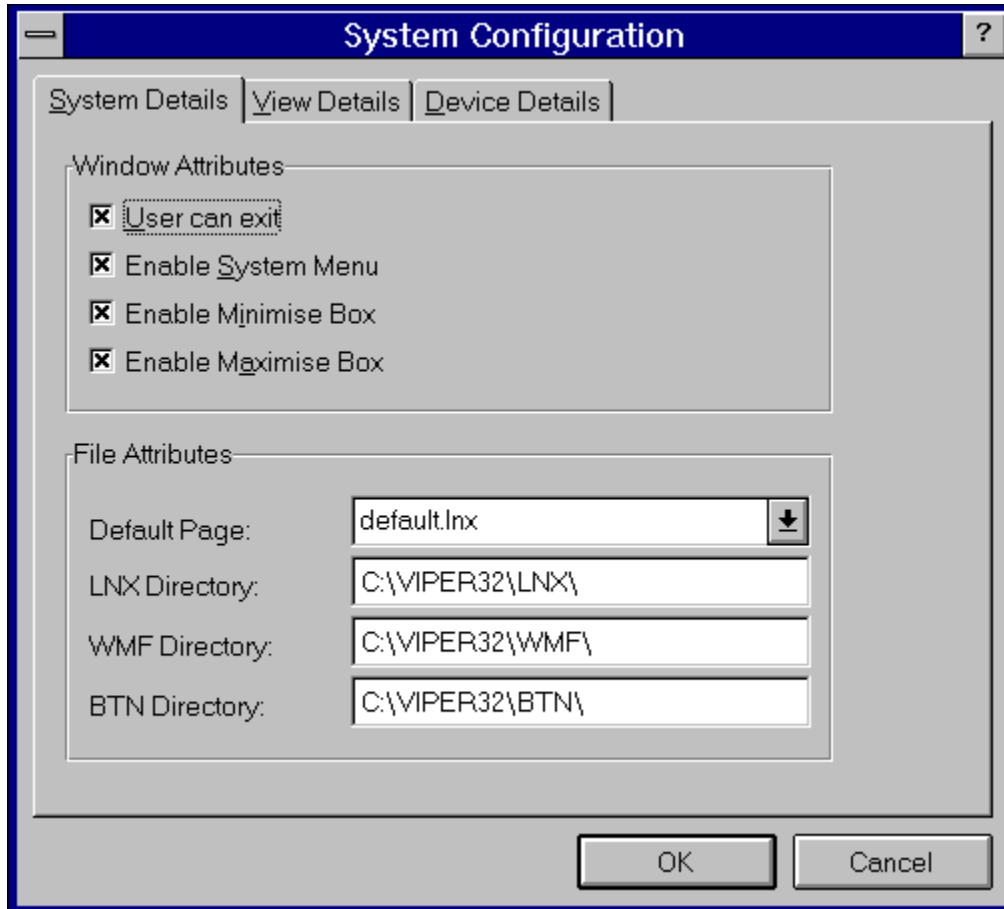
System Details Tab

The System details are described below:

- Frame window attributes
- Default start display
- Directory path locations for display files

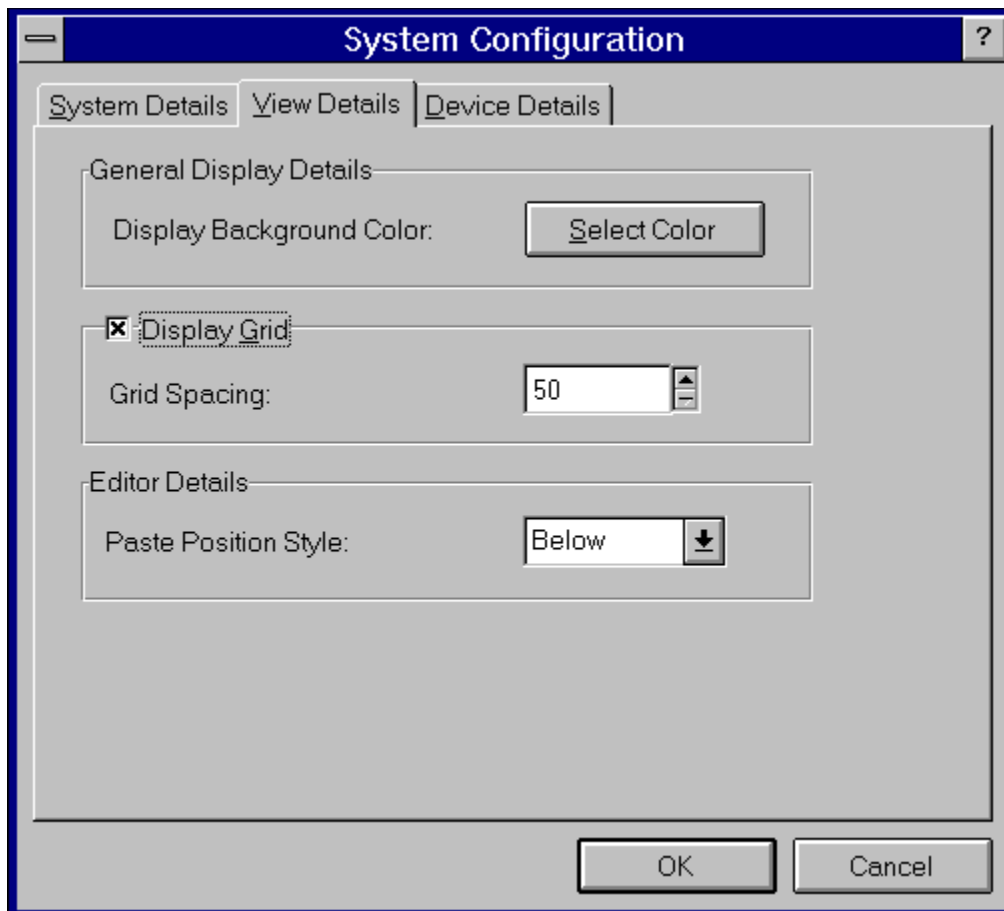The System details dialog box is shown below:

See Also:

View Details Tab
Device Details Tab

View Tab

Select the view details tab to configure teh following items

- Display back ground color
- Grid spacing in graphical edit view
- Positon to paste items in graphical edit view
  (on top or below existing control position)

The View details tab is shown below:

See Also:

System Details Tab
Device Details Tab

Device Tab

A device is a PLC or real-time control device that InFocus is required to communicate with. Because there is no common protocol for PLC's and other devices, InFocus must be able to support the protocol to retrieve data from it.

InFocus needs to know the following information about each device. Devices are configured via the Device Configuration dialog tab.

See Also:

System Details Tab
View Details Tab

Registry Details

This section documents the keys used to store application configuration data in the Windows 95/NT system registry.

The registry keys are listed below along with the value setting they contain.

HKEY_LOCAL_MACHINE\SOFTWARE
    MainRobin Pty Ltd\InFocus\Parameters\Defaults

DefaultPage	DefaultPage
DisplayBGColor	DisplayBGColor
EnableMaximiseBox	EnableMaximiseBox
EnableMinimiseBox	EnableMinimiseBox
EnableSysMenu	EnableSysMenu
GridSpacing	GridSpacing
Paste style	Paste style
RoleSelectionPrivs	RoleSelectionPrivs
ShowGrid	ShowGrid
UserCanExit	UserCanExit

HKEY_LOCAL_MACHINE\SOFTWARE
    MainRobin Pty Ltd\InFocus\Parameters\Devices*Devicenn*

Address	Address
Name	Name
Port	Port
Protocol	Protocol
ScanStart	ScanStart
ScanLength	ScanLength
ScanState	ScanState
ScanTime	ScanTime
Timeout	Timeout

HKEY_LOCAL_MACHINE\SOFTWARE
    MainRobin Pty Ltd\InFocus\Parameters\Directories

BTNDir	BTNDir
WMFDir	WMFDir
LNXDir	LNXDir

HKEY_LOCAL_MACHINE\SOFTWARE
    MainRobin Pty Ltd\InFocus\Parameters\Tools*toolname*

CommandLine	CommandLine
CommandShow	CommandShow
Label	Label
Path	Path
SecurityLevel	SecurityLevel

Tool Menu

If you want to access other programs from InFocus, you can add a new menu item to the Tools menu. This will allow you to start you favourite programs without leaving InFocus. You can specify what security roles are allowed to access the program.

To add a new tool item to the menu, you must be in Design mode. You then select **Tools|Configure tools** from the main menu. A dialog box will appear similar to the one shown below. The list on the right hand side lists the current menu items.

Tool Menu Configuration

Tool Details

Tools:
- Calculator
- Intranet

Tool Attributes

Label: Intranet

Path: http://intrasrv/index.htm

Command Line:

Startup Style
- ○ Iconic
- ◉ Normal
- ○ Maximised

Security Level
- ◉ Guest
- ○ Operator
- ○ Supervisor
- ○ Engineer
- ○ Administrator

[New Item]   [Modify]   [Delete]

[OK]   [Cancel]

To add a new tool item follow the procedure below

1   Press the button marked **New Item**
2   Enter the Label for menu description
3   Enter the Path to start your program

4   Enter any command line arguments (optional)
5   Select the initial window style on startup
6   Select the security role needed to start the program
7   Press the **Add item** button to save changes

To delete a tool item follow the procedure below

1   Select the tool you want to delete in the Tools list
2   Press the **Delete** button

To modify an existing tool item follow the procedure below

1   Select the tool you want to modify in the Tools list
2   Modify the properties for the selected item
3   Press the **Modify** button to save changes

Creating Devices

To link InFocus controls to PLC memory a Virtual PLC must be created to map the PLC memory of the PLC.

To create a virtual PLC perform the following procedure:

1. Select design mode from the Security Manager
2. Select **Configure|System configuration** from the main menu
3. Select the **Device details** tab
4. Click on the next available device in the **Device:** list box
5. Enter the device attributes as described below
6. Click OK to accept configuration

Device Attributes:

Device Attribute	Description
Name	Calloquial name for device
Address	IP address of device
Protocol	Device protocol supported
Port	IP port of device
Scan start	First memory address of memory map
Scan length	Length of memory map
Scan time	Scan time for memory map update
Timeout	Socket timeout value
State	Startup scan state

See also:

[Concepts](#)
[Device Details](#)
[Memory Types](#)

Security

InFocus implements a role based security model to control access to volatile or dangerous functions. Any function that can write to the PLC shall be deemed volatile. To control access to such functions a security manager class has been built into InFocus. Access control will be role based and security keys have been implemented to regulate role access. The following access matrix defines access privileges.

The security manager has two modes, View and Design. The function of the two modes is described in the table below.

Security Manager mode selection options

View Mode	Configuration options disabled
Design Mode	Configuration options enabled

The security roles are enabled by setting bits in a memory area in the sentinel key. More than one role can be enabled. When a control is selected, it checks to see if the role it has is enabled in the security key, if it is the function is executed, otherwise the control will return without executing the function.

Role	Read Permission	Write Permission
Guest	yes	yes/no
Operator	yes	yes/no
Supervisor	yes	yes/no
Engineer	yes	yes/no
Administrator	yes	yes/no

Keyboard

The key descriptions are listed below.

Cursor Movement Keys:

Arrow key	Moves the cursor left, right, up or down
End or Ctrl+Right Arrow	Moves to the end of a field.
Home or Ctrl+Left Arrow	Moves to the beginning of a field.
Page Up or Page Down	Moves up or down in a field

Dialog Box Keys:

Key	Action
Tab	Moves from field to field
Shift+Tab	Moves from field to field in reverse
Alt+letter	Moves to the option or group
Arrow key	Moves from option to option in a group
Enter	Executes a command button
Esc	Cancels a dialog box.
Alt+Down Arrow	Opens a drop-down list box
Alt+Up or Down Arrow	Selects item in a drop-down list box
Spacebar	Cancels a selection in a list box
Ctrl+Slash	Selects all the items in a list box
Ctrl+Backslash	Cancels all selections except current
Shift+Arrow key	Extends selection in a text box
Shift+Home	Extends selection to first character
Shift+End	Extends selection to last character
Ctrl+PageUp	Advance to previous tab on dialog
Ctrl+Page Down	Advance to next tab on dialog

Editing Keys:

Key	Action
Backspace	Delete character or selected text
Delete	Delete character or selected text

Help Keys:

F1	Displays the Help Index for application
Shift+F1	get Help on a specific command

Menu Keys:

Alt	Selects the first menu on the menu bar
Letter key	Chooses the menu, or menu item
Alt+Letter key	Pulls down the menu
Left or Right Arrow	Moves among menus of the main menu
Up or Down Arrow	Moves along items in a drop-down menu
Enter	Chooses the selected menu item

System Keys:

Ctrl+Esc	Switches to the Task List
Alt+Esc	Switches to the next application window
Alt+Tab	Switches to the next application window
Alt+PrtSc	Copies the entire screen to Clipboard
Ctrl+F4	Closes the active window
Ctrl+TAB	Set focus to next MDI child window (view)

Text Selection Keys:

Shift+Left or Right Arrow	Selects text one character at a time
Shift+Down or Up	Selects one line of text up or down
Shift+End	Selects text to the end of the line
Shift+Home	Selects text to the beginning of the line
Shift+Page Down	Selects text down one window
Shift+Page Up	Selects text up one window
Ctrl+Shift+Left or Right Arrow	Selects text to the next or previous word
Ctrl+Shift+Up or Down Arrow	Select text to top or bottom of paragraph
Ctrl+Shift+End	Selects text to the end of the document
Ctrl+Shift+Home	Selects text to the top of the document

Window Keys:

Alt+Spacebar	Opens the Control menu
Alt+Hyphen	Opens the Control menu for a view
Alt+F4	Closes a window
Alt+Esc	Switches to the next application window
Alt+Tab	Switches to the next application window
Alt+Enter	Toggle full-screen mode for DOS apps
Arrow key	Moves a window when in move mode

Status Registers

InFocus maintains a set of status registers in each virtual PLC, they can be very helpfull in detecting

bad communications links to host PLC's and determining the performance of PLC communications links. The status registers can be accessed and viewed by the controls such as value link. To view a register you must specify an address number just like a PLC address except the type is *status*. The table below lists the status register addresses and what they provide.

Address	Description
0	Seconds since reset (write -1 to reset)
1	TCP/IP error count
2	TCP/IP error status
3	TCP/IP packet count
4	TCP/IP error barometer
5	MBUS/CTI error count
6	MBUS/CTI error status
7	MBUS/CTI packet count
8	MBUS/CTI error barometer
9	PLC register transfer rate

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