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Allen-Bradley

PanelBuilder™ 1400e Configuration Software for Windows®

(Cat. No. 2711E–ND1)

Getting Started



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Because of the variety of uses for the products described in this publication, those responsible for the application and use of this control equipment must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes, and standards.

The illustrations, charts, sample programs, and layout examples shown in this guide are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Allen-Bradley does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley publication SGI-1.1, *Safety Guidelines for the Application, Installation, and Maintenance of Solid-State Control* (available from your local Allen-Bradley office), describes some important differences between solid-state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

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Throughout this manual we use notes to make you aware of safety considerations:



ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss.

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- identify a hazard
- avoid the hazard
- recognize the consequences

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Preface

Welcome to PanelBuilder 1400e Configuration Software for Windows

Welcome to Allen-Bradley's PanelBuilder™ 1400e Configuration Software for Windows, Version 4. With this software you can create applications in the Microsoft® Windows® 3.1 (or later) operating system, Windows 95, and Windows NT 4.0. You run the PanelBuilder applications on PanelView™ 1000e, 1200e, or 1400e terminals, or PanelView 1200 Series F and later terminals that have been enhanced to -MC catalog numbers.

PanelBuilder 1400e Configuration Software for Windows, Version 4, provides the advantages that PanelBuilder 1400e, Version 3 offered, as well as other enhancements. These include running on Windows NT 4.0, increased ControlNet™ addressing, an Ethernet®/RIO Pass-Through File Transfer, RSLinx™ communication driver compatibility, and a CD-ROM install.

For a more comprehensive description of each of these features, see "What's New in PanelBuilder 1400e, Version 4" in Chapter 1, "Introducing PanelBuilder."

Registering Your Copy of PanelBuilder 1400e

To register your software, mail the registration card to this address:

Rockwell Software
Software Services
6680 Beta Drive
Mayfield Village, Ohio 44143

or fax the card to (440) 646-7701.

Available Documentation

Your PanelBuilder 1400e software comes with several types of documentation to meet your different needs:

- *Getting Started with PanelBuilder 1400e Configuration Software for Windows* (Publication Number 2711E-818) guides you through setting up PanelBuilder 1400e and introduces you to PanelBuilder 1400e basics. It includes a tutorial to give you hands-on experience in creating and running a sample application.
- The *PanelBuilder 1400e Configuration Software for Windows User Manual* (Publication Number 2711E-819) explains PanelBuilder 1400e in more detail, and provides step-by-step instructions for planning, creating, and working with applications.
- The *PanelBuilder 1400e Screen Objects Reference Manual* (Publication Number 2711E-820) provides detailed reference information for application screen objects.

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- The *PanelBuilder 1200/1400e Transfer Utility User Manual* (Publication Number 2711E-6.8) provides detailed instructions for transferring application files using the Transfer Utility that comes with PanelBuilder 1400e, Version 4.
- Context-sensitive Help provides a quick reference for any procedures or commands you need explained, or problems you may encounter. To get help, press F1 or choose the Help button if you're in a dialog box.
- The *PanelBuilder 1400e Readme* file is a Microsoft Windows Notepad file that is copied to your hard disk when you install PanelBuilder 1400e. The *Readme* file informs you of any software changes after the manuals were printed.
- The *PanelView 1000e, 1200e, and 1400e Operator Terminals User Manual* (Publication Number 2711E-821) describes how to install, configure, maintain, and troubleshoot the PanelView terminal.
- The *PanelBuilder 1400e Modbus User Manual* (Publication Number 2711E-6.12) describes how to create PanelBuilder applications for the Modbus communications network. This manual is supplied as part of the optional Modbus Communications Kit, Catalog Number 2711E-UMOD.

A complete list of publications relating to PanelBuilder 1400e, PanelView terminals, and programmable logic controllers (PLCs) is available in the preface of the *PanelBuilder 1400e User Manual.*

What's in *Getting Started*?

Getting Started introduces basic concepts for working with PanelBuilder 1400e Configuration Software for Windows. This manual is divided into two parts. The first part introduces you to PanelBuilder 1400e and explains the basics for working with it. The second part contains a tutorial that guides you through enhancing an existing application, and running it on the PanelView terminal.

Preface

An overview of this manual, and lists of prerequisites, documentation conventions, and related publications.

Chapter 1, Introducing PanelBuilder 1400e

An introduction to what PanelBuilder 1400e is, what it does, and how it works with PanelView terminals and the PLC.

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Chapter 2, Setting Up PanelBuilder 1400e

Step-by-step instructions for installing and starting PanelBuilder 1400e.

Chapter 3, A Brief Tour of PanelBuilder 1400e

An overview of the PanelBuilder 1400e development environment, components, and key concepts.

Chapters 4 to 9, The Tutorial

The tutorial is a task-oriented guide to enhancing and running a sample application. Chapter 4 provides a tour of the sample application: what it is, what it does, and how you'll enhance the application. Chapters 5 through 8 provide step-by-step instructions for adding objects and messages. Chapter 9 tells you how to download and run the application.

Who Should Read *Getting Started*?

Getting Started provides a comprehensive overview of PanelBuilder 1400e basics. Depending on your needs and previous knowledge, certain sections may be more useful to you than others.

If this describes you	Read this
Unfamiliar with both PanelBuilder 1400e and Windows	*Getting Started*, Chapters 1 to 3 Windows user documentation
Familiar with PanelBuilder 1400e and want to know new features of PanelBuilder 1400e, Version 4	*Getting Started,* Chapter 1
Want to know how to install PanelBuilder 1400e	*Getting Started*, Chapter 2
Want step-by-step guidelines to working in PanelBuilder 1400e	*Getting Started*, Chapters 4 to 9
Want to know how a PanelBuilder 1400e application runs in a PanelView terminal	*Getting Started*, Chapter 9*

*You can run the tutorial application without having to create it first.

Users who are not familiar with Microsoft Windows should read the *Microsoft Windows User's Guide* (for users of Windows 3.1), *Introducing Microsoft Windows 95* (for users of Windows 95), or *Introducing Microsoft Windows NT Workstation* (for users of Windows NT).

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Terminology

The term *PanelBuilder* refers to PanelBuilder 1400e Configuration Software for Windows. Where confusion may arise between the current and previous versions of the software, the current release of the software is “PanelBuilder 1400e, Version 4.”

Similarly, the terms *terminal* and *PanelView terminal* refer to a PanelView 1000e, 1200e, or 1400e terminal, or enhanced PanelView 1200 Series F and G terminals. Where confusion may arise between the 1200e and 1400e terminals and previous revisions, specific series and revision names are used.

The terms *programmable controller* and *PLC* refer to the Allen-Bradley line of Programmable Logic Controllers or any other controlling device.

Conventions Used

Information is provided in a consistent way throughout the entire PanelBuilder user documentation set. There are mouse selection, shortcut key, and command conventions. Unless otherwise stated, all dialog boxes and windows are captured in Windows NT.

Mouse Conventions

You can use a mouse with one or two buttons. This manual assumes that if you have a multiple-button mouse, the left mouse button is configured as the primary mouse button. Procedures that require you to click a secondary button refer to it as the right mouse button.

Selection Conventions

This word or phrase	Means
Choose	Carry out a menu command or a command button in a dialog box or Help window. Choose also means to double-click an icon.
Choose OK	Either click the OK button with the mouse or press ENTER on the keyboard to carry out the action.
Select	Either highlight the piece of text you want your next action to affect, or select a specific dialog box option.
Click	Position the mouse pointer on the object, area, or field, and click the left button once.
Double-click	Position the mouse pointer on the object, area, or field, and click twice quickly.

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Selection Conventions in Dialog Boxes

Dialog boxes contain standard Windows fields that require different selection conventions. Refer to your Windows user documentation for information on the selection conventions.

The following shortcut keys allow you to complete dialog boxes faster:

This key or key combination	Does this
TAB	Moves the cursor to the next field, option, or command button.
SHIFT+TAB	Moves the cursor to the previous field, option, or command button.
ALT+underlined letter	Selects an option, or displays a drop-down list.
ALT+↓	Displays a drop-down list.
SPACEBAR	Turns check boxes on or off.

Key Conventions

This key combination	Means
KEY1+KEY2	Press and hold the first key while you press the second key. For example, press “CTRL+A” means to press the CTRL key, and while pressing it, press the A key. Then release both keys.
SHIFT-click	Press and hold the SHIFT key while you click an object with the mouse pointer.

Command Conventions

Use any of the following three methods to carry out commands. Instructions in this manual don’t always outline each method.

- choose a menu command
- choose an icon on the toolbar
- use a key combination

For example:

Use any of these commands to open an application
Choose Open Application from the File menu.
Click  from the toolbar.
Press CTRL+O.

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Before You Begin

Before you begin, you should already have installed and know how to operate this equipment and software:

- a personal computer with at least a 486, 25-MHz microprocessor; at least 8 MB Random Access Memory (RAM) (16 MB RAM recommended); and a SVGA monitor with 256 colors (recommended). For users working with imported .dxf files, at least 16 MB RAM is required.

  Note: Windows 3.1 and 95 require a minimum of 8 MB RAM although 16 MB are highly recommended. Windows NT requires a minimum of 32 MB RAM to run successfully.

  If you want to resize graphic images in PanelBuilder, set your display adapter to 65,536 colors.

- Microsoft Windows 3.1 operating system or later, Windows 95, or Windows NT
- the family of PLCs you'll be monitoring and controlling

Technical Support Services

If you have questions about PanelBuilder, please consult the manuals or Help first. If you can't find the answer, take advantage of our Technical Support Fax Back system, available 24 hours a day, 7 days a week at 1-440-646-5436, or browse through our technical support document library at **http://www.ab.com/mem/prodserv/services/technotes/techmain.html** on the World Wide Web.

Alternatively, contact:

Allen-Bradley
Technical Support
1 Allen Bradley Drive
Mayfield Heights, Ohio 44124-6118

or call 1-440-646-6800 or fax 1-440-646-6890 for technical support between 8 AM and 5 PM (EST), Monday to Friday.

Please have the serial number for your software ready when you call, or include it on your fax. You can find this number:

- on the Software Registration card that was shipped with your software
- on the screen that appears when you start PanelBuilder
- in the main Help menu, when you choose "About"

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Introducing PanelBuilder 1400e

This chapter provides an overview of PanelBuilder 1400e. It describes these topics:

- what PanelBuilder is
- how PanelBuilder interacts with the PanelView terminal and the PLC
- important new PanelBuilder features

About PanelBuilder 1400e

PanelBuilder 1400e is a software package that runs under Microsoft Windows 3.1 or later, Windows 95, or Windows NT. With PanelBuilder 1400e you create and design control panel applications for PanelView operator terminals.

These control panel applications enable an operator to monitor and control automated plant processes.

PanelBuilder, PanelView Terminals, and the PLC

The relationship between PanelBuilder, the PanelView terminal, and the PLC is as follows:

- **PanelBuilder**—The application is created in PanelBuilder on the personal computer, and downloaded to the PanelView terminal using the Transfer Utility.
- **Programmable Logic Controller**—When communicating over a Remote I/O, Data Highway Plus, or ControlNet network, the PLC can either respond to queries or solicit information from the PanelView terminal and other input or output devices.
- **PanelView terminal**—The PanelView terminal displays the process status information sent from the PLC. This information enables the operator to make decisions about the process. The operator provides input back to the PLC.



Note: The development computer doesn't need to be connected to the PLC or the PanelView terminal to create application files. It must be connected only when you're downloading or uploading the application serially or over the PLC communications network. You can also install the PanelView 1200/1400e Transfer Utility on a portable computer, transfer the application to the portable computer, and then upload or download the application from the portable computer. See the *PanelView 1200/1400e Transfer Utility User Manual* for details.

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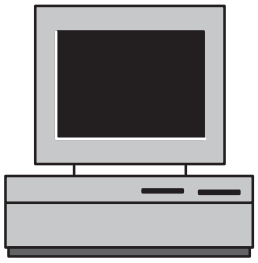
PanelBuilder 1400e

PanelBuilder is the development software package you use to create and configure control panel application screens. Applications developed with PanelBuilder software on a personal computer are downloaded to PanelView terminals where they are run.

PanelBuilder 1400e Software



Development Computer



PanelView Operator Terminals

The following terminals will run PanelBuilder 1400e applications:

- PanelView 1000e terminals, Series A and later, running Version 3 or later firmware
- PanelView 1200 Series F and later terminals that have been enhanced with a PanelView 1200 Enhancement Kit (Catalog Number 2711E-U1B12C), and are running Version 1 or later firmware
- PanelView 1200e terminals, Series A and above, running Version 1 or later firmware
- PanelView 1400e terminals, Series A and above, running Version 1 or later firmware

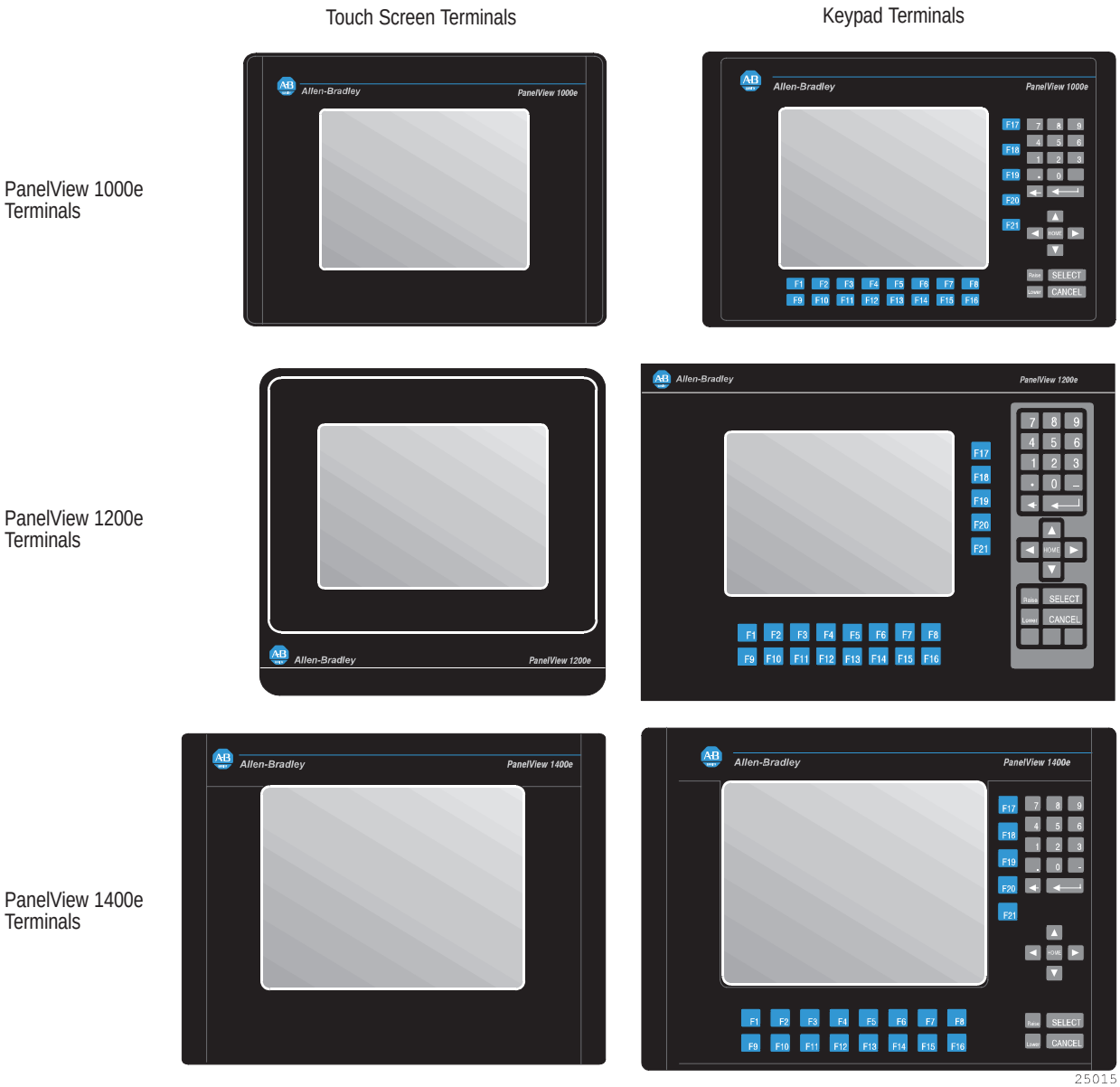
Note: All other PanelView 1200 terminals will run only applications created in PanelBuilder DOS (Catalog Number 2711-ND1) or PanelBuilder 1200 (Catalog Number 2711-ND1W). They will not run PanelBuilder 1400e applications.

Note: To communicate over a ControlNet network, you must use a PanelView 1000e or 1400e terminal that has been upgraded to include an ISA Card Adapter (Catalog Number 2711E-NA1 or 2711E-NA2) and a 1784-KTCX or 1784-KTCX15 card. Or you can use the new PanelView 1400e terminals that support ControlNet communications (Catalog Numbers 2711E-K14C7, 2711E-K14C15, 2711E-T14C7, 2711E-T14C15), or the new PanelView 1000e terminals that support ControlNet communications (Catalog Numbers 2711E-K10C7, 2711E-K10C15, 2711E-T10C7, 2711E-T10C15). These terminals are ready to use with your ControlNet network.

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The application screens created in PanelBuilder appear on the PanelView terminal, replacing traditional hard-wired control panels. The screens provide the physical interface between the PLC and the human operator.

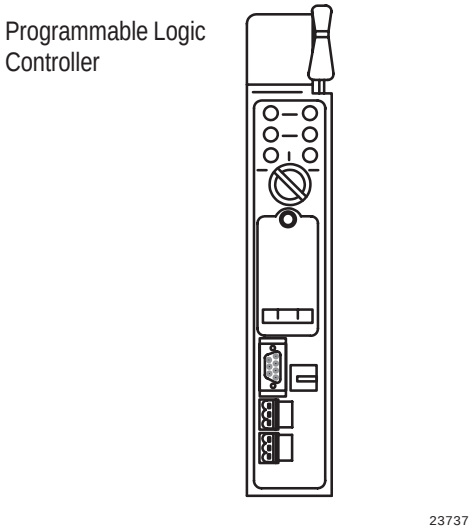
Application screens contain objects that function like control panel components. By using these objects to enter data or carry out commands, the operator can monitor and control the process.



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Programmable Logic Controller

When communicating over a Remote I/O, DH+, or ControlNet network, the PLC can either respond to queries or solicit information from the PanelView terminal and other input or output devices.



The PanelView terminal is connected to a PLC in one of three ways:

- **Remote I/O link**—The PanelView terminal is connected to a single controller. The controller sends process information to the terminal, such as messages, numeric data, or alarms. It also solicits the PanelView terminal for operator input.
- **Data Highway Plus**—The PanelView terminal is connected to a peer-to-peer DH+ network that includes multiple controllers and other devices. The terminal can control and monitor addresses in these devices on the network.
- **ControlNet**—The PanelView terminal is connected to a peer-to-peer ControlNet network. The terminal can control and monitor addresses in these devices on the network.

The PanelView terminal can optionally be connected as a device to a Modbus network. For more information about using PanelView terminals with Modbus, see the *PanelBuilder 1400e Modbus User Manual*, Publication Number 2711E-6.12.

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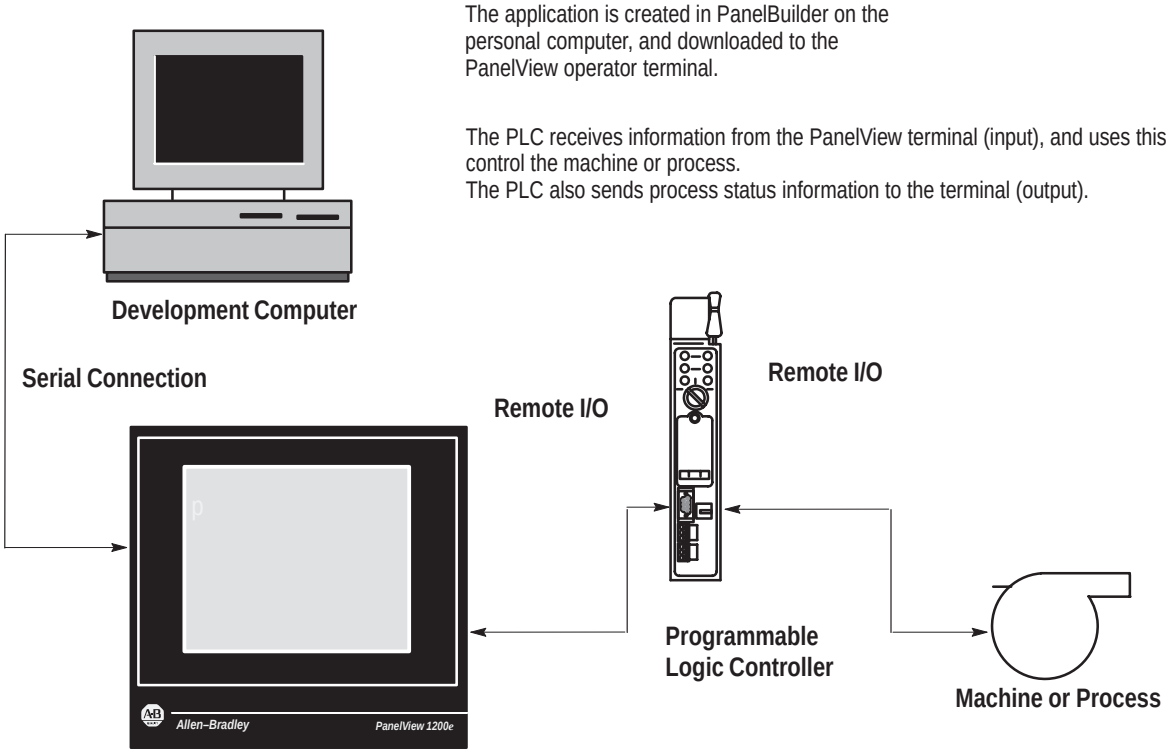
Understanding the Different Network Types

The relationship between the PanelView terminal and the PLC depends on whether the terminal is part of a Remote I/O, Data Highway Plus, or ControlNet network. The following illustration shows the relationship between PanelBuilder, the PanelView terminal, and the PLC.

In this example, the PanelView terminal is connected by **Remote I/O.**

The application is created in PanelBuilder on the personal computer, and downloaded to the PanelView operator terminal.

The PLC receives information from the PanelView terminal (input), and uses this to control the machine or process.
The PLC also sends process status information to the terminal (output).

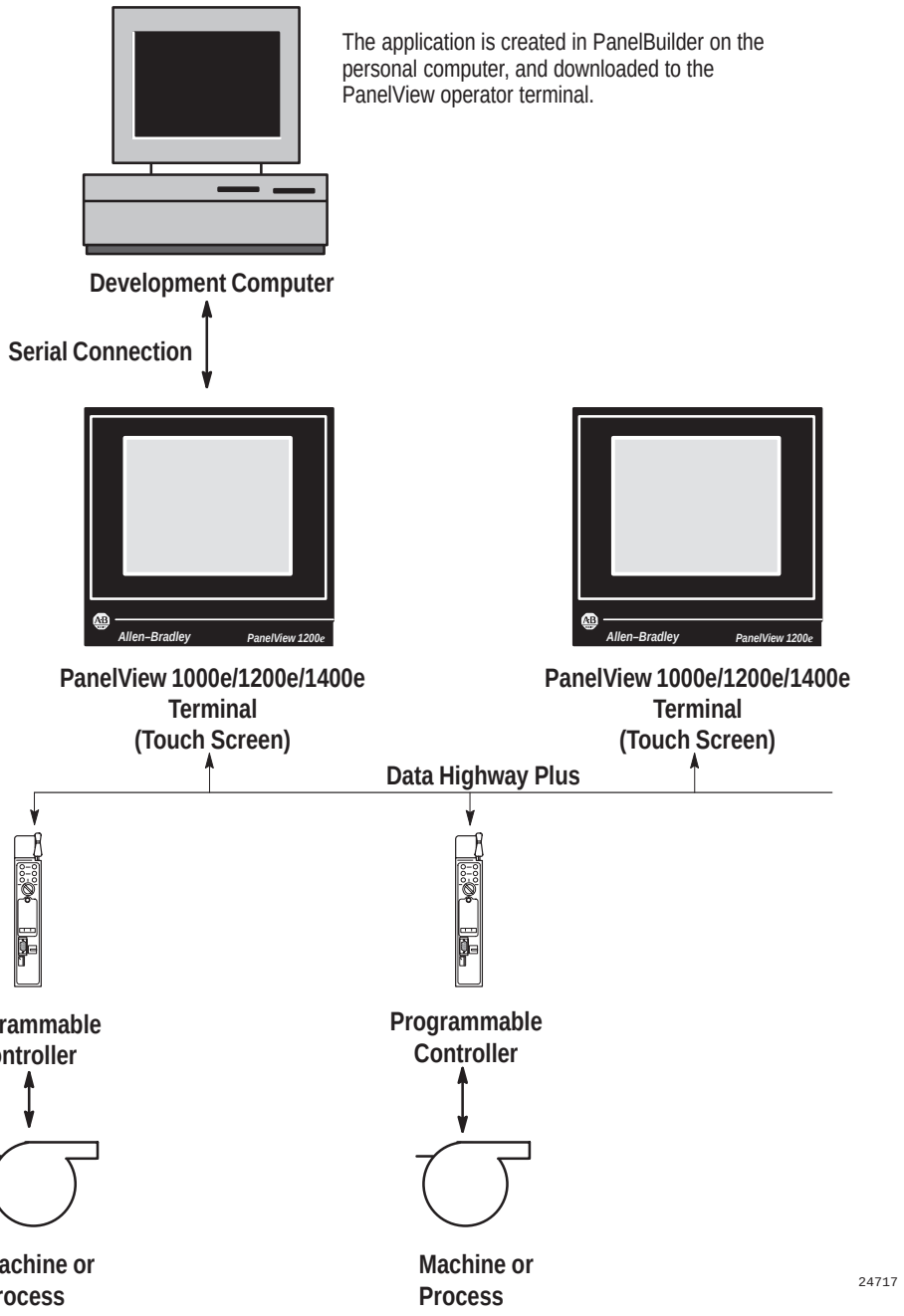


PanelView 1000e/1200e/1400e Terminal (Touch Screen)

Tip: For connection diagrams, see Figures 2.1 through 2.7 in Chapter 2, “Working with the PanelView 1200/1400e Transfer Utility,” in the *PanelView 1200/1400e Transfer Utility User Manual.*

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In the illustration below, the PanelView terminals are connected over **Data Highway Plus**.



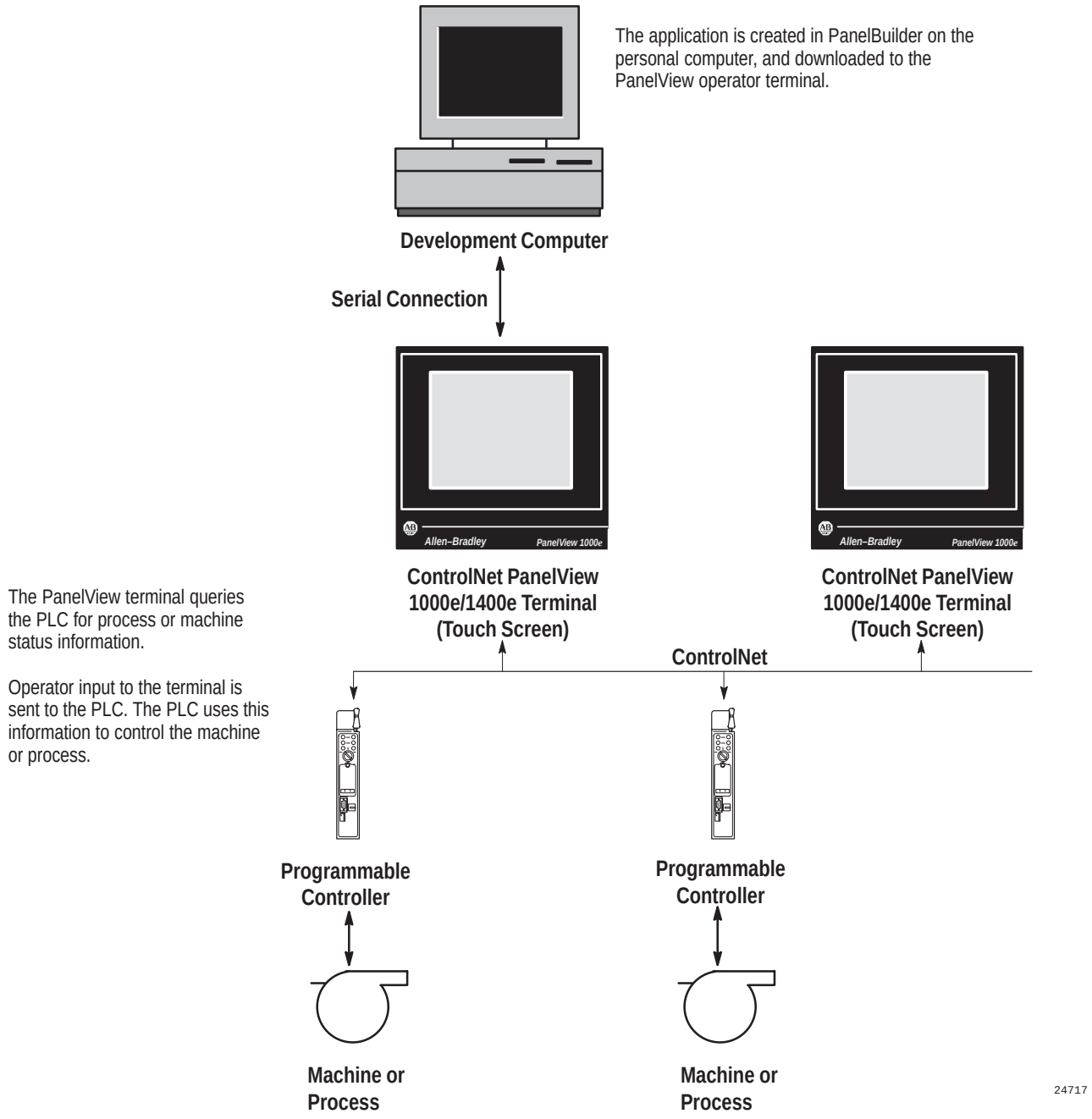
The PanelView terminal queries the PLC for process or machine status information.

Operator input to the terminal is sent to the PLC. The PLC uses this information to control the machine or process.

Tip: For connection diagrams, see Figures 2.1 through 2.7 in Chapter 2, "Working with the PanelView 1200/1400e Transfer Utility," in the *PanelView 1200/1400e Transfer Utility User Manual.*

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In the illustration below, the PanelView terminals are connected by a **ControlNet** network.



Tip: For connection diagrams, see Figures 2.1 through 2.7 in Chapter 2, "Working with the PanelView 1200/1400e Transfer Utility," in the *PanelView 1200/1400e Transfer Utility User Manual.*

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What's New in PanelBuilder 1400e, Version 4

PanelBuilder 1400e, Version 4 provides expanded hardware support to allow you to create applications for a wider variety of environments, terminals, and networks.

Windows NT Compatibility

PanelBuilder 1400e Version 4 has been enhanced to run on a 32-bit operating system, specifically Windows NT 4.0. However, PanelBuilder 1400e, a 16-bit application, may still run on the 16-bit platforms (Windows 3.1 or later, and Windows 95).

ControlNet Station Addressing

With PanelBuilder Version 4, you can now assign station addresses from 1 to 99 on ControlNet. Previously, you could only assign addresses above 63 using the terminal network setup screen at the PanelView terminal.

Ethernet Pass-Through

Network users can now download or upload PanelBuilder 1400e applications over an Ethernet network to a PanelView terminal on a Remote I/O network. With the installation of an Ethernet network card, you can now develop your PanelBuilder applications program on a PC connected to an Ethernet network, and then download or upload the applications to your PanelView terminals operating on a Remote I/O network.

The Ethernet network card utilizes the PLC-5 (Enhanced) as a pass-through device, enabling you to download your application to the PanelView terminal.

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CD-ROM Installation

PanelBuilder Version 4 can now be installed from a CD-ROM. This not only reduces the number of disks required, but simplifies the installation of PanelBuilder 1400e. However, for those who want disk sets, you can create disks from the CD-ROM, or FAX or mail the enclosed FAX Back Form to receive the requested package of disks.

See the Readme file titled Floppies.txt in the root directory of the PanelBuilder 1400e Installation CD for instructions on how to create disks from the CD-ROM.

RSLinx Communication Drivers

PanelBuilder 1400e Version 4 will include RSLinx communication drivers for application file transfers on Windows NT and Windows 95. INTERCHANGE and WINLinx will still be available for Windows 3.1 or later, and Windows 95, if desired.

Contact your local A-B Sales office or local distributor to purchase INTERCHANGE or WINLinx communication drivers.

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Chapter 2

Setting Up PanelBuilder 1400e

This chapter covers these topics:

- hardware and software you need to run PanelBuilder
- installing PanelBuilder
- starting PanelBuilder for the first time

Requirements for Running PanelBuilder

For installing and running PanelBuilder, the minimum system requirements are:

- a personal computer (PC) with at least a 486, 25-MHz microprocessor; at least 8 MB Random Access Memory (RAM) for Windows 3.1; at least 16 MB RAM for Windows 95; at least 32 MB RAM for Windows NT 4.0; and a SVGA monitor with 256 colors (recommended). For users working with imported .dxf files, at least 16 MB RAM is required.
- a permanent swap file.

  Note: For Windows 3.1, the sum of RAM and swap space should equal at least 16 MB. In the case of a PC with 8 MB RAM, for example, you would need a swap file of at least 8 MB. For Windows 95, a swap file of 32 MB is required. For Windows NT, your swap file should equal the recommended amount in the Total Paging File Size for all Drives dialog box under Virtual Memory/System Properties. For details on configuring the swap file, see your applicable *Microsoft Windows User's Guide.*

- hard disk with 25 MB of free disk space (for installing)
- CD-ROM drive (or access to a CD-ROM drive for easy installation)
- 3.5 inch high-density (1.44 MB) disk drive
- standard VGA (640 by 480) display adapter with at least 256 simultaneous colors (SVGA resolution of 800 by 600 or higher is recommended)

  If you want to resize graphic images in PanelBuilder, set your display adapter to 65,536 colors.

- a mouse supported by Windows
- Microsoft Windows Version 3.1 or later, Windows 95, or Windows NT 4.0
- Microsoft MS-DOS® Version 3.3 or later (Version 5 or later recommended)

Your system must be compatible with Windows. See your applicable *Microsoft Windows User's Guide* for specifications.

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Application File Transfer Equipment

One or more of the following equipment is needed for transferring applications:

- an RS-232 serial port for uploading or downloading applications with an Allen-Bradley upload/download cable
- a Data Highway Plus network card and connection (KT, KTX, KF)
- a ControlNet network card and connection (1784-KTCX, KTCX15)

For more information about the use of this optional equipment, see the *PanelView 1200/1400e Transfer Utility User Manual* and the *PanelView 1000e, 1200e, and 1400e Operator Terminals User Manual.*

PanelView Terminal Requirements for Running PanelBuilder 1400e Applications

You can run applications created in PanelBuilder 1400e, Version 4, on the following PanelView terminals:

- PanelView 1000e terminals, Series A and later, running Version 3 or later firmware
- PanelView 1200 Series F or later color terminals that have been enhanced with PanelView 1200 Enhancement Kits (Catalog Number 2711E-U1B12C), and are running Version 1 or later firmware
- PanelView 1200e Series A or later terminals, running Version 1 or later firmware
- PanelView 1400e Series A or later terminals, running Version 1 or later firmware



Note: All other PanelView 1200 terminals will run only applications created in PanelBuilder DOS (Catalog Number 2711-ND1) or PanelBuilder 1200 (Catalog Number 2711-ND1W). They will not run PanelBuilder 1400e applications.

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Note: To communicate over a ControlNet network, you must use a PanelView 1000e, 1200e, or 1400e terminal that has been upgraded to include an ISA Card Adapter (Catalog Number 2711E-NA1 or 2711E-NA2) and a 1784-KTCX or 1784-KTCX15 card. Or you can use the new PanelView 1400e terminals that support ControlNet communications (Catalog Numbers 2711E-K14C7, 2711E-K14C15, 2711E-T14C7, 2711E-T14C15), or the new PanelView 1000e terminals that support ControlNet communications (Catalog Numbers 2711E-K10C7, 2711E-K10C15, 2711E-T10C7, and 2711E-T10C15). These terminals are ready to use with your ControlNet network.

CD-ROM Install

PanelBuilder 1400e is offered in the CD-ROM format. The PanelBuilder 1400e CD contains these software applications: PanelBuilder 1400e, PanelView 1200/1400e Transfer Utility, and the Serial Firmware Upgrade Utility. RSLinx Lite software on 3.5-inch floppy disks is also included in the PanelBuilder 1400e software kit; when Version 4 is selected as the install version, RSLinx Lite software provides communication drivers for network file transfers.

You can obtain 3.5-inch floppy disks of the software applications by creating them from the PanelBuilder 1400e CD or by sending in the FAX Back form provided with the PanelBuilder 1400e software kit (A-B Catalog Number 2711E-ND1). For instructions on how to create floppy disks of the software from the CD, refer to the file, Floppies.txt, in the root directory of the PanelBuilder 1400e CD. Note that the PanelBuilder 1400e application requires nine floppy disks, the Transfer Utility application requires two floppy disks, and the Serial Firmware Upgrade Utility application requires two floppy disks.

The CD-ROM includes two install versions for the PanelBuilder 1400e software:

- Version 3—This version offers you PanelBuilder 1400e for use with Windows 3.1 or later, or Windows 95. Version 3 supports PanelView application file transfers over networks using INTERCHANGE and WINtelligent LINX software drivers.
- Version 4—This version offers you PanelBuilder 1400e for use with Windows 95 or Windows NT. Version 4 supports PanelView application file transfers over networks using RSLinx software drivers.

If your operating system is Windows 3.1 or later, the CD-ROM will automatically install Version 3. If your operating system is Windows 95, you have the choice of installing Version 3 or Version 4, although Version 4 is recommended. If your operating system is Windows NT, the CD-ROM will automatically install Version 4.

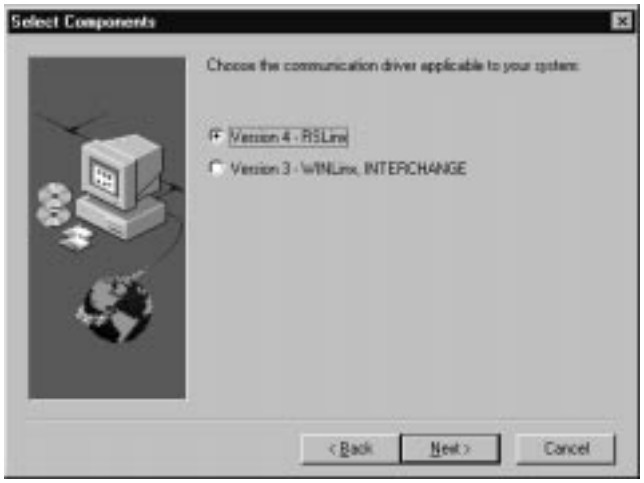
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Installing PanelBuilder 1400e Version 4 from CD-ROM on Windows NT or Windows 95

To install PanelBuilder Version 4:

1. Start Windows NT or Windows 95. If you're already in Windows, close all open Windows applications.
2. Insert the CD-ROM in the drive.

   The CD-ROM begins to run automatically.
3. If the install does not start automatically, choose Run from the Start button and select setup.exe from the CD-ROM drive; or select setup.exe from Windows Explorer.
4. In the Welcome dialog box, choose Next.
5. If you are installing on Windows 95, the Select Components dialog box appears.



The CD-ROM includes two install versions for the PanelBuilder 1400e software:

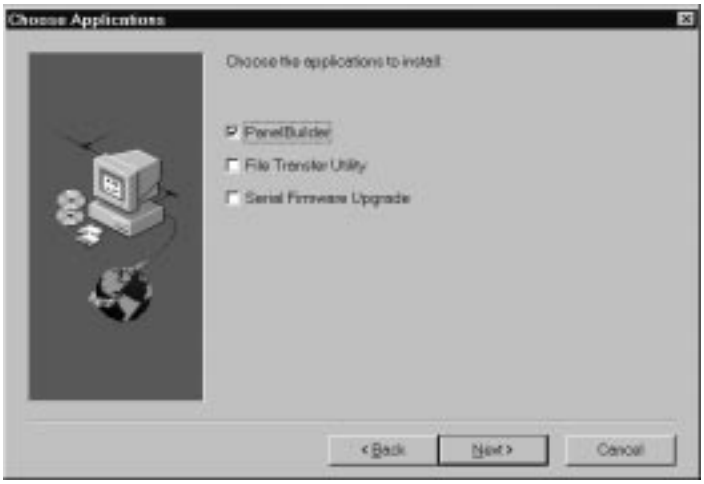
- Version 3—This version offers you PanelBuilder 1400e for use with Windows 3.1 or later, or Windows 95. Version 3 supports PanelView application file transfers over networks using INTERCHANGE and WINtelligent LINX software drivers.
- Version 4—This version offers you PanelBuilder 1400e for use with Windows 95 or Windows NT. Version 4 supports PanelView application file transfers over networks using RSLinx software drivers.

Version 4, for use with Windows 95, is recommended. If you choose Version 3, refer to "Installing PanelBuilder 1400e Version 3 from CD-ROM on Windows 95 or Windows 3.1 or later" in this chapter for instructions. Otherwise, continue by selecting Version 4, and then choose Next.

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If you are installing on Windows NT, the Select Components dialog box does not appear. Version 4 is automatically selected.

6. In the Choose Applications dialog box, choose PanelBuilder as the application you want to install.



You can choose more than one application to install. Choose File Transfer Utility for the ability to transfer application files between a computer and the PanelView terminal. Choose Serial Firmware Upgrade for the ability to upgrade the firmware on your PanelView terminals using your computer.

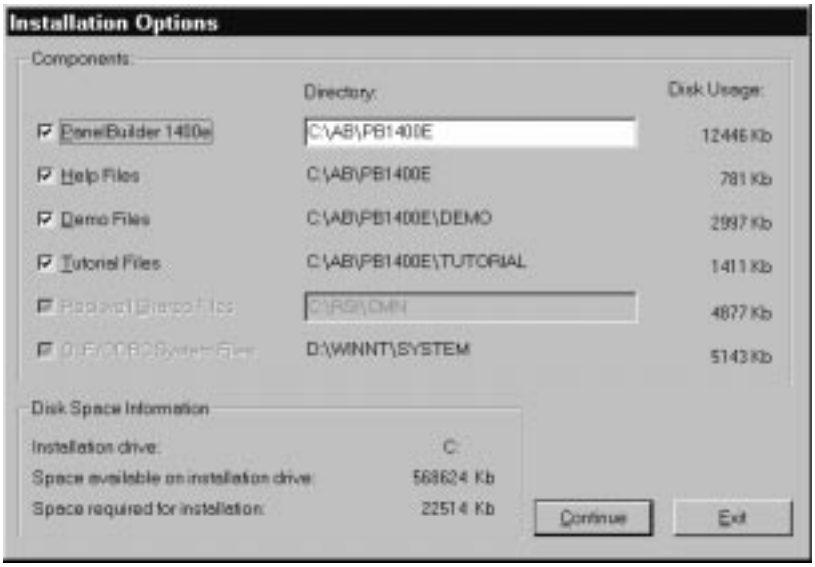
Then choose Next.

7. In the registration window, enter your user name and company name. After you enter the required information, choose Next.
8. In the confirmation window, verify the user information you have entered. Select Yes to proceed, or No to edit the user information.
9. Close all open Windows applications. If you have done so, choose Next.
10. In the registration window, enter registration information about your copy of PanelBuilder 1400e.

    The serial number for your software is on the Software Registration card that was shipped with your software.
11. The Installation Options dialog box lists the program components you are installing and the amount of hard disk space required for each.

    Choose the components you want to install and click Continue.

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You can install any or all of the following options:

- PanelBuilder 1400e
- Help files
- Demo files—These files demonstrate sample PanelBuilder 1400e applications.
- Tutorial files—These files are required for the tutorial outlined in this manual.

The following files are part of the install set and cannot be deselected:

- OLE/ODBC System Files—These files are necessary for running PanelBuilder 1400e.

If disk space is limited, you may want to install only PanelBuilder 1400e. However, if you have enough space, we strongly recommend you also install the Help files.

12. If the C:\RSI\CMN directory already exists, an Installation dialog box appears, indicating the files in the C:\RSI\CMN directory will be updated. Click Yes to continue with the installation.

13. When the files have finished loading, an Installation dialog box appears to confirm completion. Click OK to continue. If you have chosen other applications to install, the next selected application automatically begins to install.

14. After all the applications have completed installing, you will be prompted to reboot your computer. You may reboot immediately or later, but you must reboot before you can run PanelBuilder 1400e or other applications successfully.

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If you choose to install the File Transfer Utility and you want to upload or download PanelView files over the PLC networks, you also need to install RSLinx Lite software, which is provided on 3.5-inch floppy disks. See the documentation provided with RSLinx Lite for installation procedures.

Installing PanelBuilder 1400e Version 3 from CD-ROM on Windows 95 or Windows 3.1 or later

To install PanelBuilder Version 3:

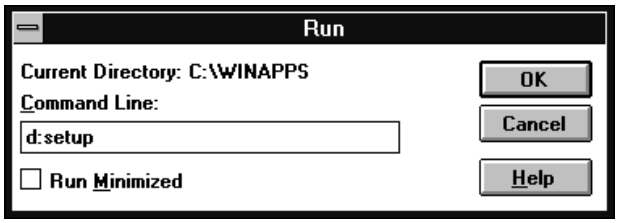
1. Start Windows 95, or 3.1 or later. If you're already in Windows, close all open Windows applications.
2. Insert the CD-ROM in the drive.

   The CD-ROM begins to run automatically.
3. If the install does not start automatically and you are running on Windows 95, choose Run from the Start button, or select setup.exe from Windows Explorer.

   If you are running on Windows 3.1 or later, choose Run from the File menu. In the Run windows, type:

   ```
   d:setup
   ```

   where d is the drive containing the PanelBuilder 1400e CD-ROM, and press Enter.



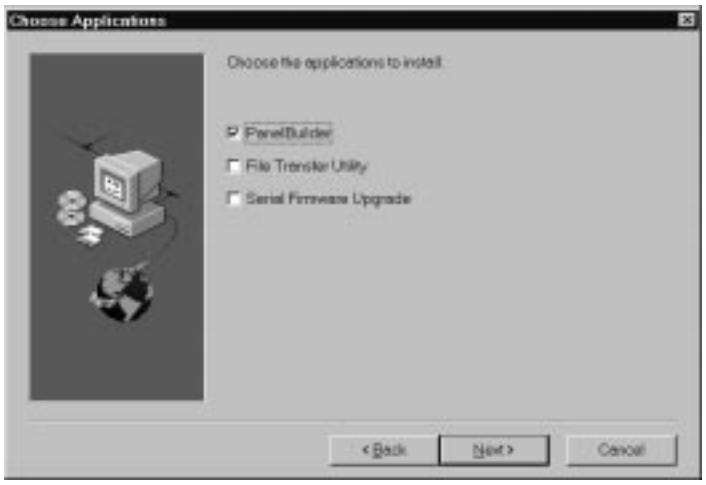
4. In the Welcome dialog box, choose Next.
5. If you are installing on Windows 95, the Select Components dialog box appears. Choose Version 3, and then choose Next.

   If you are installing on Windows 3.1 or later, the Select Components dialog box does not appear. Version 3 is selected automatically.
6. In the Choose Applications dialog box, choose PanelBuilder as the application you want to install.

   You can choose more than one application to install. Choose File Transfer Utility for the ability to transfer application files between a computer and the PanelView terminal. Choose Serial Firmware Upgrade for the ability to upgrade the firmware on your PanelView terminals using your computer.

   Then choose Next.

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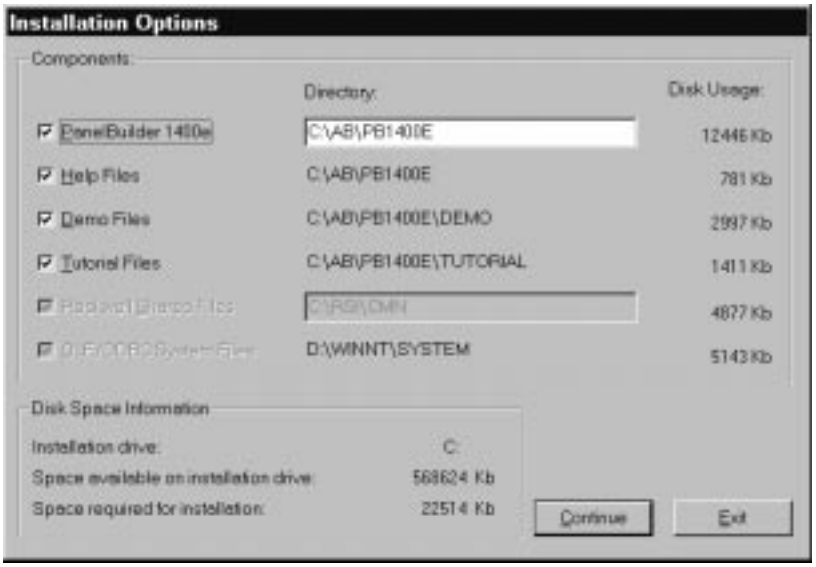


7. In the registration window, enter your user name and company name. After you enter the required information, choose Next.
8. In the confirmation window, verify the user information you have entered. Select Yes to proceed, or No to edit the user information.
9. Close all open Windows applications. If you have done so, choose Next.
10. In the registration window, enter registration information about your copy of PanelBuilder.

    The serial number for your software is on the Software Registration card that was shipped with your software.
11. The Installation Options dialog box lists the program components you are installing and the amount of hard disk space required for each.

    Choose the components you want to install and click Continue.

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You can install any or all of the following options:

- PanelBuilder 1400e
- Help files
- Demo files—These files demonstrate sample PanelBuilder 1400e applications.
- Tutorial files—These files are required for the tutorial outlined in this manual.

The following files are part of the install set and can't be deselected:

- OLE/ODBC System Files—These files are necessary for running PanelBuilder 1400e.

If disk space is limited, you may want to install only PanelBuilder 1400e. However, if you have enough space, we strongly recommend you also install the Help files.

12. If the C:\RSI\CMN directory already exists, an Installation dialog box appears, indicating the files in the C:\RSI\CMN directory will be updated. Click Yes to continue with the installation.

13. When the files have finished loading, an Installation dialog box appears to confirm completion. Click OK to continue. If you have chosen other applications to install, the next selected application automatically begins to install.

14. After all the applications have completed installing, you will be prompted to reboot your computer. You may reboot immediately or later, but you must reboot before you can run PanelBuilder 1400e or other applications successfully.

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If you choose to install the File Transfer Utility and you want to upload or download files over the PLC networks, you also need to install INTERCHANGE or WINtelligent LINX software. If you do not have this software, contact Allen-Bradley Technical Support for assistance.

Installing PanelBuilder 1400e Version 4 from Floppy Disks on Windows NT or Windows 95

You can obtain 3.5-inch floppy disks of the software applications by creating them from the PanelBuilder 1400e CD or by sending in the FAX Back Form provided with the PanelBuilder 1400e software kit (A-B Catalog Number 2711E-ND1). For instructions on how to create floppy disks of the software from the CD, refer to the file, Floppies.txt, in the root directory of the PanelBuilder 1400e CD. Note that the PanelBuilder 1400e application requires nine floppy disks, the Transfer Utility application requires two floppy disks, and the Serial Firmware Upgrade Utility application requires two floppy disks.

To install PanelBuilder Version 4:

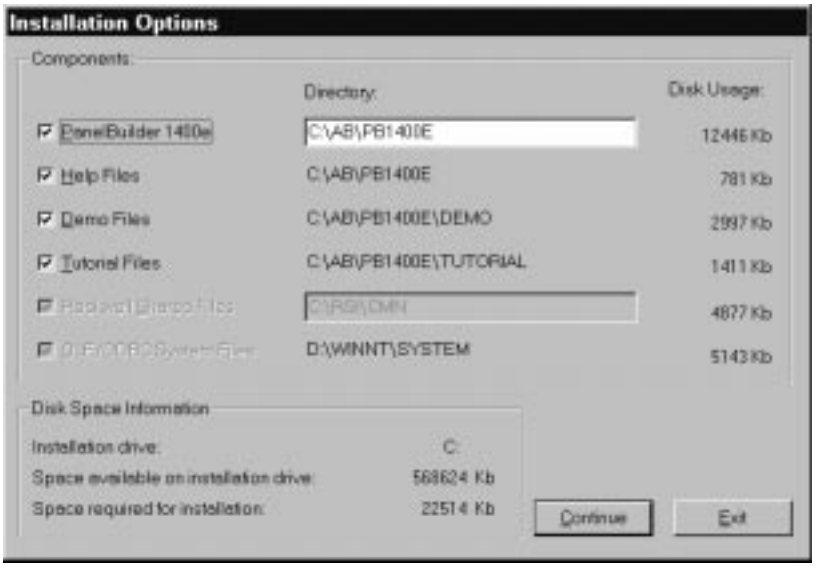
1. Start Windows NT or Windows 95. If you're already in Windows, close all open Windows applications.
2. Insert the floppy disk in the drive.
3. Choose Run from the Start button and enter a:\setup.exe, or select a:\setup.exe from Windows Explorer.

   The installation begins.
4. Close all open Windows applications. If you have done so, choose Next.
5. In the registration window, enter registration information about your copy of PanelBuilder.

   The serial number for your software is on the Software Registration card that was shipped with your software.
6. The Installation Options dialog box lists the program components you are installing and the amount of hard disk space required for each.

   Choose the components you want to install and click Continue.

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You can install any or all of the following options:

- PanelBuilder 1400e
- Help files
- Demo files—These files demonstrate sample PanelBuilder 1400e applications.
- Tutorial files—These files are required for the tutorial outlined in this manual.

The following files are part of the install set and cannot be deselected:

- OLE/ODBC System Files—These files are necessary for running PanelBuilder 1400e.

If disk space is limited, you may want to install only PanelBuilder 1400e. However, if you have enough space, we strongly recommend you also install the Help files.

7. If the C:\RSI\CMN directory already exists, an Installation dialog box appears, indicating the files in the C:\RSI\CMN directory will be updated. Click Yes to continue with the installation.
8. When the files have finished loading, an Installation dialog box appears to confirm completion. Click OK to continue.
9. After the installation is complete, you will be prompted to reboot your computer. You can reboot immediately or later, but you must reboot before you can run PanelBuilder 1400e, or other applications successfully.

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If you want to transfer application files between a computer and the PanelView terminal, you must install the File Transfer Utility. For instructions on how to install this utility, see Chapter 2 in the *PanelView 1200/1400e Transfer Utility User Manual*. If you choose to install the File Transfer Utility and you want to upload or download PanelView files over the PLC networks, you also need to install RSLinx Lite software, which is provided on 3.5-inch floppy disks. See the documentation provided with RSLinx Lite for installation procedures.

If you want to upgrade the firmware on your PanelView terminal using your computer, you must install the Serial Firmware Upgrade Utility. For instructions on how to install this utility, see Appendix D in the *PanelView 1000e, 1200e, and 1400e Operator Terminals User Manual.*

Installing PanelBuilder Version 3 from Floppy Disks on Windows 95 or Windows 3.1 or later

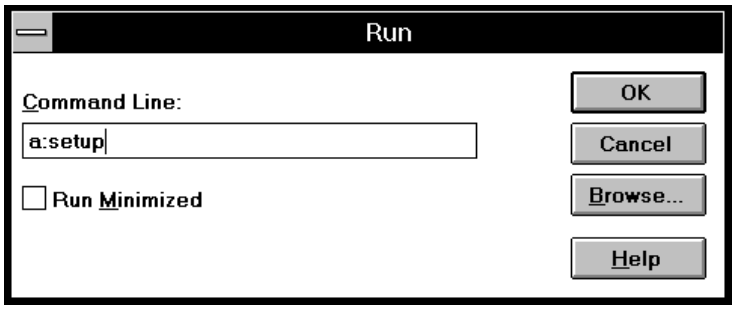
To install PanelBuilder Version 3:

1. Start Windows 95, or 3.1 or later. If you're already in Windows, close all open Windows applications.
2. Insert the floppy disk in the drive.
3. If you are running on Windows 95, choose Run from the Start button and enter a:\setup.exe, or select a:\setup.exe from Windows Explorer.

   If you are running on Windows 3.1 or later, choose Run from the File menu. In the Run windows, type:

   `a:setup` or **`b:setup`**

   where a or b is the drive containing the PanelBuilder disk, and press Enter.



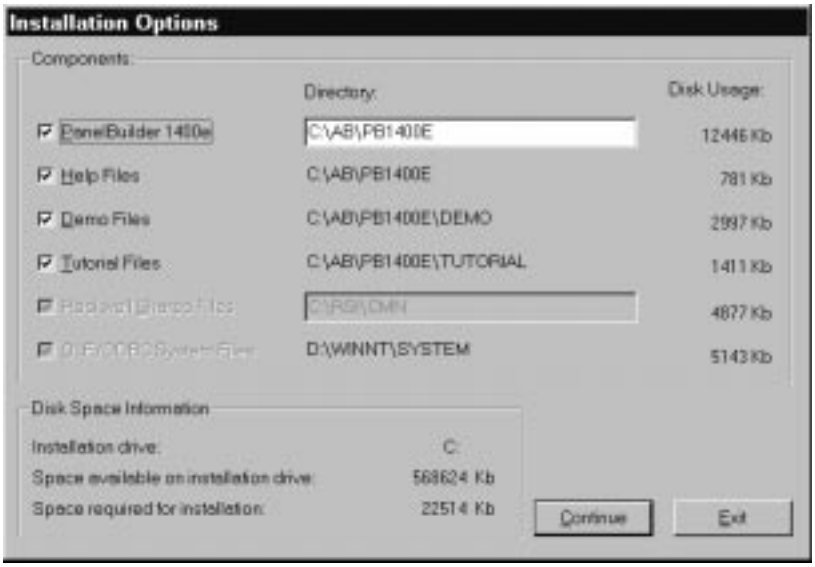
4. Close all open Windows applications. If you have done so, choose Next.
5. In the registration window, enter registration information about your copy of PanelBuilder.

   The serial number for your software is on the Software Registration card that was shipped with your software.

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6. The Installation Options dialog box lists the program components you are installing and the amount of hard disk space required for each.

   Choose the components you want to install and click Continue.



   You can install any or all of the following options:

   - PanelBuilder 1400e
   - Help files
   - Demo files—These files demonstrate sample PanelBuilder 1400e applications.
   - Tutorial files—These files are required for the tutorial outlined in this manual.

   The following files are part of the install set and can't be deselected:

   - OLE/ODBC System Files—These files are necessary for running PanelBuilder 1400e.

   If disk space is limited, you may want to install only PanelBuilder 1400e. However, if you have enough space, we strongly recommend you also install the Help files.

7. Change the destination drive and directory, if desired. By default, this is C:\AB\PB1400E. To change the destination drive or directory, type the new drive and/or directory in the Directory field.

   If the Rockwell shared files have been installed previously, you cannot change their location. If they haven't yet been installed, you can change the default directory.

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8. To proceed with installation, choose Continue. To cancel the installation, choose Exit.
9. If the C:\RSI\CMN directory already exists, an Installation dialog box appears, indicating the files in the C:\RSI\CMN directory will be updated. Click Yes to begin the installation.
10. Follow the setup instructions as they appear on the screen.

    To complete the setup, enter any required information and insert disks when prompted. Continue this procedure until you have installed all disks.
11. After the installation is complete, you will be prompted to reboot your computer. You can reboot immediately or later, but you must reboot before you can run PanelBuilder 1400e successfully.

    If you want to transfer application files between a computer and the PanelView terminal, you must install the File Transfer Utility. For instructions on how to install this utility, see Chapter 2 in the *PanelView 1200/1400e Transfer Utility User Manual*. If you choose to install the File Transfer Utility and you want to upload or download PanelView files over the PLC networks, you also need to install INTERCHANGE or WINtelligent LINX software. If you do not have this software, contact Allen-Bradley Technical Support for assistance.

    If you want to upgrade the firmware on your PanelView terminal using your computer, you must install the Serial Firmware Upgrade Utility. For instructions on how to install this utility, see Appendix D in the *PanelView 1000e, 1200e, and 1400e Operator Terminals User Manual.*

Accessing the PanelBuilder 1400e Readme File

The PanelBuilder 1400e program group also contains a Readme file. This file contains version-specific information, PanelView file migration notes, and system installation and software registration information. We recommend you read this file *before* proceeding. You can also print the file.

To read the file:

▶ Choose the Readme icon.

The README.TXT file appears on your screen.

To print the file:

1. Choose the Readme icon.
2. Choose Print from the File menu.

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Starting PanelBuilder

If you installed PanelBuilder with Windows NT or Windows 95, the setup program automatically creates a PanelBuilder 1400e program folder, containing the PanelBuilder program, which is automatically added to the items on the Start menu.

If you installed PanelBuilder with Windows 3.1 or later, the setup process automatically creates and places the PanelBuilder 1400e program group and icon in the Program Manager.

To start PanelBuilder from Windows NT or Windows 95:

1. Choose the Start button.
2. Choose Programs, then choose the PanelBuilder 1400e folder.
3. Choose PanelBuilder 1400e.

   The PanelBuilder 1400e Window appears on your screen. You are ready to begin working in PanelBuilder 1400e.

   If you have problems running PanelBuilder 1400e and you have had previous versions of PanelBuilder 1400e on your computer, we recommend you select “Uninstall PanelBuilder 1400e” in the PanelBuilder 1400e folder. The “Uninstall PanelBuilder 1400e” program deletes any of the shared files and windows system file conflicts that may exist from earlier installations. You will then have to reinstall the PanelBuilder 1400e software. If problems still exist, contact Allen-Bradley Technical Support. For information about obtaining Technical Support, see the *Preface* in this manual.

To start PanelBuilder from Windows 3.1 or later:

- Double-click the PanelBuilder 1400e icon.

  The PanelBuilder 1400e Window appears on your screen. You are ready to begin working in PanelBuilder.

  If you have problems running PanelBuilder 1400e, check the Readme.txt file for potential system conflicts, and contact Allen-Bradley Technical Support. For Technical Support information, see the *Preface* in this manual.

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A Brief Tour of PanelBuilder 1400e

This chapter introduces you to the basics of PanelBuilder 1400e. It informs you about these topics:

- creating and opening PanelBuilder 1400e applications
- key concepts to help you understand how PanelBuilder 1400e works
- PanelBuilder 1400e components and how to use them

This chapter does not provide a detailed discussion of how the Windows operating system works. If you are unfamiliar with Windows, refer to your Windows documentation first.

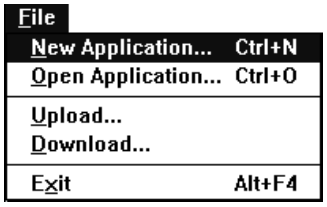
Tip: Create a new application, or open a demo or tutorial application, as described in the next two sections. Follow along and learn about the program as you read the rest of this chapter.

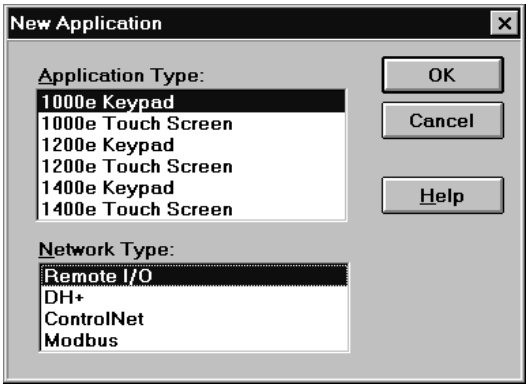
Creating a New Application

To create a new application:

1. Choose New Application from the File menu or  from the toolbar. Or, press CTRL+N.

   The New Application dialog box appears, where you must specify the type of application you are creating.





2. Select the type of terminal the application will be running on. Select Remote I/O, DH+, ControlNet, or Modbus as the network type.

   Note: For information about creating a PanelBuilder application for Modbus communications, see the *PanelBuilder 1400e Modbus User Manual*, Publication Number 2711E-6.12.

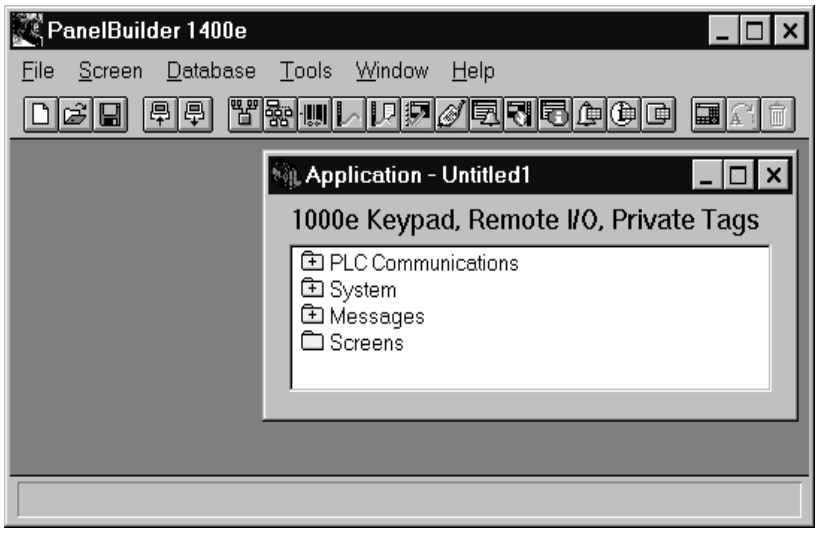
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Important: You cannot convert a keypad application to a touch screen application, or vice-versa. However, you can switch between 1000e, 1200e, and 1400e application types, and you can change the application's network type.

Tip: You can copy display objects between applications for different terminal types to reduce the amount of time required to create a keypad application from an existing touch screen application, or vice-versa. See the *PanelBuilder 1400e Configuration Software for Windows User Manual* for details.

3. Choose OK.

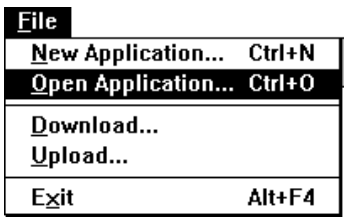
   The Application Window opens inside the PanelBuilder 1400e Window.



Opening Applications

If you have existing PanelBuilder 1400e, PanelBuilder for DOS, or PanelBuilder 1200 applications, you can open them. For information about opening applications created in other versions of PanelBuilder, see *PanelBuilder 1400e Configuration Software for Windows User Manual*.

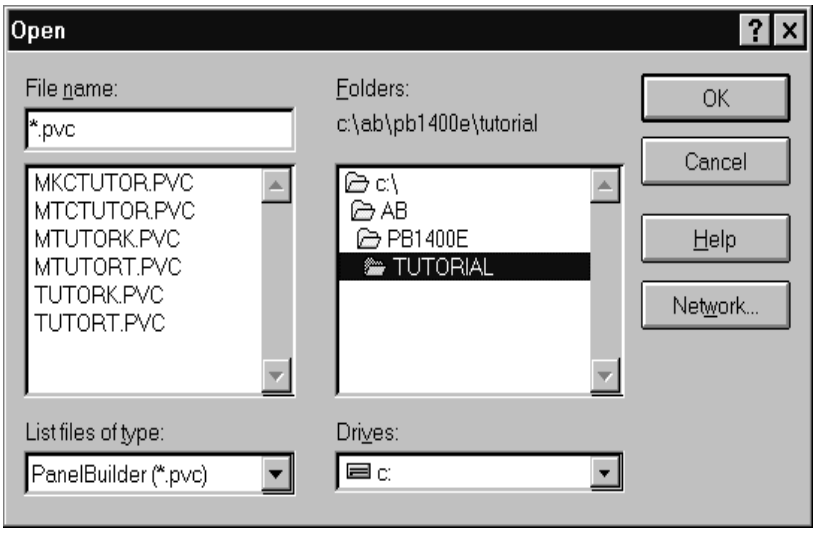
To open an existing application:



1. Choose Open Application from the File menu or  from the toolbar. Or, press CTRL+O.

   The Open dialog box appears. It lists the available applications in the specified drive and directory. If no applications are listed, you may need to change the drive or directory, or list another type of application, for example, a PanelBuilder for DOS .cfg application.

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Tip: To open an existing application so you can follow along as you read this chapter, double-click the PB1400e folder to display the DEMO and TUTORIAL folders, then double-click DEMO or TUTORIAL and select an application.

Note: The TUTORIAL folder contains two Remote I/O applications—one for keypad terminals and one for touch screen terminals as well as four Modbus applications—two for keypad terminals and two for touch screen terminals. The DEMO folder contains two Data Highway Plus applications—one for keypad and one for touch screen terminals.

2. Select the application you want to open.
3. Choose OK.

   If your system doesn't have enough memory to run the application, the following message appears:

   "PanelBuilder 1400e has detected low memory resources"

   You must quit one or more currently open software applications, or currently open applications in PanelBuilder 1400e, before you can open another PanelBuilder 1400e application.

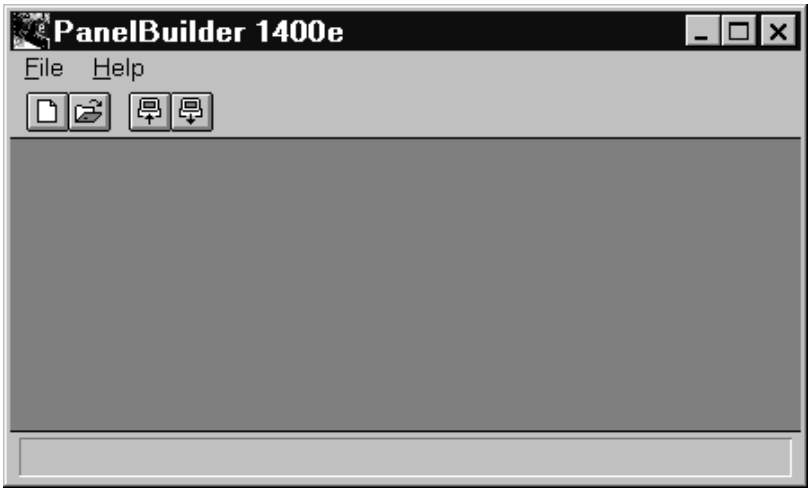
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Key Concepts

To understand how PanelBuilder 1400e works, you need to know the following concepts.

PanelBuilder 1400e Window

The PanelBuilder 1400e Window is the first window that appears when you start PanelBuilder 1400e. In it you create and configure applications.



Application

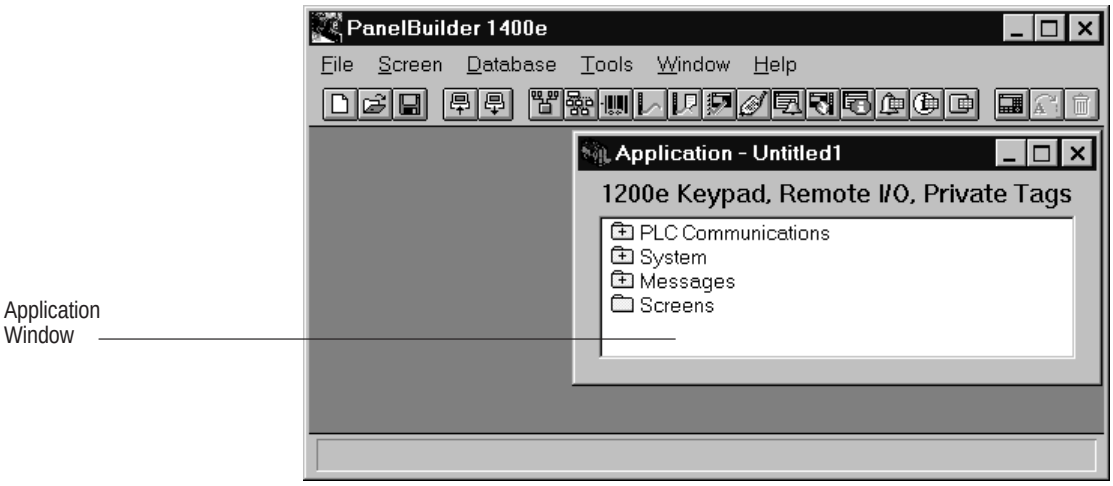
An application is a file that you create and configure in PanelBuilder 1400e. You download the completed application to a PanelView terminal, where it appears as a set of screens and screen components. The operator uses these components to monitor and control the operations of an automated process or machine.

For a detailed example of a photocopying application, see the tutorial beginning in Chapter 4 of this manual.

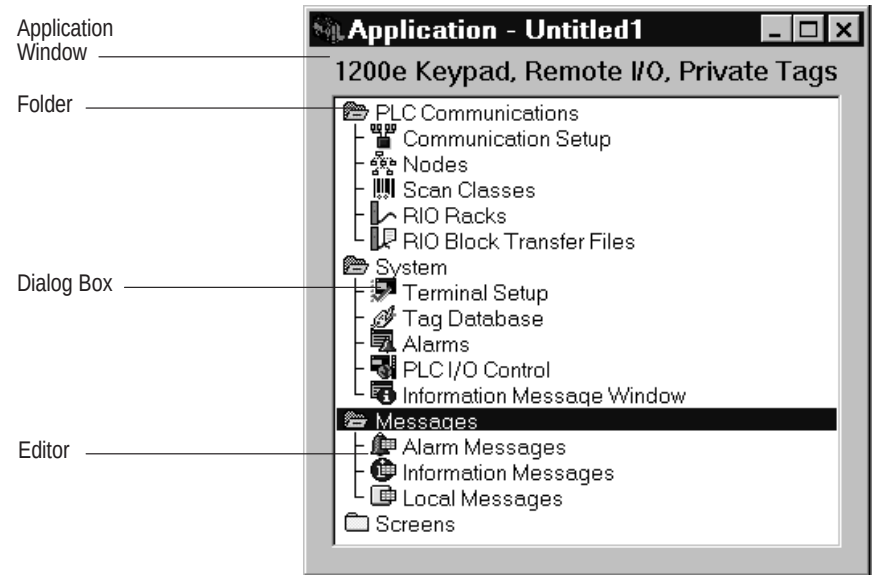
Application Window

Each application has its own window that appears within the PanelBuilder 1400e Window. This window is called the Application Window. Through it you can access all the components that make up a single application.

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The Application Window contains all the dialog boxes and editors you will use to build and configure the application. These are contained in folders. The application's name is listed in the Application Window title bar, as well as the type of tag database used. In this example, the database is private.



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Folders

The Application Window contains four folders, which contain groupings of editors or dialog boxes.

This folder	Contains
PLC Communications	Dialog boxes and editors for configuring communications with the PLC. This includes setting up nodes and scan classes for Data Highway Plus, ControlNet, and Modbus applications, and configuring racks and block transfer files for Remote I/O applications.
System	Dialog boxes and editors for configuring the terminal, tag database, alarms, PLC I/O Control options, and the Information Message Window.
Messages	Editors for creating information, local, and alarm messages.
Screens	Application screens developed with PanelBuilder 1400e software. There are no screens in a new application.

Dialog Boxes

Dialog boxes are used to configure specific properties of the application. For example, in the Configure Terminal Setup dialog box, you assign the Application Startup screen and target firmware version for the application and specify timing parameters such as hold times for push buttons. Frequently, dialog boxes are arranged into tabs, according to the type of information. For example, the Configure Terminal Setup dialog box has a General tab, a Timing Parameters tab and, for function-key applications, an Object Setup tab.

Editors

Editors are the tools for creating and configuring the more complex components of an application in PanelBuilder 1400e. For example, in the Tag Database editor you create and edit tags. In the Messages editors you create messages that appear when the application is running. With the Expressions Editor you create expressions to manipulate the display of tag values at the PanelView terminal and reduce the complexity of PLC ladder logic.

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Tag Database

Each application must have a tag database. This database can be specific to that application (private), or common to several applications (shared). The tag database contains tags. Tags are mnemonic representations of numeric addresses on the PLC.

Each tag is assigned an appropriate address location in the programmable controller. In turn, the tags are assigned to objects, I/O control options, and terminal windows. The same tag can be assigned to several objects.

Application Screens

Application screens contain objects the operator uses to monitor and control the process. The application screens you create in PanelBuilder 1400e appear on the PanelView terminal when the application is running.

Alarm Screens

The Alarm History and Alarm Status screens provide information on alarms that occur while the application is running.

Windows

System windows pop up on screens when the application is running, providing information to the operator.

Although there are a number of pre-defined system windows that can appear, the only ones you can configure in PanelBuilder 1400e are the Information Message Window and the Alarm Message Window.

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Screen Objects

Application screens contain objects such as push buttons, bar graphs, or screen selectors. These objects replace the components of traditional control panels. There are several types of objects:

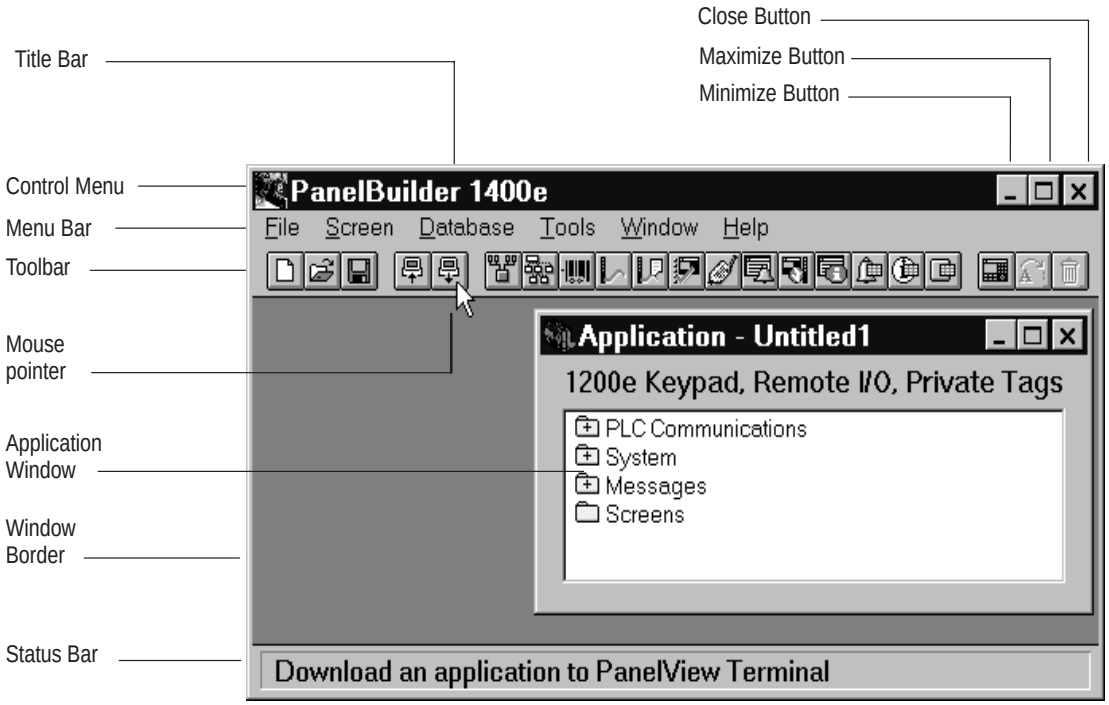
- **Input to programmable logic controller**—Objects such as push buttons allow the operator to send information to the programmable logic controller.
- **Display information from programmable logic controller**—Objects such as bar graphs and multistate indicator objects display information from the programmable logic controller.
- **Screen change objects**—Static objects such as Goto Screen buttons allow the operator to control screen changes at runtime.
- **Drawing objects**—Static objects such as lines, text, and graphic images enhance the appearance of the screen and provide information to the operator.

Objects are created in the application screen editor. You can also import graphic images into the screen editor.

Working in the PanelBuilder 1400e Window

This section explains the features of the PanelBuilder 1400e Window, and shows you how to use basic PanelBuilder 1400e tools.

The following illustration shows the PanelBuilder 1400e Window with an Application Window. All the elements contained in the window are explained in the next table.



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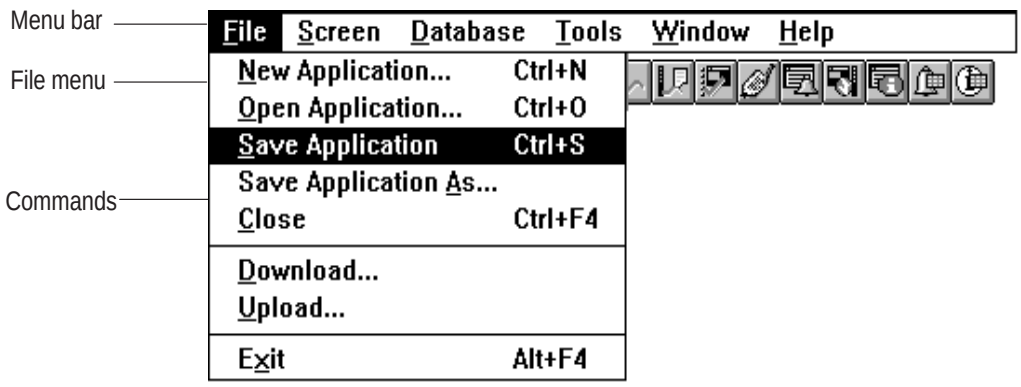
Element	How to use it
Minimize button	To reduce the window to an icon, choose
Maximize button	To enlarge the window to its maximum size, choose
Title bar	To move the window, click and drag the title bar.
Control box	To open the control box menu, click the box or use ALT+SPACEBAR. To close the control box menu, click outside the menu or press ESCAPE. To close the window, double-click the Control box.
Menu bar	To open the menu and see the commands, choose a menu name or use ALT+underlined letter.
Toolbar	To carry out a command, choose an icon.
Application Window	To open folders, double-click them. Then you can launch editors or open dialog boxes.
Mouse pointer or cursor	To select or choose items, use the mouse pointer.
Window Border	To change the window size, click the border and drag it.
Status bar	To see what a menu command or toolbar icon will do, move the cursor over the command or icon and read the description in the status bar. When the Screen editor is active, the status bar also shows the X and Y coordinates for the position of objects and the pointer.
Restore button (not shown in illustration)	Click either arrow to restore the window to mid-size.

You'll find more detailed information on most of these features later in this chapter.

Using the Menu Bar and Toolbar

Each window in PanelBuilder 1400e has a menu bar and toolbar. (Dialog boxes do not have menus and toolbars.)

The menu bar and toolbar let you choose and carry out commands. The menu bar has pull-down menus that contain commands.



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The toolbar consists of icons that carry out commands when you click them. Each icon corresponds to either a menu item or an editor in the Application Window folders.



You will notice that the menu bar changes as you work in different editors within PanelBuilder 1400e.

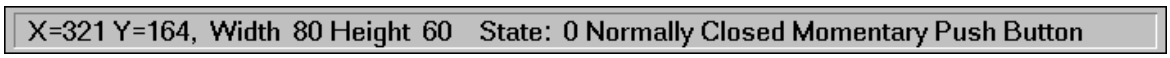
Using the Status Bar

Each window in PanelBuilder 1400e has a status bar. The status bar informs you about PanelBuilder 1400e components, tools, commands, and error messages.

For example, if you position the mouse pointer over the  icon, the following message appears in the status bar.



Or, if you select a screen object in an application screen, the status bar tells you what kind of object you've selected, its position on the screen, height and width, and state.



In the Screen editor, as you move the mouse pointer, the status bar displays the pointer's coordinates on the screen.

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Working in the Application Window

To access the editors in the Application Window, you must open the folders.


Folders that look like this contain components.


Folders that look like this are open.


Folders that look like this are empty.

To open or close a folder, use the following methods:

- double-click the folder
- to open a closed folder, select the folder, then press the + key on the keypad
- to close an open folder, select the folder, then press the – key on the keypad

Starting Editors

You can use two different methods to start an editor.

To start an editor:

- Click the icon of the editor in the toolbar.
- Double-click the editor in the Application Window.

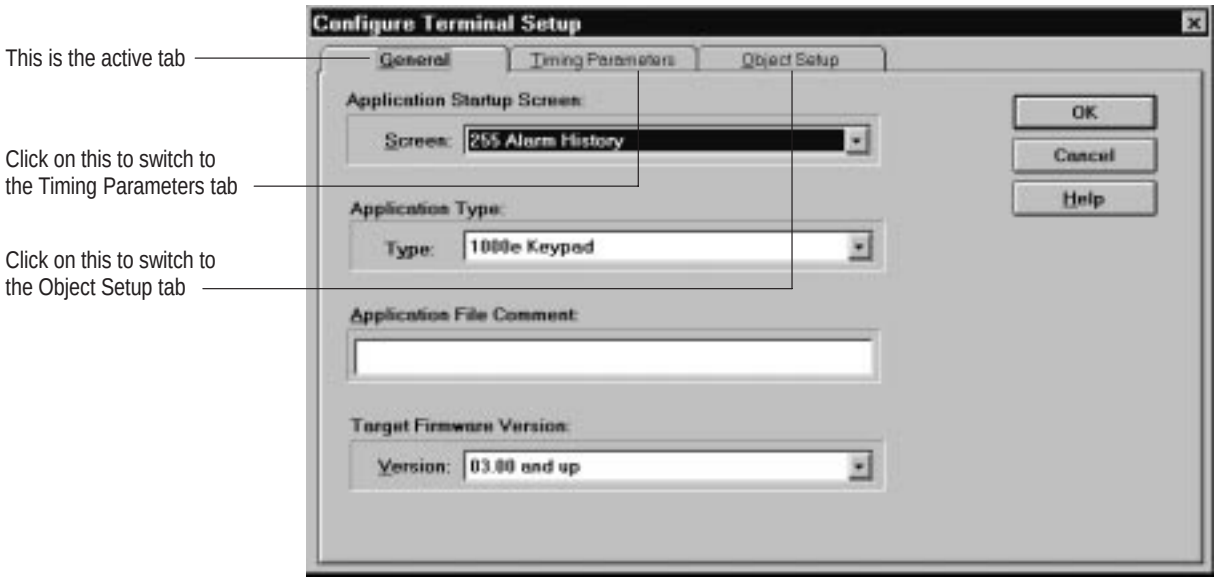
Using Tabs in Dialog Boxes

Some dialog boxes have different categories of options or application properties you can configure. These are organized into tabs. You can select the tab you want to work in, and configure the desired options. Then, if you wish, you can select another tab.

When you choose OK, all the changes to all the tabs in the dialog box are accepted. When you choose Cancel, the dialog box closes. All changes to all tabs are lost.

For example, for a keypad application the Configure Terminal Setup dialog box consists of the General tab, the Timing Parameters tab, and the Object Setup tab.

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In the General tab you can specify the Application Startup screen, select the application type, enter an application file comment, and specify the target firmware version. In the Timing Parameters tab you can specify times for the different timing parameters in the application. In the Object Setup tab, you can set options that determine how some objects behave at the terminal.

To switch between tabs:

- Click on the tab for the parameters you want to configure, or hold down the ALT key, and press the underlined character.

Moving and Resizing Windows

You can move PanelBuilder 1400e windows and dialog boxes anywhere on the screen.

To move a window:

1. Position the mouse pointer on the window's title bar, and press the left mouse button.
2. While holding down the mouse button, drag the window to its new position.
3. Release the mouse button.

Note: You can resize all editor windows, but you cannot resize dialog boxes.

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To resize the window:

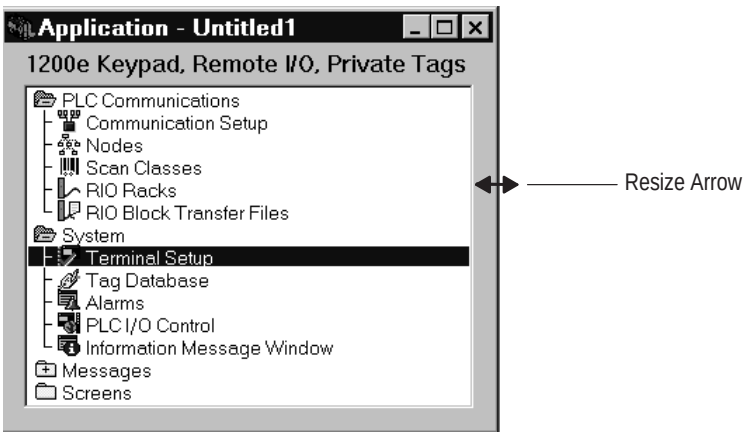
1. Position the pointer over any border or corner of the window.

   The mouse pointer changes to a double arrow.

2. Hold down the mouse button and drag the window to its new size.

3. Release the mouse button.

The following illustration shows the Application Window after it has been resized horizontally.



Working with Multiple Applications, Editors, and Screens

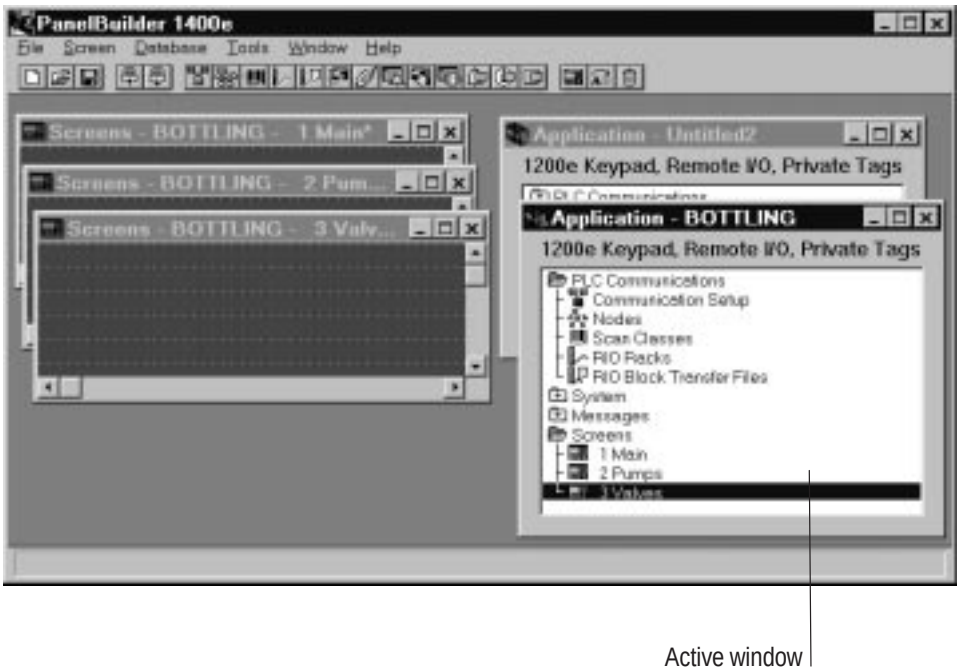
You can have several applications, editors, and screens open at the same time. This is useful if you want to move or copy data from one application or editor to another, or access information in several screens simultaneously.

The Window menu helps you keep track of what is open by listing each open application, editor, and screen.

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Which Window is Active?

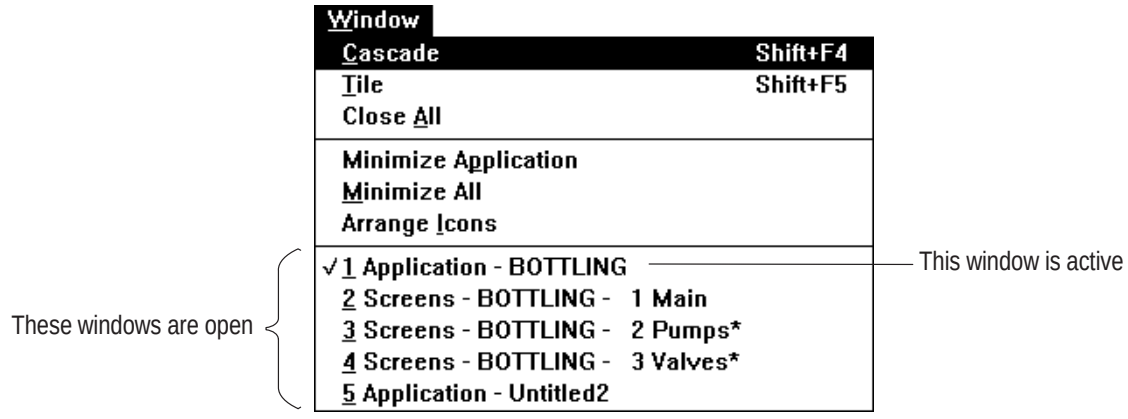
Although you can have multiple windows open, only one window is active at a time. To enable you to identify the active window, the title bar of the active window is highlighted, as the following illustration shows.



To see which window is currently active:

▶ Choose Window in the menu bar.

The Window menu lists all open applications, editors and screens. The active window has a check mark (✓). For example, the following illustration shows that the Application Window for Application – BOTTLING is active. The other windows are also open, but are not active.



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To make another application, editor, or screen active:

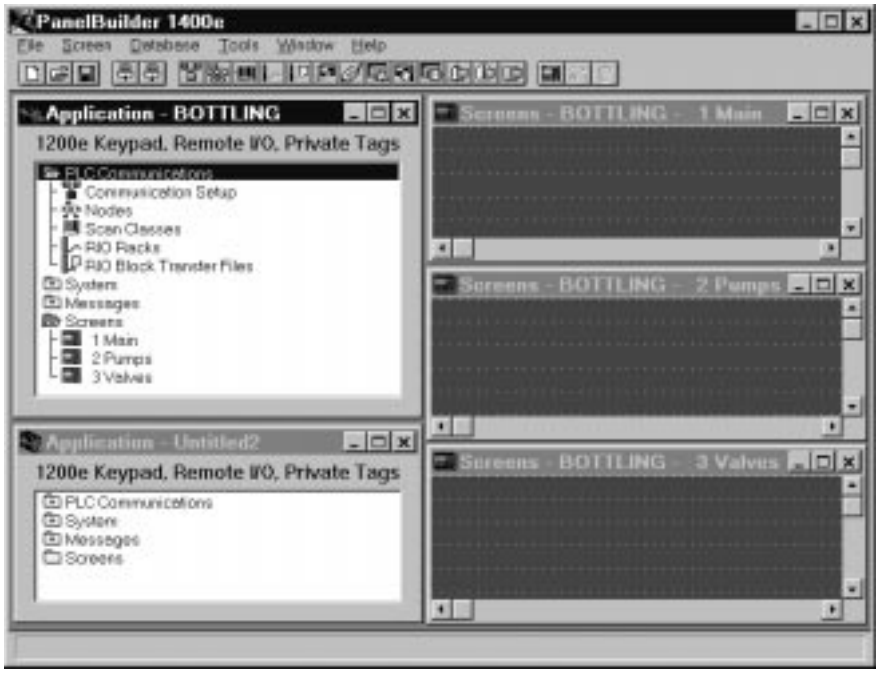
- Click anywhere on another Application Window, editor, or screen.
- Choose  from the toolbar to activate the Application Window corresponding to the active screen or editor.
- In the Window menu, choose the name of the application, editor, or screen you want to activate.

  A check mark (✓) appears next to the name in the Window menu. The screen, editor, or application appears in the PanelBuilder window, with the title bar highlighted.

Arranging Multiple Windows

You can organize your desktop by using the Cascade and Tile commands in the Window menu.

The Cascade command stacks and offsets the windows horizontally, so you can see their title bars. The Tile command arranges all open windows as tiles. The following illustration shows the Tile command.



To arrange open windows:

▶ Choose Cascade or Tile from the Window menu.

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Reducing, Restoring, and Maximizing Applications, Message Editors, and Screens



An advantage of the Windows environment is that you can have several windows open at the same time. But sometimes this can clutter your workspace.

To avoid clutter, reduce windows to icons. This is called "minimizing." The following illustration shows the icons of a minimized message editor, application, and screen.





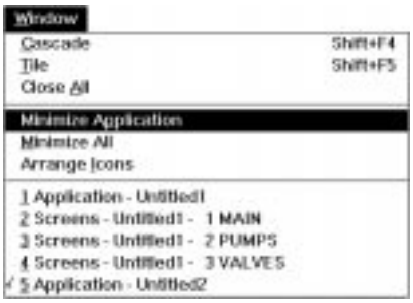
To minimize a window:

- Choose  in the window or choose Minimize from the window's Control menu.

To minimize an application and all its open screens:

1. Click on the application.
2. Choose Minimize Application from the Window menu.

The application and all its screens are minimized into icons.



To minimize all open applications, editors or screens:

- Choose Minimize All from the Window menu.

The icons are displayed in the PanelBuilder window. If you have many icons, you may want to arrange them to avoid clutter.

To arrange icons:

- Choose Arrange Icons from the Window menu.

This arranges all icons in a row at the bottom of the PanelBuilder window.

When you need to work in the application, editor, or screen, restore the icon to its original size.

To restore an icon:

- Double-click the icon. Or, in the Window menu, select the name of the application, editor, or screen you want to restore. Or, click the icon and choose Restore from its Control menu.

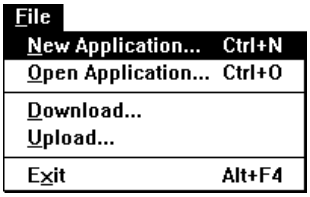
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To maximize a window or application:

▶ Choose  in the window or choose Maximize from the window's Control menu.

Using Menus, Keys, and Icons

Menus contain all the actions or commands you can carry out in PanelBuilder 1400e. Icons on the toolbar also perform certain menu commands. You can also carry out some commands using the key combinations shown in the menus.

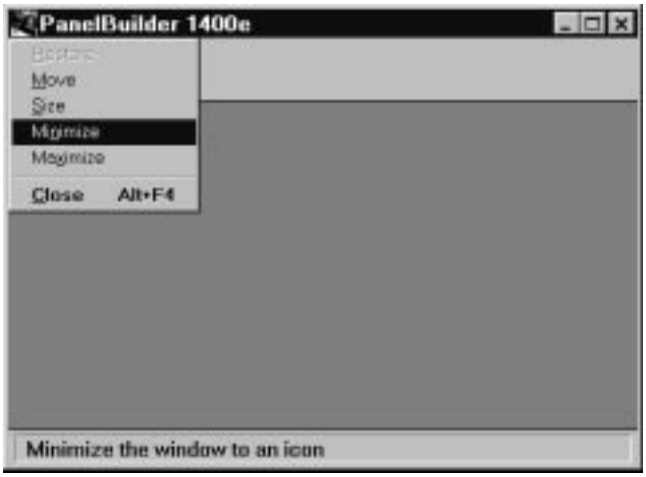


To create a new application, use any of these methods:

- Choose  on the toolbar.
- Choose New Application from the File menu.
- Press the CTRL and N keys simultaneously.

Using the Control Menus

All windows and dialog boxes in PanelBuilder 1400e contain a Control menu. The Control menu changes depending on the window you're in. Dialog boxes contain only the Move and Close commands.





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This command	Does this
Restore	Restores the window to its previous size after you've maximized or minimized it.
Move	Allows you to use the keyboard to move the window or dialog box.
Size	Allows you to use the keyboard to resize the window.
Minimize	Reduces the window to an icon.
Maximize	Enlarges the size of the window to fill a larger portion of the desktop or the entire desktop.
Close	Closes the window or dialog box. In a dialog box, choosing Close is the same as choosing Cancel. You lose any changes made to dialog controls. If you choose Close from PanelBuilder 1400e Window's control menu, PanelBuilder 1400e closes.
Switch to . . .	Opens a Task List dialog box that lets you switch between running Windows applications. You can also use this command to move between Windows and DOS.
Next	Switches between an open editor and the Application Window.

Using Help



You can use Help whenever you see Help on the menu bar, or see a Help button.

To access Help, do any of the following:

- Choose Help from the menu bar. This displays the Help menu. Choose Help Index to go to the Contents window. Then select the topic you want.
- Press F1 to display Help about the currently active window.
- Choose the Help command button in text or dialog boxes to display specific information about the dialog box.

Tip: Keep Help handy by resizing the Help window and moving it next to the PanelBuilder 1400e Window.

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Inside the Editors and Dialog Boxes

This section introduces PanelBuilder 1400e's editors and dialog boxes and explains their main purpose. These are the folders and their editors and dialog boxes:

PLC Communications



The PLC Communications folder contains these dialog boxes and editors:

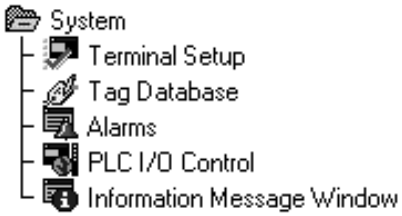
- **Communication Setup dialog box**—In the Terminal Communications tab of the Configure Communication Setup dialog box, you set the baud rate for Remote I/O applications and assign the PanelView terminal network address for DH+ and ControlNet applications.

  Note: To transfer the application over DH+, ControlNet, or Remote I/O Pass-Through with the terminal in Run mode, you can configure the terminal's location routing address and transfer control tags in the Network File Transfer tab. For more information about transferring applications with the terminal in Run mode, see the *PanelView 1000e, 1200e, and 1400e Operator Terminals User Manual*, and the *PanelView 1200/1400e Transfer Utility User Manual.*

- **Nodes editor**—In the Node editor you set up node definitions of the devices the terminal will communicate with on the DH+ or ControlNet network. Your application's tags will refer to these devices.
- **Scan Classes editor**—In the Scan Class editor you define the rates at which the tags are scanned for DH+ and ControlNet applications. Scanning updates the terminal's value table.
- **RIO Racks editor**—In the Rack editor you select the Remote I/O device and assign the racks your application will use. The racks you assign determine the block transfer files and tags you can create.
- **RIO Block Transfer Files editor**—In the Block Transfer editor you can assign up to 64 block transfer files of up to 64 words each. Block transfer files provide more address space for tags. In this editor you can also configure the Pass-Through Control byte for Remote I/O Pass-Through application file transfers.

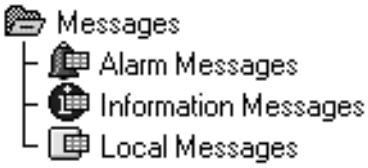
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System



- **Configure Terminal Setup dialog box**—In the Configure Terminal Setup dialog box you can describe the application, set timing parameters such as push button hold times or auto-repeat rates, assign the Application Startup screen, select a different application type, and specify the target firmware version. For keypad applications, you can also specify default settings for object behavior.
- **Tag Database editor**—In the Tag Database editor you can create and edit tags and tag folders.
- **Alarms dialog box**—In the Configure Alarms dialog box you can assign alarm tags, and configure the Alarm History and Alarm Status screens and the Alarm Message Window.
- **PLC I/O Control dialog box**—In the PLC I/O Control dialog box you specify whether the PLC monitors and/or controls certain terminal functions. For example, the PLC-Controlled Screen Number option allows the PLC to control which screen appears on the terminal.
- **Information Message Window dialog box**—In this dialog box you can enable the Information Message Window, specify how the window is removed, configure its appearance, and assign tags.

Messages



Messages inform the operator about what is happening when the application is running. For example, if a pump fails or a tank is almost full, the operator should be informed.

- **Alarm Messages** alert the operator to problems in the process. Alarm messages can appear in the Alarm Message Window that pops up over the application screen. Alarm messages have special options to alert the operator. They can trigger audio alarms, energize relays, activate the printer, send a message to the PLC, or be displayed in the Alarm Message Window.
- **Information Messages** inform the operator about the status of the operation and provide prompts, instructions, or warnings. These messages appear in the Information Message Window that pops up over the application screen.
- **Local Messages** inform the operator about the status of screen operations or provide prompts and instructions. Unlike alarm and information messages, local messages are not displayed in pop-up windows. Instead, they appear in Local Message Display objects in screens.

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Screens

Use the Screen editor tools to create the application screens that will appear when the application is running on the PanelView terminal.

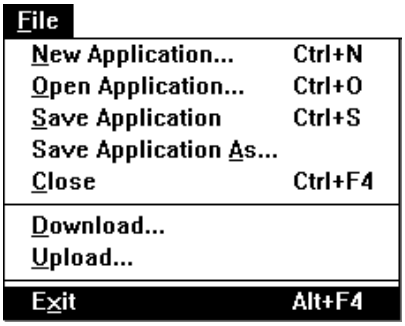
Closing Editors and Applications

There are several methods to close editors and applications.

To close editors and applications do any of the following:

- Double-click the Control box.
- Choose Close from the Control menu.
- Press CTRL+F4. To close the Tag Database, RIO Racks, Block Transfer Files, and Node editors, press ALT+F4.
- If the editor or application is the active window, choose Close from the File or Screen menu.
- To close all open applications, message editors, and screens, choose Close All from the Window menu.

Exiting PanelBuilder



To exit PanelBuilder 1400e:

▶ Choose Exit from the File menu, or double-click in the Control box of the PanelBuilder 1400e Window.

If applications are open when you choose Exit, they will all close when you exit PanelBuilder 1400e. If the applications contain unsaved changes, PanelBuilder 1400e will prompt you to save the changes.

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Chapter 4

Introduction to the Tutorial

This chapter introduces you to the application you'll be working with in this tutorial. It tells you about these topics:

- what the existing application does, and how you will enhance it
- the functions of each application screen and the uses of each object

This tutorial is also available in Modbus Programmable Controller format. For information about running this tutorial with Modbus, see the *PanelBuilder 1400e Modbus User Manual*, Publication Number 2711E-6.12, supplied as part of the optional Modbus Communications Kit, Catalog Number 2711E-UMOD.

Purpose of the Tutorial

This tutorial is designed to get you started with PanelBuilder 1400e quickly and easily. This chapter provides an overview of the tutorial. Chapters 5, 6, and 7 provide instructions for adding objects to the existing screens. Chapter 8 shows you how to add messages. Chapter 9 shows you how to download the file to the PanelView terminal, so you can run it.

A second purpose of this tutorial is to show good application design principles in action.



Note: If you want to run the completed application without creating any of it yourself, you can do so. Simply go to Chapter 9 and follow the instructions for downloading the file. Then run it on the terminal. You can do this at any point in the tutorial.

Before You Start

Before you start the tutorial, ensure you've done the following:

- installed the Tutorial files. These contain the application files that you'll need for the tutorial. For more information, see Chapter 2.
- familiarized yourself with PanelBuilder 1400e basics. To do this, read the first part of this manual.

Also, ensure that you have the required equipment. You'll need:

- PanelBuilder 1400e installed
- a PanelView 1000e terminal, or an enhanced PanelView 1200 Series F or later terminal, or a PanelView 1200e terminal, or a PanelView 1400e terminal
- PLC controller

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Note: The ladder logic for this application was developed on a PLC 5/15. You can use the ladder logic on any PLC controller that is compatible with the PLC 5/15.

Understanding the Scenario

This tutorial is based on the following scenario.

You have an existing application, created with PanelBuilder 1200, that runs a paper copying process. The machine controlled by this application is a lower-end model and doesn't have a stapling feature.

Now you've decided to purchase a new machine that supports stapling. To use this feature, you must add the required controls to your existing PanelBuilder 1200 application. As well, you realize that your existing application is not as well-designed as it could be. You want to fine-tune it to make it easier to use, and to improve the appearance of the application with more colors and better graphics.

To do these tasks quickly and efficiently, you've purchased PanelBuilder 1400e Configuration Software for Windows.

This chapter of the tutorial guides you through the existing application, the application screens, and the objects each screen contains. It explains how the objects enable you to control and monitor the copying process.

It also outlines the objects you will add.

Starting PanelBuilder 1400e

To do this tutorial, you must have PanelBuilder 1400e and the tutorial files installed.

To start PanelBuilder from Windows NT or Windows 95:

1. Choose the Start button.
2. Choose Programs, then choose the PanelBuilder 1400e folder.
3. Choose PanelBuilder 1400e.

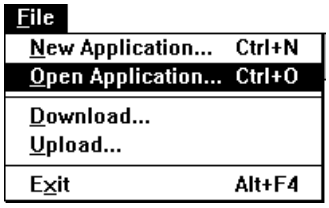
   The PanelBuilder 1400e Window appears on your screen. You are ready to begin working in PanelBuilder.

To start PanelBuilder from Windows 3.1 or later:

- Double-click the PanelBuilder 1400e icon.

  The PanelBuilder 1400e Window appears on your screen. You are ready to begin working in PanelBuilder.

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You must open your existing PanelBuilder 1200 application.

To open the application:

1. Choose Open Application from the File menu, or choose on the toolbar. The Open dialog box appears.

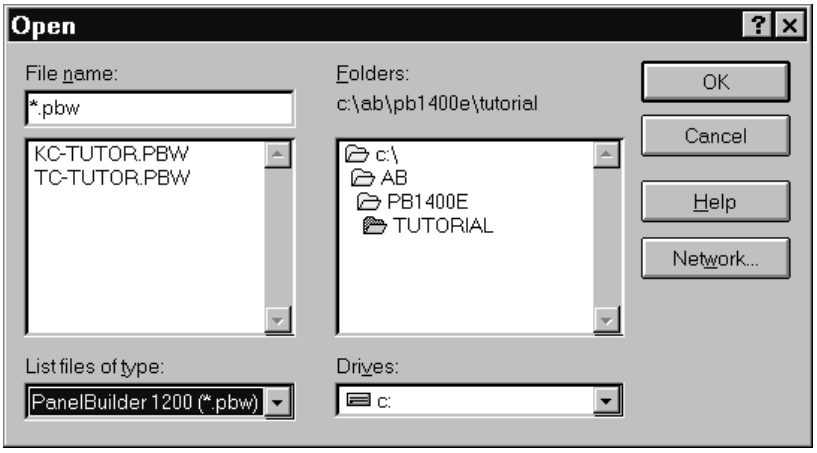
2. Specify the drive and directory where the tutorial is located. If you followed the installation defaults, this will be in the C:\AB\PB1400E\TUTORIAL directory.

   Because the existing application was created using PanelBuilder 1200, it has the file type *.pbw

3. In the List Files of Type field, select *.pbw.

   You'll see two applications. The one you choose depends on your PanelView terminal type:

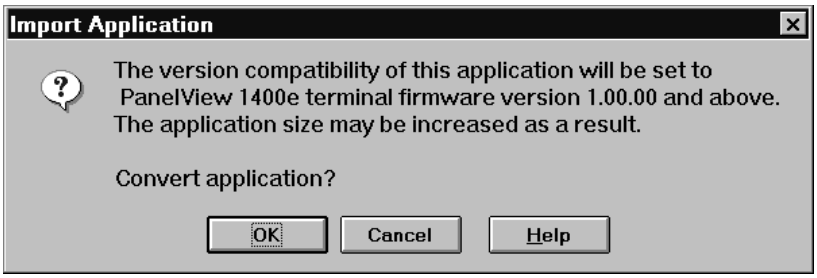
   - **kc-tutor.pbw**—choose this if you have a keypad terminal
   - **tc-tutor.pbw**—choose this if you have a touch screen terminal



4. Select the appropriate application.

5. Choose OK.

   A message appears, informing you that converting the application will make it compatible with PanelView 1400e Version 1 and later firmware.



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6. Choose OK.

   A dialog box appears, informing you of the conversion status.

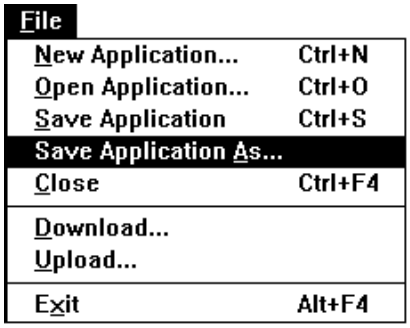


When the conversion is finished the Application Window appears. The application's name is displayed in the title bar.

Note: This application is configured for Remote I/O. While you could switch network types to Data Highway Plus, ControlNet, or Modbus for the purpose of this tutorial the application will remain configured for Remote I/O.

Before you start editing it, save the application.

To save the application:



1. Choose Save Application As... from the File menu.
2. Specify the drive and directory where you want to save the file, or accept the default directory.
3. If you want to rename the file, type a new name for your file in the File Name field. Or, you can save the application under the existing name. Because it will be saved under a different file extension, it won't overwrite the existing file.
4. Choose OK.

Note that PanelBuilder 1400e automatically adds .pvc as the file extension.

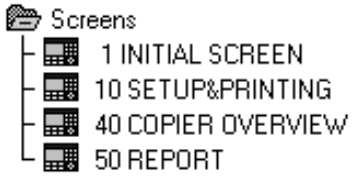
Once you've saved your file, you can start editing it. You can go directly to Chapter 5 and continue the tutorial. But we recommend that you complete this chapter first because it guides you through the existing screens and explains how the objects work. In addition, it explains the features you'll be adding to enhance the application.

Viewing the Application Screens

The copier application contains four application screens:

- Initial Screen
- Setup&Printing
- Copier Overview
- Report

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Initial Screen

This is the first screen that appears when you start the application on the PanelView terminal. It introduces you to the application and to the copier—the Kodiak Duplicator.

To view the Initial Screen:

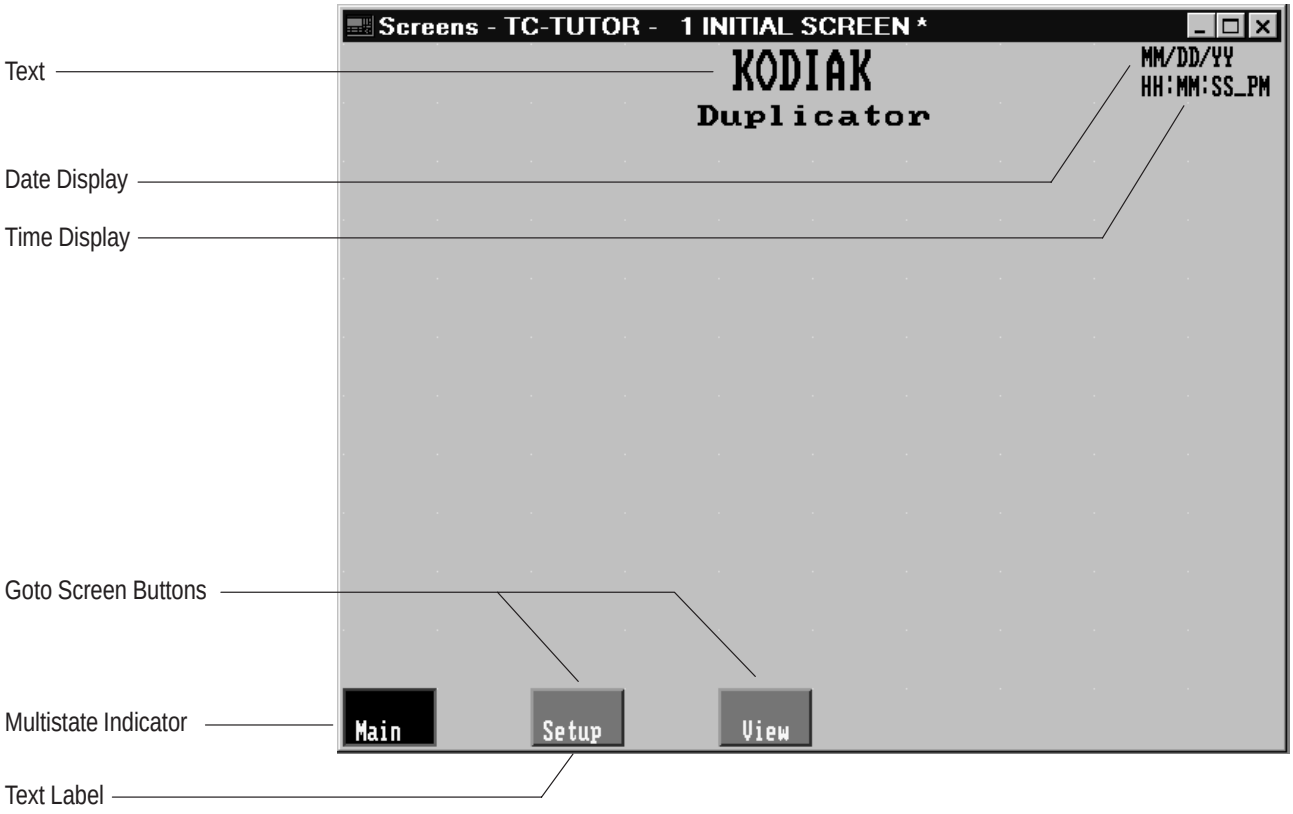
1. Open the Screens folder in the Application Window. You can double-click it with the mouse pointer, or use the down-arrow key to select it and press ENTER.

   The folder contains four screens.

2. Double-click Initial Screen, or select Initial Screen and press ENTER.

   The screen appears, entitled "Screens - [name of application] -1 INITIAL SCREEN."

Note: All illustrations in this chapter are of touch screen application screens. The remaining chapters in this tutorial show the keypad application screens.



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Objects and their Functions

This screen contains five types of objects. The table lists the objects and how they function when the application is running:

Object	Function
Goto Screen Buttons (2)	Each button is configured to call up a different screen on the terminal. At runtime, when the operator presses a button or its corresponding function key, the appropriate screen appears, replacing the current screen.
Multistate Indicator (1)	This object indicates to the operator that this screen is the currently selected screen.
Time Display (1)	This object displays the current time.
Date Display (1)	This object displays the current date.
Text and Text labels	These describe the application and objects.

What You Will Need to Add

Although this is a very basic screen, its design could be improved. The application has a total of five screens—four application screens and the Alarm History screen. The Initial screen allows you to move only to the Setup&Printing and the Copier Overview screens. You should be able to call up all four screens from this screen.

You will add two Goto Screen buttons to this screen. Chapter 5 provides step-by-step instructions for doing this.

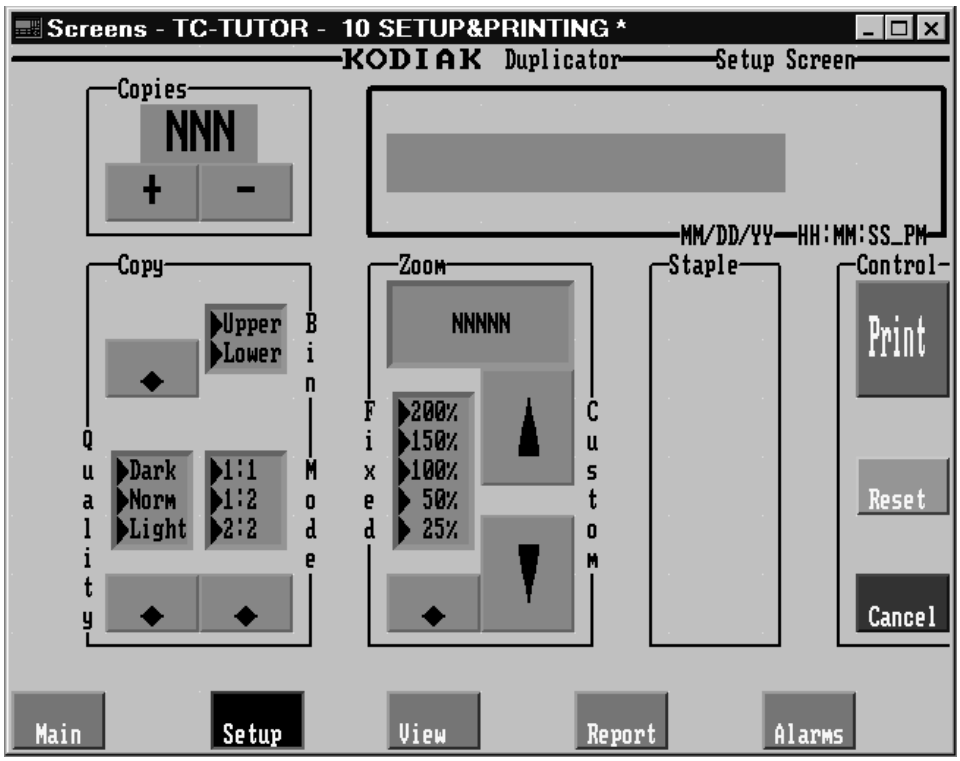
The Initial Screen's appearance could also be improved. Because you can now import AutoCAD (.dxf) and bitmap graphics into your application screens, you can import an image of a photocopier to liven up the screen.

Setup&Printing Screen

Next, open the Setup&Printing Screen. Refer to the previous section for instructions on opening the screen.

This screen enables you to control the printing options. You can choose the paper size, number of copies, copy quality, zoom, and copying mode. You can also start, reset, and cancel copying.

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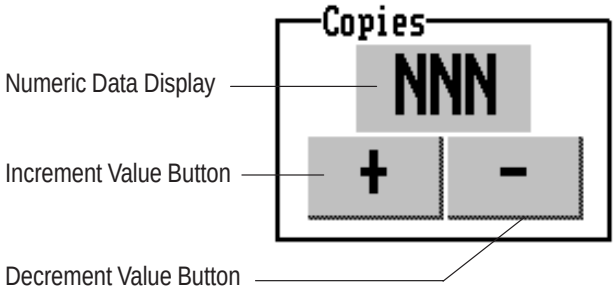


Objects and their Functions

This application screen contains many different objects, with different functions. Some objects are grouped together according to their functions. The following tables and illustrations show the groupings of objects that function together to enable you to control certain aspects of the process.

Note: Most of the objects shown are text and lines. These are not labeled.

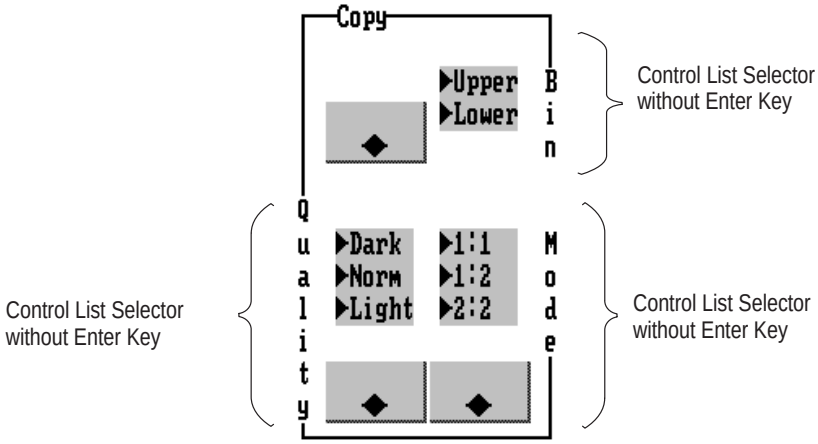
Number of Copies—These objects enable you to specify and then monitor the number of copies being printed.



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Object	Function
Numeric Data Display (Copies Display)	Displays the number of copies you've chosen.
Increment Value Button (Copies Increment)	Press this button or the corresponding function key to increase the number of copies.
Decrement Value Button (Copies Decrement)	Press this button or the corresponding function key to decrease the number of copies.

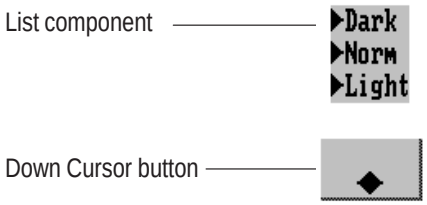
Copy controls—This group of objects enables you to select the paper size, copy quality, and the copying mode. This group consists of three Control List Selectors without Enter keys.



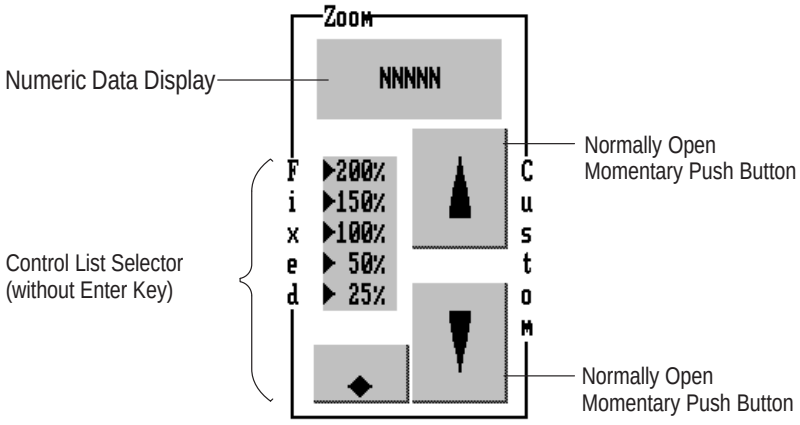
Object	Function
Control List Selector without Enter Key (Paper Bin Selector)	Choose between the Upper Bin (8.5" x 11" paper) and the Lower Bin (11" x 17" paper). Press the Down Cursor button or the corresponding function key to make the selection.
Control List Selector without Enter Key (Copy Quality)	Choose how light or dark a copy you want to make. There are three settings, from light to dark. The default is normal. Press the Down Cursor button or the corresponding function key to move through the list and to make the selection.
Control List Selector without Enter Key (Copy Mode)	Choose how you want to copy the document: from 1-sided to 1-sided; from 1-sided to 2-sided; or from 2-sided to 2-sided. Press the Down Cursor button or the corresponding function key to move through the list and to make the selection.

Note: Each Control List Selector without Enter Key in this tutorial consists of a List component and a Down Cursor button. The following illustration identifies the components of the Copy Quality Control List Selector without Enter Key.

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Zooming—These objects enable you to choose whether you want to increase the magnification of the copies, or decrease the zoom. You can choose from a list of zoom options. Then, if you wish, you can fine-tune these to the exact zoom you want.

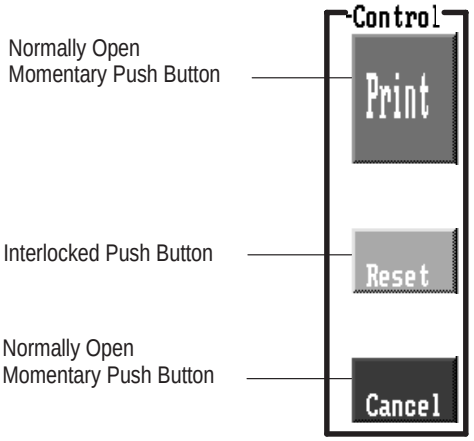


Object	Function
Numeric Data Display (Zoom)	Displays the zoom you've selected for the document.
Control List Selector without Enter Key (Zoom Fixed)	Choose the zoom option you want for the document, from 25% to 200%. The default is 100%. Press the Down Cursor button or the corresponding function key to move through the list and to make the selection.
Normally Open Momentary Push Button (Zoom Increment)	Press this button or the corresponding function key to increase the zoom by single percentages.
Normally Open Momentary Push Button (Zoom Decrement)	Press this button or the corresponding function key to decrement the zoom by single percentages.

Note: This is an example of a complex object that is created out of several simple objects.

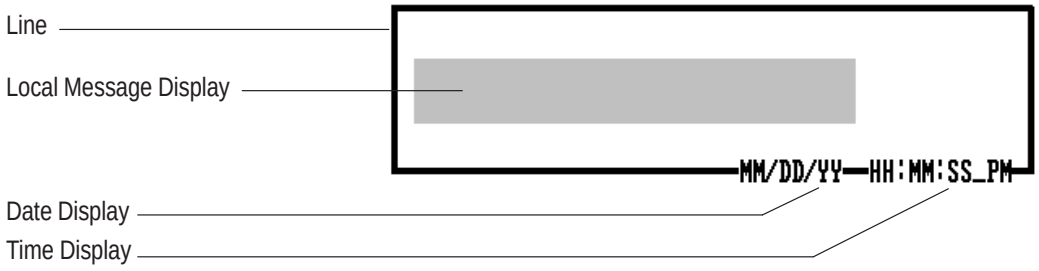
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Print, Reset, Cancel—These objects enable you to control the copying:



Object	Function
Normally Open Momentary Push Button (Print Button)	Press this button or the corresponding function key to start copying.
Interlocked Push Button (Reset Button)	Press this button or the corresponding function key to reset the selected number of copies back to zero.
Normally Open Momentary Push Button (Cancel Button)	Press this button or the corresponding function key to cancel the copying.

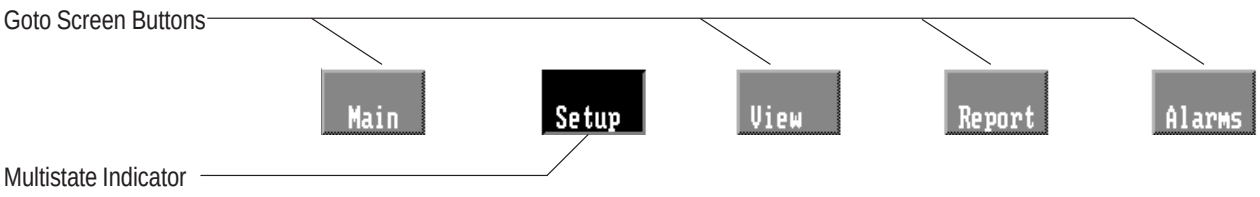
Messages area—This object informs you of the copier's status:



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Object	Function
Local Message Display (Copy Messages)	Displays messages about the status of the copying process. For example, while the copier is copying, the message display will read “Copying.”
Date Display	This object displays the current date.
Time Display	This object displays the current time.

Goto Screen buttons—This application screen contains buttons that allow you to move between screens. It also includes a Multistate Indicator that shows the currently displayed screen.



Object	Function
Goto Screen Buttons (4)	Each button is configured to call up a different screen on the terminal. At runtime, when the operator presses a button or its corresponding function key, the appropriate screen appears, replacing the current screen.
Multistate Indicator (1)	This object indicates to the operator that this screen is the currently-selected screen and can’t be called up.

What You Will Need to Add

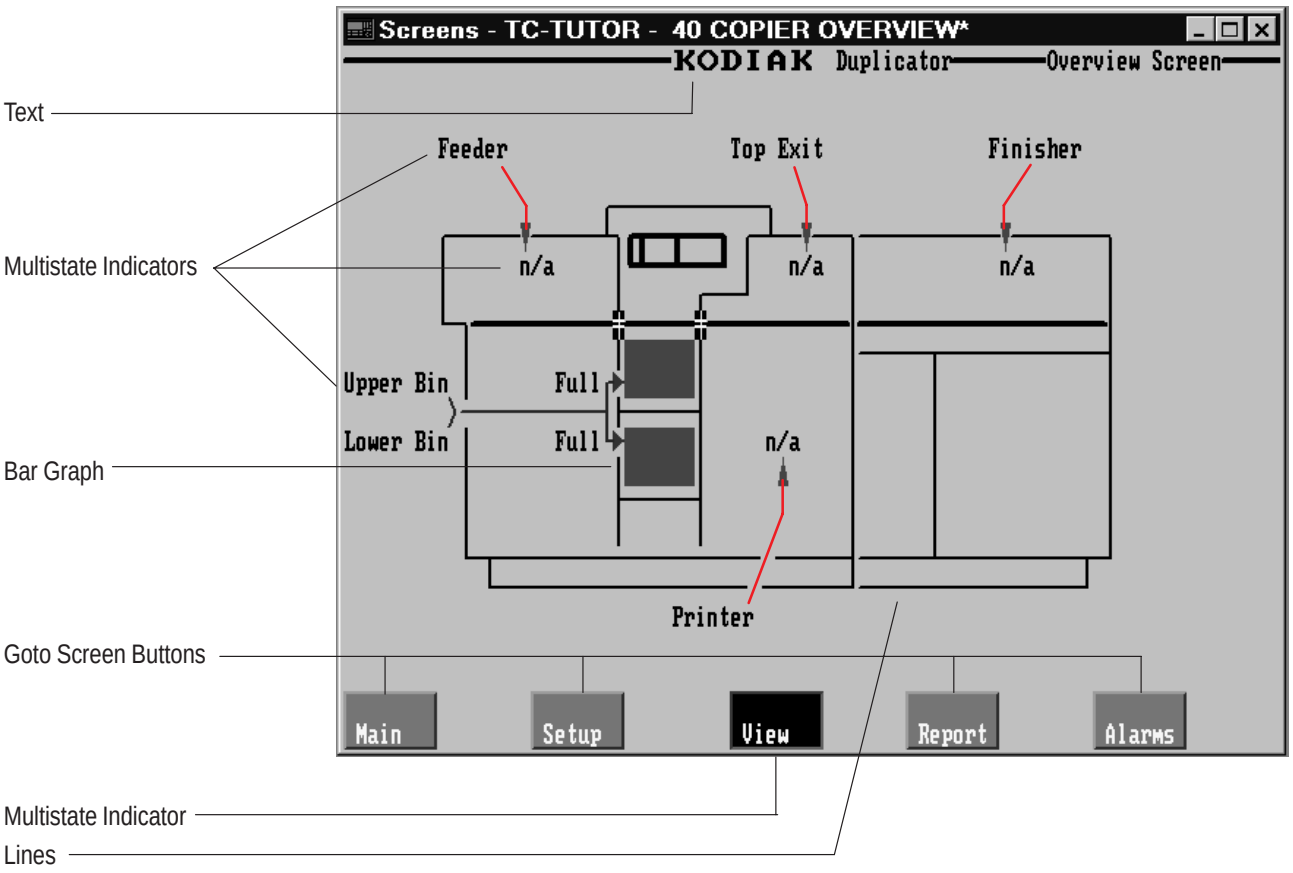
This screen contains all copying controls. Therefore you will need to add the stapling feature here as well. Fortunately, the designer of the existing application realized that this function would someday be implemented. As you can see, a section of the screen has already been designated for the stapling feature.

You will create a Control List without Enter Key object that lets the operator choose whether or not the copies will be stapled. Chapter 6 provides step-by-step instructions for creating and configuring this object.

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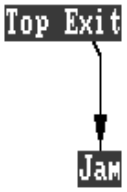
Copier Overview Screen

This screen allows you to monitor the different parts of the copier, and see whether each part is functioning properly.



All the parts of the copier are labeled. While the copier is active, these labels and their corresponding objects show the state of that feature.

For example, if a paper jam exists in the Top Exit, the two Top Exit Multistate Indicator objects will look like this:



This allows you to pinpoint the location of problems such as paper jams.

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Objects and their Functions

Multistate Indicator Objects—The Copy Overview Screen contains twelve Multistate Indicator objects: Feeder (2); Top Exit (2); Finisher (2); Printer (2); Upper Bin (2); Lower Bin (2).

The objects change state depending on what is happening in the process. The Feeder, Top Exit, Finisher, Printer, and Upper and Lower Bin objects operate in pairs: A Multistate Indicator object in the copier illustration, and a corresponding label. Each object is configured to display four states (0 to 3).

The states of each object pair are configured to change simultaneously. For example, when the Feeder Multistate Indicator object in the copier illustration is at State 3, the Feeder label Multistate Indicator object is also at State 3. The following table shows the meanings of the four states for each of these Multistate Indicator object pairs:

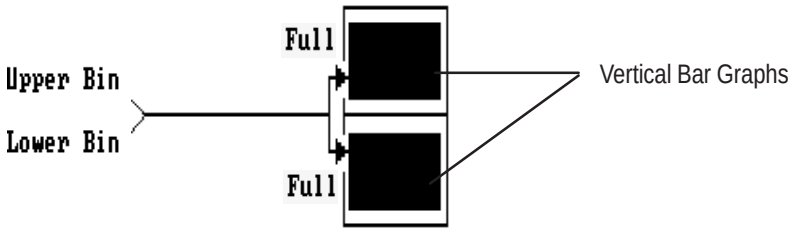
This state	Appears like this	And means this
State 0	n/a (light grey on blue)	The component is not active (n/a).
State 1	OK (blue on white)	The component is active and there are no problems.
State 2	Alert (black on yellow)	Warning: Servicing will be required soon. (For example, toner may be low.)
State 3	Jam (white on red)	There is a paper jam in this location.

The Upper Bin and Lower Bin object pairs are configured to indicate the paper supply. The following table indicates what each state means and how it is configured.

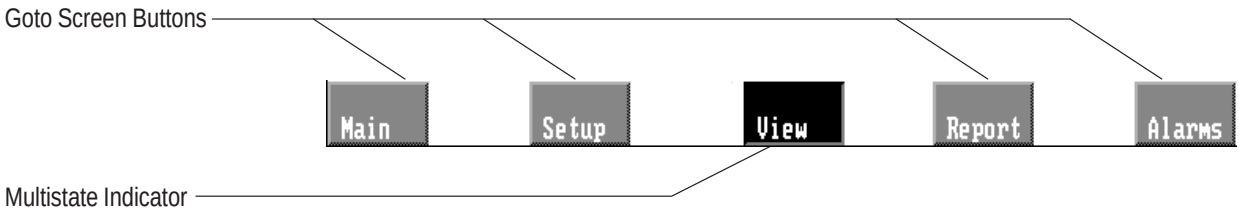
This state	Appears like this	And means this
State 0	Full (light grey on blue)	Paper supply is full.
State 1	OK (blue on white)	Paper supply is medium/full.
State 2	Low (black on yellow)	Paper supply is low/medium.
State 3	Empty (white on red)	Paper supply is empty.

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Bar Graphs—These objects are configured to show the amount of paper in each of the paper bins. While the copier is active, the bar graph shows how the amount of paper is decreasing.



Goto Screen Buttons—This application screen contains buttons that allow you to move between screens. It also includes a Multistate Indicator that shows the currently displayed screen.



Object	Function
Goto Screen Buttons (4)	Each button is configured to call up a different screen on the terminal. At runtime, when the operator presses a button or its corresponding function key, the appropriate screen appears, replacing the current screen.
Multistate Indicator (1)	This object indicates to the operator that this screen is the currently selected screen and can't be called up.

What You Will Need to Add

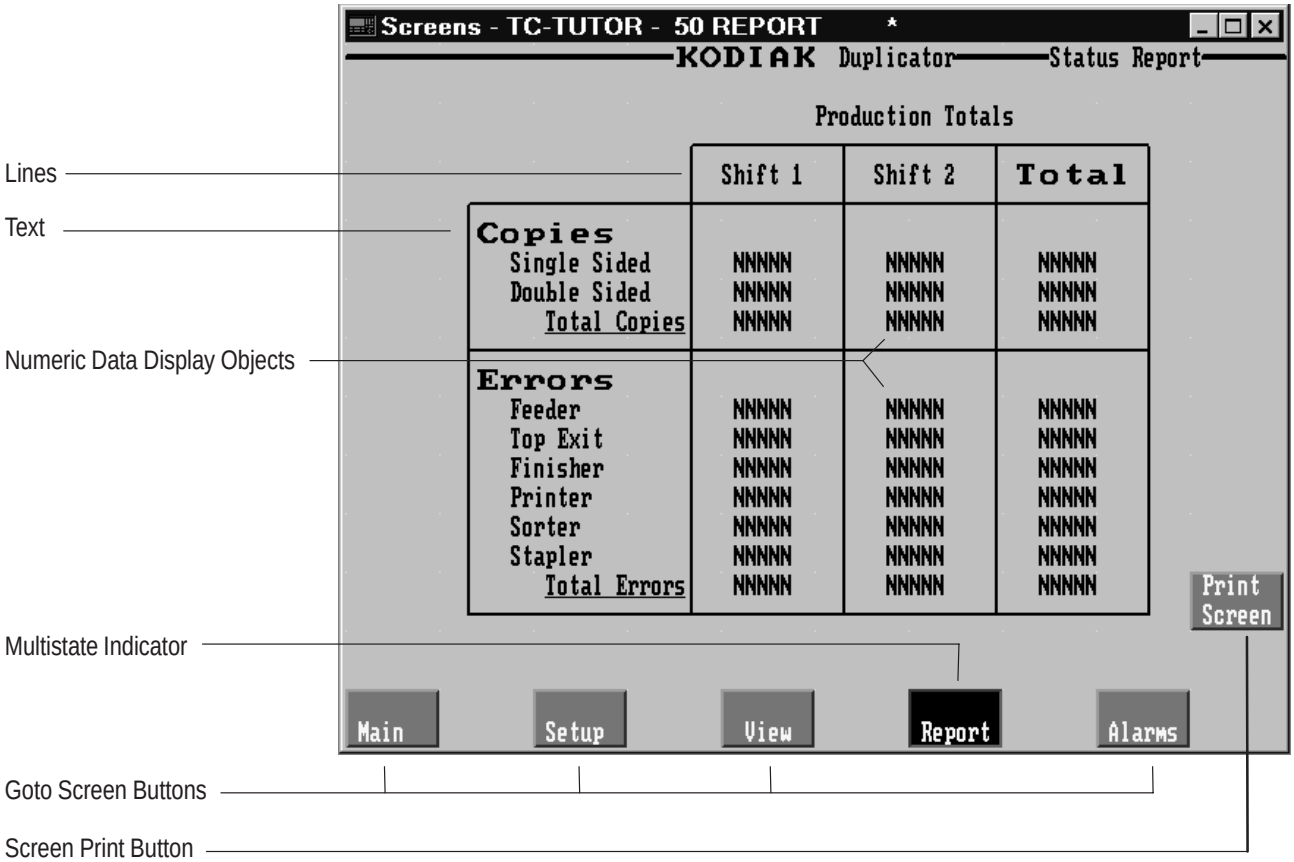
You need to add a stapler feature that will indicate when there are problems in the stapler area, such as the stapler being out of staples. To do this, you will add two Multistate Indicator objects. These will operate as a pair, exactly like the other six Multistate Indicator object pairs in this screen.

Chapter 7 provides step-by-step instructions for creating and configuring the two Multistate Indicators.

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The Reports Screen

This screen enables you to view the number of pages that have been copied, both single- and double-sided, in each shift, as well as the day's total. It also records problems that have occurred during the day.



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Objects and their Functions

Object	Function
Numeric Data Display objects (30)	Display the totals (of copies and errors).
Screen Print Button (1)	Press this button or the corresponding function key to create a print-out of the screen.
Goto Screen Buttons (4)	Each button is configured to call up a different screen on the terminal. At runtime, when the operator presses a button or its corresponding function key, the appropriate screen appears, replacing the current screen.
Multistate Indicator (1)	This object indicates to the user that the Report screen is the currently selected screen, and can't be selected.

You won't need to add any objects or enhancements to this screen. This screen simply demonstrates how you can use objects to keep track of your process.

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Creating Buttons and Importing Graphics

This chapter shows you how to add two Goto Screen buttons to the Initial Screen. It includes these topics:

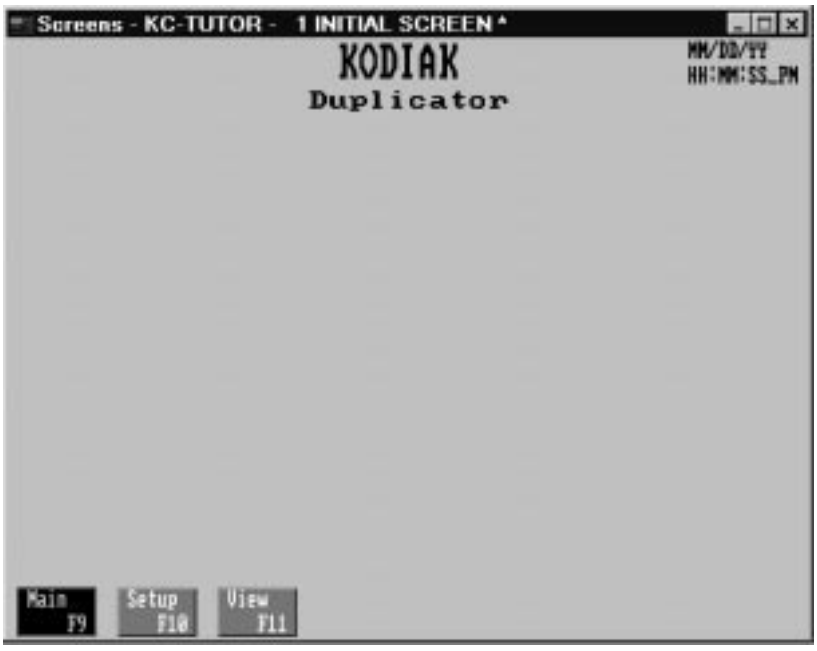
- creating the buttons
- resizing, moving, and configuring the appearance of the buttons

This chapter also provides instructions for adding a graphic image to the screen.

Creating and Configuring the First Goto Screen Button

When the application is running on the PanelView terminal, the operator uses Goto Screen buttons to change to other application screens. The operator can call up only the Setup and View screens from the Initial Screen. However, the application has two more screens: the Report and Alarm History screens. You want the operator to be able to call up all four screens.

To enable the operator to do this, you will add two Goto Screen buttons.



Note: This and all following screen illustrations are of keypad application screens. Touch screen application screens don't show function key designations and the buttons are positioned further apart.

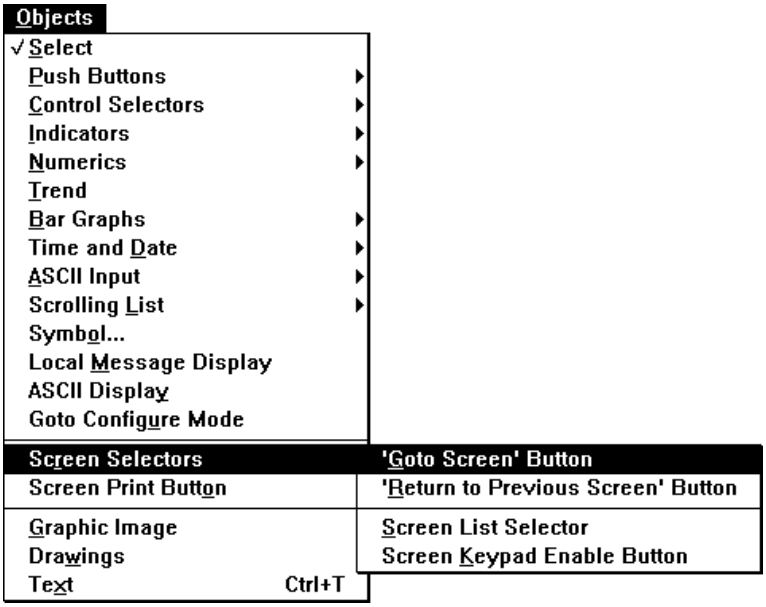
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If the Initial Screen is not already open, follow the instructions in Chapter 4 and open it.

Creating the Goto Screen Button

To create a Goto Screen button:

1. Choose Screen Selectors from the Objects menu and choose "Goto Screen" Button, or select  from the toolbox.



   When you move the pointer to the screen, you'll see that it has a small square at its base. This means the object tool is active.

2. Position the pointer where you want to draw the new button. Press the left mouse button. While holding down the button, drag the mouse.

   The button appears, in default size. You'll notice that this button is somewhat larger than the existing Goto Screen buttons.



3. Click once in the screen to exit button-draw mode.

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Tip: You can reverse any changes you make in a screen. Choose Undo from the Edit menu,  from the toolbar, or press CTRL+Z.

If you decide that you want to reverse the undo, you can do so. Choose Redo from the Edit menu,  from the toolbar, or press CTRL+Y.

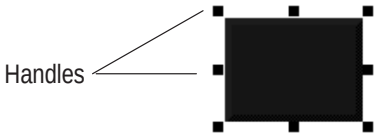
Resizing the Button

To keep the new button's appearance consistent with the existing buttons, resize it.

Tip: Before you size the button, select an existing button. The status bar shows its width and height. You must resize the new button to this size.

To resize the Goto Screen button:

1. Position the pointer on the button and click the left mouse button. Handles appear on the button, indicating that it is selected.



2. Position the pointer over the upper middle handle. You'll notice that the pointer changes to a bi-directional arrow.
3. Press the left mouse button. While holding down the left mouse button, drag the pointer downwards.

   The outline of the button follows the movement of the pointer. If you're working in a 1200e touch screen application, the outline will move by touch cell boundaries only. When the status bar indicates that the button is the same size as the existing buttons (Height 40), release the mouse button.

   If your application is for a keypad terminal, resize the button horizontally until its width is approximately 64 pixels.

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Moving the Button

Unless the button is already positioned correctly in the row of buttons at the bottom of the screen, move the button.

To move the button:

1. Position the pointer over the button and click to select it. While holding down the left mouse button, drag the mouse.
2. As you drag the mouse, the button moves. Drag the button so it's positioned next to the View button and release the mouse button.

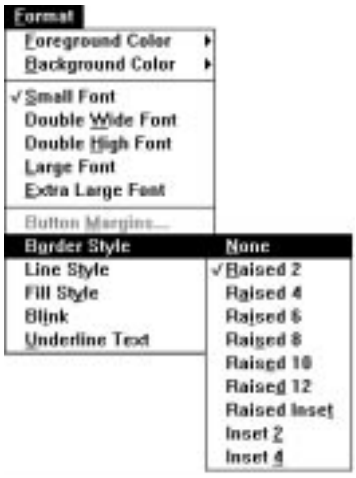
Tip: If your application is for a keypad terminal, you will assign Function Key 12 to this button. To ensure that the button aligns with this function key, choose Zoom Out in the View menu. This displays the function keys as they appear on a keypad terminal. If the button isn't aligned properly, move it. To restore the screen to its normal size, choose Zoom In from the View menu.

Changing the Button Appearance

To keep the button's appearance consistent, you must add text to the button and change the color and border style.

Changing the Border Style

When you convert an application, existing buttons are assigned border styles automatically. You'll notice that the new button's border is different from the existing button borders. To stay consistent, assign the same border to the new button.



To change the border style:

1. Select the new Goto Screen button.
2. Choose Border Style in the Format menu, and choose Raised 2.

   The border on the button changes to the same style as the existing buttons' borders.

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Adding Button Text

This button's function is to call up the Report screen. You must add text to the button to indicate to the operator that it will call up this screen. When you add text to a button you create an object label.

To add text to the button:

1. Choose Text in the Objects menu or  from the toolbox. Or, press CTRL+T.

   The pointer changes to an I-beam.

2. Position the I-beam in the left side of the button. Click the left mouse button. Now, type `Report`.

   ▶ **Tip:** If you didn't position the text far enough to the left, you may not be able to fit all the characters into the button. To fit all the text in the button:

   - click the text object with the right mouse button to select it
   - move the text object to the left
   - click the text again with the right mouse button to enter text mode
   - type the remaining text

3. If your application is for a keypad terminal, you should indicate which function key the user must press to call up the screen. Position the I-beam on the bottom of the button, click, and type `F12`.



4. When you're finished, exit Text mode. You can do this by choosing  in the toolbox, clicking the right mouse button, or double-clicking in an empty spot on the screen. Or, press ESC twice.

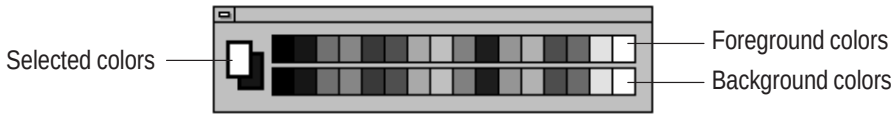
   ▶ **Note:** If the text's rectangle overlaps the shadow on the button's border, change the text's fill style to hollow:

   - Select the text
   - choose Fill Style from the Format menu
   - select Hollow

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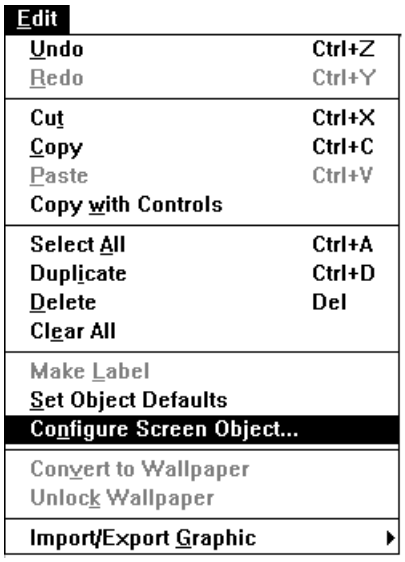
Changing the Color

You can change the object's colors by choosing Foreground and Background colors from the Format menu. Or, you can use the color palette. The top row of the palette configures the button's foreground color (text), and the bottom row configures the button's background color (the button itself). The two overlapping squares at the far left of the palette show the selected colors.



To change the button's color:

1. If the color palette is not on your screen, choose Show Color Palette from the View menu.
2. Select the new Goto Screen button by clicking on it.
3. Click on cyan on the bottom row of the color palette to change the background color. The button changes color. Now choose white from the top row as the foreground color. The text changes to white.



Assigning a Screen to the Button

Finally, you must configure the button to call up the Report screen.

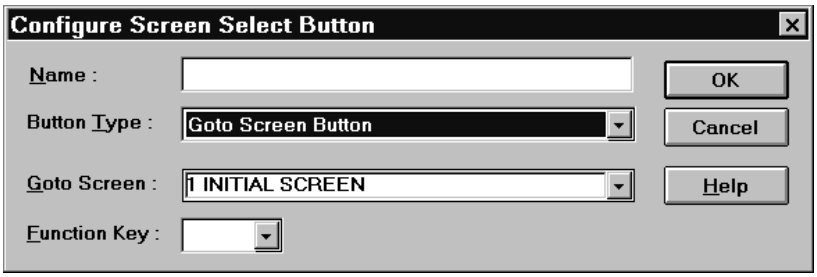
To assign a screen to the Goto Screen button:

1. Select the button. Choose Configure Screen Object from the Edit menu or  from the toolbar. Or, click the right mouse button or double-click.

   The Configure Screen Select Button dialog box appears. Here you assign the appropriate screen to the button.

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You can also type a description of the button. This helps you identify the object when you create reports. You can enter a name of up to 15 characters. When you assign a name to an object, you increase the application's size by one byte per character.



2. In the Name field, type **`goto reports.`**

   In the Button Type field you can select whether you want to create a Goto Screen button or a Return to Previous Screen button. Since Goto Screen is selected by default, you don't need to make any changes here.

   In the Goto Screen field select the screen you want to assign to the button.

3. Click the arrow beside the Goto Screen field. From the drop-down list, select 50 Report.

   If you're creating applications for a keypad terminal, you must also assign a function key.

4. Click the arrow beside the Function Key field. From the drop-down list, select 12.

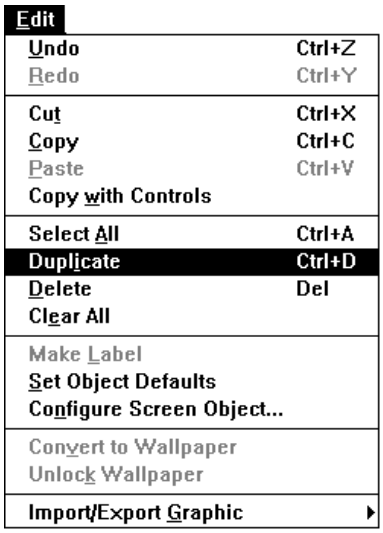
5. Choose OK to accept the changes.

6. Close the dialog box.

You've created and configured your first application screen object. Now you must create the second Goto Screen button to call up the Alarm History screen.

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Creating and Configuring the Second Goto Screen Button



Whenever you want to create an object that's similar to existing objects, you can use the Duplicate feature. This makes a copy of an existing object, which you can then configure as necessary.

To create the second Goto Screen button:

1. Select any existing Goto Screen button.
2. Choose Duplicate from the Edit menu or  from the toolbar. Or press CTRL+D.

   A second button appears, identical to the first, but slightly offset from the original. You must configure this button to call up the Alarm History screen. Follow the steps you used previously, and do the following:

   - position the button in the appropriate screen location
   - delete the button's text, and label the button `Alarms`
   - configure the button to call up the Alarm History screen (255), and change its name to **`goto alarms`**
   - if your application is keypad, assign F13

When you're finished, ensure that the buttons appear in the order shown in the following illustration. Each screen in the application has the same order, so it's important that you stay consistent in this screen. You may need to rearrange some of the buttons. Follow the steps described in the previous section.



Adding a Graphic Image



You may find that the Initial Screen looks a little boring. To liven up its appearance, you will add a graphic image.

To add a graphic image:

1. Choose Graphic Image from the Objects menu, and choose Bitmap Image.

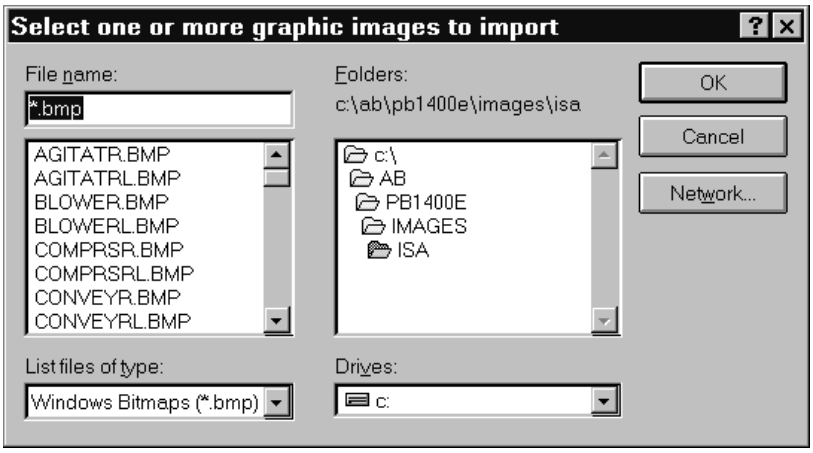
   The Select Bitmap Image dialog box appears. This dialog box displays all the images in the application's graphic image library. Currently, the library contains no images. You can use this dialog box to import bitmap graphic images.

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2. Choose Import.

   The Select one or more graphic images to import dialog box appears.



3. Choose the PB1400E\TUTORIAL directory. Select copier.bmp and choose OK.

   The Select Bitmap Image dialog box reappears, with the image selected. An outline of the image is displayed in the bottom half of the dialog box.

4. Choose OK.

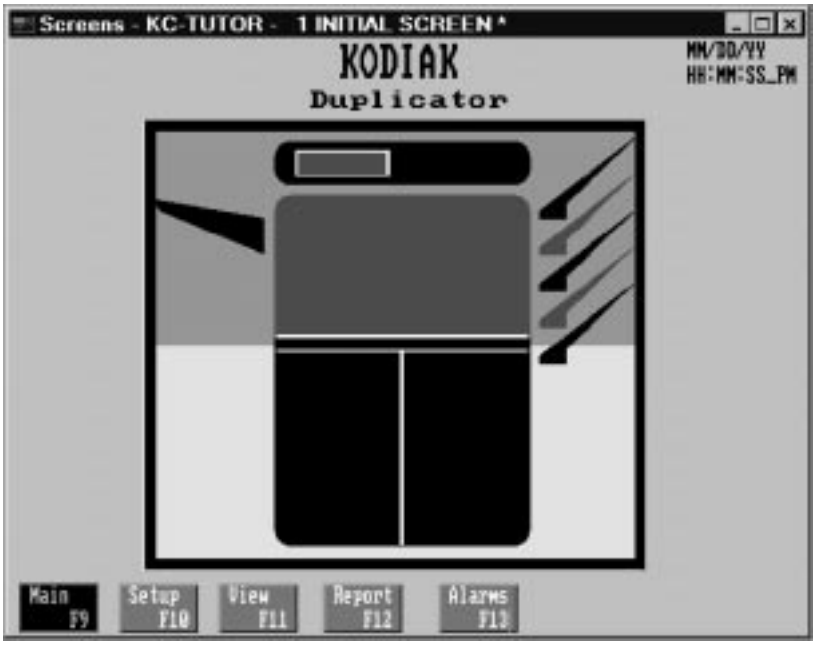
   The small square at the base of the pointer indicates that the object tool is active.

5. Position the pointer where you want to place the image. While holding down the left mouse button, move the mouse.

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6. The image appears on the screen. Position it in the appropriate location.

When the screen looks like the following illustration, you're finished.



Exiting the Initial Screen

You've finished making changes to the Initial Screen. You can now exit it.

To exit the screen:

▶ Choose Close from the Screen menu, or press CTRL+F4.

This automatically updates the screen.

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Saving the Application

To save your changes permanently, save the application.

To save the application:

1. If the Application Window is not already active, click it or choose  from the toolbar.
2. Choose Save Application from the File menu or  from the toolbar. Or, press CTRL+S.

If you don't have time to continue the tutorial now, close PanelBuilder. If you want to continue, go on to Chapter 6.

To close PanelBuilder:

- Choose Exit from the File menu or press ALT-F4. Or, double-click the control box.

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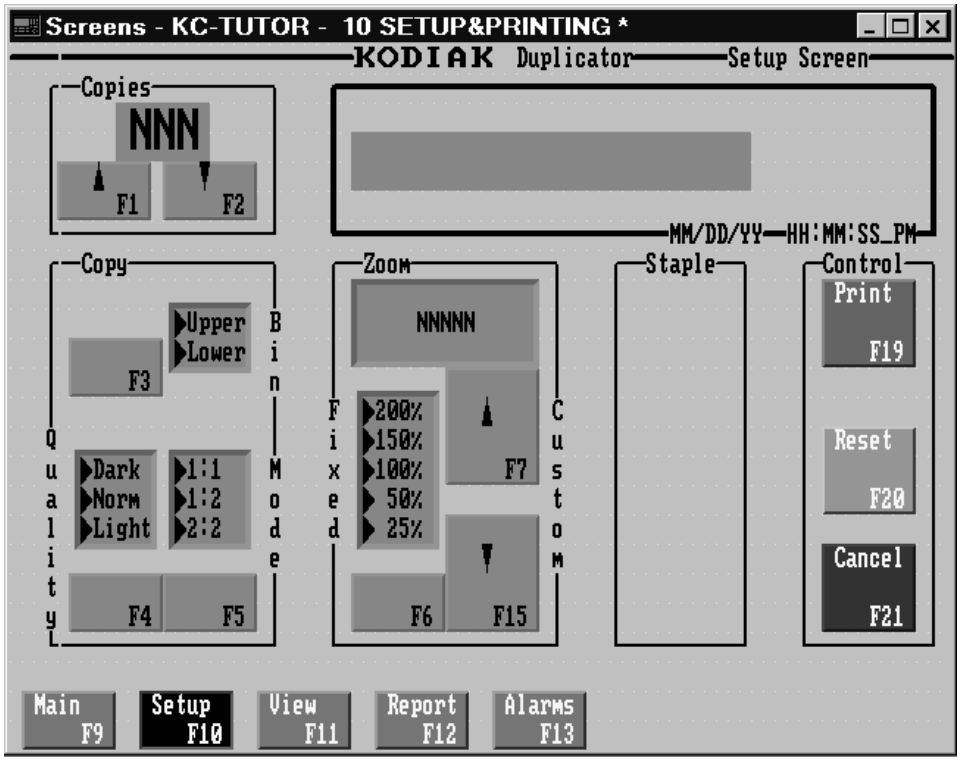
Creating Control List Selectors and Tags

This chapter shows you how to create and configure the Control List Selector without Enter Key object in the Setup&Printing screen. It also shows you how to create and assign a tag.

Creating and Configuring the Control List Selector without Enter Key

When the application is running, you can use a Control List Selector without Enter Key object to choose whether or not you want your documents stapled.

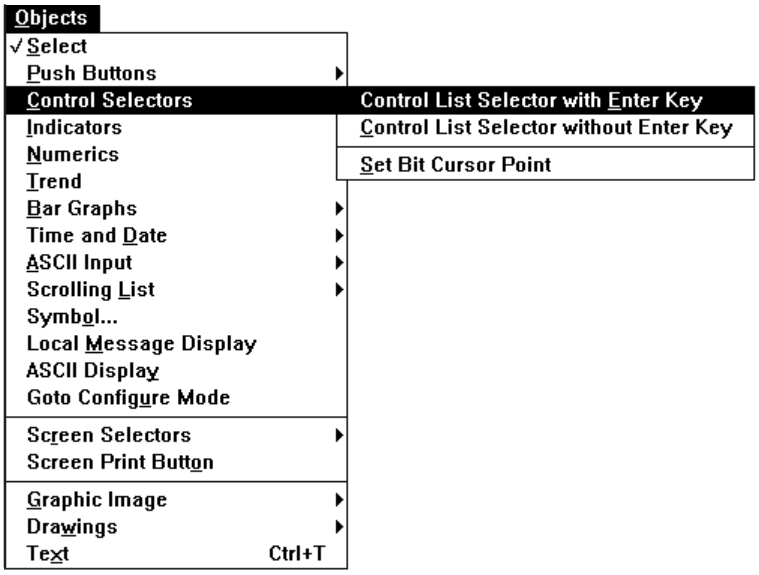
Before you can create the object, you must open the Setup&Printing screen from the Application Window. See Chapter 4 if you need help opening it.



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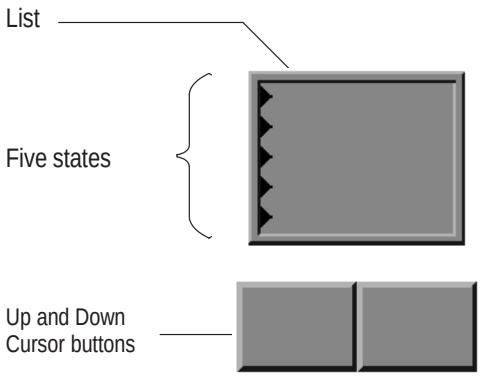
To create the Control List Selector without Enter Key object:

1. Choose Control Selectors from the Objects menu and choose Control List Selector without Enter Key, or choose  from the toolbox.



2. Draw the Control List Selector anywhere on your screen.

   The Control List Selector without Enter Key consists of a list component, an Up Cursor button, and a Down Cursor button. The Control List Selector without Enter Key appears in its default size and format, with space for five possible choices (states).



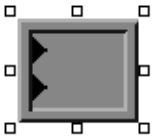
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Editing the Control List Selector without Enter Key

The Control List Selector without Enter Key has five states by default. Each state is indicated by an arrow (▶). Because the user will have only two choices for stapling (Yes and No), your list requires only two states. Change the number of states by resizing the list.

To edit the Control List Selector without Enter Key:

1. Click the object to select it.



2. Position the pointer over the list component in the Control List Selector object and click again. The second click selects the component (in this case the list component). The hollow handles show that an object component, not an entire object, is selected.
3. Resize the list component vertically until it shows only two states (Height 56). Follow the steps in Chapter 5 if you need help resizing.
4. Resize the list horizontally so that you can fit it inside the Staple outline box (Width 65).

▶ **Tip:** Resize the list diagonally by selecting one of the corner handles. This combines steps 3 and 4 into one step.

5. Move the list component into the Staple outline box.



6. Add text to the two states in the list. The first state should read `No`. To move the text cursor from the first to the second state, press ENTER. The second state should read `Yes`.
7. Select the Down Cursor button of the object. The status bar tells you which button you've selected. Resize the button to Width 64, Height 80. Position the button in the Staple outline box. Because you'll be disabling the Up Cursor button later, you don't need to move or resize it.
8. Add bitmap images to the Down Cursor button to clarify its function to the operator. Import these two graphic images from the C:\AB\PB1400E\IMAGES\ARROWS directory:
   - arrowdn.bmp
   - arrowup.bmp

▶ **Note:** You can import both images at once. In the Select one or more graphic images to import dialog box, select one of the images, then press CTRL while you select the second image. Choose OK, and both appear in the graphic library.

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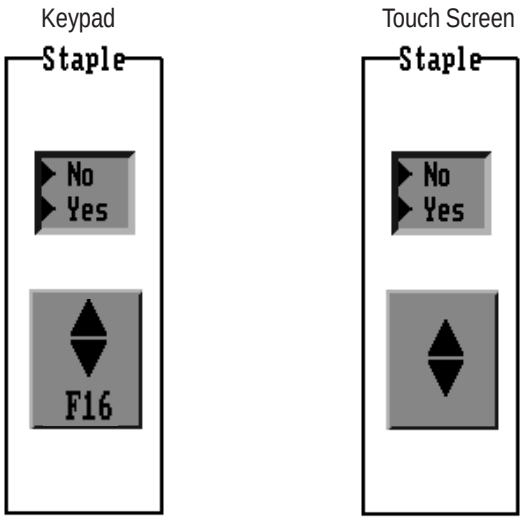
9. Place each image directly on the button, as shown. See Chapter 5 for information on importing and drawing graphic images.
10. After you've added the arrows, select each arrow and choose Make Label from the Edit menu. This associates the image with the object. If MakeLabel appears dimmed, PanelBuilder automatically made the graphic image into a label when you placed it. The handles for the image are hollow if it is a label.
11. Since you'll be assigning a function key to this button, add the following text: **F16**
12. Select the object and change the appearance of the object to match the remaining objects on the screen. Make the following changes:

    A. Change the colors to yellow on dark blue.

    B. Select the list component by clicking it twice, and choose Inset 4 as Border Style in the Format menu.

    C. Select the down button by clicking it twice, and choose Raised 2 as Border Style.

    When you're finished, the Control List Selector without Enter Key should look similar to the following illustration.



Now you're ready to configure the Control List Selector without Enter Key.

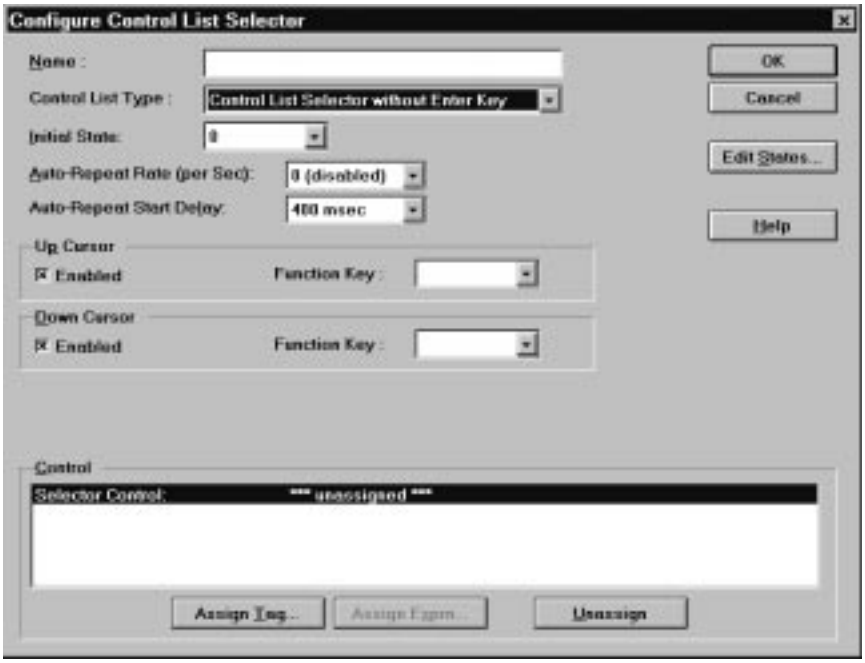
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Configuring the Control List Selector without Enter Key

To configure the Control List Selector without Enter Key:

1. Select the entire object. Choose Configure Screen Object from the Edit menu or  from the toolbar. Or, double-click the object or press the right mouse button.

   The Configure Control List Selector dialog box appears.



2. In the Name field, type `Stapler`. This description of the object's function is useful if you want to document the application in a report.

   Since the Control List Type field is already set to Control List Selector without Enter Key, you don't need to change this field.

   The Initial State field determines the state that the object is set to when the screen is displayed. The stapling option has two states: 0 (No) and 1 (Yes). Because you don't want stapling as the default, accept the value of 0 in the Initial State field.

   ▶ **Tip:** You can change the states' default values (0 and 1) to other numbers. However, for this example, these values are appropriate.

   You'll notice two timing parameter fields: Auto-Repeat Rate and Auto-Repeat Start Delay. By default, the Auto-Repeat field has a value of 0. This means that it is disabled. If the button is held down, it will not go into repeat mode. For this application, the defaults are appropriate.

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The Up Cursor and Down Cursor fields determine which cursor buttons appear on the screen. You can remove either the Up or Down cursor button from the screen, but not both. You don't need both cursor buttons for a list with only two states.

3. Click the Up Cursor Enabled box. The x disappears, indicating that the cursor button is now disabled.
4. If you have a keypad application, assign F16 to the Down Cursor.

You're now ready to configure the Selector Control.

Creating the Selector Control

When you converted the PanelBuilder 1200 application, all existing addresses were automatically converted into tags. The tags are stored in the tag database. Each control object, window, or PLC I/O Control option has one or more tags assigned. In turn, each tag has an address on the PLC. Some control objects, windows and PLC I/O Control options also allow you to use expressions to perform mathematical calculations, logic, or conditional logic operations on the output from one or more tags. For more information about tags, the tag database, and expressions, refer to the *PanelBuilder 1400e Configuration Software for Windows User Manual*.

You must create a new tag for the Control List Selector. You can then assign this tag as the Selector Control.

Create the tag in the Tag Database editor. There are two ways of accessing the Tag Database editor:

- through the System folder in the Application Window
- through an object's configuration dialog box

In this case, you'll access the Tag Editor through the object's configuration dialog box.

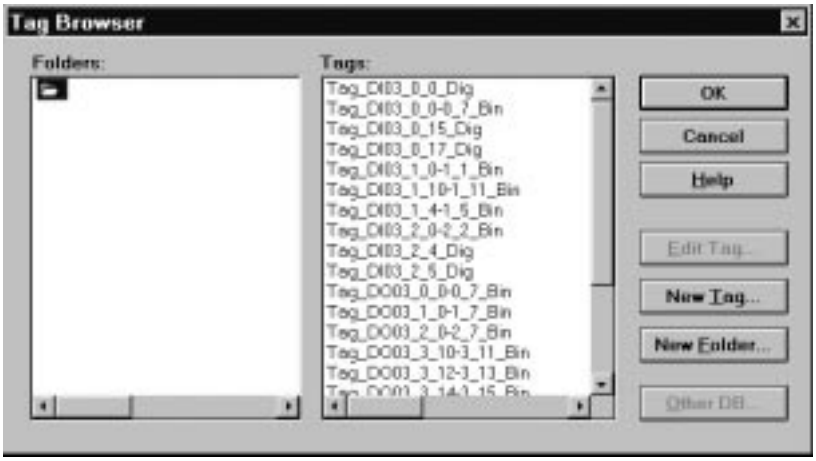
To access the Tag Editor:

1. In the Configure Control List Selector dialog box, choose Assign Tag.

   The Tag Browser dialog box appears. In the Folders section there is a single folder that contains all the application tags.

   If you wanted to use an existing tag, you could choose a tag from one of the folders. However, for this object you'll want to create a new tag.

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2. Choose New Tag.

   The Tag Editor appears.



You're ready to create the new tag.

To create the new tag:

1. The cursor is in the Name field. Type `Stapler_Button`.
2. Click the arrow beside the Type field and choose Digital from the drop-down list. Usually you would choose Analog for Control List Selectors, but because this Control List Selector has only two values, choose Digital. A digital tag can accommodate only the values 0 and 1.

   You don't need to change any of the default values in the editor, except for the address. In the Address field you must enter the PLC address for this tag. (In a new application you would have to define the rack and word definitions, but because this file was converted, you can use the existing definitions.)

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3. Double-click the default address in the Address field to highlight it, then type `i:032/10`.

   The values are:

This value	Means this
i	Input
03	Rack 3
2	Word 2
/10	10th Bit

4. Choose Accept.

   The Tag Editor closes and the Tag Browser reappears. The tag you just created is selected automatically.

5. Choose OK in the Tag Browser to assign the tag. The tag appears to the right of the Selector Control in the Configure Control List Selector dialog box.

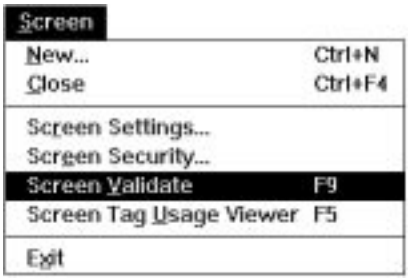
6. Choose OK again in the Configure Control List Selector dialog box to accept the changes and close the dialog box.

The tag is assigned.

Validating the Screen

The Validate feature helps you identify any problems in the screen, such as overlapping objects. When you've finished editing the screen, you should validate it.

To validate the screen:



▶ Choose Screen Validate from the Screen menu or press F9.

The Validation Results for Screens window appears. If there are any errors or problems in the screen, it lists them. The screen validation box shown below indicates that the screen is error-free.



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If there are any errors, fix them and revalidate the screen until there are no errors. Then you're ready to exit and save the application.

Tip: Leave the Validation Results window open on your desktop while you're making the necessary changes to the screen. You may want to resize the window and move it slightly off screen. When you've made a correction, choose Update on the Validation Results window. This will check the changes you've made. If you want, you can print the Validation Results window.

Viewing the Tag Usage for the Screen



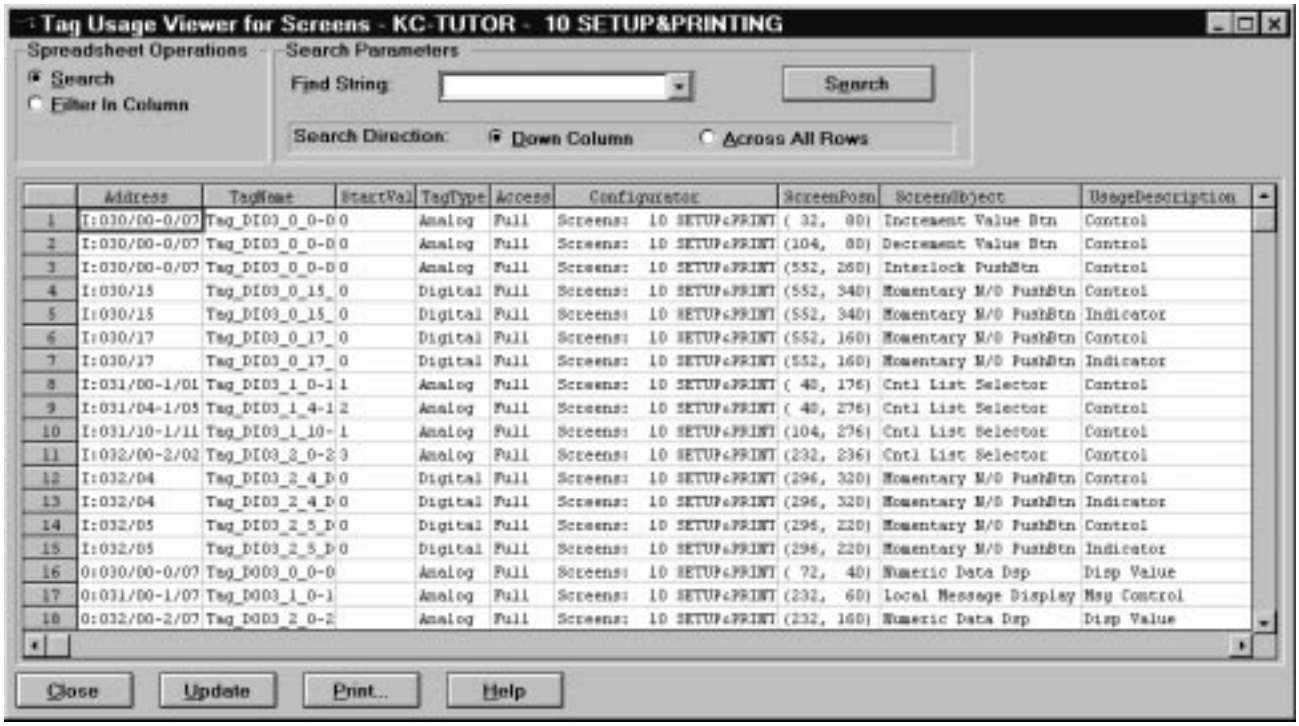
Before you exit the screen, look at the tags assigned to objects in the screen. You can do this with the Screen Tag Usage Viewer.

To open the Screen Tag Usage Viewer:

1. Choose Screen Tag Usage Viewer from the Screen menu or press F5.

   The Tag Usage Viewer for Screens appears. It shows all the tags that are configured for objects in this screen. You can search, filter, adjust the column widths, and print the listing.

2. Look for the tag you just created. You'll find it in Row 16. Tags are sorted alphanumerically according to whether they are Input or Output, and according to their address.



	Address	TagName	StartVal	TagType	Access	Configurator	ScreenPosn	ScreenObject	UsageDescription
1	I:030/00-0/07	Tag_DI03_0_0-0	0	Analog	Full	Screens: 10 SETUP&PRINT	(32, 80)	Increment Value Btn	Control
2	I:030/00-0/07	Tag_DI03_0_0-0	0	Analog	Full	Screens: 10 SETUP&PRINT	(104, 80)	Decrement Value Btn	Control
3	I:030/00-0/07	Tag_DI03_0_0-0	0	Analog	Full	Screens: 10 SETUP&PRINT	(552, 260)	Interlock PushBtn	Control
4	I:030/15	Tag_DI03_0_15_	0	Digital	Full	Screens: 10 SETUP&PRINT	(552, 340)	Momentary N/O PushBtn	Control
5	I:030/15	Tag_DI03_0_15_	0	Digital	Full	Screens: 10 SETUP&PRINT	(552, 340)	Momentary N/O PushBtn	Indicator
6	I:030/17	Tag_DI03_0_17_	0	Digital	Full	Screens: 10 SETUP&PRINT	(552, 160)	Momentary N/O PushBtn	Control
7	I:030/17	Tag_DI03_0_17_	0	Digital	Full	Screens: 10 SETUP&PRINT	(552, 160)	Momentary N/O PushBtn	Indicator
8	I:031/00-1/01	Tag_DI03_1_0-1	1	Analog	Full	Screens: 10 SETUP&PRINT	(40, 176)	Cntl List Selector	Control
9	I:031/04-1/05	Tag_DI03_1_4-1	2	Analog	Full	Screens: 10 SETUP&PRINT	(40, 276)	Cntl List Selector	Control
10	I:031/10-1/11	Tag_DI03_1_10-	1	Analog	Full	Screens: 10 SETUP&PRINT	(104, 276)	Cntl List Selector	Control
11	I:032/00-2/02	Tag_DI03_2_0-2	3	Analog	Full	Screens: 10 SETUP&PRINT	(232, 236)	Cntl List Selector	Control
12	I:032/04	Tag_DI03_2_4_D	0	Digital	Full	Screens: 10 SETUP&PRINT	(296, 320)	Momentary N/O PushBtn	Control
13	I:032/04	Tag_DI03_2_4_D	0	Digital	Full	Screens: 10 SETUP&PRINT	(296, 320)	Momentary N/O PushBtn	Indicator
14	I:032/05	Tag_DI03_2_5_D	0	Digital	Full	Screens: 10 SETUP&PRINT	(296, 220)	Momentary N/O PushBtn	Control
15	I:032/05	Tag_DI03_2_5_D	0	Digital	Full	Screens: 10 SETUP&PRINT	(296, 220)	Momentary N/O PushBtn	Indicator
16	0:030/00-0/07	Tag_DO03_0_0-0		Analog	Full	Screens: 10 SETUP&PRINT	(72, 40)	Numeric Data Dsp	Disp Value
17	0:031/00-1/07	Tag_DO03_1_0-1		Analog	Full	Screens: 10 SETUP&PRINT	(232, 60)	Local Message Display	Msg Control
18	0:032/00-2/07	Tag_DO03_2_0-2		Analog	Full	Screens: 10 SETUP&PRINT	(232, 160)	Numeric Data Dsp	Disp Value

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Exiting the Screen

To exit the Setup&Printing screen, choose Close in the Screen menu or in the Control box menu, or double-click the screen window's control box, or press CTRL+F4.

To ensure that you don't lose your changes, save your application to disk. Choose Save Application in the File menu or  from the toolbar.

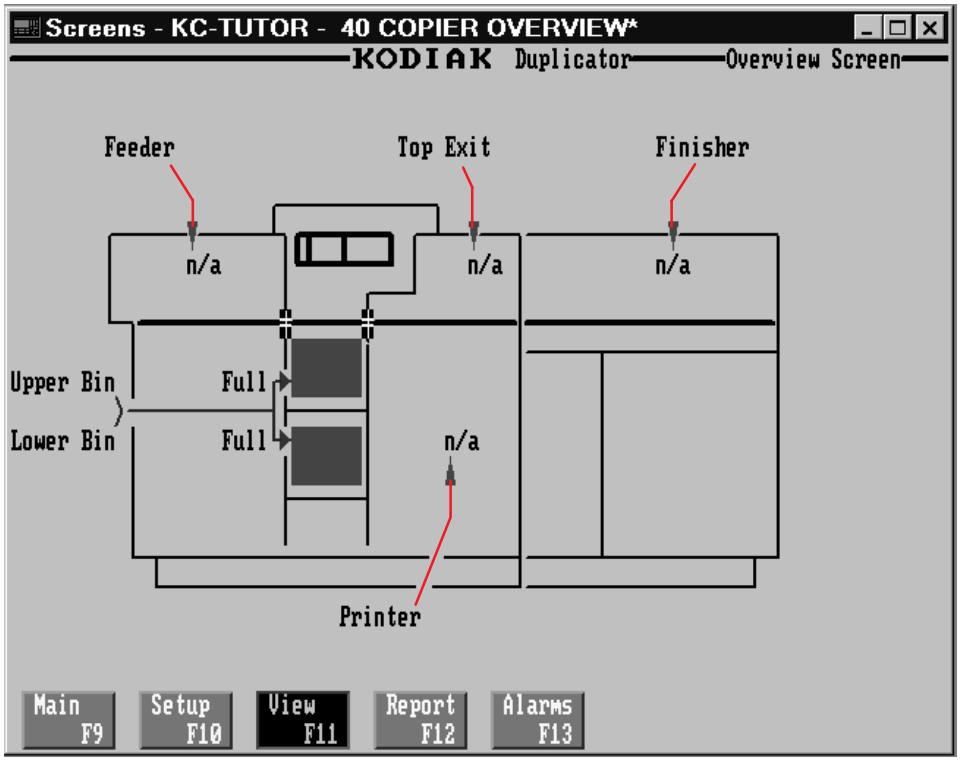
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Creating Multistate Indicators and Drawing Lines

Follow the instructions in this chapter to add two Multistate Indicator objects to the Copier Overview screen.

Creating and Configuring Multistate Indicators

Open the Copier Overview screen. The copier illustration is a line object that contains twelve Multistate Indicator objects and two bar graphs.



Each Multistate Indicator displays the status of a certain area in the machine. For example, if there is a paper jam in the finisher area, the Multistate Indicator in the finisher area shows Jam. If this area in the machine is functioning properly, the Multistate Indicator shows OK.

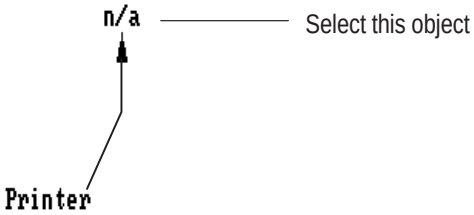
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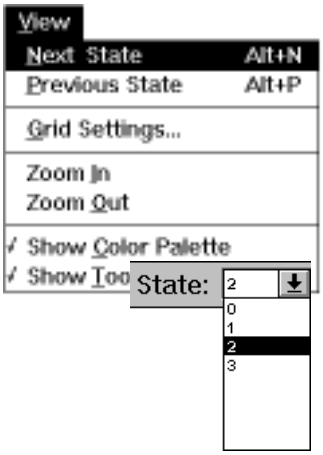
Viewing the States of a Multistate Indicator

As an example of this, look at the four states of the Printer object.

To view the four states:

1. Select the Printer Multistate Indicator object in the copier (not the label that is outside the copier). By default, this object is at State 0.





2. Choose Next State from the View menu or press ALT+N.

   Tip: To move from one state to any other state, you can also use the State field in the toolbar. Select the object, click State in the toolbar, and choose the state you want to move to from the drop-down list. To move through the states using a keyboard shortcut, press CTRL+SHIFT+S. While holding down these keys, press the up and down arrow keys to move through the states.

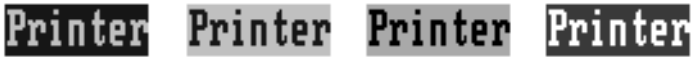
3. The object changes to blue on white, with state text “Ok.” It is now at State 1.

   Note: The status bar tells you the current state of the object if the pointer is positioned on the screen.

4. Move through the remaining states, until you arrive back at State 0.



5. Now select the Printer Multistate Indicator object outside the copier, and view its four states. You’ll see that its states’ colors match those of the Printer Multistate Indicator object in the copier.



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These are the meanings of the states:

- **State 0**—the printer is not active, and there are no problems
- **State 1**—the printer is active and there are no problems
- **State 2**—the printer is active, but the toner is running low. This is a warning state.
- **State 3**—the printer has a paper jam

Adding the Stapler Multistate Indicator

There is an empty area in the existing illustration. This is where the stapler is located in the new machine.

To show the stapler's location, draw two Multistate Indicator objects—one inside the copier drawing, and one outside the drawing. Configure each of these to show four different states.

To draw the first Multistate Indicator:

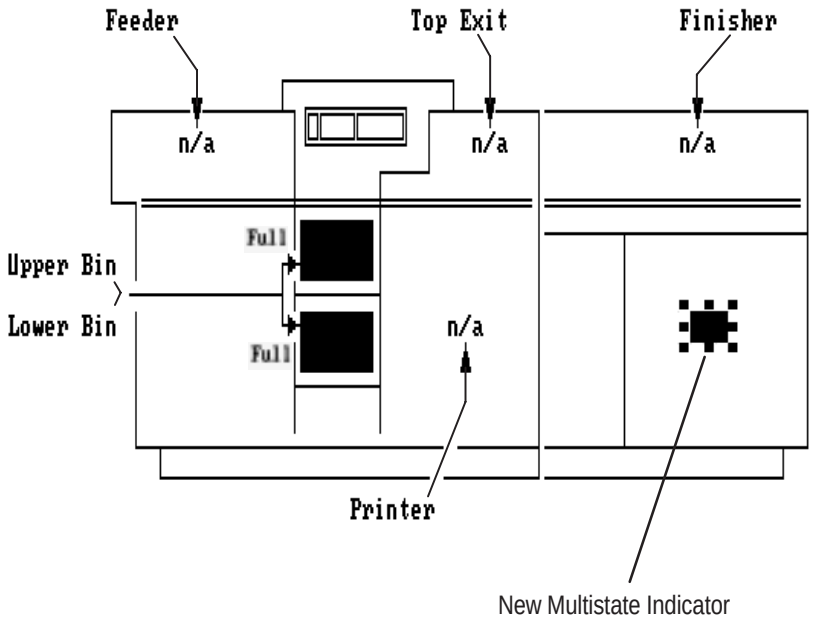


1. Choose Indicators from the Objects menu and choose Multistate. Or choose  from the toolbox.
2. Position the mouse pointer inside the blank area in the copier and draw the Multistate Indicator.

   It appears in its default size, with default colors.

   Tip: If the object's background color is the same color as the screen, change the object's color temporarily to make it easier to see the object.
3. Select the Multistate Indicator, choose Border Style from the Format menu, and select None.
4. Resize the new Multistate Indicator so it is the same size as the existing Multistate Indicators (Width 40, Height 20).
5. Position the Multistate Indicator so it appears as in the following illustration.

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Now you can configure the states.

Configuring the States

Unless you've set different defaults for the Multistate Indicator, the new Multistate Indicator automatically has four states assigned. By default, it is at State 0. This is the state that appears when the copier is not active, and there are no problems.

To configure these states:



1. Configure State 0 as follows:

   A. Select the object. Change the foreground color to light grey and the background color to blue.

   B. Create the text label `n/a` for "not active."

   You've defined the first state (State 0) of the object. Now you can configure the remaining states.

2. With the object (but not the text) selected, choose Next State from the View menu or press ALT+N. The object is now at State 1.



3. Configure State 1 as follows:

   A. Create the label `OK` to indicate that everything is functioning correctly.

   B. Change the foreground color to blue and the background color to white.

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Note: Make sure you place the I-beam inside the object's rectangle. Otherwise you must reposition the text and choose Make Label from the Edit menu.

Low

4. Configure State 2 as follows:

   A. Create the label `Low` for "Staple Supply Low."

   B. Change the foreground color to black and the background color to yellow.

Jam

5. Configure State 3 as follows:

   A. Create the label `Jam` for "Stapler Jam."

   B. Change the foreground color to white and the background color to red.

When you've defined the four states, you can configure the tag.

Configuring the Multistate Indicator

To configure the Multistate Indicator:

1. Select the object. Choose Configure Screen Object... from the Edit menu or  on the toolbar.

   The Configure Multistate Indicator dialog box appears.

2. In the Name field, type `Stapler`.

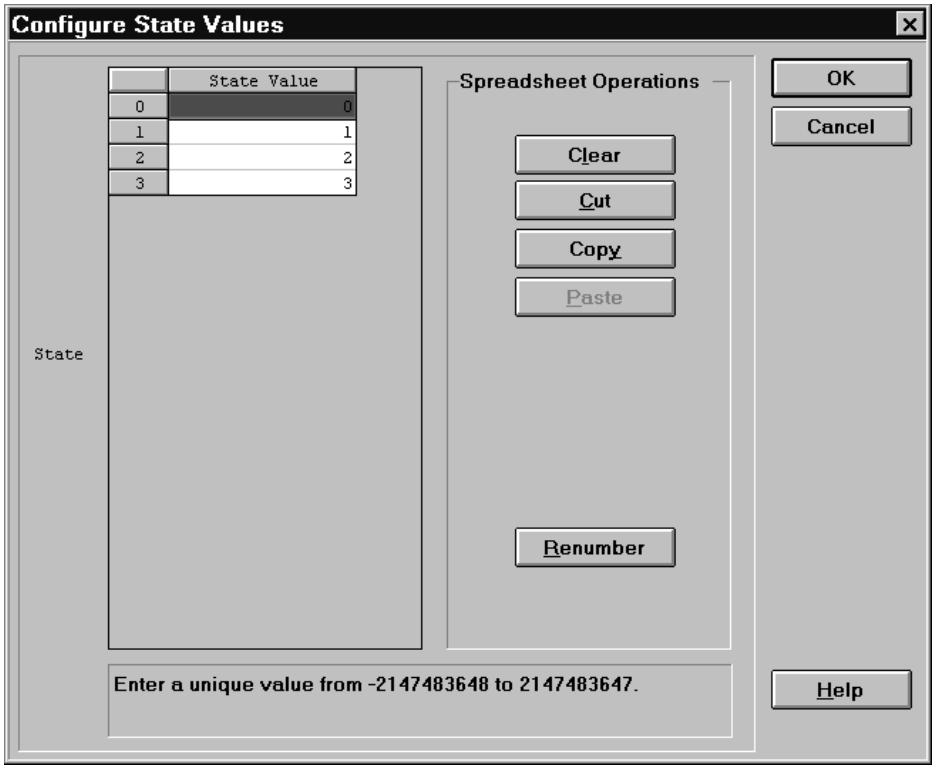


   You'll notice that you can specify the object's number of states in this dialog box. The default number is four. Because this is the number of states you want, you won't need to change it.

3. Choose Edit States.

   The Configure State Values dialog box appears. If you wanted to, you could assign different values to the states. In this case, accept the defaults.

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4. Choose OK.

   The Configure Multistate Indicator dialog box reappears. You can now assign the control, which can be a tag or an expression. For the purposes of this tutorial, assign a tag.

To assign the Indicator State:

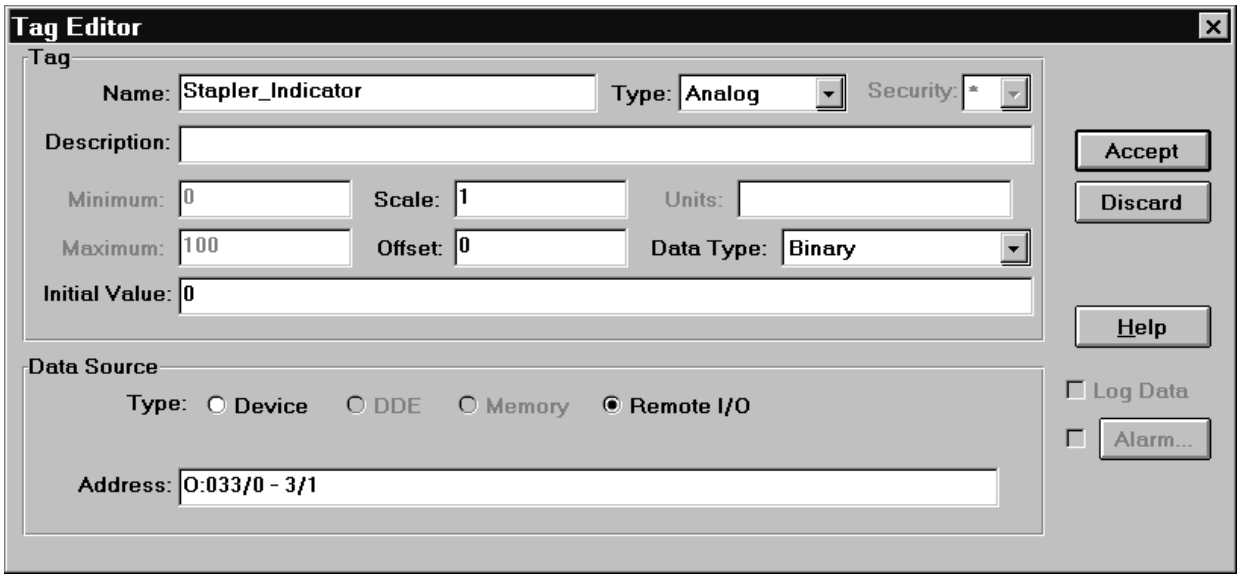
1. Choose Assign Tag.
2. The Tag Browser appears.

   You must create a new tag for this object.

3. Choose New Tag.

   See Chapter 6 for information about creating new tags. Create and assign the tag shown in the following illustration. This time you'll want to use an analog tag because the values range from 0 to 4. For the address, use the one shown, or assign any binary output address using three bits.

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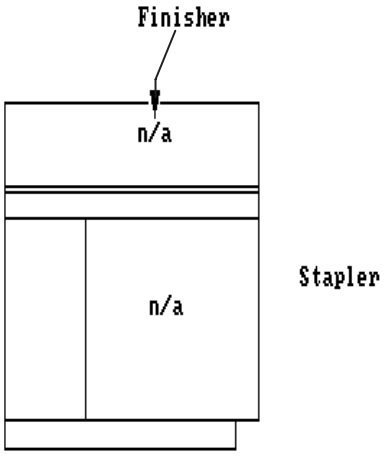
Adding the Second Stapler Multistate Indicator

The second Multistate Indicator is outside the copier drawing. It also must have four states that correspond to those of the first object.

1. Create the Multistate Indicator object and position it on the screen, outside of the copier illustration.

   If you wish, you can select an existing Multistate Indicator object, and use the Duplicate command. Then you can edit the new object so that the text reads `Stapler` in each state.

   Or you can draw the object, following the steps described previously, and define each state separately.



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2. You don't have to create a new tag for this Multistate Indicator. Because it is designed to operate in tandem with the other Multistate Indicator, you can assign the same tag to both objects.

   To assign the tag, open the Configure Multistate Indicator dialog box and choose Assign Tag. Select the Stapler_Indicator tag in the Tag Browser, and choose OK.

Drawing Lines and Arrows

To keep the appearance of the new objects consistent with the remaining objects, add a line and arrow pointing to the Multistate Indicator in the copier.

To draw a line:

1. Select one of the existing lines in the drawing. By doing this, you ensure that the next time you draw lines, the new line defaults will be the same as the existing lines.
2. Choose Drawings from the Objects menu and then choose Line. Or, choose  from the toolbox.

   Note that the pointer now has a small line at its base. This means the line tool is active.
3. Press the left mouse button. While holding the button, drag the mouse. A line appears. When it's the right size, release the mouse button.

   Tip: To create a horizontal line, hold down the SHIFT key as you're drawing the line.
4. Position the line next to the stapler Multistate Indicator object in the copier.
5. If you wish, connect the horizontal line to the outside Stapler Multistate Indicator object by drawing a diagonal line.

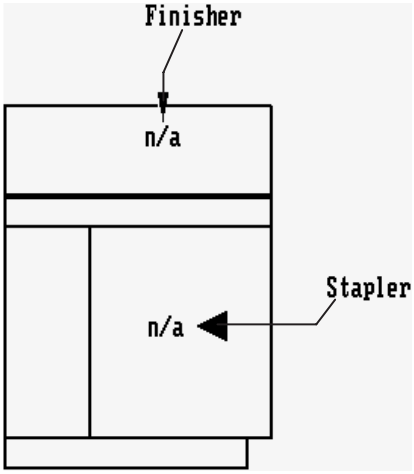
Now you can add an arrow to the line so it points to the Multistate Indicator in the copier.

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To add an arrow:

1. Follow the steps for importing a graphic image, and import arrowlf.bmp from the C:\AB\PB1400E\IMAGES\ARROWS directory.
2. Place the arrow on the screen, and position it at the left end of the line.
3. Change the arrow's colors to match those of the line.

When you're finished, your stapler illustration should look something like this.



Validating the Screen and Saving the Application

When you've finished fine-tuning the design, validate the screen, as described in Chapter 6.

Fix all problems in the screen and revalidate it to ensure there are no further problems. Then close the screen, and save the application.

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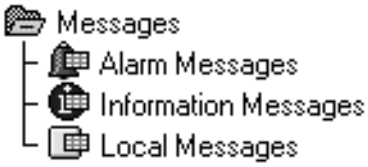
Creating Alarm Messages

Follow the instructions in this chapter to add alarm messages to your application.

Adding Alarm Messages

At this point you've added all the objects required to be able to use the stapler option when the application is running. However, you still need to add alarm messages that will inform you when something goes wrong with the stapler.

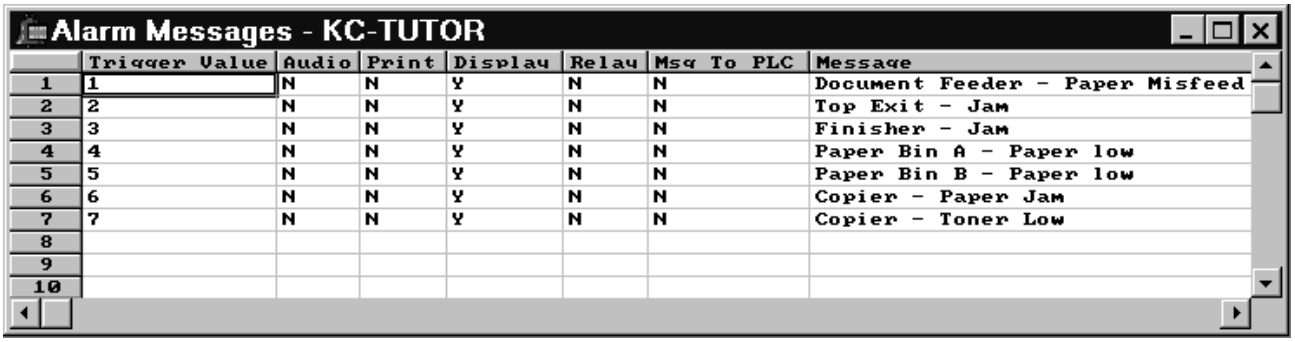
Add alarm messages in the Alarm Messages editor.



To open the Alarm Messages editor:

1. Open the Messages folder in the Application Window.
2. Choose the Alarm Messages editor. Or, choose  from the toolbar.

   The Alarm Messages spreadsheet appears on your screen. There are already seven messages.



	Trigger Value	Audio	Print	Display	Relay	Msg To PLC	Message
1	1	N	N	Y	N	N	Document Feeder - Paper Misfeed
2	2	N	N	Y	N	N	Top Exit - Jam
3	3	N	N	Y	N	N	Finisher - Jam
4	4	N	N	Y	N	N	Paper Bin A - Paper low
5	5	N	N	Y	N	N	Paper Bin B - Paper low
6	6	N	N	Y	N	N	Copier - Paper Jam
7	7	N	N	Y	N	N	Copier - Toner Low
8							
9							
10							

To add the first new message:

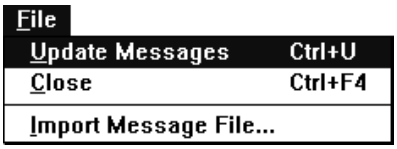
1. Position the pointer on the Trigger Value field in row 8, and click. Or, use the down arrow to move to row 8.
2. Although you can enter any positive or negative trigger value, type 8.

   An N (for "No") appears in the Audio, Print, Relay, and Msg To PLC fields. This means that these options are not enabled. The Display field shows a Y (for "Yes"). This option is therefore enabled. Accept the option defaults.

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3. Position the pointer in the Message field in row 8, and click. Or use the TAB key to move to the field.
4. Type `Stapler is out of staples`
5. In row 9, enter a trigger value of 9 and add the following message: `Stapler is jammed`

8	8	N	N	Y	N	N	Stapler is out of staples
9	9	N	N	Y	N	N	Stapler is jammed



When you're finished, update the messages.

To update the messages:

- Choose Update Messages from the File menu or  from the toolbar. Or press CTRL+U.



Note: The Message Editor automatically validates your messages when you update them. If there are any problems, such as duplicate message numbers, the Validation Results window appears, displaying all the errors. Correct the errors and update your messages again.

When you're finished, close the Alarm Messages editor and save the application.

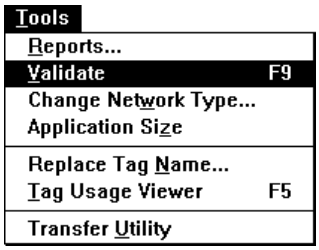
You're now ready to download the application.

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Downloading and Running the Application

When you've completed all the work, you can validate your application. Then you can download it to the PanelView terminal and run it. Validating your application ensures it is free of errors.

Validating the Application



Your application is validated automatically before it can be downloaded to a PanelView terminal. Validation checks for errors, including overlapped buttons, objects that are off the screen, and so on. You can also validate your application manually at any time.

To validate your application:

1. Click the Application Window or choose  from the toolbar.
2. Choose Validate from the Tools menu or press F9.

   The Validation Results window appears. It lists any errors present.

   If there are errors, go back to the screen or message editor and correct the errors.

   When there are no errors, you're ready to download.

Getting Ready to Download

You may have noticed that the AB\PB1400E\TUTORIAL directory contains existing *.pvc files. These files are applications that have been completed according to the instructions in the tutorial and are ready to be downloaded.

If you wish, you can download the file you've just created. Before you do, make sure you save it. However, if you've deviated from the tutorial, your file may not work with the PLC ladder logic that comes with the tutorial. We therefore recommend that you use one of the existing tutorial files.

To download an existing tutorial file, you must open the appropriate application:

- **tutork.pvc**—for keypad terminals
- **tutort.pvc**—for touch screen terminals

To open the appropriate application, follow the instructions in Chapter 4. Because these are *.pvc applications, you don't need to change the List Files of Type field.

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You can use the PanelView 1200/1400e Transfer Utility installed on a portable computer to download a terminal file (*.pvd) to a PanelView terminal at a remote location, in which case you don't need to open the application in PanelBuilder. See the *PanelView 1400e Transfer Utility User Manual* for more information.

Downloading the Application

PanelBuilder 1400e provides several methods for downloading your application. Refer to the *PanelView 1200/1400e Transfer Utility User Manual* for step-by-step instructions on downloading. After you have downloaded the application, return to this tutorial.

Running the Application File

If you've downloaded a file and specified it to be the Current Application, switching the PanelView terminal to Run mode will run that file. If you did not specify that the downloaded file is to be the Current Application and there are other applications on the terminal, you'll need to go to the Select Application screen with the PanelView terminal in Configure mode, to make it current. See the *PanelView 1000e, 1200e, and 1400e Operator Terminals User Manual* for information about the terminal's Configure Mode.



Tip: To explore the photocopier application fully, connect the PanelView terminal to a PLC that is loaded with the PanelBuilder tutorial ladder logic. The ladder logic files (TUTORIAL.*) are in the \AB\PB1400E\TUTORIAL directory, on the drive on which you installed PanelBuilder.

To run the application:

1. Set the PanelView terminal to Run mode.

   You see the Initial Screen.

2. Press one of the Goto Screen buttons or the corresponding function key.

   The assigned screen appears.

3. Explore the application. Test the different objects to see how they work. In the application's Setup screen, try copying large quantities. Then look at the Copier Overview screen to see how the Multistate Indicators and Bar Graphs work.

If necessary, refer back to Chapter 4 for information on the different objects and how they work.

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Note: You can modify the ladder logic on the PLC using Allen-Bradley programming tools. Refer to the documentation that comes with your programming software for instructions. Before you make changes however, make a backup copy of the ladder logic!

Application Design Features

As you're moving through the screens, notice the design features of this application.

- **Consistency**—Buttons and screen titles are positioned consistently across the different application screens.
- **Screen Navigation**—The screens are easy to navigate. You can call up any screen from anywhere in the application.
- **Colors**—The screens provide optimum contrast for readability.

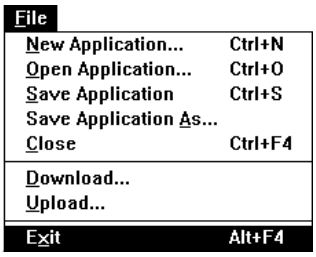
  Colors with associated meanings are applied to certain objects. For example, in the Setup&Printing screen, the Print button is green; the Cancel button is red.

  In Multistate Indicators, colors for each state are configured to convey the appropriate meaning. For example, State 0 (not active) is blue. State 3 (error) is red to alert the user.
- **Control Groups**—Groups of controls are arranged left to right, top to bottom, in the order they would logically be used.

  For example, input options are arranged as follows:
  Copies; Paper Source; Copy Quality/Mode; Zoom.
- **Button Placement**—On keypad applications, each Goto Screen button is placed near the function key that controls it.

Exiting the Tutorial

When you're finished exploring the Copier application, you can exit the application running on the PanelView terminal by turning the terminal off. You can also exit PanelBuilder 1400e.



To exit PanelBuilder 1400e:

- Choose Exit from the File menu or double-click in the Control box. Or, press ALT+F4.

You have completed the tutorial. You're now ready to begin designing your own applications.

Congratulations on choosing PanelBuilder 1400e.

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