Wonderware® FactorySuite®
InTouch Runtime

User's Guide

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Trademarks

Contents

Welcome to InTouch Runtime

Welcome to Wonderware® InTouch™, the quickest and easiest way to create human-machine interface (HMI) applications for the Microsoft® Windows™ operating systems. InTouch is a component of the Wonderware FactorySuite™. The InTouch software consists of two major programs, WindowMaker and WindowViewer. It also includes several utility/diagnostic programs.

WindowMaker is the development environment, where object-oriented graphics are used to create animated, touch-sensitive display windows. These display windows can be connected to industrial I/O systems and other Microsoft Windows applications. WindowViewer is the runtime environment used to display the graphic windows created in WindowMaker.

To get started quickly, read this chapter for details on how to install and start-up your InTouch system.

Contents

InTouch Applications

By using InTouch, you can create powerful, full-featured applications that exploit the key features of Microsoft Windows, including ActiveX controls, Object Linking and Embedding (OLE), graphics, and more. InTouch can also be extended by adding custom ActiveX controls, wizards, generic objects, and creating InTouch QuickScript extensions.

InTouch applications span the globe in a multitude of vertical markets including food processing, semiconductors, oil and gas, automotive, chemical, pharmaceutical, pulp and paper, transportation, utilities, and more.

Special InTouch Runtime Features

InTouch includes the following features:

- **Applications Run on Windows NT Operating System or Windows 95**
  InTouch allows you to create applications in Windows 95 and then run these applications on the Windows NT operating system and vice versa. No conversion is required for these applications. They are interchangeable and will run on either platform.
- **OCX Container**
  InTouch supports OCX controls, ActiveX controls and Object Linking and Embedding (OLE). You can easily select and add OCX or ActiveX controls to any application window and to your toolbar. You can handle control events, call control methods and set and get control properties all from InTouch QuickScripts. You can also attach the OCX or ActiveX control properties directly to InTouch tagnames.
- **60,000 Tagname Support**
  The InTouch Tagname Dictionary supports up to 60,000 tags. The number of tagnames supported is dependent on the license you purchase.
- **Remote Tagname Referencing**
  Remote tagnames referencing allow you to access data from an I/O Server without having to create the tagname in your local Tagname Dictionary. Remote tagnames include data defined from most I/O data sources, for example Microsoft Excel and a remote View node. When you import a window, you can quickly convert its placeholder tagnames to remote tagnames to create entire client applications with no local Tagname Dictionary.
- **Asynchronous QuickFunctions**
  QuickFunctions can be configured as asynchronous. The asynchronous functionality is divided between the development environment of WindowMaker and the runtime environment of WindowViewer. When executed, QuickFunctions immediately run in the background at the same time that the main WindowViewer process is running. This allows WindowViewer to separate time consuming operations such as SQL database calls and "FOR NEXT" loops from the main program flow. When such time consuming operations are performed through asynchronous QuickFunctions, all animation links and other InTouch functionality simultaneously remain active.

- **View as an NT Service**
  WindowViewer can now run as an NT service. This provides NT service capabilities for key InTouch components such as historical logging, providing alarms and providing I/O data. The service capabilities allow continuous operation of WindowViewer through operating system log-ins, log-outs, for example, operator shift changes. Another functionality is automatic start up of InTouch following power failure or, when the machine is turned off and on. This provides unmanned station startup of WindowViewer without compromising NT operating system security.

- **Distributed Alarm System**
  The new distributed system supports multiple alarm servers or "providers" concurrently, giving operators the ability to simultaneously view and acknowledge alarm information from multiple remote locations.

- **Distributed History**
  The distributed historical trending system allows you to dynamically specify a different historical file data source for each pen of a trend chart. This allows an operator to also view both native InTouch history and IndustrialSQL history in the same trend.

- **Dynamic Resolution Conversion**
  You can now develop applications in one screen resolution and run them at another, without affecting the original application. The applications can also be run at a user-defined resolution, instead of the display resolution.

- **Dynamic Reference Addressing**
  Data source references can be changed to dynamically address multiple data sources with a single tagname.

- **Network Application Development**
  New remote development features accommodate large, multi-node installations, including updating of all nodes on a network from a single development station.

- **FactoryFocus**
  FactoryFocus is a view only Runtime version of InTouch 5.6 or later. It allows Managers and Supervisors the ability to view a continuous HMI application process in real time. System security is increased with the view only capability since no data can be changed. No changes are needed to InTouch applications to use InTouch FactoryFocus.

  InTouch FactoryFocus functions as a client only. No data can be written from it using DDE, FastDDE or Poked to programs such as Excel. Alarms can be viewed but not acknowledged. Features such as animation links, tagnames, real-time and historical trends are view only.

- Other InTouch features and benefits include:
  - Connectivity with more than 300 I/O Servers.
  - Low cost process viewer solution at a price significantly less than a full HMI.
  - VTQ (data Value, with associated Timestamp and Quality) of I/O type tagnames provided by an I/O Server.
  - Wonderware SuiteLink protocol. SuiteLink allows application commands (reads, writes and updates) and their associated data to be passed between client applications and server applications.
  - Easily networked with Wonderware NetDDE.
  - Real-time application process viewing.
  - Standard Windows 95/NT GUI format featured.
  - Windows 95 and Windows NT operating systems long filename support.

System Requirements

To run InTouch, we recommend the following hardware and software:

- Any IBM® compatible PC with a Pentium 100Mhz processor or higher.
- At least 100MB of free hard disk space.
- At least 32MB of random-access memory (RAM).

Note We recommend 5MB of RAM per 5K tagnames. For example, 32MB of RAM for 32K tagname support and 128MB of RAM for 60K tagname support.

- SVGA display adapter (2MB RAM recommended).
- Pointing device. For example, mouse, trackball, touch screen.
- Microsoft® Windows® 95 or Windows NT™ operating systems.
- For the Windows 95 operating system to implement the distributed functionality of InTouch, Wonderware NetDDE must be installed and operational.

Note Beginning with Wonderware FactorySuite InTouch Version 7.0, InTouch no longer supports the Microsoft Windows 3.x or Microsoft Windows for Workgroups operating systems.

Installing InTouch

The Wonderware FactorySuite installation program is used to install InTouch. InTouch runs on Microsoft Windows 95 or Windows NT operating systems. The installation program creates directories as needed, copies files from the distribution compact disk to your hard drive, and adds the **InTouch for Windows** program to your Windows **Programs** menu. When you point to **InTouch for Windows**, a submenu appears listing all of the components of InTouch. For example, WindowMaker and WindowViewer.

For complete installation instructions, refer to your FactorySuite installation booklet or your online *FactorySuite System Administrator's Guide*.

Running InTouch for the First Time

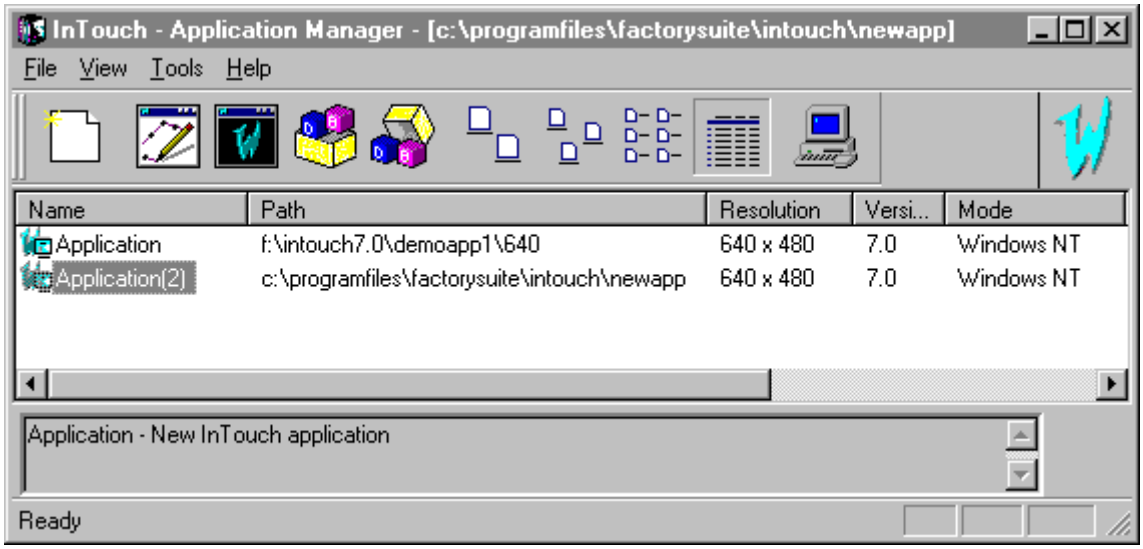
The first time you run INTOUCH.EXE, the INTOUCH.INI file is automatically created. This file contains the default configuration settings for your application. As you configure your application, your settings are written to the INTOUCH.INI file.

Once you have customized your application, when you create a new application, you can copy your customized INTOUCH.INI file to your new application's directory. This eliminates the need for you to reset your customized parameters each time you create a new application.

📖 For more information on customizing your application, see your online *InTouch User's Guide*.

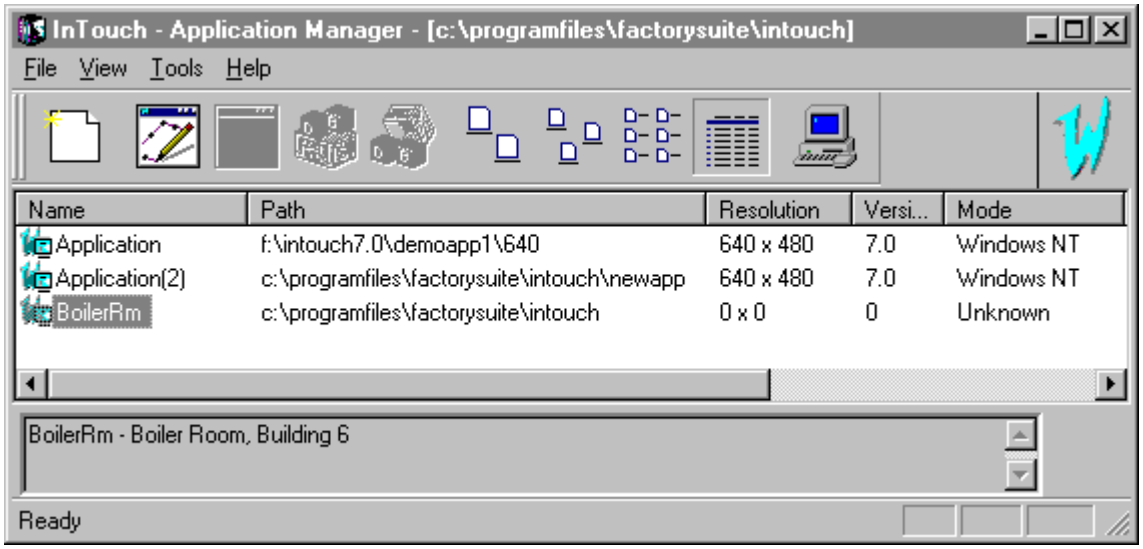
➢ **To run InTouch for the first time:**

1. Start the InTouch program (INTOUCH.EXE).The **Welcome to InTouch Application Manager** dialog box will appear.
2. Click **Next**. A second **Welcome to InTouch Application Manager** dialog box will appear displaying the default path for the starting directory. For example, **C:\ProgramFiles\FactorySuite\InTouch**.
3. To specify a different directory, type the path to the directory in the input box, or click **Browse** to locate the directory.
4. Click **Finish**.
5. The **InTouch - Application Manager** will appear and automatically search your computer for any current InTouch applications. If an application(s) is found, an icon with the application's name will appear in the dialog box. For example:



➢ **To create a new application:**

1. On the **File** menu, click **New**, or click the **New** tool in the toolbar. The **Create New Application** wizard will appear.
2. Click **Next**. A second **Create New Application** wizard will appear.
   - By default, the system will display the path to your InTouch directory followed by "**NewApp**."
3. In the input box, type the path to the directory in which you want your application to be created or click **Browse** to locate the directory.
4. Click **Next**.
   - If the directory you specify does not exist, a message dialog box will appear asking if you want to create it. Click **OK**. A third **Create New Application** wizard dialog box will appear.
5. In the **Name** box, type a unique name for the new application's icon that appears when the application is listed in the **InTouch Application Manager** window.
6. In the **Description** box, type a description of the application.
   - The description is optional. However, if you do type a description, it can be a total of 255 characters.
7. Click **Finish**. The **InTouch - Application Manager** will reappear displaying an icon with the name you specified for the new application. For example:



8. To open an application, click the right mouse button as you select it, and then click the name of the program you want to use for the application in the **File** menu, or select the application in the list, and then click the WindowMaker tool in the toolbar. (WindowViewer cannot be executed for a new application.)
   - To quickly open the application, double-click it's icon or select it, and then press ENTER.

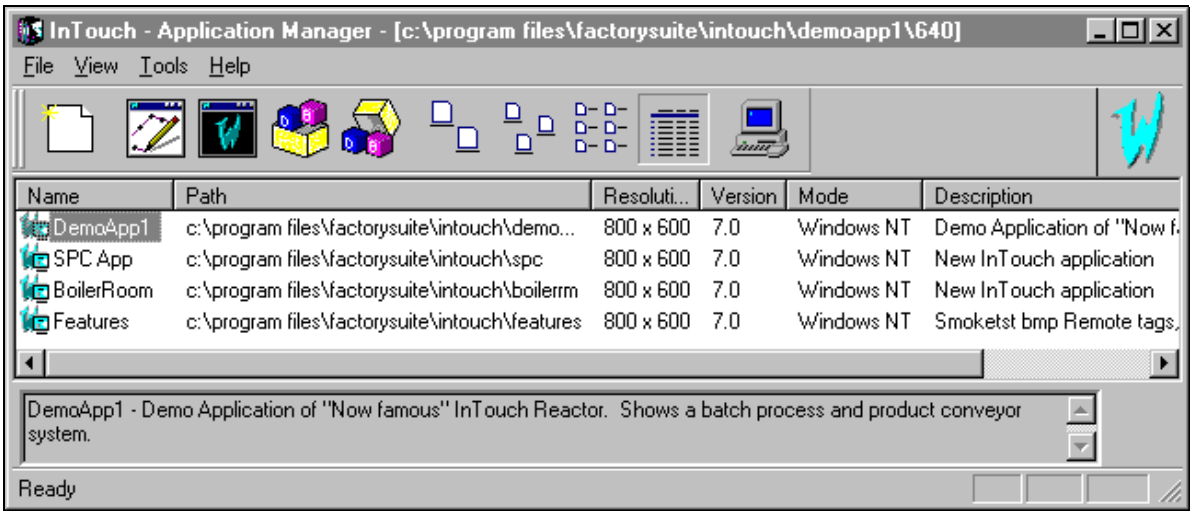
InTouch Application Manager

You will use the InTouch Application Manager to create new applications, open existing applications in either WindowMaker or WindowViewer, delete applications, and run the InTouch DBDump and DBLoad Tagname Dictionary utility programs.

📖 For more information on the DBDump and DBLoad programs, see your online *InTouch User's Guide.*

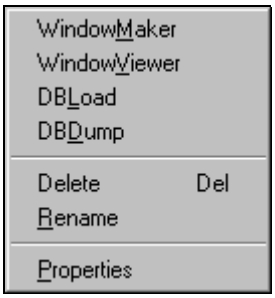
➢ **To run the InTouch Application Manager:**

1. Start the InTouch program (INTOUCH.EXE). The **InTouch Application Manager** dialog box appears:



When you select an application in the list, it's name and it's description will appear in the box at the bottom of the screen. You can edit the description. If you right-click the description box, a menu appears displaying the commands that you can apply to the selected text.

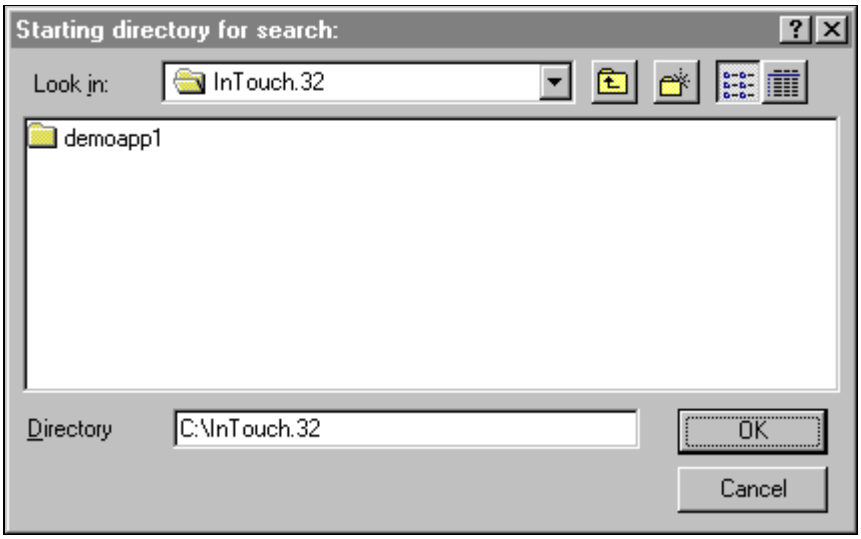
You can also execute several of the InTouch Application Manager's menu commands from the menu that appears when you click the right mouse button as you select an application. For example:



2. To rename an application's icon, right-click the application in the list, and then click **Rename**. Type the new name and press ENTER.

3. To delete an application's icon, right-click the application in the list, and then click **Delete**. A message box will appear asking you to confirm the deletion. Click **Yes** to delete the application from the window or click **No** to cancel the deletion.

   If you delete an application from the list, it does not delete your files or directory. If you need to display it later, on the **Tools** menu, click **Find**. The **Starting directory for search** dialog box appears:



Locate the directory in which you want to search for applications, and then click **OK**. The InTouch Application Manager will reappear displaying icons for all applications that were found in the selected directory.

If you right-click in the window, a menu will appear displaying the commands that you can apply to a selected item.

The Application Manager's Tools

By default when InTouch is initially run, the Application Manager's toolbar and status bar are displayed.

➢ **To hide the toolbar:**

On the **View** menu, select **Toolbar**. To show it again, repeat this step.

➢ **To hide the status bar:**

On the **View** menu select **Status Bar**. To show it again, repeat this step.

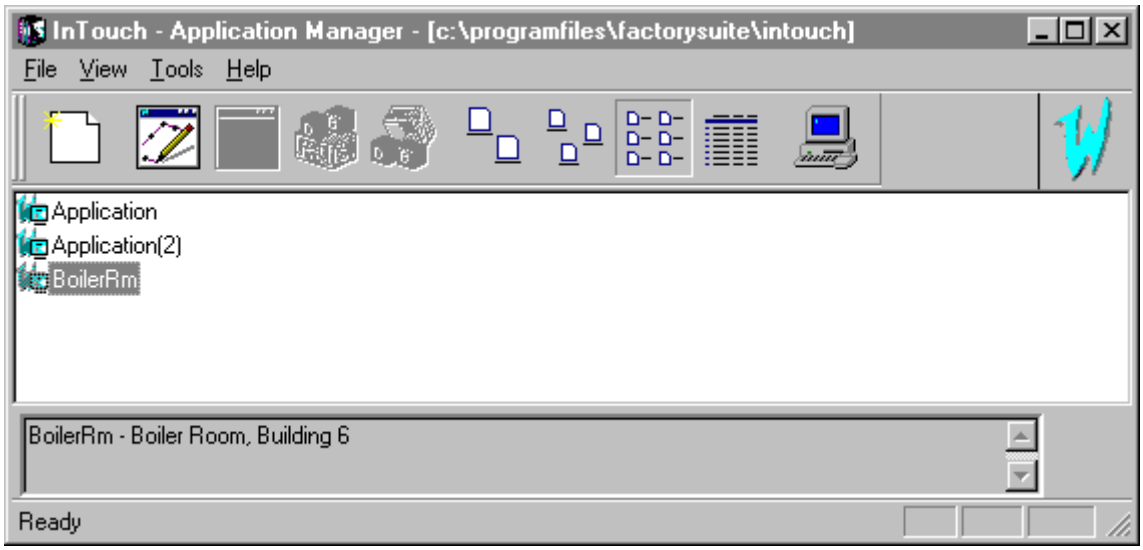
The following briefly describes each of the Application Manager's toolbar buttons:

Button	Description
	Executes the **New** command on the **File** menu to create a new application.
	Executes the **WindowMaker** command on the **File** menu to open the selected application in WindowMaker. To quickly open an application in WindowMaker, double-click it's icon or select it, and then press ENTER.)
	Executes the **WindowViewer** command on the **File** menu to open the selected application in WindowViewer.
	Executes the **DBLoad** command on the **File** menu to run the DBLoad utility used to load a Tagname Dictionary input file.
	Executes the **DBDump** command on the **File** menu to run the DBDump utility program used to extract an application's Tagname Dictionary. For more information on the DBDump and DBLoad programs, see your online *InTouch User's Guide*.

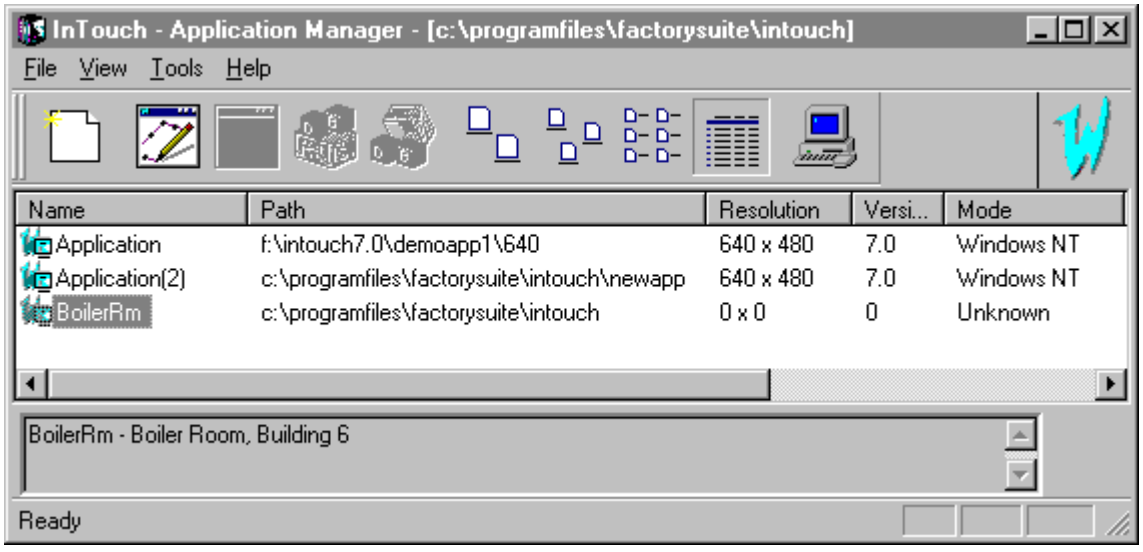
Executes the **Large Icons** command on the **View** menu to display large icons for the listed applications.

Executes the **Small Icons** command on the **View** menu to display small icons for the listed applications.

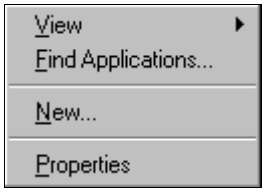
Executes the **List** command on the **View** menu to change the dialog box to the list view mode. For example:



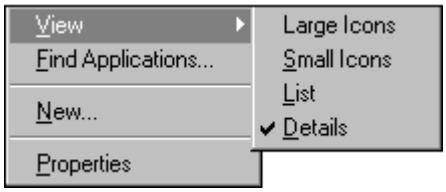
Executes the **Details** command on the **View** menu to change the dialog box to the details view mode. For example:



If you right-click any of the column headers, or click a blank area of the window, or click a detail (other than the application name) the following menu appears:



If you point to **View**, the following submenu appears:



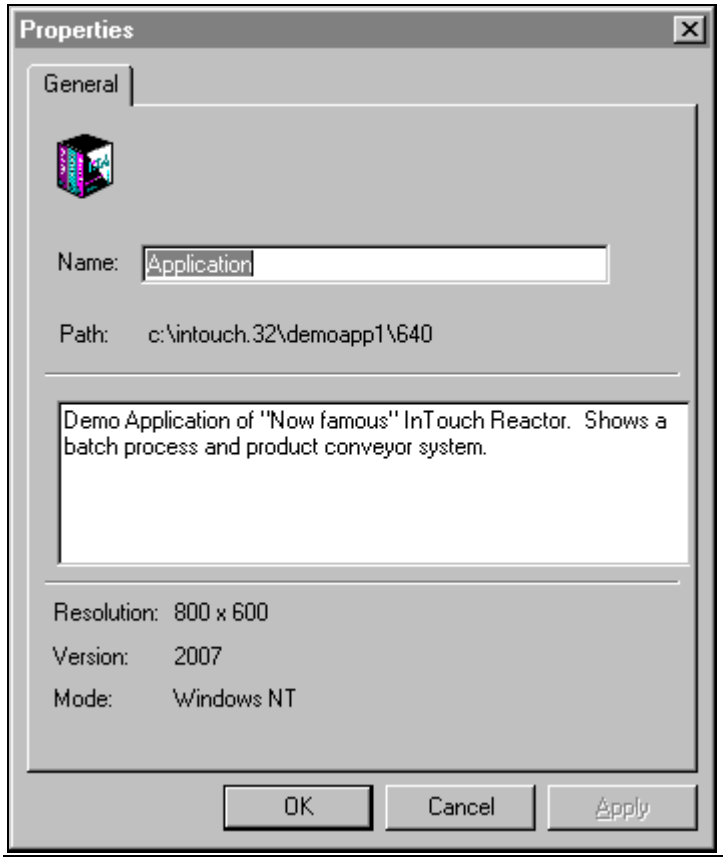
These commands are also found on the **View** menu. They control the display list in the InTouch Application Manager.

Opens the **Node Configuration** dialog box that you will use to set the computer's properties when you are using Network Application Development (NAD), Dynamic Resolution Conversion (DRC) and/or distributed alarming.

📖 For more information on NAD and DRC see your online *InTouch User's Guide.*

For more information on distributed alarms, see Chapter 3, "Alarms/Events."

Note When an application is selected in the Application Manager display list, selecting the **Properties** command on the **File** menu will cause the **Properties** dialog box for that application to appear:



About this Manual

This manual describes the various aspects of using InTouch in the runtime environment (WindowViewer). It is written in a "procedural" format that tells you in numbered steps how to perform most functions or tasks.

- If you are viewing this manual online, when you see a cross reference like this one, it is actually a "hot link" to the referenced section or chapter. Click it to "jump" to that section or chapter. When you jump to another section or chapter and you want to come back to the original section, a "back" option is provided.
- These types of cross references indicate that you need to look in another FactorySuite book for more information.
- These are "tips" that tell you an easier or quicker way to accomplish a function or task.

To familiarize yourself with the WindowMaker development environment and its tools, read Chapter 1, "WindowMaker Program Elements." To learn about working with windows, graphic objects, wizards, ActiveX controls and so on, read Chapter 2, "Using WindowMaker."

In addition, the *InTouch Reference Guide* provides you with an in-depth reference to the InTouch QuickScript language and functions, system tagnames, and tagname **.fields**.

The *FactorySuite Systems Administrator's Guide* also provides you with complete information on the common components in the FactorySuite, system requirements, networking considerations, product integration, technical support, and so on.

For details on the add-on program, SPC Pro, see your *SPC Pro User's Guide*.

For details on the add-on program, Recipe Manager, see your *Recipe Managers User's Guide*.

For details on the add-on program, SQLAccess Manager, see your *SQL Access Manager User's Guide*.

- Online documentation is included in your FactorySuite software package for all FactorySuite components included in your package. For example, FactorySuite System Administrator's Guide, SPC Pro, SQLAccess Manager, Recipe Manager, IndustrialSQL Sever, InControl and all Wonderware 32-bit I/O Servers. If you purchase FactorySuite+ you also get the online documentation for the InTrack and InBatch components.

Assumptions

This manual assumes you are:

- Familiar with the Windows 95 and/or Windows NT operating system working environment.
- Knowledgeable of how to use of a mouse, Windows menus, select options, and accessing online Help.
- Experienced with a programming or macro language. For best results, you should have an understanding of programming concepts such as variables, statements, functions and methods.

Technical Support

Wonderware Technical Support offers a variety of support options to answer any questions on Wonderware products and their implementation.

Prior to contacting technical support, please refer to the relevant chapter(s) in your *InTouch User's Guide* for a possible solution to any problem you may have with your InTouch system. If you find it necessary to contact technical support for assistance, please have the following information available:

1. Your software serial number.
2. The version of InTouch you are running.
3. The type and version of the operating system you are using. For example, Microsoft Windows NT Version 4.0 workstation.
4. The exact wording of system error messages encountered.
5. Any relevant output listing from the Wonderware Logger, the Microsoft Diagnostic utility (MSD), or any other diagnostic applications.
6. Details of the attempts you made to solve the problem(s) and your results.
7. Details of how to recreate the problem.
8. If known, the Wonderware Technical Support case number assigned to your problem (if this is an on-going problem).

📖 For more information on Technical Support, see your online *FactorySuite System Administrator's Guide*.

Your FactorySuite License

Your FactorySuite system license information can be viewed through the license viewing utility that is launched from the WindowMaker Help **About** dialog box.

To access the **About** dialog box, select the **About** command on the WindowMaker **Help** menu.

📖 For more information on the licensing viewing utility, see your *FactorySuite System Administrator's Guide*.

CHAPTER 1

Using WindowViewer

WindowViewer is the InTouch runtime environment where the object-oriented graphics that were created and animated in WindowMaker are monitored and controlled. These graphic objects may be connected to industrial I/O systems and other Microsoft Windows applications.

This chapter describes the WindowViewer commands that you will use to perform various functions or tasks during runtime. If you are new to InTouch, you should read through this chapter completely to familiarize yourself with the WindowViewer commands and functions.

Contents

Working with WindowViewer Windows

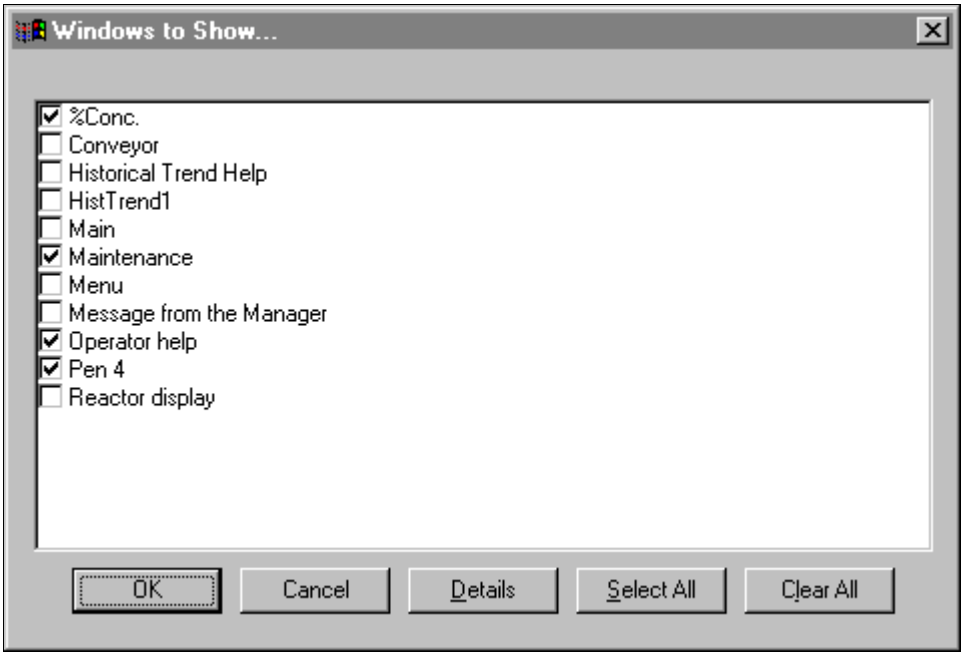
Your InTouch application will more than likely be comprised of numerous windows that display the graphics and text objects created in WindowMaker.

This section describes the procedures that you will follow to open and close the windows contained in your InTouch application.

Common Dialog Box Features

When you are opening or closing a window(s), the dialog boxes that you will use are very similar and have many common features. To avoid redundancy in the procedures describing how you perform these actions, the common features of those dialog boxes are described in this section.

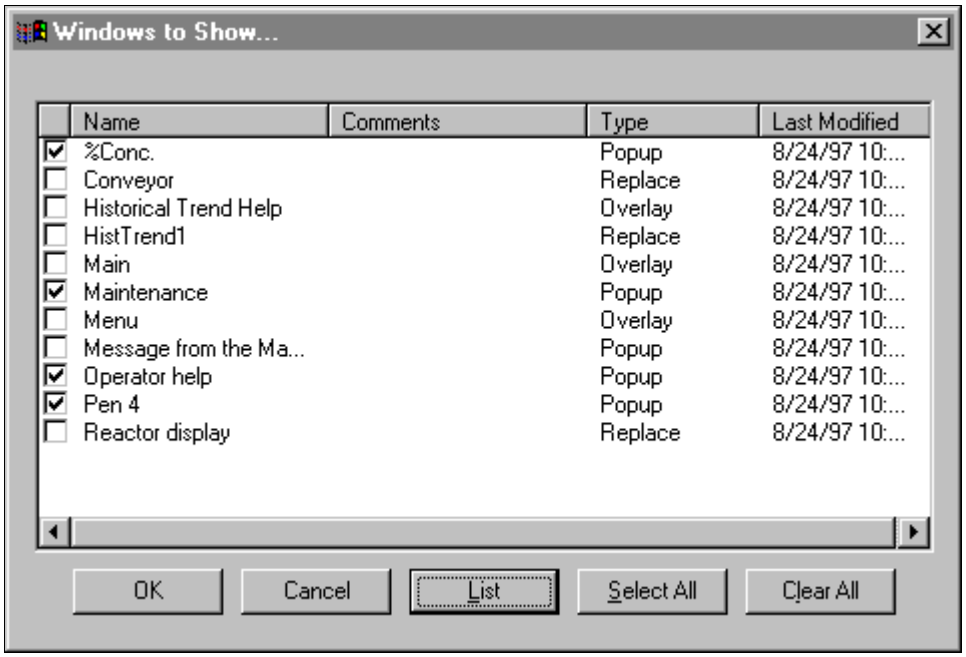
When you click either the **Open Window** or **Close Window** command on the **File** menu, by default, the respective dialog box for the command you selected will appear in the "list view." Meaning that the names of all the windows that are applicable for the selected command will appear in a continuous list. For example:



Note A horizontal scroll bar will appear when the number of window names exceeds the default list space.

Click **Details** to change from the "list view" to the details view.

When you select the details view, the windows and their details are displayed in a multi-column format. The details displayed include any comments regarding the window that the application developer entered when the window was created, the window's type, the date and time it was last modified. For example:



Note In the details view, you can select any unopened window by clicking on any portion of its row, not just the check box. (The entire row will be highlighted.) You can click on a selected window a second time, to deselect it.

A vertical scroll bar will also appear when the number of window names exceeds the default list space.

To sort the list by a detail type, click the column header for that detail. The details view sort sequences:

- **Name** - Alphabetically
- **Comments** - Alphabetically
- **Type** - Overlay, Replace then Popup
- **Last Modified** - From oldest date/time (top) to most recent (bottom)

Each time you click a column header, the list sort order will toggle from ascending to descending. For example, if the list is currently sorting in ascending order and you click a column header, the list will be resorted in descending order for the column selected.

To return the list to the default display, click the small box on the far left side of the column header.

To size the columns, place the cursor over the vertical lines that separate each detail header. When the cursor changes to an "I" bar, click and drag the header to the width you want for the column.

To quickly auto-size a column, double-click on the column's right vertical line separator.

To open selected window(s) click **OK**.
To cancel your selections and close the dialog box, click **Cancel**.
To return the dialog box to "list view," click **List**.
To select all listed windows, click **Select All**.
To clear all selected windows, click **Clear All**.

Opening Windows

➢ **To open windows:**

1. On the **File** menu, click **Open Window**. The **Windows to Show** dialog box will appear.
2. Click the check box next to the name of the window(s) that you want to open.

   By default, all currently opened windows will already be checked.
3. Click **OK** to close the dialog box and open the selected window(s).

Note If a "Replace" type window is selected, it will cause any windows that it intersects to close.

For more information on window types, see your online *InTouch User's Guide*.

Closing Windows

➢ **To close open windows:**

1. On the **File** menu, click **Close Window**. The **Windows to Hide** dialog box will appear.
2. Click the check box next to the name of the window(s) that you want to close.
3. Click **OK** to close the dialog box and close the selected window(s).

Transferring to WindowMaker

➢ **To transfer from the WindowViewer program to the WindowMaker program:**

1. On the **File** menu, click **WindowMaker**. The **Windows to Edit** dialog box will appear.

   To quickly transfer to WindowMaker, click the **Development** fast switch in the upper right hand corner of the menu bar (or use the short cut keys ALT + !). When you transfer using the fast switch, the **Windows to Edit** dialog box does not appear in WindowViewer. The windows that are open in WindowViewer when you transfer to WindowMaker will remain open.

   Note The fast switch will only be available if, during development, the application developer configured the application to use it.
2. Click the check box next to the name of the window(s) that you want to be open when you transfer to WindowMaker.
3. Click **OK** to close the dialog box and transfer to WindowMaker.

Note If the application developer selected the **Close WindowViewer** option when WindowViewer's properties were configured during development, WindowViewer will automatically close when you transfer to WindowMaker.

Executing InTouch QuickScripts

By default, when WindowViewer is initially started, the logic for all scripts will be executing.

➢ **To stop all QuickScripts from executing:**

1. On the **Logic** menu, click **Halt Logic**. The **Windows to Edit** dialog box will appear.

Note During development, if the application developer selected the **Allow CTRL-Break to stop scripts** option when WindowViewer was configured, you will not be able to stop the QuickScripts from executing regardless of whether the **Logic** menu is displayed or not.

Also, the **Halt Logic** command will not stop any currently executing asynchronous QuickFunctions. But, it will prevent any new asynchronous QuickFunctions from executing.

📖 For more information on the above items, see your online *InTouch User's Guide*.

Initializing I/O Conversations

When WindowViewer is started, it automatically processes an *initiate* request to start all I/O conversations. If an I/O Server program does not respond to WindowViewer's i*nitiate* request, you can force WindowViewer to try again to establish the I/O conversation.

➢ **To start all uninitiated I/O conversations:**

On the **Special** menu, click **Start Uninitiated Conversations**.

🖱 Executing this command will not affect existing conversations.

➢ **To restart all I/O conversations:**

On the **Special** menu, click **Start Uninitiated Conversations**.

🖱 This command closes all existing I/O conversations and restarts the entire process of setting up I/O conversations. All I/O points are affected by this command.

Application Security

Applying security to an application is optional. However, if implemented, it provides the application developer with the ability to control whether or not specific operators are allowed to perform specific functions within an application. Additionally, when security is implemented, audit trails can be created that tie the operator to all alarms/events that occurred during the time he was logged on to the system.

Security is based on the concept of the operator "logging on" to the application and entering his "User Name" and "Password." (The application developer defines a "User Name," "Password" and, an "Access Level" for each operator during development.)

When a new application is created, the default "User Name" is "Administrator" with an access level of 9999. (The access level, 9999, grants access to all security commands). Once a new user name is added to the security list and WindowMaker or WindowViewer is restarted, the default user name is automatically reset to "None" with an access level of zero (0). (An access level of zero prevents access to the **Configure Users** menu command in both WindowMaker and WindowViewer). Therefore, in order to access the security user list, a user name must be configured for the System Administrator with an access level equal to or greater than 9000.

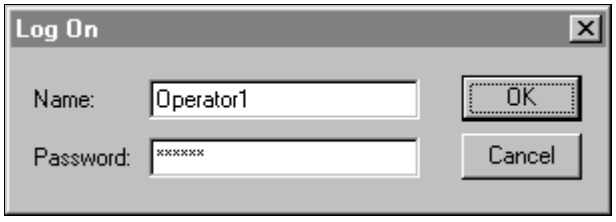
Once an operator logs on to the application, access to any protected function is granted upon verification of his "Password" and "Access Level." (These are verified against the value specified for the internal security tagname linked to the function.) For example, access to a window, or visibility of an object, pushbutton, and so on, can be controlled by specifying that the logged on operator's "Access Level" must be greater than 2000.

Note Typically to "Log on" to an application, on the **Special** menu, the operator points to **Security** then, clicks **Log On** submenu. However, the application developer can also design a custom log-on window that contains a touch-sensitive input objects that are linked to internal security tagnames that the operator uses to enter his "User Name" and "Password" values.

Logging on to Your Application

➢ **To "log on" to your application:**

1. On the **Special** menu, point to **Security** then, on the submenu, click **Log On**. The **Log On** dialog box appears:



2. In the **Name** box, type your user name.
3. In the **Password** box, type your password.
4. Click **OK**.

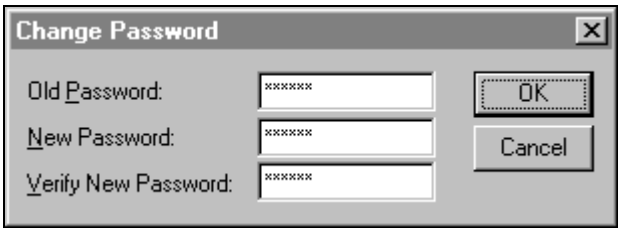
   If the information is entered incorrectly or is invalid, a message box indicating that log on failed will appear.

   If log on is successful, the **$AccessLevel** internal tagname will be set to its predefined value (configured in the security user list).

Changing Your Security Password

➢ **To change your password:**

1. On the **Special** menu, point to **Security** then, click **Change Password** on the submenu. The **Change Password** dialog box appears:



2. In the **Old Password** field, type the old password.
3. In the **New Password** field, type the new password (up to 32 characters).
4. In the **Verify Password** field, type the new password again.
5. Click **OK**.

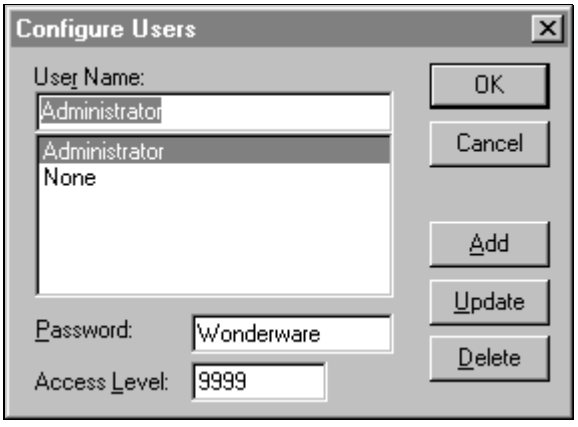
   To prevent anyone who may be watching the operator from seeing the password, the information entered is displayed on the screen as asterisks.

Note If you do not plan on displaying the **Special** menu in WindowViewer, you can create a discrete button and link it to the **$ChangePassword** internal tagname to set the **$ChangePassword** tagname equal to 1 to cause the **Change Password** dialog box to be displayed. Once displayed, the operator can change his/her password.

Configuring an Operator's Security Level

➢ **To configure security for the operators of your application:**

1. On the **Special** menu, point to **Security** then, click **Configure Users** on the submenu. The **Configure Users** dialog box appears:



2. In the **User Name** field, type the name that you want to assign to the operator.
3. In the **Password** field, type a password (up to 32 characters).
4. In the **Access Level** field, type a value (lowest = 0 to highest = 9999).
5. Click **Add** to add the user name to the security list.

- To modify an existing user name, select the desired name in the **User Name** list. Type the changes then click **Update** to accept the changes. To delete a user name, select it in the list, then click **Delete**.

Note The **None** and **Administrator** names are reserved and only the password (**Wonderware**) or **Administrator** may be changed. Once you have configured user names for your application, you should change the **Administrator** name's password since it will more than likely become commonly known to most users of the system. The **Administrator** default access level (9999) is the highest and allows access to everything including, the **Configure Users** menu command.

Logging Off Your Application

➢ **To log off your application:**

On the **Special** menu, point to **Security** then, click **Log Off** on the submenu.

- When this command is executed, the "User Name" is reset to "None" with an Access Level of "0".

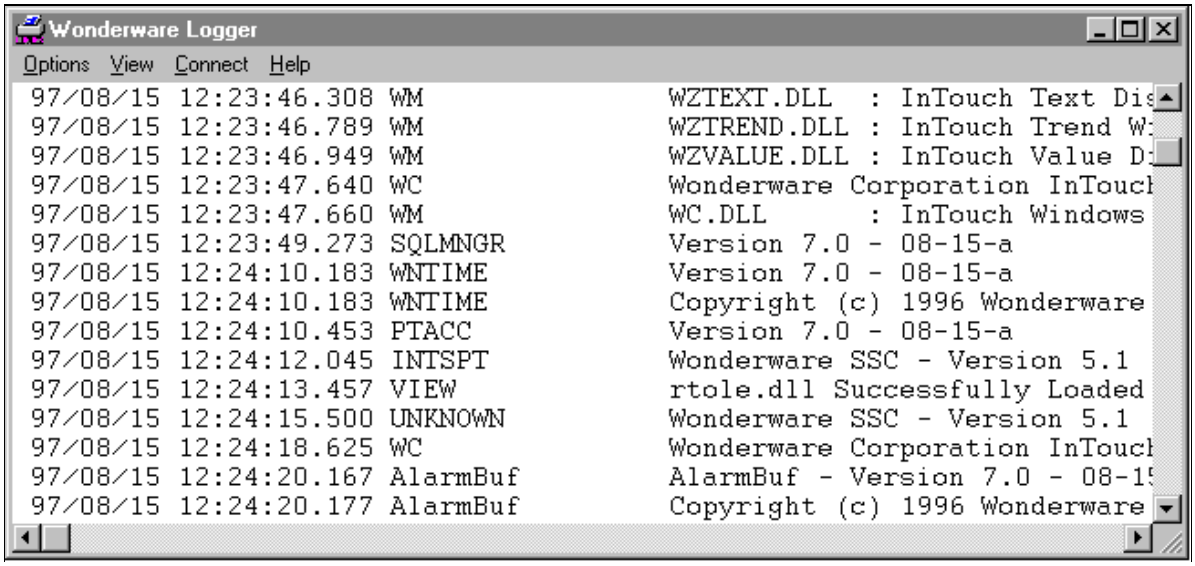
Note The application developer may have configured the application to automatically log off an operator after a specified amount of time has elapsed with no activity. If this is the case, to prevent yourself from being automatically logged off, you must either press a key or click the mouse prior to the specified timeout.

System Diagnostics

By default, the Wonderware Logger program is started automatically with most InTouch products and supported I/O Servers.) The Wonderware Logger displays and logs system and error information to disk such as, the date and time the logger was started and closed, the version of the software you are running, the type of CPU being used, the Windows mode, available free memory, and so on.

➢ **To view the error log:**

On the **Special** menu, click **View Error/Information Log**. The Wonderware Logger appears:



Note When running any Wonderware software product, we recommend that you always run the Wonderware Logger in the background. If a problem occurs with an application, I/O Server, and so on., always check the Wonderware Logger for error messages prior to calling Technical Support.

📖 For more information on the Wonderware Logger, see your online *FactorySuite System Administrator's Guide*.

CHAPTER 2

Historical Trending

InTouch historical trending capabilities are extensive. Up to eight database entries can be trended at one time with no limit to the number of trends displayed at one time. This chapter covers configuring trends, printing trends and controlling historical logging.

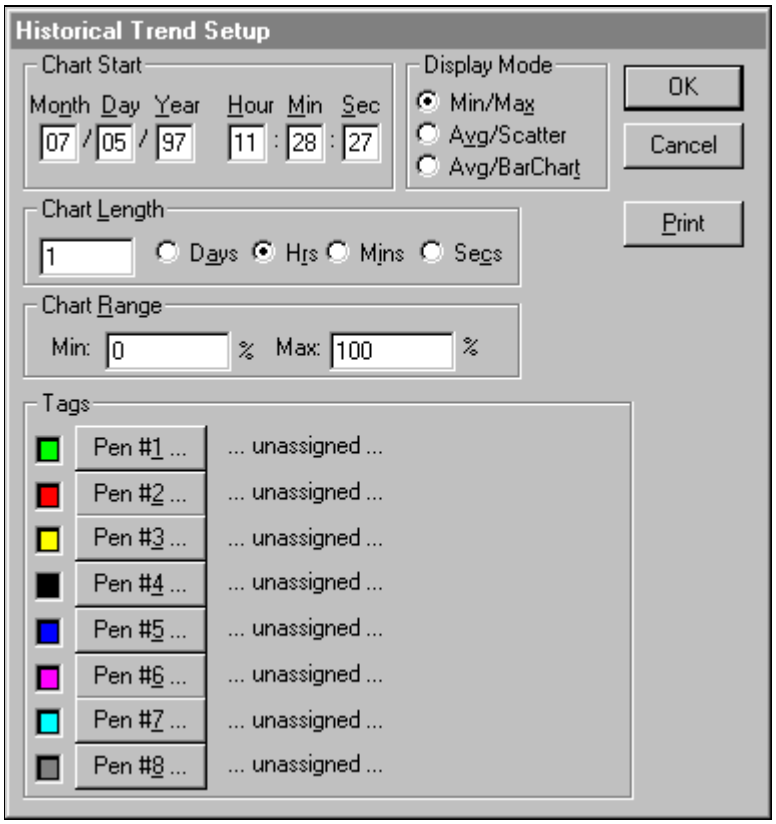
Contents

Configuring a Historical Trend During Runtime

During development, if the application developer selected the **Allow runtime changes** option when WindowMaker was configured, the historical trend will be "touch-sensitive" in WindowViewer. This means that you can click the trend (or touch it if using a touch screen) to access the dialog box that allows you to change the pen assignments, change the start date and time, and so on.

➢ **To configure a historical trend:**

1. Click the trend. The **Historical Trend Setup** dialog box appears:



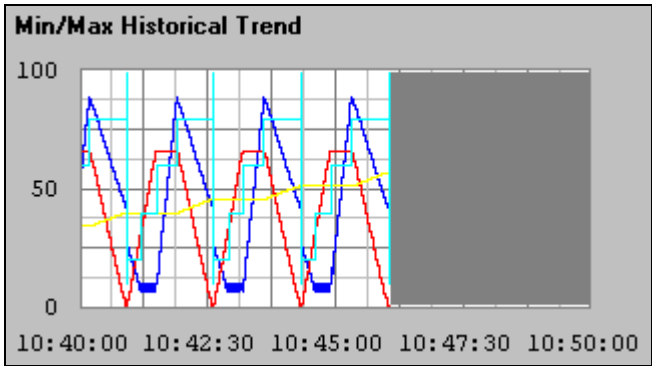
2. In the **Chart Start** group, type the starting date and time for the chart.
3. Select the **Display Mode** for your chart. There are three modes as illustrated and described in the examples below.

Note The display mode of the chart affects performance. The primary factor here is the length of the lines being drawn to generate the chart. The longer the lines, the longer it takes to generate the chart. Line widths are also a performance factor; wide lines take significantly longer to draw. **Min/Max** or **Average/Scatter** charts are generally much faster to generate than **Average/Bar Chart**.

There are three modes as illustrated and described in the examples below.

Min/Max Historical Trend Example

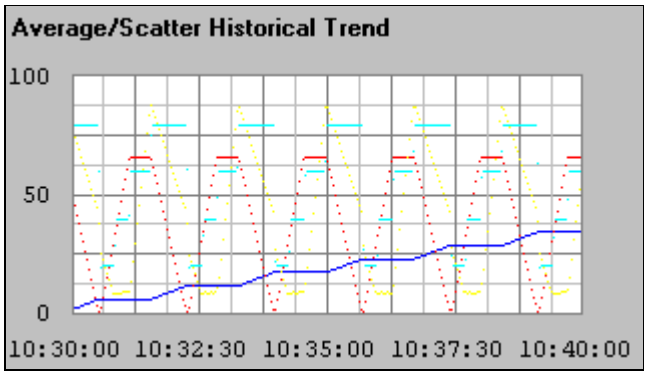
This mode displays the trends or changes in the percentage of Engineering Units scale as a vertical line over the time span with emphasis on time flow and rate-of-change, rather than amount of change.



Note The blank area on the right side indicates that no data was collected during that time period either because WindowViewer was not running or historical logging was turned off.

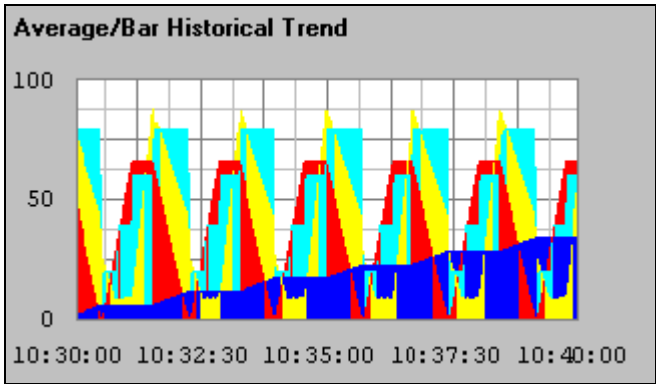
Average/Scatter Historical Trend Example

This mode shows the average value of the point during the time intervals.



Average/Bar Chart Historical Trend Example

This mode shows the average value of the point during the time intervals in bar form.



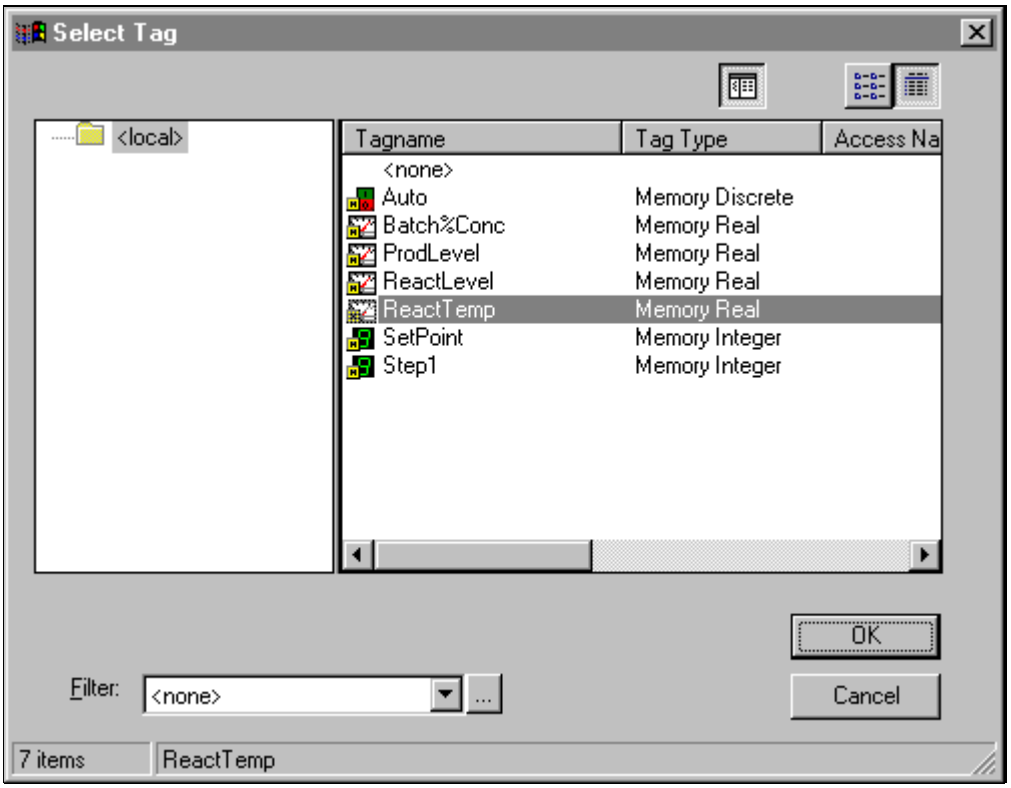
4. In the **Chart Length** box, type the horizontal (x-axis) length of time to be displayed on the trend, and then select the time increment for the length.

   If you type a 1 and select **Hrs**, your trend will be 1 hour long.

5. In the **Chart Range** boxes, type the percentage of Engineering Units scale that the trend is to zoom in/out (vertical (y-axis) range to be displayed on the trend).

   The units for the range are a "percentage" of Engineering Units scale. These values should be from 0 to 100. For example, if you want to trend the variance of the selected tags from 40 to 45 percent of scale, enter 40 and 45 in the **Min** and **Max %** range boxes respectively.

6. Click each **Pen#** to select the tagname that you want the pen to trend. The Tag Browser appears in the filtered selection mode:



   Only the tagnames that are defined with the **Log Data** option selected will be displayed for the selected tag source.

7. Double-click the tagname that you want the selected pen to plot on the trend, or select the tagname, and then click **OK**. The **Historical Trend Setup** dialog box will reappear showing the selected tagname next to the **Pen#** button you originally clicked.

   You can click the **Filter** arrow to open the list of defined filters that you can use to populate the Tag Browser. The first entry of this list is **<none>**, which means that no filter is being used. Only the tagnames that are defined with the **Log Data** option selected will be displayed for the selected tag source.

   When you use a filter or, click the **Filter** ... button and create a new filter, the Tag Browser will be repopulated with all tagnames defined with the **Log Data** option that meeting the criteria specified in the filter for the selected tag source.

   For more information on the Tag Browser and filters, your *InTouch User's Guide*.

8. Click **Print** to print the historical trend.

   The printing operation takes place "in the background" while WindowViewer continues to process all other inputs. WindowViewer will add two items to its menu during printing: **CancelPrint** and ***X* % Done**. Clicking on **CancelPrint** will cancel the current print job.

   After selecting **Print**, do not change the trend until the **CancelPrint** and **X % Done** items disappear in the WindowViewer menu bar. During this time, WindowViewer is saving the trend information in memory for printing. Once these two items disappear in the menu bar, the trend can be changed without affecting the print that is in progress.

   Note The printing operation uses the current historical trend as a basis for printing. Therefore, if any field in the **Historical Trend Setup** dialog box is changed, the **Print** button will not be active. Changes made in the setup cannot be printed until you click **OK** in the **Historical Trend Setup** dialog box then, access it again and select the **Print** button.

Printing Performance

There are many factors that affect the performance of printing Historical Trends. The primary performance factor is the size of the trend on the printed page. The display mode of the trend also affects printing performance. **Min/Max** or **Average/Scatter** printouts are usually generated much faster than **Average/Bar Chart** trends. The longer and wider the lines on the trend are, the longer it takes to print.

Restarting Historical Logging

The system will automatically stop Historical Logging if there is no free disk space. When this occurs, a message box appear informing you of the problem. To reactivate disk logging, you must free up disk space then, restart historical logging.

- **To restart historical disk logging:**

  On the **Special** menu, click **Restart Historical Logging**.

Stopping Historical Logging

- **To stop historical disk logging:**

  On the **Special** menu, click **Stop Historical Logging**.

Distributed History

InTouch provides a distributed history system that allows retrieval of historical data from any InTouch 5.6 (or later) application, even those across a network. This system extends the capabilities of the standard InTouch history by allowing remote retrieval of data from multiple historical databases simultaneously. These databases are referred to as history providers. Up to eight history providers can be displayed simultaneously, one for each historical trend chart pen.

Note History providers can be configured as native InTouch history or IndustrialSQL (InSQL) history providers.

CHAPTER 3

Alarms/Events

InTouch provides a notification system to inform operators of process and system conditions. This system supports the displaying, logging, and printing of process alarms and system events. Alarms represent warnings of process conditions, while events represent normal system status messages.

InTouch includes two alarm systems: a standard system and a distributed system. The standard system is used to display and acknowledge events and alarms generated by the local InTouch application. The distributed system expands this scope to allow the display and acknowledgment of alarms generated by alarm systems of other networked InTouch applications.

Contents

Alarms and Events

InTouch has two types of notifications to inform operators of process activity: Alarms and Events. Alarms represent warnings of process conditions that could cause problems, and require an operator response. A typical alarm is triggered when a process value exceeds a user-defined limit, such as an analog value exceeding a hi-limit threshold. This triggers an *unacknowledged* alarm state which can be used to notify the operator of a problem. If configured to do so, InTouch can also log this alarm to a disk-based file and print it out to a printer. Once the operator acknowledges the alarm, the system returns to an *acknowledged* state.

Events represent normal system status messages, and do not require an operator response. A typical event is triggered when a certain system condition takes place, such as an operator logging into InTouch. If configured to do so, InTouch can log an event to a disk-based file and print it out to a printer.

Alarm Types

InTouch classifies alarms into several general categories based on their characteristics. These categories are known as *Type* and *Class*. The standard alarm system categorizes all alarms into five general *Types*: Discrete, Deviation, Rate-of-Change, Value, and SPC. The distributed alarm system provides further categorization of these alarms into *Class* and *Type*. The table below summarizes the classification for both systems:

Alarm Condition	Standard Type	Distributed Class	Distributed Type
Discrete	DISC	DSC	DSC
Deviation - Major	LDEV	DEV	MAJDEV
Deviation - Minor	SDEV	DEV	MINDEV
Rate-of-Change	ROC	ROC	ROC
SPC	SPC	SPC	SPC
Value - LoLo	LOLO	VALUE	LOLO
Value - Low	LO	VALUE	LO
Value - High	HI	VALUE	HI
Value - HiHi	HIHI	VALUE	HIHI

Event Types

InTouch also classifies events into general categories based on their characteristics. These categories are known as *Event Types*. Both the standard and distributed alarm systems use the same *Event Types*. The table below summarizes the classification for both systems:

Event	Condition
ACK	Alarm was acknowledged
ALM	Alarm has occurred
EVT	An alarm event occurred
RTN	Tagname returned from an alarm state to a normal state
SYS	A system event occurred
USER	$Operator changed
DDE	The tagname value was poked from a DDE client
LGC	A script modified the tagname value
OPR	The operator modified the tagname value using the Value Input

The first six events listed are configured automatically when event logging is enabled. The remaining three must be defined by the application developer during development..

Alarm Priorities

Each alarm configured in InTouch has a priority value associated with it. This value represents the severity of the alarm and can range from 1 to 999 with 1 being the most severe.

For example, if a process plant has determined that they need four levels of severity, they could establish ranges as shown below:

Alarm Severity	Priority Range
Critical	0 - 249
Major	250 - 499
Minor	500 - 749
Advisory	750 - 999

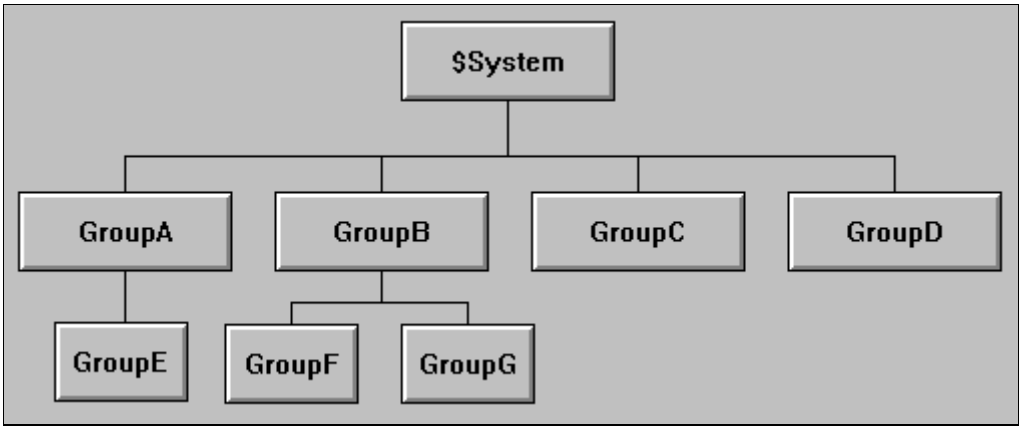
As the plant engineers create InTouch tagnames and alarm conditions, each alarm will be assigned to one of these severity levels by choosing a priority number within that range. With these ranges configured, the plant operators may now easily display and print only certain severity levels.

Alarm Groups

Each InTouch alarm is assigned to a logical Alarm Group. These groups are user-definable and can be arranged into a hierarchy up to eight levels deep. The groups provide a way of categorizing alarms based on an organization, plant layout, or any other metric you choose. Alarm Groups are useful for filtering alarm displays, alarm printers, and acknowledgment scripts.

Every tagname is associated with an Alarm Group. If the application developer does not associate an Alarm Group name to a tagname, by default, InTouch automatically associates it with the root group, **$System**. Any Alarm Group may have both tagnames and other Alarm Group names associated with it. Alarm Groups are organized into a hierarchical tree structure with the root group, **$System**, at the top of the tree. All defined Alarm Groups automatically become descendants of the root group.

This tree may have up to eight levels. Each Alarm Group may have a maximum of 16 subgroups. Each subgroup may have a maximum of 16 subgroups, etc., until the maximum of 8 levels is reached.

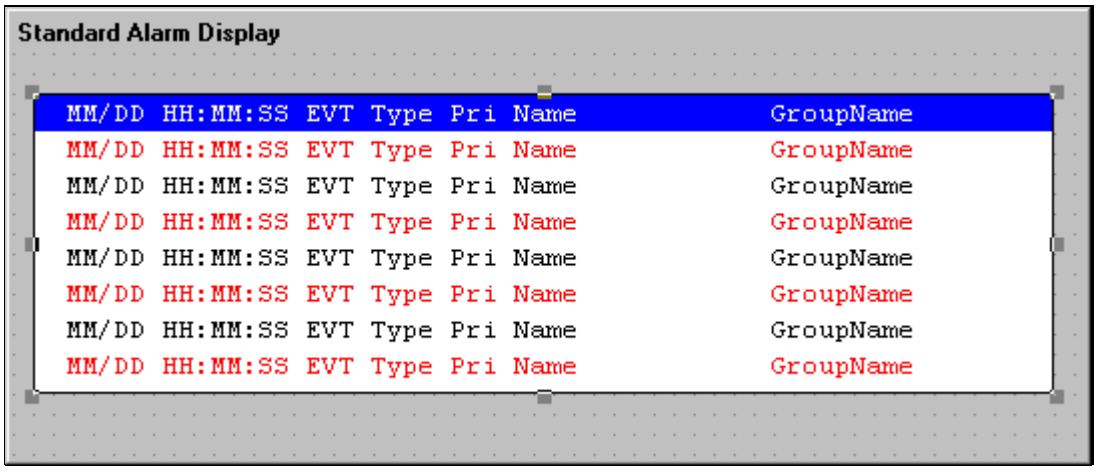


This illustration displays only Alarm Groups, not the tagnames within each group. This tree concept is analogous to the MS-DOS directory structure, where a directory may contain other sub-directories (analogous to groups) and file names (analogous to tagnames).

The distributed alarm system also uses these groups as the basis for it's Alarm Group Lists.

The Standard Alarm Display

The standard alarm system provides you with a unique display object that shows locally generated alarms. While the distributed alarm system display object shows alarms generated both locally and remotely. For example:



The standard alarm display uses two predefined display types: "Alarm Summary" and "Alarm History". The Alarm Summary only displays the current unacknowledged and acknowledged alarms. If an alarm returns to normal (RTN), the entry is removed from the display (if you have configured it to do so). No events are displayed with an Alarm Summary. The Alarm History object displays all of the alarm and events that have occurred. The Alarm History display shows the occurrence of the alarm, the time of acknowledgment (if any) and the time the alarm condition returned to normal.

In both the Alarm Summary and the Alarm History display objects, each entry is shown as a separate line. The number of entries displayed is determined by the size you have drawn the object and the size of the font that you are using. The standard alarm display lists all active alarms or subsets of active alarms as determined by the current value of the Alarm Group and priority expression associated with the particular alarm display.

During development, the application developer configures how many alarms are stored for the Alarm History object, the appearance of the alarm displays including, the information that is displayed, logged and printed.

Remote Alarming Using the Standard Alarm System

The standard alarm system is primarily intended for single-node alarm monitoring. However, the application developer can configure it to for the remote display and acknowledgment of alarms from identical InTouch applications. These applications can be configured so that a master or "Alarm Server" node can share its alarms with one or more remote nodes. These alarms are displayed in real-time on the remote nodes as they occur on the master node. Also, the alarms can be acknowledged remotely by tagname or by Alarm Group. The only requirement is that each node has Wonderware NetDDE running and each node must run identical InTouch Tagname Dictionarys.

The Distributed Alarm System

InTouch provides two alarm systems: standard and distributed. Both provide services to display, log, print, and acknowledge process alarms and system events. The standard system is used to display and acknowledge events and alarms generated by the local InTouch application. The distributed system expands this scope to allow the display and acknowledgment of alarms generated by the local alarm systems of other InTouch applications.

Both the standard and distributed systems can be used in a distributed application. The major difference is that the standard system is limited to only those alarms generated by an identical InTouch application, while the distributed system has no such limitation.

The distributed alarm system features include:

- The ability to display and acknowledge alarms from any InTouch node on a network.
- A new alarm display that has built-in scroll bars, sizable display columns, multiple alarm selections, an update status bar, dynamic display types, and display colors based on alarm priority.
- Script functions that provide dynamic control over the alarm display and alarm acknowledgment.
- A grouping mechanism that allows multiple Alarm Groups across different applications to be called via a single name.
- The capability of adding comments to alarms when acknowledged.

The distributed alarm system can be thought of as an extension of the standard alarm system. The standard alarm system provides local alarm display, printing, logging, and acknowledgment of alarms. The distributed alarm system expands the scope of the display and acknowledgment features to include alarms generated by remote applications (alarm providers).

Since the distributed alarm system is an extension of the standard alarm system, it shares many of the same configurations, all presented previously. The following sections outline just those configurations that are specific to the distributed alarm system.

Alarm Group Lists

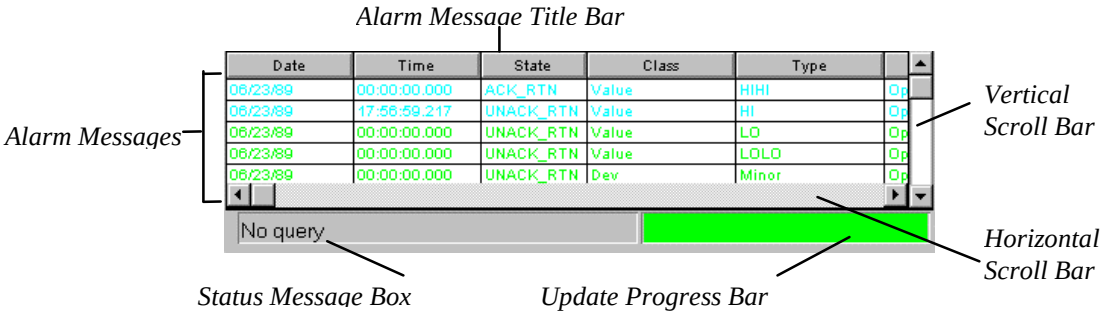
The distributed alarm system uses the same Alarm Group mechanism as the standard alarm system. This mechanism groups alarms into a local hierarchical tree structure that both the standard and the distributed alarm displays can use to filter alarms for display. However, the distributed alarm system allows you to view these groups from multiple nodes on a network. To provide a grouping for these node and Alarm Groups, the distributed alarm system uses an **Alarm Group List**.

The **Alarm Group List** is a named list consisting of InTouch nodes and the Alarm Groups defined on each of those nodes. It can also contain other Alarm Group List Names as well as local Alarm Groups. This list is used by the distributed alarm display to query for alarms.

The Distributed Alarm Display

The distributed alarm system has a unique display object to show both locally and remotely generated alarms. This display object's features include: built in scroll bars, sizable display columns, multiple selection of alarms, update status bar, and alarm display colors based on alarm priority.

InTouch allows you to modify the appearance of the alarm display (including the information that is displayed), the colors used for various alarm conditions, and the Alarm Group and alarm priority levels displayed.



Scroll Bars

The distributed alarm display has built-in horizontal and vertical scroll bars that allow you to move through listed alarms. The application developer configures whether or not scroll bars are displayed.

Sizable Display Columns

The distributed alarm display uses a grid to hold the alarm messages. This grid allows for dynamic sizing of the column widths simply by selecting a column and dragging it to set the column width. This functionality is available only during runtime. The application developer configures whether or not the grid can be used to size the columns.

- Grid column changes are not saved; therefore, if you make grid column changes and close the window containing the alarm display, the grid columns will again be at their default width upon re-opening that window.

Multiple Selection

The grid allows you to select a single or multiple alarms in a list box. The application developer configures the selection behavior to allow either toggle selection (item by item), or multiple selection (holding down CTRL or SHIFT in conjunction with a mouse click to select multiple alarms). The application developer can also turn off runtime selection.

Alarm Message Colors

The application developer can configure up to eight different colors for each displayed alarm message based on the priority of the alarm and whether it is acknowledged or not.

Update Status Bar

The distributed alarm display includes a status bar that contains two indicators: A status message and a progress bar. These indicators provide an overview of the current state of the display query. The application developer can turn off the display of the status bar in runtime.

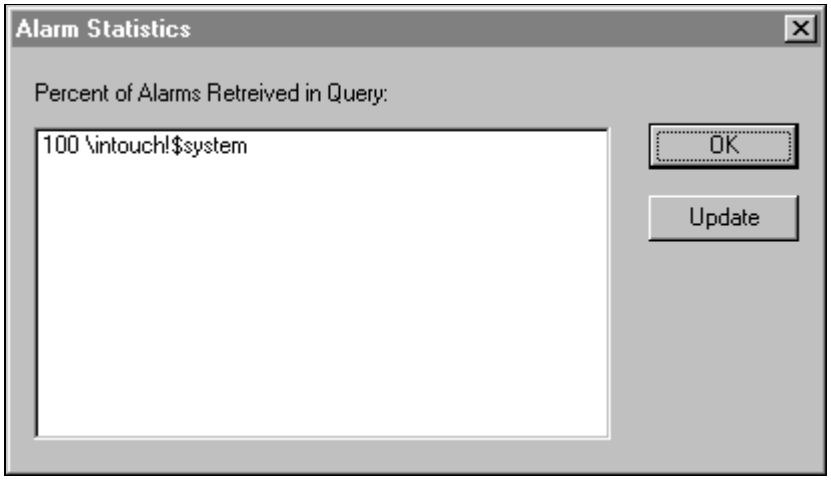
Feature	Description
Status Message	The status message at the left end of the status bar provides a more detailed description of the current query status.
Progress Bar	The update progress bar at the right end of the status bar provides a visual indication of the current query progress.

State/Indicator	Status Message	Progress Bar
No Query	None	None
Query Incomplete	Update Incomplete	By Formula
Query Complete	Update Successful	Solid Blue

Displaying Alarm Statistics

The Distributed Alarm System provides a built-in alarm statistics dialog box. The application developer can design the application to call up the **Alarm Statistics** dialog box to list the status of the current query for a particular alarm display.

The **Alarm Statistics** dialog box provides you with an overview of the current alarm query for a particular alarm display. It lists the actual alarm providers requests and the results of each. It's important to note that even though you may have requested a single Alarm Group List name, that name may equate to several individual Alarm Provider queries. For example:



- Each row in the dialog box lists a number and a query. The number represents the percentage of that query that has been returned. The dialog box provides a static display of the query results.

➢ **To update the Percent of Alarms Retrieved in Query list:**

1. Click **Update**.
2. Click **OK** to close the dialog box.

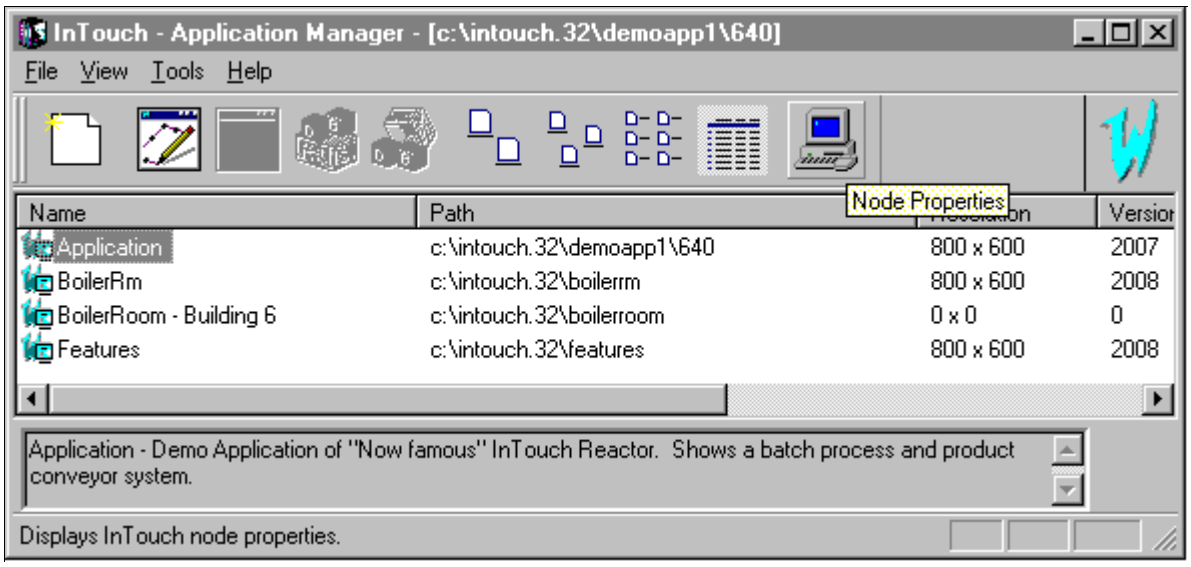
Configuring a Node for Distributed Alarms

Most configurations for InTouch applications are defined in WindowMaker. These configuration settings reside in the application and are copied to wherever the application is copied.

However, in a distributed environment, certain settings may be unique to each View node that runs an application. These settings are, therefore, configured at the View node instead of in the application that is common to all nodes. The distributed alarm system, provides two such settings: "Alarm Server" and "Alarm Provider." Both of these settings are specific only to the behavior of a the View node and are not a part of the InTouch application it is running.

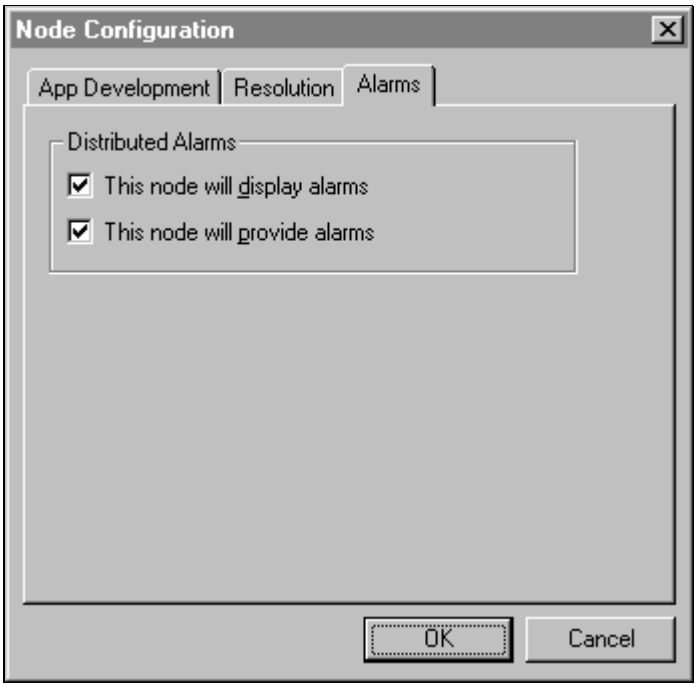
➢ **To configure a node as an alarm server or alarm provider:**

1. Start the InTouch program (INTOUCH.EXE). The **InTouch - Application Manager** dialog box appears:



2. Click the **Node Properties** tool. The **Node Configuration** dialog box appears with the **App Development** property sheet active.

3. Click the **Alarms** tab to activate **Alarms** property sheet:



4. In the **Distributed Alarms** group select the options that you want to use as follows:

   This node will display alarms - Sets the local node to display distributed alarms.

   - When you select this option, the node will start a background task called Alarm Manager. This task will allow the node to connect to the distributed alarm system. This setting must be set for the distributed alarm display to show any alarms.

   This node will provide alarms - Sets the local node to act as an alarm provider and serve alarms to other nodes.

   - When you select this option, the node will start two background tasks called Alarm Manager and Alarm. These tasks will allow the node to connect to the distributed alarm system and provide alarms. This setting must be set for the distributed alarm display to show local alarms.

4. Click **OK**.

Dynamically Controlling the Display Type

The distributed alarm display can show summaries of active alarms or listings of historical alarms. Unlike the standard alarm display, which is configured during development to either display summaries or historical alarms. The distributed alarm display can show either, dynamically if the application developer has designed the application to do so.

For example, the application developer can create an button that the operator clicks to execute a script to set the alarm object's type to Summary to display the summaries of current alarms. Conversely, the alarm object's type could be set to History to display historical alarms.

Alarm Logging

In addition to displaying and printing alarms, InTouch allows you to log alarms to the computer's hard disk. The log file created is an ASCII file and can be read from most text editors. The application developer configures various parameters such as when the system will cycle filenames, how long the files will be stored and what information will be logged.

The system will stop alarm logging whenever there is no free disk space. When this occurs, a message box will appear informing you of the problem. To reactivate disk logging, you must free up disk space then, restart alarm logging.

➢ **To restart alarm disk logging:**

On the **Special** menu, click **Restart Alarm Log**.

CHAPTER 4

Running Distributed Applications

InTouch is designed to support both stand-alone and distributed applications. Stand-alone applications are those that use just one Operator Interface (OI) for each monitored system, such as in a boiler package control. Conversely, distributed application are much more complex, often with several layers of networks. Distributed applications, typically, have a central development station, central data storage, and many client stations which interact with the central station and each other.

InTouch provides many features that greatly ease the building and maintenance of distributed applications. One of the most powerful is Network Application Development (NAD). NAD allows many client stations to maintain a copy of a single application without restricting the development of that application. InTouch NAD also provides automatic notification to these client stations when the application changes.

This chapter describes how the distributed features of InTouch affect the runtime environment.

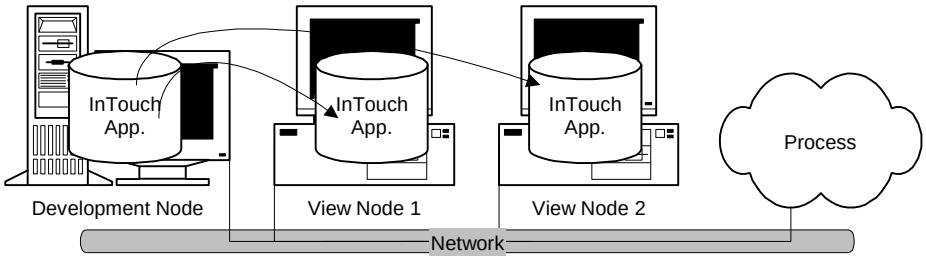
Note If WindowViewer has been configured to run as an NT service, NAD cannot be used.

Contents

Network Application Development (NAD)

Network Application Development provides automatic notification of application changes and automatic distribution of the updated applications to View nodes.

In the NAD architecture, a master copy of an application is maintained on a central network location. Each View node loads the network application from this server and copies it to a user-defined location. In the example below, the two View nodes both have the master application registered from the Development node, but actually run it from their own hard drives.



When a View node copies and runs the master application, it automatically monitors for changes in the master copy. When these changes occur, each View node has a user-definable action that specifies the response of that node. This can range from ignoring the flag to automatically shutting down and restarting the View node, which reloads the master application.

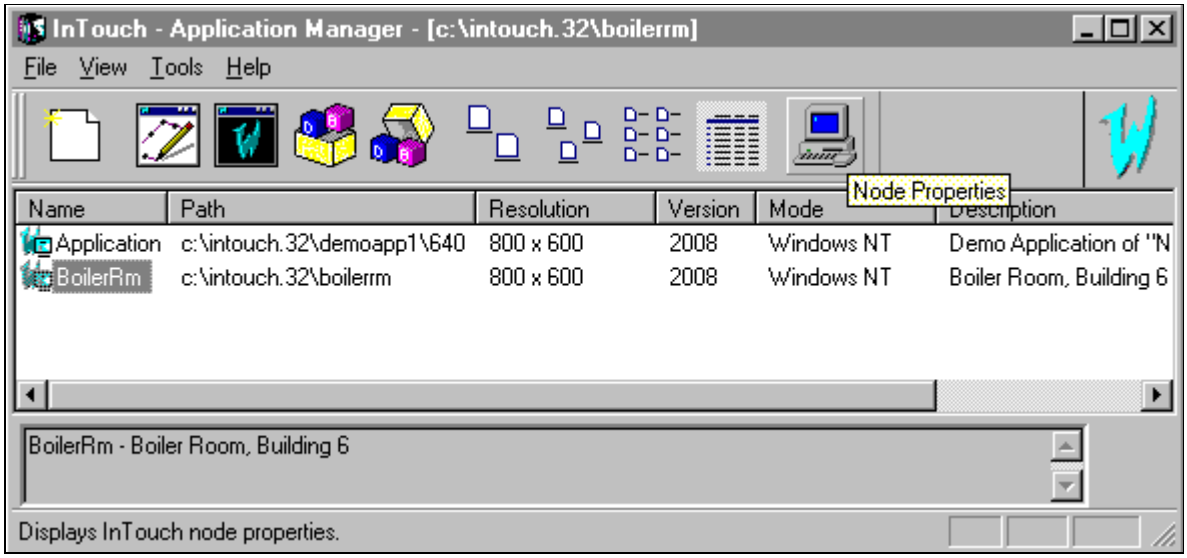
Configuring an InTouch Application for NAD

Network Application Development or NAD is an architecture that combines the best of the client-based and server-based architectures. NAD provides automatic notification of application changes and automatic distribution of the updated applications to View nodes. NAD can even be used to automatically distribute master/slave applications.

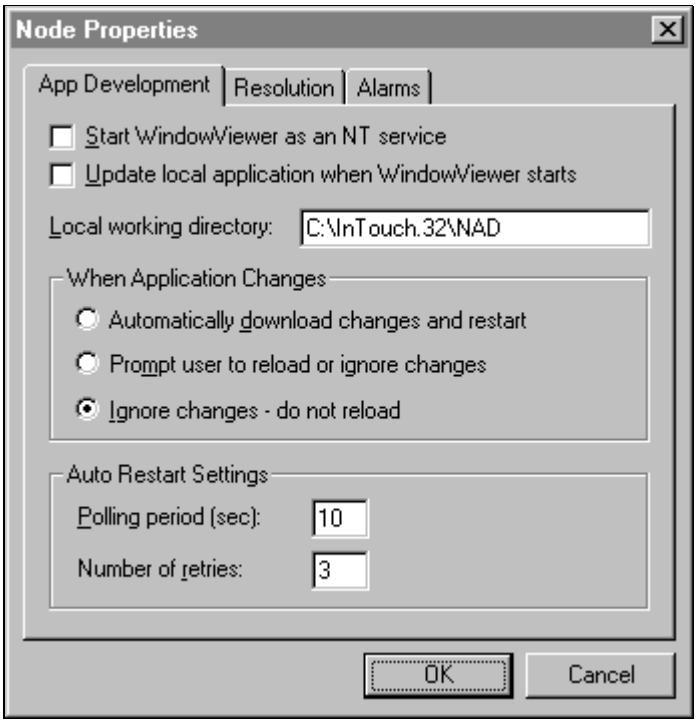
Note You cannot use the NAD features if you are using WindowViewer as an NT Service.

➢ **To configure an application for NAD:**

1. Start the InTouch program (INTOUCH.EXE). The **InTouch Application Manager** dialog box appears:



2. Click the Node Properties tool or on the **File** menu, click **Properties**, or right-click a blank area of the application display window, and then click **Properties**. The **Node Configuration** dialog box appears with the **App Development** property page active:



Note The **App Development** property sheet provides several options that allow you to specify how NAD will function. These settings are configured on each View node, **NOT ON THE DEVELOPMENT NODE**. This allows unique configurations for each View node.

- When you run WindowViewer as an NT service, it allows continuous operation of WindowViewer through operating system log-ins, log-outs, for example, operator shift changes. By selecting this option you also allow automatic start up of InTouch following power failure or when the machine is turned off and on. By doing this, you provide unmanned station startup of WindowViewer without compromising NT operating system security. However, you cannot use NAD features if you are using WindowViewer as an NT service.

4. Select **Update local application when WindowViewer starts** if you want to copy the master application to the local working directory or View node on startup of WindowViewer.

   - The initial copying of the master application may take longer than subsequent updates.

5. In the **Local working directory** box, type the directory that you want WindowViewer to copy the master application to.

   - If this is the development node, you can type a local directory path, such as **c:\InTouch\NAD**. You can also type a networked remote UNC path, such as **\\node\share\path**. This is convenient for file server based networks where most file storage is kept in a central location. If this is a client node (runtime only), it will likely use a local directory path. If you do not specify a directory, WindowViewer automatically creates a local subdirectory named "NAD" in the directory from which WindowViewer is launched.

     It is recommended that you use a local directory whenever possible to prevent network delays and failures from affecting the operation of WindowViewer.

Warning! Do not use a "root" directory or a UNC pathname that points to a root directory. The View node will recursively delete all files and subdirectories in the specified destination application directory before copying the master application directory. Therefore, never use the path of the master application directory or a UNC to the master application directory.

This directory should be considered a temporary directory and no files should be saved to it except those copied by NAD itself.

- For more information on UNC paths, see your online *InTouch User's Guide.*

6. In the **When Application Changes** group, select the option for the action that you want WindowViewer to take when the master application changes.

Automatically download changes and restart	Automatically shuts down WindowViewer on the View node, copies the updated master application (if configured to do so), then restarts WindowViewer on the View node.
Prompt user to Reload or ignore changes	Causes an interactive message box to appear on the View nodes notifying the operator that the application has changed and asks if he wants to restart WindowViewer. If the operator selects **Yes** WindowViewer shuts down on the View node and the updated master application is copied from the development node (if configured to do so), then WindowViewer restarts. If the operator selects no, it will behave exactly as **Ignore changes - do not reload**.
Ignore changes - do not reload	Causes the View node to ignore any changes the development node made to the master

application. Also used when customizing NAD update functions.

📖 For more information, see your online *InTouch User's Guide.*

7. In the **Polling Period (sec)** box, type the number of seconds that WindowViewer will wait before checking the master application for changes.

Note Caution is advised when specifying this setting, a value too small will cause WindowViewer to spend too much time checking for master application changes. This can interfere with WindowViewer servicing the running application.

8. In the **Number of retries** box, type the number of attempts that will be made to shutdown and restart WindowViewer when the master application changes.

   This option is only valid if you have selected **Automatically download changes and restart**.

9. Click **OK**.

The Application Copying Process

When the WindowViewer node copies an application, it makes every attempt to retain the attributes (read-only, system, hidden, and so on.) of the master application during the copy process. WindowViewer also copies all files and subdirectories of the master application. The copy process does not copy the following files: ***.WVW**, ***.LGH**, ***.LOG**, ***.IDX**, ***.LOK**, ***.FSM**, ***.WBK**, ***.CBK**, ***.DBK**, ***.GBK**, and ***.NBK**.

Note WindowViewer will recursively delete all files and subdirectories in the destination application directory. This directory should be considered a temporary directory (no files should be placed into it).

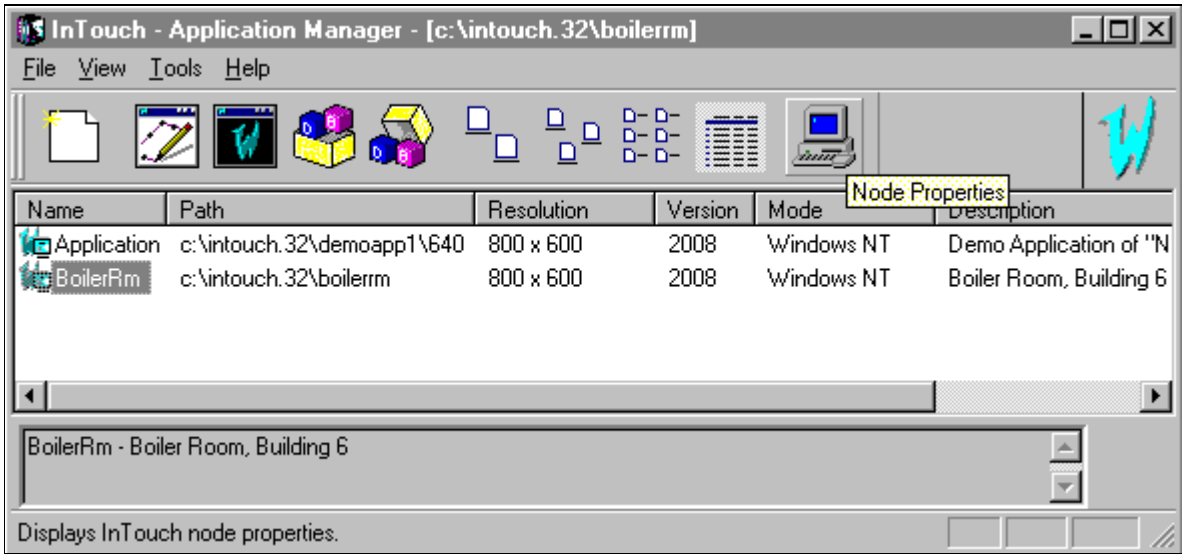
Dynamic Resolution Conversion (DRC)

Dynamic Resolution Conversion (DRC) works with other distributed features to provide independence from screen resolution restrictions. In a NAD architecture, an InTouch application is created and maintained on a development node, and then copied to several View nodes. DRC allows all of these nodes to view the application, even if they are running at different screen resolutions.

DRC enables each View node to scale the application to a number of user-defined options, including a custom resolution. This scaling takes place while WindowViewer compiles the application, and does not require WindowMaker. Since each View node can use a different DRC setting, each View node must have its own settings configured.

➢ **To configure an application for DRC:**

1. Start the InTouch program (INTOUCH.EXE). The **InTouch Application Manager** dialog box appears:

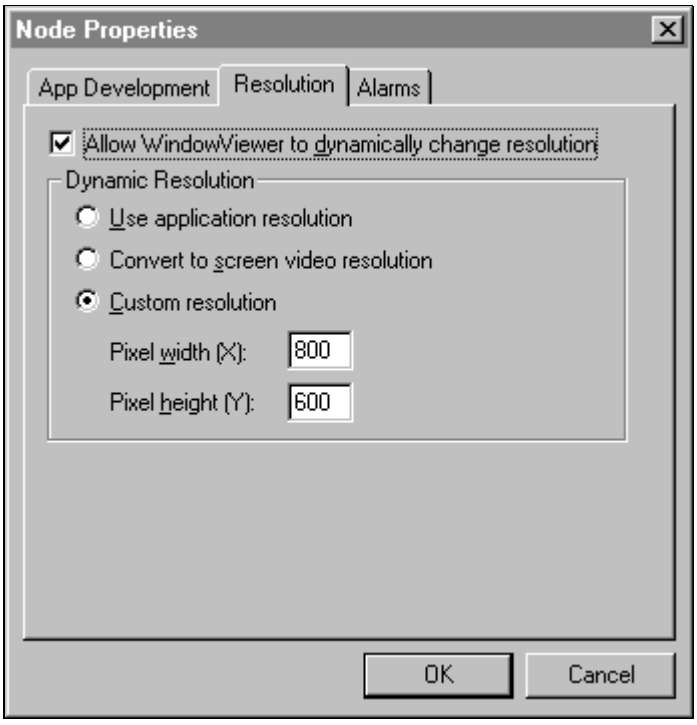


3. Click the Node Properties tool or on the **File** menu, click **Properties**. The **Node Configuration** dialog box will appear.

   To quickly access the dialog box, right-click a blank area of the application display window, and then click **Properties**.

   Note When an application is selected in the Application Manager window, selecting the **Properties** command on the **File** menu will display the **Properties** dialog box for that application.

4. Click the **Resolution** tab:



5. Select **Allow WindowViewer to dynamically change resolution** if you want WindowViewer to locally scale the master application, based on the resolution option you select. (The three resolution options are described below.)

   - If you do not select this option, WindowViewer will only run the application if the node's screen resolution is identical to the screen resolution of the application development node. If the resolutions are different, WindowViewer prompts the operator to run WindowMaker to convert the application to the node's resolution. Use caution when doing this if you have set up a UNC path to the master application directory as this will only modify the original application.

6. Select **Use Application resolution** if you want WindowViewer to run the application at the resolution it was developed for and ignore the node's resolution. For example, if the application was developed at 640x480 and the node's resolution is 1024x768, WindowViewer will not dynamically scale the application. Instead, the application will be displayed at 640x480.

7. Select **Convert to screen video resolution** if you want WindowViewer to run the application at the node's resolution and ignore the resolution the application was developed at. For example, if the node is running at 640x480 and the application was developed at 1280x1024, WindowViewer will dynamically scale the application (smaller) to fit the node's 640x480 display. (This will more than likely be the most commonly used setting.)

8. Select **Custom Resolution** if you want WindowViewer to run the application at the resolution you specified in the **Pixel width (X)** and **Pixel height (Y)** (must be integer values) boxes. The application's resolution and the node's resolution are both ignored. For example, if **Pixel width (X)** and **Pixel height (Y)** are set to 512 and 384, respectively, the application will dynamically be scaled to fit in a 512x384-pixel area on the node's display.

9. Click **OK**.

Working with Multiple Monitor Systems

There are several advanced graphics adapter cards on the market today that allow you to have more than one VGA monitor connected to your system at a time. These monitors act in tandem, creating a virtual screen which can be very large. As an example, a popular system connects four 17" monitors stacked as a cube: two on the bottom and two on the top. Since each screen has a resolution of 800x600, the virtual screen created is 1600x1200 pixels.

Dynamic Resolution Conversion (DRC) makes it easy to support these multi-monitor systems. Simply select from the DRC resolution conversion options, and you can take full advantage of all the virtual display or just a portion of it.

If an application is scaled to run on an even number of the monitors, a problem exists when certain dialogs are displayed over the span of the monitors. One of these dialogs, the **Keypad**, can cause particular problems as certain keys may not be accessible. To solve the problem, InTouch provides several multi-monitor configuration options.

➢ **To configure the multi-monitor settings on a node:**

1. Using a suitable text editor, for example, Windows Notepad open the **WIN.INI** file located in your Windows directory.
2. Locate the **[InTouch]** section and add the following parameters:
3. **[InTouch]**

MultiScreen=1	turns on multi-screen mode
MultiScreenWidth=640	width in pixels of a single screen
MultiScreenHeight=480	height in pixels of a single screen

For example, if your computer's resolution is 2560 x 1024 split on two horizontal screens, enter the following:

[InTouch]
MultiScreen=1
MultiScreenWidth=1280
MultiScreenHeight=1024

Note The above entries affect the numeric keypad and the QWERTY keyboard. Other InTouch dialog boxes and option boxes are not affected.

Running WindowViewer as an NT Service

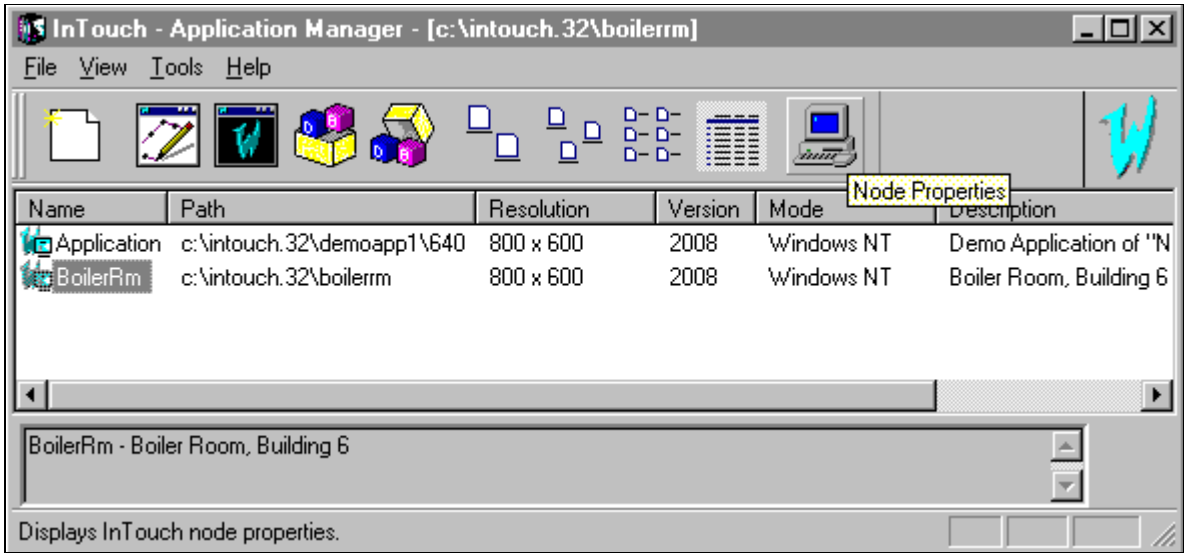
Beginning with InTouch 7.0, you can create client-server configurations very easily. You can configure a node that acts as a server node. This server node can then store the Tagname Dictionary and historical log data, execute InTouch QuickScripts, provide an alarming facility and I/O data. Any client node can then retrieve this information from the server node and display graphics.

Running WindowViewer as an NT Service allows you to take advantage of all the features that an NT Service provides. For example, continuous operation after the operator logs off and automatic startup at system boot time without operator intervention. This allows unmanned station startup of WindowViewer without compromising NT operating system security.

Note All NAD features are disabled when WindowViewer is installed as an NT Service.

➤ **To configure WindowViewer as an NT service:**

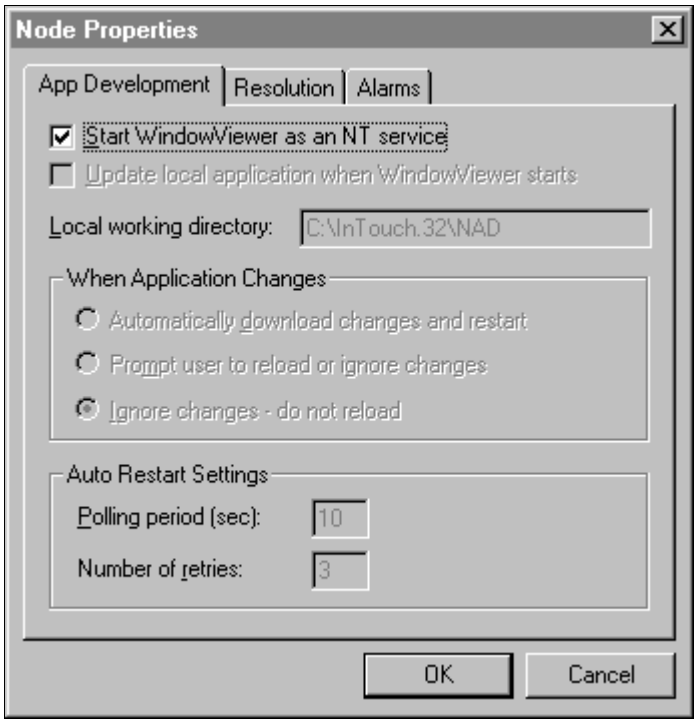
1. Start the InTouch program (INTOUCH.EXE). The **InTouch Application Manager** dialog box appears:



2. Click the Node Properties tool or, on the **File** menu, click **Properties**. The **Node Configuration** dialog box appears with the **App Development** property page active:

   To quickly access the dialog box, right-click a blank area of the Application Manager's window, and then click **Properties**.

Note When an application is selected in the Application Manager window, selecting the **Properties** command on the **File** menu will display the **Properties** dialog box for that application.



3. Select the **Start WindowViewer as an NT service** option to cause WindowViewer to automatically run as an NT service.

4. Click **OK**.

Notes

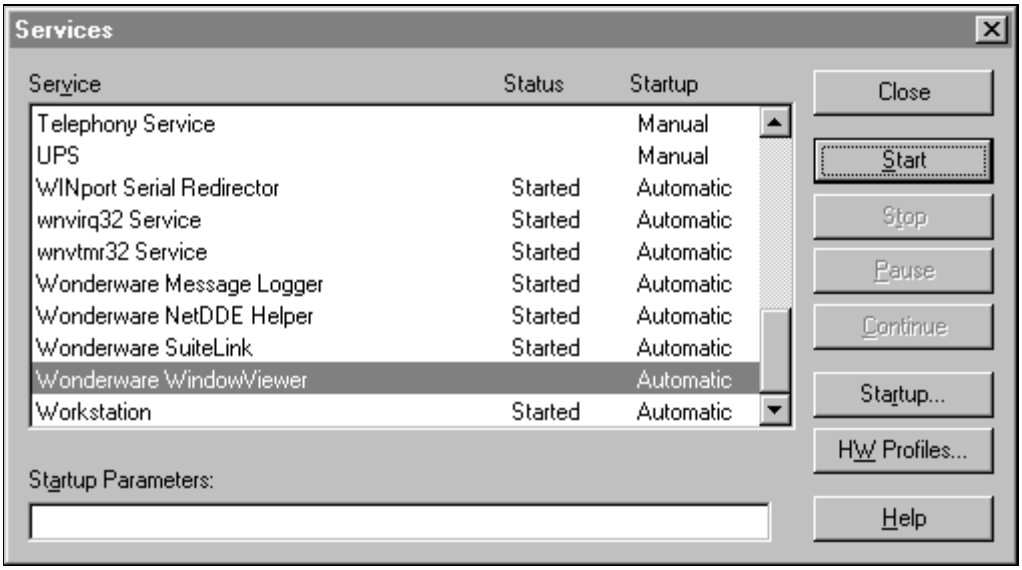
1) If WindowViewer is configured as an NT service and subsequently started directly (from its icon, the Windows startup menu and so on), there will be approximately a 15 second delay before WindowViewer will display a window. This delay is due to WindowViewer attempting to connect to the NT Service Control Manager. Upon failing to connect to the Service Control Manager, WindowViewer will display the following message box:

If you click **Yes**, WindowViewer is started as an application not an NT service. If click **No** the command to start WindowViewer is canceled.

2) If you stop WindowViewer from running as an NT service by clearing the **Start WindowViewer as an NT service** option, WindowViewer is automatically uninstalled as far as the Service Control Manager is concerned. However, it can be run as an application

➢ **To reinstall it as an NT service**

1. In the Windows Control Panel, double-click **Services**. The **Service** dialog box appears:

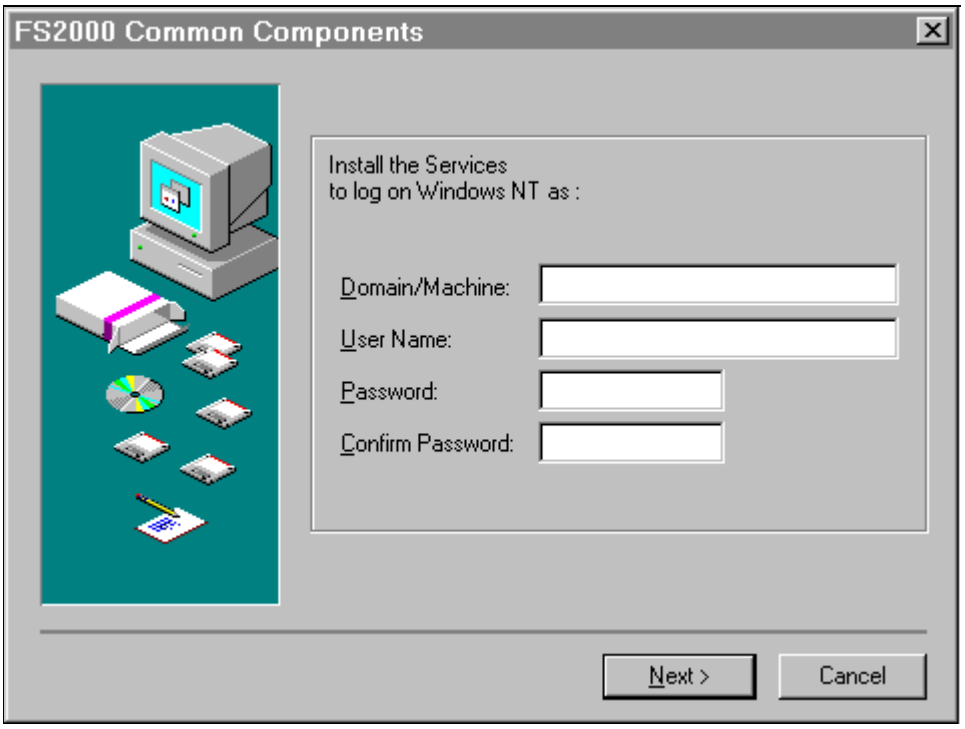


2. Select **Wonderware WindowViewer**, and then click **Start**.
3. Click **Close**.

   After you perform these steps, WindowViewer can be started as both an NT service and as an application.

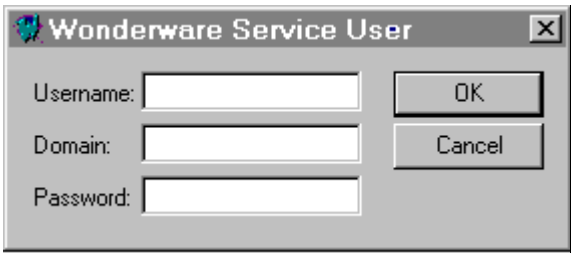
Configuring System Privileges

During InTouch installation, you will be prompted to provide your user name and password for your administrative account. This information is used to set the NT user account information. Services, such as Wonderware NetDDE Helper and Wonderware WindowViewer, will use this information for logon and starting the appropriate services during unattended start up.



1. In the **Domain/Machine** box, type the name of your system domain or the node name.
2. In the **User Name** box, type your user identification.
3. In the **Password** box, type your system password.
4. In the **Confirm Password** box, retype you system password to verify it.

   After installation, if you need to alter this information, run the Wonderware Service User application (WWUSER.EXE) located in your installed directory, (for example, \Program Files\FactorySuite\Common). When you run this utility, the **Wonderware Service User** dialog box appears:



   Enter the information as described above.

Glossary of Terms

Accelerators ..... Accelerators are used by the application in creating a keyboard interface. They are normally offered as alternatives to using the menu for indicating choices. An accelerator is a keystroke that has special meaning to the application and that can be used to generate a command message.

Access..... The obtaining of data. Locating desired data.

Active Application ..... The application that created the window that currently has the keyboard focus. Applications do not need to be the active application in order to receive and process messages. Applications are notified by message whenever they are gaining or losing the status of "the active application." The user normally determines the active application, but applications can override this decision.

Alarm..... A warning signal that is displayed or activated whenever a critical deviation from normal conditions occur.

Algorithm ..... A sequence of instructions which are mechanically carried out to perform a procedure.

Analog..... Referring to the representation of numerical quantities by the measurement of continuous physical variables.

Application..... A program or group of programs used for a particular kind of work, such as **InTouch**.

Assignment Operator ..... An operator used in an assignment statement that causes the value on the right to be placed into the variable on the left of the operator.

Assignment Statement.....A programming language statement that gives a value to a variable, such as in *x = x + 1 or y = 6*.

Asterisk .....A symbol (*) used to represent a multiplication operator in many programming languages.

b .....An abbreviation for byte or baud. Use bits when referring to storage, or baud rate when referring to communications. Kb = 1000 bytes or baud (technically 1K = 1024 bytes). See Baud or Byte.

Background .....In multiprogramming, the environment in which low priority programs are executed. Also, the part of a display screen not occupied with displayed characters or graphics (foreground).

Backing Up .....The creation of a backup copy of a specified file or files, transferring them from either a floppy disk or a hard disk to another removable or fixed disk.

Baud Rate .....A unit for measuring data transmission speed. One baud is 1 bit per second. Since a single character requires approximately 8 bits to represent it, divide the baud rate by 8 to calculate the characters per second (cps) to be transmitted. For example, 300 baud equals 37.5 cps, 1200 baud equals 150 cps, 2400 baud equals 300 cps.

Beta Testing.....Pretesting of hardware and software products with selected "typical" users, to discover bugs before the product is released to the general public.

Binary.....Pertaining to the number system with a radix of 2, or to a characteristic or property involving a choice or condition in which there are exactly two possibilities.

Binary Code.....A coding system in which the encoding of any data is done through the use of bits--that is, 0 or 1.

Binary Coded Decimal (BCD).....A computer coding system in which each decimal digit is represented by a group of four binary **1**s and **0**s.

BIOS ..... An acronym for **B**asic **I**nput/**O**utput **S**ystem. In some operating systems, the part of the program that customizes it to a specific computer.

Bit..... A binary digit; a digit (1 or 0) in the representation of a number in binary notation. The smallest unit of information recognized by a computer and its associated equipment. Several bits make up a byte, or a computed word.

Bitmap ..... A memory image of a portion of a display device surface. In Windows, a bitmap is actually a data structure containing a pointer to this memory image, plus information about the display device. The amount of memory required for a bitmap is device-specific, being dependent upon the color capabilities and pixel resolution of the device in question.

Boot..... To start or restart a computer system by reading instructions from a storage device into the computer's memory. It involves loading part of the operating system into the computer's main memory. If the computer is already turned on, it's a "warm boot;" if not, it's a "cold boot."

Border..... The line surrounding the current active window. A window can be resized by dragging on the border when the two-header arrow is present.

Buffer..... An area of storage used to temporarily hold data being transferred from one device to another. Used to compensate for the different rates at which hardware devices process data; for example, a buffer would be used to hold data waiting to print, in order to free the CPU for other tasks, since it processes data at a much faster rate.

Bus ..... A channel or path for transferring data.

Byte ..... A grouping of adjacent binary digits operated on by the computer as a unit. The most common size byte contains 8 binary digits.

Clipboard ..... A storage area for holding data (text, bitmap, graphic object, etc.) which is being copied or moved to another application or window.

Command.....A word or phrase, usually found in a menu, that carries out an action.

Command Button.....A round-cornered rectangle with a label on it that describes an action, such as **OK**, **Cancel** or **Close**. When chosen, the command button carries out the action.

Command Key.....Any keyboard key used to perform separate functions.

Command Line.....The string of arguments that follow any MS-DOS command, including the command to initiate an application program. The arguments in the command line are passed to the MS-DOS function or the program at startup time.

Computer Graphics.....A general term meaning the appearance of pictures or diagrams, as distinct from letters and numbers, on the display screen or hard-copy output device.

Concatenate.....To link together or join two or more character strings into a single character string, or to join one line of a display with the succeeding link.

CONFIG.SYS.....An ASCII text file that MS-DOS processes when the system is turned on or restarted. It allows the user to configure certain aspects of the operating system, such as the number of internal disk buffers allocated, the number of files that can be open at one time, etc.

Control Menu..... Usually there are two **Control** menus for each windows application. One appears in the upper-left corner of the application window and is represented by a box containing a Spacebar icon. This is the application Control menu. The other appears in the left corner of the window's title bar of the active file and is represented by a box containing a hyphen icon. This is the file Control menu. The Control menu commands move, shrink, expand, close and change the size of windows.

The application Control menu will close the application and all of its open files. The file Control menu closes only the active file; not the application. (**InTouch** does not have a file Control menu.) Icons and some dialog boxes also have a Control menu. To display the application Control menu, press **<Alt + Spacebar>**. To display the file Control menu, press **<Alt + Hyphen>**. Either Control menu can be displayed by pointing to its respective box pressing the mouse button, and dragging to the desired command.

Control Menu Box..... There are usually two Control menu boxes. One is located in the upper-left corner of the window (usually represented by a Spacebar). The commands in this menu box controls the entire application and all open files. The second Control menu box is located at the left edge of a window's title bar. The command in this menu box control the active file only. Click on either box to view it's menu.

Crop..... In computer graphics, to cut off some part of an image.

CSV..... Comma Separated Variable is the format used by the Clipboard for transfer of columns of text and numerical data between applications. A CSV data item is like text with each variable separated by commas. Although Microsoft Excel is probably the principle creator of CSV clipboard data, many DOS applications support this format.

Current File..... The file that is running in the application.

Database.....A collection of logically related records or files. A database consolidates many records into a common pool of data records which serves as a single central file.

Default.....An option, command, or device that is automatically selected or chosen by the system. For example, one of the command buttons in a dialog box is already selected when the dialog box is opened. This indicates that it is the default value and will be chosen automatically if the **<Enter>** key is pressed. Default values are overridden by selecting another appropriate option, command, or device.

Device Driver.....A program that controls how the computer interacts with a devices such as a printer, monitor, or mouse. A device driver enables the use of devices with the computer.

Description Box.....The Description Box shows a description of the current object, and also the time it was entered in the current Scrapbook+ file. A description may be given for each page in each Scrapbook+ file.

Directory.....A structure for organizing files into convenient groups. A directory is like an address showing where files are located. A directory can contain files, or sub directories of files.

Discrete Value.....A variable which only has two states: **'1'** (True, On) or **'0'** (False, Off).

Disk Operating System.....(DOS) An operating system in which the operating system programs are stored on magnetic disks. Typically, it keeps track of files, saves and retrieves files, allocates storage space, and manages other control functions associated with disk storage.

Display.....The physical representation of data on the screen.

Dithered.....Intermingled dots of various colors which produce what appears to be a new color.

Document..... A unit of printer output that must be printed contiguously; that is, no other output may be interspersed within a document. A document, then, is analogous to a report. The application must specify the start and end of each document.

Drive ..... A letter in the range A-Z, followed by a colon (:), indicating a logical disk drive.

Dynamic Data Exchange ..... DDE is the passage of data between applications, accomplished without user involvement or monitoring. In the Windows environment, DDE is achieved through a set of message types, recommended procedures (protocols) for processing these message types, and some newly defined data types. By following the protocols, applications that were written independently of each other can pass data between themselves without involvement on the part of the user, e.g. **InTouch** and Excel.

ENTER Key ..... The key on the keyboard which executes a statement or command. Same as RETURN key on some keyboards.

Expression ..... A general term for numerals, numerals with signs of operation, variables and combinations of these: 6, 3+6, n+10 are all expressions.

Extend..... To select more than one item in a window. To extend a selection, hold down the **<Shift>** key until everything is selected.

Extension ..... The period and three letters at the end of a filename. An extension identifies what kind of information a file contains. For example, the extensions **.EXE**, **.COM**, and **.BAT** indicate that a file contains an application.

File ..... A mechanism for holding and storing information on a hard disk or diskette for later use. File also may refer to any document or database created by the user, such as a word processing document, spreadsheet, etc. Each file appears in its own window and in most cases, the name of the file will appear in the title bar at the top of the window.

Filename.....Filenames consist of a base name containing no more than eight characters and a three-character extension. For example, **INTOUCH.EXE**.

Format.....To prepare a disk so it can hold information. Formatting a disk erases any previously stored data. Format is the term used for an object rendition. In most Windows applications, available formats include Text, Bit map, etc.

Graphics Object .....A visually oriented object, such as a scroll bar, bit map or icon that is used in the presentation of the visual interface. Graphic objects can be created by either the application or by Windows for use by the application.

Help .....Online instructions that explain how to use a Windows application. The Help menu displays specific Help topics. Pressing **<F1>** displays a list of Help topics.

Highlight .....Indicates that the object is selected and will be affected by the next action or command. A highlighted object appears in reverse video. A selected icon is outlined in white and displays the application's name.

Icon.....A small graphic symbol representing an application running in memory. Every application, including Help, the Clipboard and the Control Panel has its own icon. When an application is minimized into an icon, the application is still running in memory but is not taking up space in the screen work area. Icons can be expanded into a window when it becomes necessary to use the application again.

Inactive.....A window or icon that is not selected. See **Select**.

Insertion Point.....The place where text will be inserted when the user types. The insertion point usually appears as a flashing vertical line (the cursor) and can appear in the workspace or within a dialog box. The text typed appears to the left of the insertion point, which is pushed to the right as text is entered.

Integer..... Any member of the set consisting of the positive and negative whole numbers and zero. Examples: -59, -3, 0.

I/O ..... An abbreviation for INPUT/OUTPUT.

Key Accelerator ..... A special keyboard sequence that executes menu commands, e.g., Ctrl + A. See **Accelerators**.

List Box..... A box within a dialog box listing all available choices for a command. For example, a list of filenames on a disk. Usually an item is selected from the list box, then "OK" is chosen. If there are more choices than can fit in the list box, it will have vertical scroll bars. Selecting the down arrow next to the first item in the list will display the rest of the list box.

Macro..... A single, symbolic programming-language statement that when translated results in a series of machine-language statements.

Maximize ..... To make a window or icon fill the entire screen. To maximize a window, choose the *Control/Maximize* command, or click on the Maximize box in the upper right corner of the window. See also **Minimize** and **Restore**.

Maximize Box..... A box containing an upward-pointing arrow in the upper right corner of the window. Mouse users can click on the Maximize box to enlarge a window to its maximum size. The Maximize box changes to the Restore box when the window appears at its maximum size. See **Maximize**.

MB ..... An abbreviation for megabyte. One million bytes. 1000KB.

Megabyte..... 1,048,576 bytes or 1024 kilobytes, actually; or roughly one million bytes or one thousand kilobytes.

Menu ..... Menus are group listings of available Windows and application commands. Menu titles appear in the menu bar at the top of the window. A command is chosen by displaying the menu, then choosing the desired command.

Menu Bar ..... The horizontal bar that lists the names of an application's menus. The menu bar appears below the title bar of a window Each Window's application has a menu bar that is distinct for that application, although some menus (and commands) are common to many of these applications.

Message Box ..... A special dialog box through which an application displays error messages or other important information. Message boxes alert the user when an error occurs or when the application needs information to complete an action or command.

Millisecond ..... One thousandth of a second, abbreviated ms or msec.

Minimize ..... To turn a window into an icon. To minimize a window, choose the *Control/Minimize* command, or click on the Minimize box in the upper right corner of the window. See **Maximize** and **Restore**.

Minimize Box ..... A box containing a downward-pointing arrow in the upper right corner of the window. Mouse users click on the Minimize box to shrink the window to an icon. See **Minimize**.

Mirroring ..... The display or creation of graphics that portray an image in exactly the reverse orientation it originally had, e.g., flipping the graphic on its x- or y-axis.

Mode ..... A method or condition of operation.

Modulo ..... A mathematical function that yields the remainder of division. A number *x* evaluated modulo *n* gives the integer remainder of *x/n*. For example, 200 modulo 47 equals the remainder of 200/47, or 12.

MS/DOS..... An abbreviation for **M**ICRO**S**OFT **D**ISK **O**PERATING **S**YSTEM, the standard operating system used by the IBM Personal Computer and compatible computers. Developed by Microsoft, Inc.

Multitasking..... The ability of a computer to perform two or more functions (tasks) simultaneously.

Object ..... A set of data. Objects come in several formats; bit map images, text, Real Time and Historical trend graphs, etc.

Off-line..... Pertaining to equipment or devices not in direct communication with the central processing unit of a computer. Equipment not connected to the computer.

Operand..... A quantity or data item that is operated upon.

Operating System ..... Software that controls the execution of computer programs and that may provide scheduling, debugging, input/output control, storage assignment, etc. Abbreviated OS.

Operator..... In the description of a process, that which indicates the action to be performed on operands.

Option Button ..... A small round button appearing in a dialog box An option button is selected to set the option, but within a group of related option buttons, only one can be selected. An option button has a black dot when it is selected and is blank when it is not selected.

Option Button Group..... A group of related options in a dialog box. Only one option button in a group can be selected at any one time.

Page..... A page is a block of information that is selected and stored in a file. For example, a paragraph of text from Microsoft Word may be a page and a chart from Microsoft Excel may be another. Pages may be held in a variety of formats in the same file. Pages are numbered as they are placed into the file.

Page Slider ..... Appears just to the right of the Clipboard icon in the Scrapbook+ application. It tells how many pages of objects are in the current Scrapbook+ file. It is also used to display particular pages in the file for viewing and manipulation. The number of the current page will be shown in the Page Slider. A new page can be selected by dragging the Page Slider with the mouse to the number of the page to view.

Palette..... The set of available colors in a computer graphics system.

Parity..... An extra bit added to a byte, character, or word to ensure that there is always either an even number or an odd number of bits, according to the logic of the system. If, through a hardware failure, a bit should be lost in transmission, its loss can be detected by checking the parity. The same bit pattern remains as long as the contents of the byte, character or work remain unchanged.

Paste ..... To insert something into a document or file from the Clipboard. Some applications (including **InTouch**) may have a Paste command that performs this task. If using some other standard application that runs in a window, Windows adds the Paste command to the Control menu.

Path ..... The hierarchy of files through which control passes to find a particular file. Designates one or more disk drives and/or directory paths to be searched sequentially for a program or batch file if the file cannot be found in the current or specified drive and directory. The drives and/or directory paths are searched in the order they appear in the Path .

Pathname ..... A description of the location of a directory or file within the system. The pathname consists of the drive letter, a colon (:), followed by directory and subdirectory names, followed by a filename. Each name is separated from the previous one by a backslash (\). If not specified, a default drive and directory are used.

Pixel..... A picture cell. Shortened version of "picture element." The visual display screen is divided into rows and columns of tiny dots, squares or cells, each of which is a pixel. The smallest unit on the display screen grid that can be stored or displayed. A computed picture is typically composed of a rectangular array of pixels. The resolution of a picture is expressed by the number of pixels in the display, e.g., a picture with 560 x 720 pixels is much sharper than a picture with 275 x 400 pixels.

Poke..... An instruction used to place a value (poke) into a specific location in the computer's storage.

Polling..... A communications control method used by some computer/terminal systems whereby a computer asks many devices attached to a common transmission medium, in turn, whether they have information to send.

Port ..... That portion of a computer through which a peripheral device may communicate. A connection between the CPU and a peripheral device.

Precedence..... Rules that state which operators should be executed first in an expression.

Process Control..... The use of the computer to control industrial processes such as oil refining and steel production.

Process Control Computer..... A computer used in a process control system, generally limited in instruction capacity, word length and accuracy. Designed for continuous operation in non-air conditioned facilities.

Processing..... The application that currently has control of the processor. An application is given control of the processor upon receipt of a message. It retains control of the processor until the message is processed.

Protocol ..... Set of rules or conventions governing the exchange of information between computer systems or applications.

Pull-down Menu ..... A menu that can be displayed by moving the mouse pointer to a title, then pressing the mouse button.

Queue ..... A group of items waiting to be acted upon by the computer. The arrangement of items determines the processing priority. For example, documents waiting to be printed.

Register ..... A high-speed device used in a central processing unit for temporary storage of small amounts of data or intermittent results during processing.

Restore ..... Icons can be restored to full-sized windows by double-clicking on them. To restore a window, choose the Restore command from the Control menu, or click on the Restore box in the upper right corner of the window. See **Maximize** and **Minimize**.

Restore Box..... A box containing two arrows (one upward and one downward-pointing) in the upper right corner of the window. See **Restore**.

Run ..... To start an application. The Run command lets you specify parameters for the application. An application can also be run by double-clicking on its name or icon.

Running..... An application that is "running" is an application that is in the system as a task, can receive messages, and is (normally) known to the user. From initiation to termination, an application is always running, but it is not always *processing*. See **Processing**.

Runtime..... The time during which data is fetched by the control unit and actual processing is performed in the arithmetic-logic unit. Also, the time during which a program is executing.

Scaling ..... The process of changing the size of an image.

Scroll ..... To move data or text up and down, or left and right to view parts of the file that cannot fit on the screen.

Scroll Bars..... The bars that appear at the right side or bottom of a window. Use the scroll bars to move through a

window that contains more information than can be shown on one screen. The scroll bar at the right side of a window scrolls vertically. The scroll bar at the bottom of a window scrolls horizontally.

Scroll Box ..... The small white box in the scroll bar. The scroll box reflects the position of the information within the window in relation to the total contents of the file. For example, if the scroll box is in the middle of the scroll bar, then the text or data in the window is in the middle of the file. The mouse can be used to scroll by dragging the scroll box in the scroll bar. See **Scroll Bars**.

Serial Port ..... An input/output port in a computer through which data is transmitted and received one bit at a time. In most cases, in personal computers, serial data is passed through an RS232C serial interface port.

Spreadsheet ..... A program that arranges data and formulas in a matrix of cells, e.g., Excel.

Statement..... An expression of instruction in a computer language.

String ..... A connected sequence of characters or bits treated as a single data item.

Subdirectory..... Subdirectories are located within Directories. They are a structure for organizing files into convenient groups. A subdirectory is like an address showing where files are located.

Syntax ..... The rules governing the structure of a language and its expressions.

Task..... A task is an executing application. Task is a synonym for "process".

Tagname ..... The name assigned to a variable in the database.

Text Box..... A box where information needed to carry out a command is typed. A text box usually appears in a dialog box.

Tiled Window ..... A tiled window is a window whose size, shape, and location on the screen is determined by Windows. Tiled windows are the only style of window that cannot overlap other windows, can be placed into the icon area and can have menus. Each application normally creates just one tiled window. All additional windows created by an application are normally cascading or popup windows.

Time slice ..... A unit of time.

Title Bar ..... The bar across the top of each window that contains the name of the application and the document or file being used by that application. (In **InTouch** an option exists to eliminate the Title bar.) Title bars are also used to move a window on the screen by grabbing it while dragging the mouse.

Touch-sensitive screen ..... A display screen on which the user can enter commands by pressing designated areas with a finger or other object.

Viewing Area ..... The viewing area (also called "Workspace") in Windows applications displays one page of a file. See **Workspace**.

Window ..... A rectangular area on the screen in which an application is viewed and worked. Multiple windows can be open on the screen at one time which can be sized and moved independently.

Windows ..... An operating environment developed by Microsoft.

Windows Application ..... An application that is designed especially for the Microsoft Windows operating environment and that uses all Windows features such as menus, scroll bars, and icons.

Workspace..... The area of an application window that displays the application itself and all other open windows.

x-axis..... On a coordinate plane, the horizontal axis.

y-axis..... On a coordinate plane, the vertical axis.

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