

AVEVA™ InTouch HMI

formerly Wonderware

Getting Started Guide



AVEVA

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Welcome to InTouch HMI

AVEVA InTouch HMI, formerly Wonderware continues the tradition of market leadership in Human Machine Interface (HMI) applications. This booklet gives you a quick overview of the major features of InTouch HMI and explains the essential tasks to create several types of InTouch HMI applications.

Installing InTouch HMI

The simplified installation process makes installing InTouch HMI easier than ever.

The major decision you must make when you install InTouch HMI is whether to install the InTouch HMI development and run-time components, or the run-time components alone.

The installation program guides you in selecting the features you want, verifying or modifying your selections, installing prerequisite software, and then installing InTouch HMI. For detailed information about installation, refer to the *System Platform Installation Guide*.

InTouch HMI Licensing

A valid product license is required to enable InTouch HMI functionality. The AVEVA License Server and AVEVA License Manager are automatically selected when you select InTouch HMI during installation.

Note If you are using a workgroup, the AVEVA License Manager and License Server must be installed on the same node.

You will need to activate your InTouch HMI licenses before using WindowMaker or WindowViewer. For detailed information about license activation, refer to the AVEVA

Enterprise Licensing Guide. It is also available on the AVEVA License Manager node as a PDF file, under the AVEVA start directory, after installation is complete.

Working with InTouch HMI

An InTouch HMI application shows a graphical representation of a manufacturing or process environment. The tools, materials, and processes used to create a product appear as visual elements in an application's windows. This chapter describes the steps to create the following types of InTouch HMI applications:

- Standalone Applications
 - Managed Applications
-

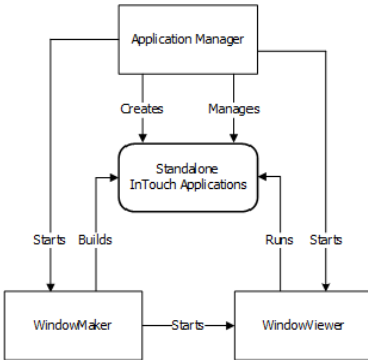
Comparing Different Types of InTouch HMI Applications

The following table shows some major similarities and differences between different types of InTouch HMI applications.

Tasks	Types of InTouch HMI Applications	
	Standalone	Managed
Main Use	Tag based, native symbols and Industrial graphics	Object based and Industrial Graphics
Create an Application	Application Manager	IDE <ul style="list-style-type: none"> ● New applications ● Import standalone applications ● Import SmartSymbols
Edit an Application	WindowMaker started from Application Manager	WindowMaker started from the IDE
Delete an Application	Delete folder and remove from Application Manager	Delete InTouchViewApp template
Publish an Application	Yes, from WindowMaker	Yes, from IDE
Create Industrial Graphics	Yes	Yes
Incorporate Industrial Graphics	Yes, can be added, edited, and viewed from an application	Yes, can be added, edited, and viewed from the IDE
Incorporate Application Objects	No	Yes

Creating Standalone Applications

The following figure shows the components that you would use to create, manage, build and run standalone InTouch HMI applications.



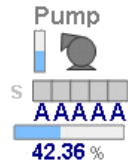
Use InTouch HMI Application Manager to create and manage standalone applications. You can build standalone applications with WindowMaker and run them from WindowViewer. Standalone applications give you the capability to easily integrate Industrial Graphics directly into your applications. You can switch between WindowMaker and WindowViewer to test or run your applications and switch back to make modifications to your applications.

Adding Industrial Graphics to Applications

After you have created an application, WindowMaker's Industrial Graphic Toolbox includes separate folders containing the Industrial Graphic Library and Situational Awareness Library of predefined symbols. The Industrial Graphic library contains realistic symbols of standard industrial objects.

Situational Awareness Library symbols are configurable symbols designed to enhance an operator's situational awareness of current process conditions using highly efficient visual techniques and best practices.

Situational Awareness Library symbols have a simplified look and provide minimum visual detail to efficiently convey their functional purpose and status without showing irrelevant information to operators.



Most Situational Awareness Library symbols are designed as Symbol Wizards that incorporate multiple visual and functional configurations in each symbol. Selecting a configuration for a symbol is a simple matter of selecting options from a list without the burden of extensive design work. Also, Situational Awareness Library symbols provide faster application run-time performance because of their lightweight design and simple appearance.

Migrating Existing Modern Applications

In System Platform 2020, the functionality of modern applications has been merged to the new Standalone application. For detailed instructions to migrate existing modern application, see the *InTouch HMI Application Management and Extension Guide*.

Creating Managed Applications

InTouch HMI shares the Integrated Development Environment (IDE) with Application Server. You can also create *Managed* InTouch applications from the IDE using Industrial Graphics and automation objects.

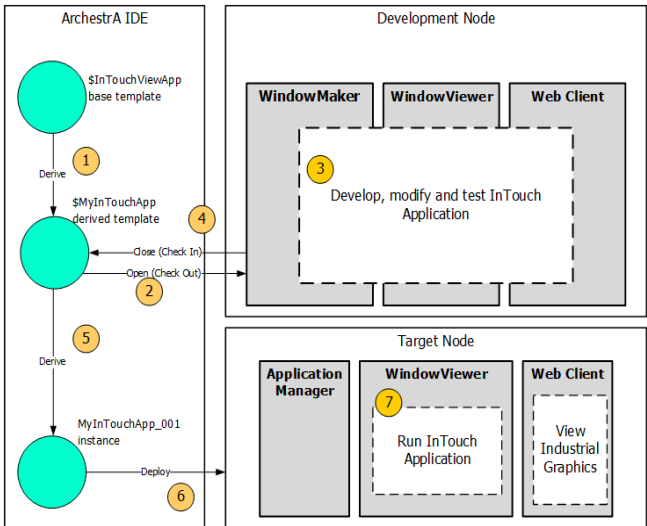
The IDE includes a suite of graphic tools and automation objects to build simple or complex system environments. Using automation objects, you can integrate your InTouch HMI applications much more easily into the System Platform. Also, you can embed pre-built Industrial Graphics and Situational Awareness Library symbols into your applications or use a wide assortment of tools from the Industrial Graphic Toolbox to create your own symbols.

Using the IDE to manage your InTouch applications, you can:

- View which applications are running on individual Galaxy nodes.
- Use a central repository to manage applications.

- Deploy application changes to WindowViewer nodes running InTouch applications.

The following figure shows the integration of the IDE with traditional InTouch HMI components. The figure shows the steps to create a managed InTouch HMI application with the IDE.



- 1** Create a *managed* InTouch application in the IDE by deriving a template from the \$InTouchViewApp base template.
You create a managed application on one node of the Galaxy with WindowMaker. Then, you deploy it to one or more target nodes running WindowViewer.
- 2** Open the managed application in WindowMaker.
- 3** Develop your InTouch application in WindowMaker. If needed, switch to WindowViewer to test the application.
- 4** Save the changes to the InTouch application.
- 5** Derive an instance of the managed application and select the nodes to deploy the application.

- 6 Deploy the InTouch application to the target nodes running WindowViewer in the Galaxy.
- 7 Run the application in WindowViewer on target nodes.

Integrating Application Objects with InTouch HMI

A Galaxy is your specific production environment to run your managed InTouch HMI applications. A Galaxy includes all computers and components. It is a collection of platforms, engines, application objects, templates, instances, and attributes you define as the parts of your specific application. This collection is stored in a Galaxy database on a node called the Galaxy Repository (GR).

Application Server manages your InTouch applications with a specific type of application object called the *InTouchViewApp* application object, which is derived from the `$InTouchViewApp` base template.

After you derive a new *InTouchViewApp* template from the `$InTouchViewApp` base template, you can associate the *InTouchViewApp* template with an InTouch application by:

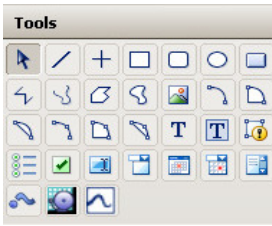
- Creating a new InTouch application.
- Importing a standalone InTouch application.

An *InTouchViewApp* template represents one specific InTouch application at design time and cannot be executed at run time.

You deploy an *instance* of your derived *InTouchViewApp* template to a target node to run your InTouch applications. The target node is the node on which the managed InTouch application can run in WindowViewer. To distribute your InTouch application, you can create multiple instances of the same *InTouchViewApp* template and deploy them to multiple nodes.

Working with the Industrial Graphic Editor

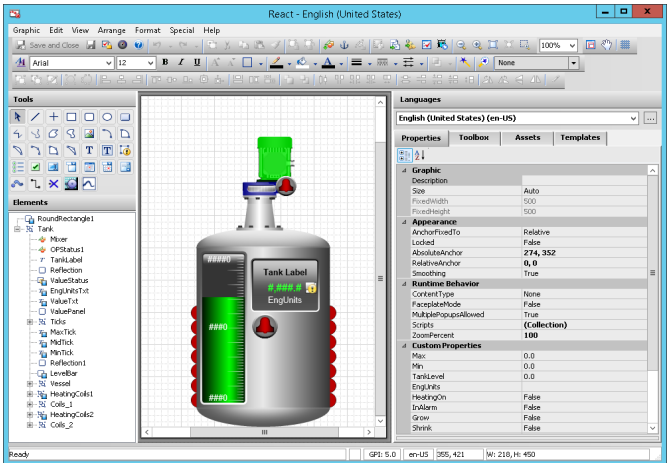
You can create Industrial Graphics from basic elements such as rectangles, lines, circles, or text much like graphics created from WindowMaker. The Industrial Graphic Editor also includes other graphic tools to create more complex drawing elements like closed curves, chords, and Windows controls.



Industrial Graphics are graphics you can add to an application window to visualize data in a production process. You create Industrial Graphics in the Industrial Graphic Editor. You select a basic graphical object called an element from the **Tools** panel and place it on the drawing area called the canvas. Then, you can change the appearance

of your drawn elements either by accessing their properties directly, or by modifying their physical appearance. You can configure the elements or the symbol with animations.

The following figure shows the various tools and palettes of the Industrial Graphic Editor that you use to create and customize symbols.



When you embed an Industrial Graphic into an InTouch HMI window and the symbol is contained in an Automation template, you can easily create a new instance of the Automation object. The embedded symbol automatically references the new object.

After you build your managed application from the IDE, you can *publish* it. A published InTouch application is no longer associated with the InTouchViewApp template and cannot be edited from the IDE. But, a published InTouch application can still communicate with the Galaxy by any embedded Industrial Graphic. You can write data back to the Galaxy or visualize Galaxy data with the Industrial Graphic.

Connectivity with Gateway Communication Driver and OPC

Gateway Communication Driver is included with the InTouch HMI. When the InTouch HMI is installed, an InTouch Access Name is created for Gateway Communication Driver, pointing by default to the localhost.

Gateway Communication Driver streamlines OLE for Process Control (OPC) and OPC Unified Architecture (OPC UA) setup, enhancing device integration. OI Server Manager also is included, providing the System Management Console (SMC) as an interface for configuring the Gateway Communication Driver and OPC.

Gateway Communication Driver requires configuration using the SMC. OPC and OPC UA Servers require a separate installation.

InTouch HMI as an OPC UA Server

InTouch HMI can be configured to act as an OPC UA server allowing clients to connect and access tag data. For more information, refer to the InTouch HMI help.

Creating Standalone Applications

All configuration steps to use Industrial Graphics are completed from InTouch WindowMaker. You do not need to use the IDE to create a standalone application. When you are creating a window for an application, you simply drag Industrial Graphics or Situational Awareness Library symbols directly from WindowMaker's Industrial Graphic Toolbox into a window.

Creating a Standalone Application

You create a Standalone InTouch HMI application from InTouch Application Manager.

To create a standalone application

- 1 Click **Start** on your Windows desktop and search for **InTouch Application Manager**.
- 2 Select **New** by using one of the following methods:
 - a Select **New** from the **File** menu.
 - b Right-click within Application Manager and select **New** from the shortcut menu.
 - c Select the **New** icon from the menu bar.
 - d Press the Ctrl + N keys.

The **Create New Application** wizard appears.

- 3 Select a **Template**, and click **Next >**.

The **Enter Application Details** page displays the fields to enter the application name, directory name, application path, application target resolution and description.

- 4 Enter the details and specify a target resolution if different than the default screen resolution. Name the application *Chocolate Milk*.
 - a Select from a list of predefined target resolutions or select **Custom**. The Pixel width and height fields become editable. .

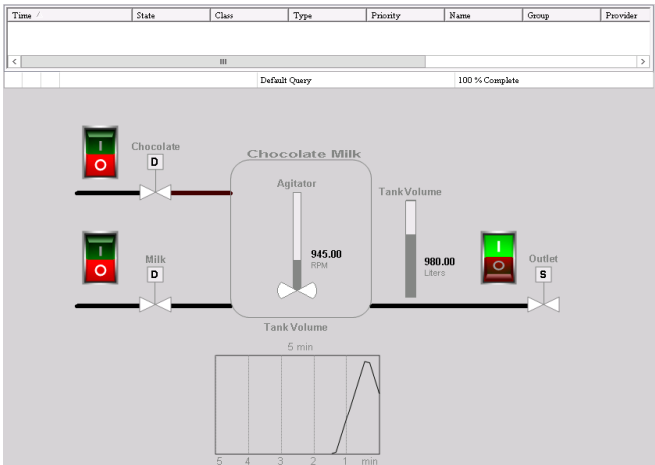
- 5 Click **Finish**.

After an application is created, it appears in Application Manager's list of applications. The **Application Type** column identifies the application as Standalone.

Editing a Standalone Application

You open a standalone application from the InTouch Application Manager and edit it in WindowMaker.

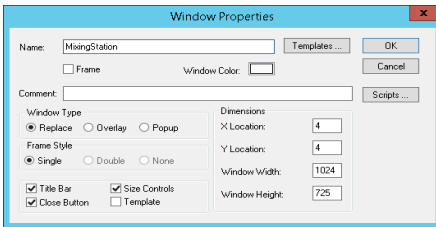
This section demonstrates the basic steps to build an application. The following figure shows a window from a simple application that combines and mixes the ingredients to make chocolate milk. Complete the procedures in this section to learn the over all workflow to build an application.



In the window, the Alarm Viewer control and the lines that represent pipes are traditional InTouch HMI graphic elements. All other graphics elements shown in the window are Industrial Graphics or Situational Awareness library symbols.

To edit an application

- 1 Open InTouch Application Manager.
- 2 Double-click on the Chocolate Milk application to edit it.
The first time you open an InTouch HMI application in WindowMaker no windows have been created.
- 3 Right-click on **Windows** in the **Windows & Scripts** area of WindowMaker and select **New Window** from the shortcut menu.
- 4 Assign "Mixing Station" as the name of the window in the **Name** field of the **Window Properties** dialog box.



- 5 Set the width and height of the window by entering values in the **Window Width** and **Window Height** fields.
- 6 Change the default background of the window to a lighter color by clicking **Window Color** and selecting a color from the **Standard Palette**.
- 7 Click **OK**.

The window you created appears in WindowMaker. Continue with the next procedure to add symbols to the window.

Adding Symbols to a Window

Drag and drop graphics from the Industrial Graphic Toolbox to add symbols to a window.

This procedure explains how to add the following symbols to the window you created earlier:

- Situational Awareness Library
 - 3 valves (Valves folder, SA_Valve_2Way)
 - 1 vessel (Equipment folder, SA_Tank_Vessel)

- 1 meter (Meters folder, SA_Meters)
- 1 simple trend (TrendPen folder, SA_Trend)
- 1 agitator (Equipment folder, SA_Agitator_Settler)
- Industrial Graphic Library
 - 3 rocker switches (Switch folder, RockerSwitch)
- InTouch Wizards
 - 1 alarm viewer control (AlarmViewerCtrl)
- InTouch Graphic Toolbar
 - 3 lines that represent pipes

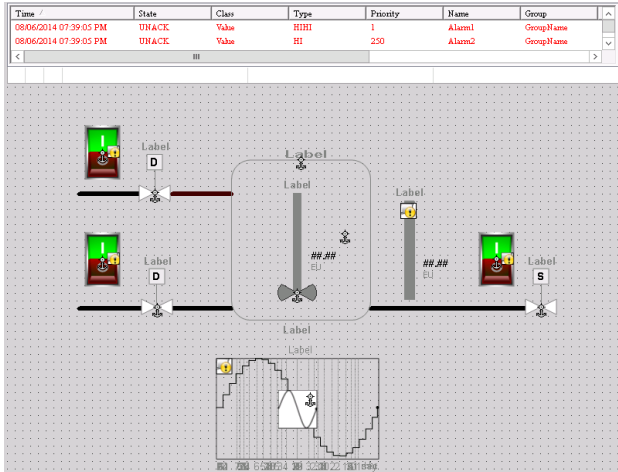
To add symbols to an Application

- 1** If necessary, open the Mixing Station window you created in WindowMaker.
- 2** Expand the Situational Awareness Library folder in the **Industrial Graphic Toolbox** to show the list of folders.
- 3** Open the **Valves** folder and select the SA_ISA_2WValve symbol.
- 4** Keeping your left mouse key pressed, drag the symbol to the open window and release the key at the approximate location where you want to place the symbol.
- 5** Select the symbol and place it precisely where you want it to appear in the window.
- 6** Repeat steps 3-5 and add the remaining Industrial Graphics and Situational Awareness Library symbols listed on the previous page.

The list of symbols on the previous page includes the folders in the Industrial Graphic Toolbox where the symbols are located.

- 7** Click the **Wizards** icon from the WindowMaker menu bar and select AlarmViewerCtrl from the **ActiveX Controls** group.
 - 8** Click **OK** and place the Alarm Viewer control near the top of the window.
 - 9** Select the **Line** tool from the WindowMaker graphic tool bar.
-

- 10 Draw three lines that represent the two input pipes and the output pipe.
- 11 Click **Line** from the menu bar and select a thicker line type to make your lines look more like pipes.
- 12 Arrange the graphic elements on your window to look like the following example of a chocolate milk mixing station.



Creating InTouch HMI Tags

InTouch HMI applications represent an industrial process using data associated with InTouch HMI tags.

In this simple application, tag data will be shown or used to set the state of the symbols that represent the equipment of a mixing station.

This procedure explains how to create the following tags for a mixing station application:

Tag	Tag Type	Symbol Association
Tank_Level	Memory Integer	Mixing Tank
Valve_Chocolate	Memory Discrete	Chocolate Valve

Tag	Tag Type	Symbol Association
Valve_Milk	Memory Discrete	Milk Valve
Valve_Outlet	Memory Discrete	Outlet Valve
Agitator_RPM	Memory Integer	Tank Agitator

To create InTouch HMI tags

- 1 On the **Special** menu, click **Tagname Dictionary**.
- 2 Click **New**. The **Tagname** field clears.
- 3 Type Tank_Level in the **Tagname** field.
- 4 Click **Type** to show the various types of InTouch HMI tags.
- 5 Select **Memory Integer** as the type of tag.
- 6 Click **Alarms** near the top of the Tagname Dictionary to expand the dialog box to show fields to set alarm conditions.

Tagname Dictionary

Main
 Details
 Alarms
 Details & Alarms
 Members

Tagname:
 Type: ... Memory Integer
 Local Tag

Group: ... \$System
 Read only
 Read Write

Comment:

Log Data
 Log Events
 Retentive Value
 Retentive Parameters

ACK Model: Condition
 Event Oriented
 Expanded Summary
 Alarm Comment:

	Alarm Value	Priority	Alarm Inhibitor		Alarm Value	Priority	Alarm Inhibitor	Value Deadband
<input type="checkbox"/> LoLo	0	1	<input type="checkbox"/>	<input checked="" type="checkbox"/> High	1400	1	<input type="checkbox"/>	0
<input type="checkbox"/> Low	0	1	<input type="checkbox"/>	<input type="checkbox"/> HHi	0	1	<input type="checkbox"/>	

	% Deviation	Target	Priority	Alarm Inhibitor	Deviation Deadband %
<input type="checkbox"/> Minor Deviation	0	0	1	<input type="checkbox"/>	0
<input type="checkbox"/> Major Deviation	0		1	<input type="checkbox"/>	

Rate of Change
 % per:
 Sec
 Min
 Hr
 Priority: 1
 Alarm Inhibitor:

- 7 Select **High** and set 1400 in the **Alarm Value** field.
- 8 Click **Save**.
- 9 Repeat steps 2-4 to create the three valve tags.
 - a Enter the name of the valve tag in the **Tagname** field.
 - b Set the tag type to Memory Discrete for all three valve tags.

- c** Click **Save** to save each valve tag.
- 10** Create the Agitator_RPM tag using the same steps (2-8) used to create the Tank_Level tag.
- a** Enter Agitator_RPM as the name of the tag.
- b** Set the tag type to Memory Integer.
- c** Select **High** and set the **Alarm Value** field to 1500.

The screenshot shows the 'Tagname Dictionary' dialog box with the following configuration:

- Buttons: New, Restore, Delete, Save, <<, Select..., >>, Cancel, Close
- Radio buttons: Main, Details, **Alarms**, Details & Alarms, Members
- Tagname: Agitator_RPM
- Type: Memory Integer
- Local Tag:
- Group: \$System
- Read only: Read Write:
- Comment: (empty)
- Log Data: Log Events: Retentive Value: Retentive Parameters:
- ACK Model: Condition, Event Oriented, Expanded Summary
- Alarm Comment: (empty)
- Alarm Configuration Table:

	Alarm Value	Priority	Alarm Inhibitor		Alarm Value	Priority	Alarm Inhibitor	Value Deadband
<input type="checkbox"/> LoLo	0	1		<input checked="" type="checkbox"/> High	1500	1		0
<input type="checkbox"/> Low	0	1		<input type="checkbox"/> HiHi	0	1		
- Deviation Configuration:

	% Deviation	Target	Priority	Alarm Inhibitor	Deviation Deadband %
<input type="checkbox"/> Minor Deviation	0	0	1		0
<input type="checkbox"/> Major Deviation	0		1		
- Rate of Change: Rate of Change 0 % per: Sec Min Hr
- Priority: 1
- Alarm Inhibitor: (empty)

Creating a Window Script

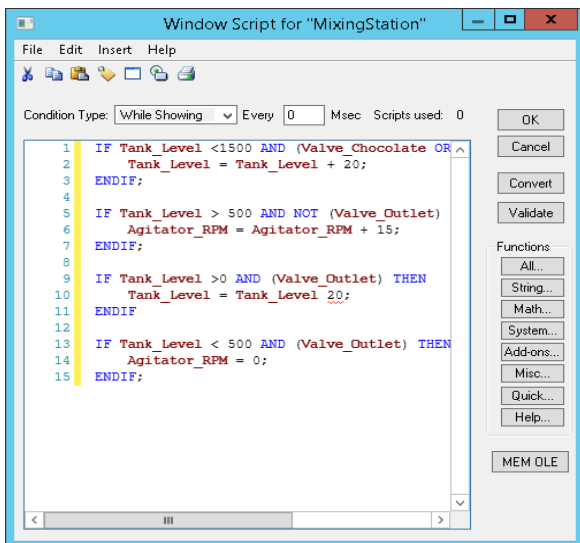
A window script sets the operating conditions of the Chocolate Milk application while it is running in WindowViewer:

- When the Chocolate or Milk valves are open and the Outlet valve is closed, the tank fills with ingredients.
- When the Chocolate or Milk valves are open and the Outlet valve is open, the tank volume remains constant.
- When the Chocolate and Milk valves are closed and the Outlet valve is open, the chocolate milk empties from the tank.
- When the mixing tank level is less than 1500 liters and the chocolate or milk valves are open, the tank begins to fill with ingredients.

- When the tank level is greater than 500 liters and the outlet valve is closed, the agitator begins to rotate.
- When the tank level falls to less than 500 liters and the outlet valve is open, the agitator stops.

To create a window script

- 1 Right-click on a blank area of the Mixing Station window to show a shortcut menu.
- 2 Select **Window Scripts** from the shortcut menu.
- 3 Type or copy the following windows script into the **Scripts** dialog box.



- 4 Set the **Condition Type** field to **While Showing**.
- 5 Set the **Every** field to a value between 500-700 milliseconds.

The window script will run periodically at the interval you set in the **Every** field.

- 6 Click **Validate** to see if there are any errors in the script.
- 7 Correct any script errors and click **OK**.

Configuring Symbols

Industrial Graphics contain custom properties that extend the standard properties of a symbol. In this sample application, you must assign tags to custom properties to show the current value of a tag or set the states when the equipment represented by a symbol is active or inactive.

Most Situational Awareness Library symbols are also Symbol Wizards. In addition to custom properties, Symbol Wizards contain Wizard Options to configure their appearance and functionality.

This procedure explains how to assign values to the custom properties and Wizard Options listed in the following tables.

Symbol Custom Properties

Symbol	Custom Property	Assigned Values
Chocolate Rocker Switch	Value	Valve_Chocolate
Milk Rocker Switch	Value	Valve_Milk
Outlet Rocker Switch	Value	Valve_Outlet
Chocolate Valve	EquipmentStateActive	Valve_Chocolate
Milk Valve	EquipmentStateActive	Valve_Milk
Outlet Valve	EquipmentStateActive	Valve_Outlet
Mixing Tank	LabelVisible	True
Tank Agitator	PV	Agitator_RPM
	PVRangeFullScaleMax	3000
	PVRangeFullScaleMin	0
Tank Volume Meter	PV	Tank_Level
	PVRangeFullScaleMax	1500
	PVRangeFullScaleMin	0
Tank Volume Trend	Pen	Tank_Level
	Pen_RangeFullScaleMax	1500
	Pen_RangeFullScaleMin	0
Alarm Client	None	N/A

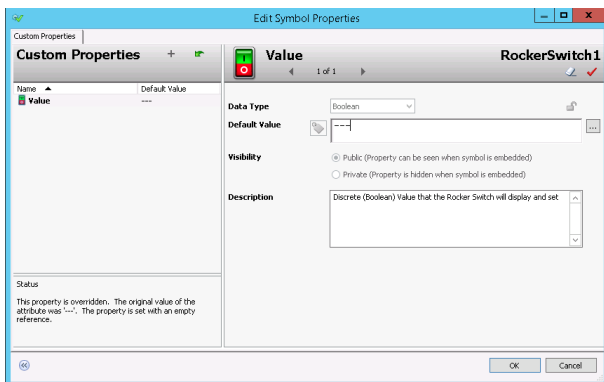
Symbol Wizards

Symbol Wizards	Wizard Options	Assigned Values
Chocolate Rocker Switch	None-Industrial Graphics	N/A
Milk Rocker Switch	None-Industrial Graphics	N/A

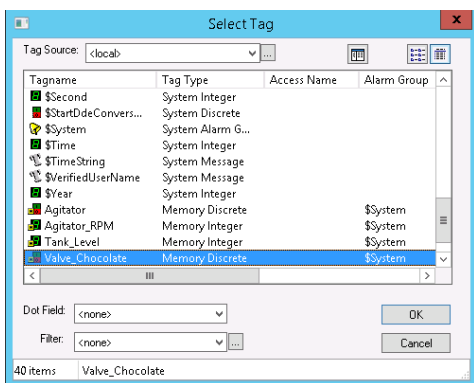
Symbol Wizards	Wizard Options	Assigned Values
Outlet Rocker Switch	None-Industrial Graphics	N/A
Chocolate Valve	ActuatorType	Digital
Milk Valve	ActuatorType	Digital
Outlet Valve	ActuatorType	Digital
Mixing Tank	QualityStatusIndicator	False
Tank Agitator	PVNumericDisplay	True
	EngUnits	True
	EngUnitsType	StaticText
	QualityStatusIndicator	False
Tank Volume Meter	Type	Level
Tank Volume Trend	SymbolMode	Advanced
	YAxisRangeType	ClipOutOfRangeValues
	PlotType	Line
	Label	True
	LabelType	StaticText
	GridVerticalTimePeriod Scale	True
	GridVerticalTimePeriodScaleUnits	True
	TimePeriod	True
Alarm Client	None	N/A

To configure custom properties and Wizard Options

- 1 Double-click on the Chocolate rocker switch to show the **Edit Symbol Properties** dialog box.



- 2 Select **Value** from the **Name** field.
- 3 Click the **Browse** button at the right of the **Default Value** field to show the **Select Tag** dialog box.



- 4 Select the **Valve_Chocolate** tag and click **OK**.
The current value of the Valve_Chocolate tag is associated to the Chocolate rocker switch's Value custom property.
- 5 Repeat steps 1-4 for the other two rocker switch symbols and assign the tag shown in the Symbol Custom Properties table to each symbol's Value custom property.
- 6 Double-click on the Chocolate valve to show the **Edit Symbol Properties** dialog box.

- 7 Using steps 1-4, assign the Valve_Chocolate tag to the symbol's EquipStateActive custom property.
- 8 Click the **Wizard Options** tab.
- 9 Select **ActuatorType** from the **Name** field.
- 10 Set the **Value** field to Digital and click **OK**.
- 11 Repeat steps 1-10 and assign values to the custom properties and Wizard Options of the remaining symbols of the Chocolate Milk application.

Changing Symbol Labels

The Symbol Wizards used in the Chocolate Milk application have their Label Wizard Option set to True and the LabelType Wizard Option set to StaticText. With this symbol configuration, you can use the InTouch Substitute Strings function to assign a visible static label for the symbols in the Mixing Station window.

Symbol	Current String	Application Label
Chocolate Valve	Label	Chocolate
Milk Valve	Label	Milk
Outlet Valve	Label	Outlet
Mixing Tank	Label	Chocolate Milk
Agitator	Label	Agitator
	EU	RPM
Tank Meter	Label	Tank Volume
	EU	Liters
Trend	Label	Tank Volume

To change symbol labels

- 1 Right-click on the Chocolate valve symbol to show the shortcut menu.
- 2 Select **Substitute** and **Substitute Strings** from the shortcut menu.

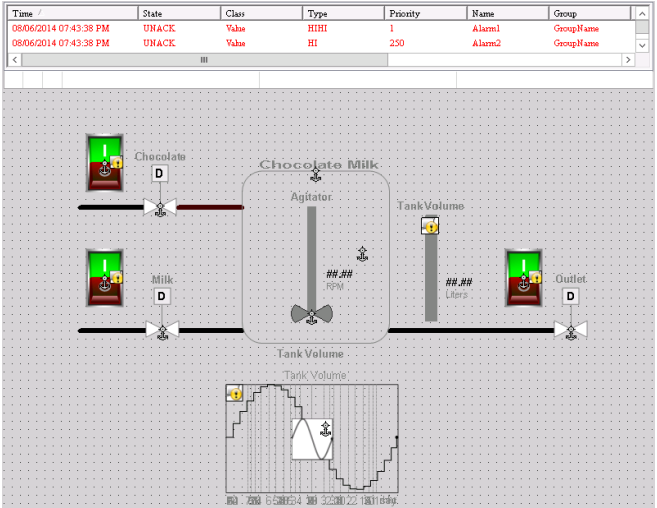
The **Substitute Strings** dialog box appears with fields to substitute the current strings of the symbol.

Substitute Strings ...		1 of 2
Current String:	New String:	
Label	<input type="text" value="Chocolate"/>	
S	<input type="text" value="S"/>	
<input type="button" value="OK"/>	<input type="button" value="Cancel"/>	<input type="button" value="Replace"/>

- 3 Type Chocolate in the **Label** field and click **OK**.
The Chocolate label appears above the valve symbol.
- 4 Repeat steps 1-3, to assign labels to the remaining symbols you added to the Mixing Station window.

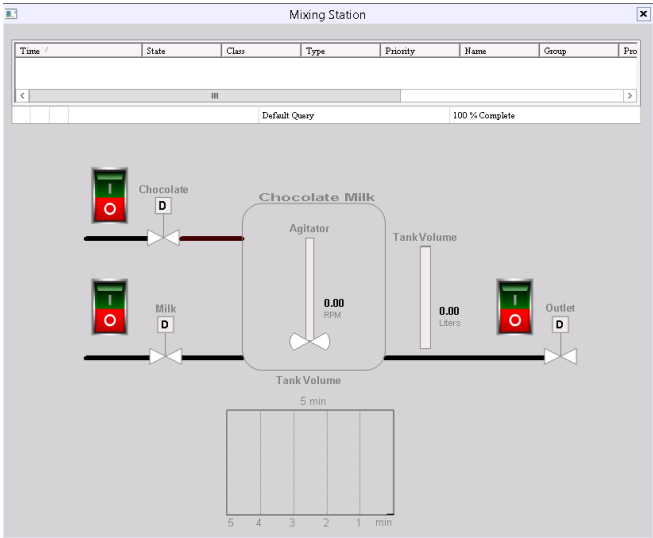
Running a Standalone Application

You view a running application from WindowViewer. After you have finished, your Mixing Station window should look like the following example.



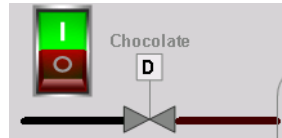
In this example, a window script begins running when viewing the application. The script assigns states and values to the assigned InTouch HMI tags associated with the symbols shown in the application's window.

The following example shows the Chocolate Milk application immediately after starting it in WindowViewer. All of the valves are closed and the mixing tank is empty.



Typically, Situational Awareness Library symbols use fill shading to indicate their current state. Open the Chocolate or Milk valve by selecting a rocker switch. Notice the change in the fill color that indicates the valve is open. Also, the fill color of the agitator and meter symbols change to indicate they are in an active state or showing a value.

When the tank volume reaches 500 liters, the agitator starts, and its current RPM appears next to the agitator. Alarms occur if the tank volume exceeds 1400 liters or the agitator exceeds 1500 RPM. You manage alarms by selecting options from the shortcut menu of the Alarm Viewer control.

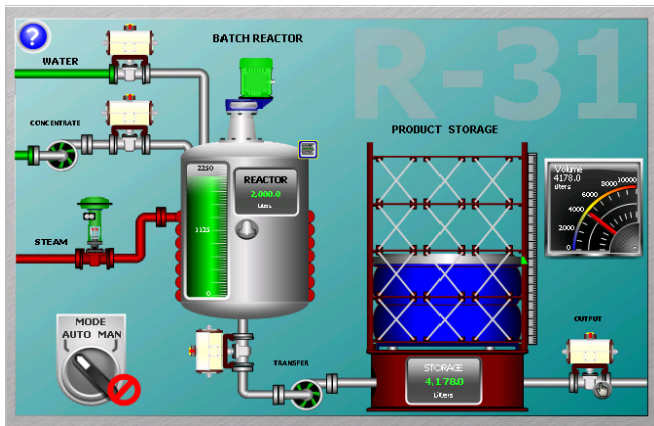


Creating Managed Applications

Managed applications are built using the IDE and automation objects, in addition to the components of a Standalone application. Each Managed application is associated with a InTouchView App object.

When you install InTouch HMI, you can install several sample applications. You can examine these sample applications to understand how scripts, animations, and graphics work together to provide a visual interface for your production environment.

The following figure shows a portion of a window from the InTouch HMI reactor demonstration application.



The reactor application demonstrates how you can manage an application with the IDE and includes Industrial graphics and objects.

The analog meter next to the product storage tank shows the current volume of liquid stored in the tank. The meter is not part of the standard reactor application.

This section describes the essential tasks to create a Managed InTouch application by showing how to embed this meter into the reactor application.

Starting the IDE

You can start the IDE from the Windows **Start** menu.

Starting the IDE from the Start Menu

The following procedure shows the steps to start the IDE from a computer running Microsoft Windows 7 and later versions of Windows.

To start the IDE from the Windows Start Menu

- 1 Click the Windows **Start** button.
- 2 Click the ArcestrA IDE icon from the list.



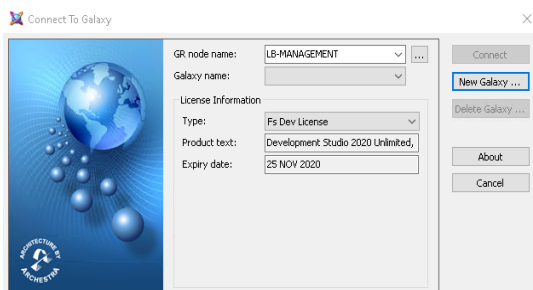
The **Connect to Galaxy** dialog box appears.

Creating a Galaxy

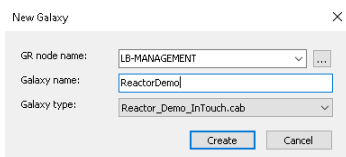
After you start the IDE, the **Connect to Galaxy** dialog box appears. The first time you start the IDE you need to create a Galaxy, which is a project database. After that, you can select the Galaxy in which you are developing managed applications each time you start the IDE.

To create a Galaxy

- 1 Start the ArcestrA IDE. The **Connect to Galaxy** dialog box appears.
-



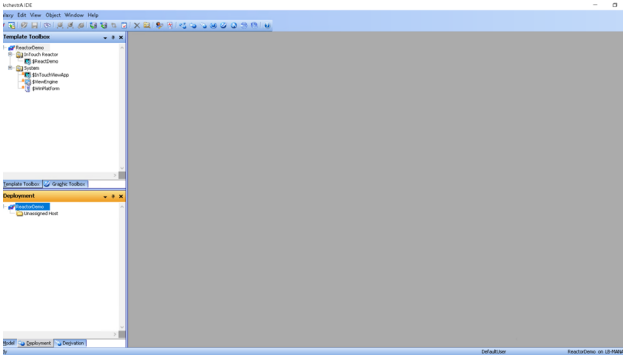
2 Click **New Galaxy**. The **New Galaxy** dialog box appears.



- 3** Complete the fields of the **New Galaxy** dialog box by doing the following:
- Type the node name of the computer that serves as the Galaxy Repository (GR). This is the computer where the SQL Server database server is running.
 - Type the name of the Galaxy that you are creating.
 - Select **Reactor_Demo_InTouch.cab** as the type of Galaxy from the drop-down list of the **Galaxy Type** box.

This is a custom Galaxy that includes the InTouch Reactor Demo application.

- Click **Create**. The **New Galaxy** dialog box shows the progress of creating a new Galaxy.
- Click **Close** after the new Galaxy is created.
- Click **Connect** to connect to the Galaxy you created. The **ArchestrA IDE** dialog box appears.



- 7 Click the **Template Toolbox** tab.
- 8 If necessary, click the **ReactorDemo** folder to show the objects within it.

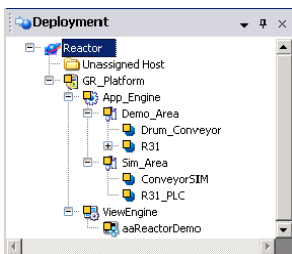
The **Template Toolbox** shows the `$ReactorDemo` derived template. You can use this derived template to create a managed application or edit the application within WindowMaker.

Note You can create a Managed InTouch HMI application from an application template. See the *InTouch HMI and Archestra Integration Guide* for details.

Deploying Your Application Objects

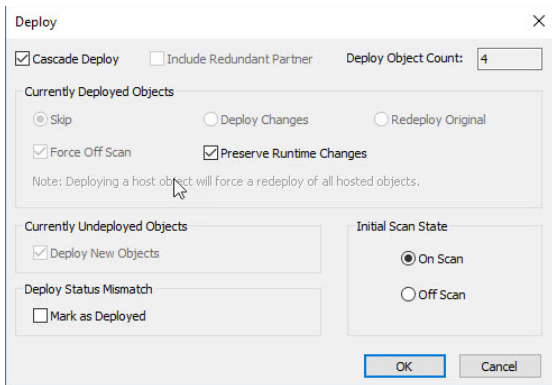
Deploying your Galaxy copies the objects from your development environment to a run-time environment. Until you deploy your application's objects from the IDE, you cannot run your Managed applications.

The pane at the bottom left of IDE includes three tabs to show different views of your Galaxy objects. Selecting the **Deployment** tab shows the current status of all objects that are part of your application. An orange square next to an object indicates the object is undeployed.



To deploy your application's objects

- 1 In the **Deployment** pane, right click on the name of the Galaxy at the top of the list of application objects.
- 2 Select **Deploy** from the shortcut menu.
The **Deploy** dialog box appears with options.



- 3 Accept the default options and click **OK**.

- 4 Click **Close** after all of your objects have been deployed.
The orange square next to each object is gone, indicating that your application's objects are deployed.

Editing a Managed Application

You edit a Managed InTouch application by starting WindowMaker from the IDE.

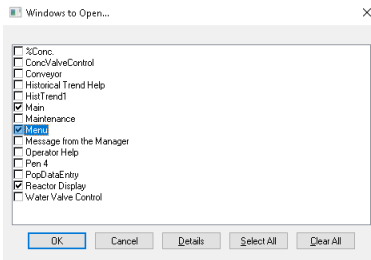
To start WindowMaker from the IDE

- 1 Open the IDE.
- 2 Click the **Template Toolbox** tab to show the set of folders containing automation objects.
- 3 If necessary, click on the **ReactorDemo** folder to expand the list of automation objects within it. You see the \$ReactorDemo template.
- 4 Double-click on the \$ReactorDemo template.

WindowMaker starts as the default editor. The figure below shows WindowMaker after you initially open the Reactor demonstration application for editing.

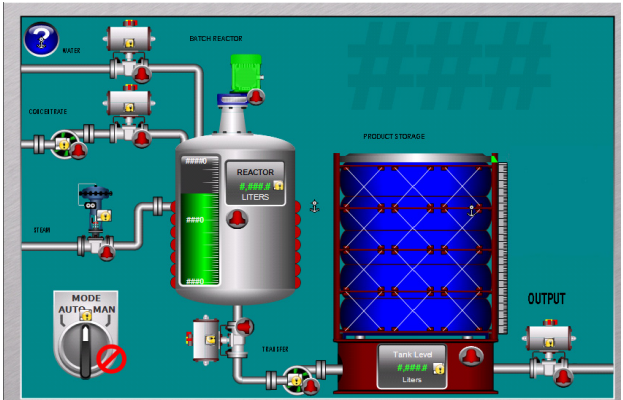
The **Windows & Scripts** area lists the windows that are part of the Reactor demonstration application. This figure shows the **Windows to Open** dialog box to select the windows you want to edit. You may have to open the **Windows to Open** dialog box. Steps 5 and 6 explain how to open the dialog box and select the Reactor application windows.

- 5 Click **File**, and then **Open Window** to show the **Windows to Open** dialog box.

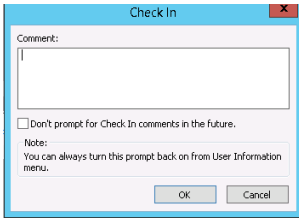


- 6** Select the **Main**, **Menu**, and **Reactor Display** windows from the list and click **OK**. Together, these windows make up the main Reactor demonstration screen.

The following figure shows the portion of the Reactor Demo window containing graphics that represent the components of a reactor.



- 7** Increase the text size of the **OUTPUT** caption to the right of the tank by doing the following:
- Click on the **OUTPUT** caption to select it and show the text box sizing handles.
 - Using your mouse, click on a sizing handle and keep the mouse button pressed.
 - Move the mouse to increase the size of the text box.
 - Release the mouse button when the text is the size you want.
- 8** Save your changes to the window.
- 9** Click **File**, and then **Exit**. WindowMaker closes and you return to the IDE. The **Check In** dialog box appears.



10 Type a comment if you want, and then click **OK**.

11 Click **Close** after the application is checked in.

You have made a round trip from the IDE to WindowMaker and back to the IDE again. Now that you understand the steps to edit a managed application from WindowMaker, the next section explains how to embed an Industrial Graphic in an application window.

Embedding Industrial Graphics into an InTouch HMI Managed Application Window

You can embed an Industrial Graphic into the windows of your Managed InTouch application. The embedded symbol appears with its original name appended by a number. The number increments each time you embed the same symbol again.

To embed an Industrial Graphic from the Graphic Toolbox

- 1** Open the IDE.
- 2** Double-click on the \$ReactorDemo derived template to open it in WindowMaker.
- 3** Show the main Reactor window.
- 4** On the **Edit** menu, click **Embed Industrial Graphic**. The Galaxy Browser appears.
- 5** Click the Graphic Toolbox icon. The symbols that belong to the **Graphic Toolbox** are listed in the left pane.
- 6** Expand the list of the **Industrial Graphic Library** folder.
- 7** Expand the **Analog Meters** folder. The meter symbols within the folder appear in the right pane of the Galaxy Browser.



- 8** Click on the AnalogMeter90Degree symbol and click **OK**. WindowMaker reappears.
- 9** Click to the right of the tank in the Reactor window to embed the meter symbol. The meter symbol appears at the window location you selected.
- 10** Click on the meter to select it. Sizing handles appear around the border of the symbol.
- 11** Using your mouse, move the sizing handles to change the size of the meter.
- 12** Reduce the size of the meter and position it near the top of the tank.

Tip Press the SHIFT key to maintain the vertical and horizontal perspective when you resize the meter.

- 13** Click the **Runtime** icon to run the application in WindowViewer.
- 14** Verify the size of the meter and that it is aligned with the top of the tank.
- 15** Click the **Development** icon to return to WindowMaker.

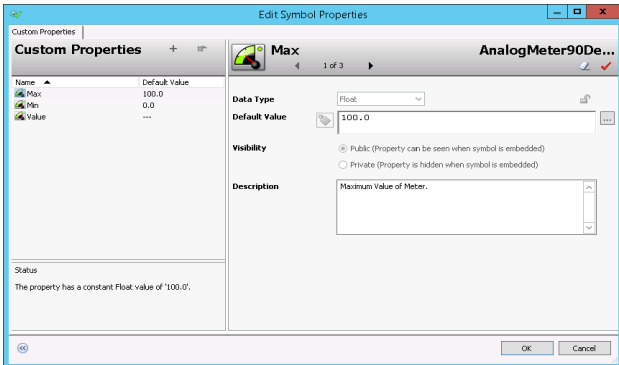
Connecting Attributes to an Industrial Graphic

You can connect Industrial Graphic attributes to InTouch HMI tags by overriding the custom properties of an embedded Industrial Graphic.

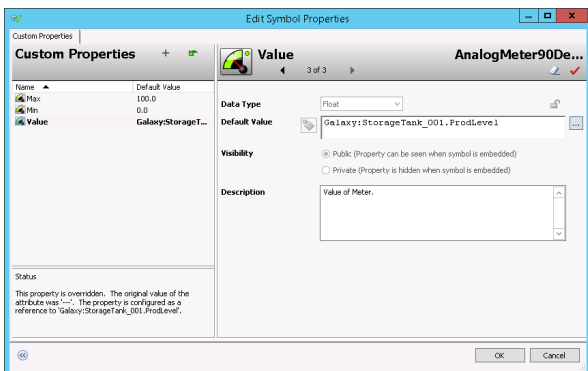
Custom properties expose the attributes of an Industrial Graphic to InTouch. The custom properties may or may not be used internally by the animations of the Industrial Graphic.

To connect an Industrial Graphic to an attribute

- 1 Double-click on the embedded meter. The **Edit Custom Properties** dialog box appears.



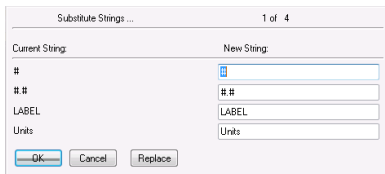
- 2 Select the **Value** property. Do the following to associate an Industrial Graphic attribute to the meter:
 - a Remove the three hyphens from the **Default Value** field.
 - b Click the browse button of the **Default Value** box. The **Select Tag** dialog box appears.
 - c In the **Tag Source** field, select **Default Galaxy**. The **Galaxy Browser** dialog box appears with `StorageTank_001` listed in the **Instances** column.
 - d Select `StorageTank_001` to show a list of attributes.
 - e Select the `ProdLevel` attribute from the list and click **OK**. The **Edit Custom Properties** dialog box shows the `StorageTank_001 ProdLevel` attribute assigned to the **Value** property of the meter symbol.



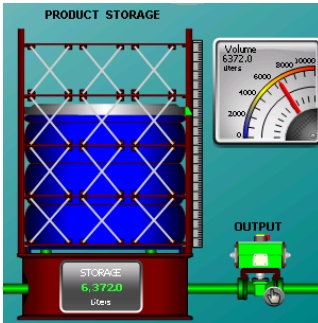
- f** Select the **Max** property from the **Edit Custom Properties** dialog box.
- g** Type 10000 in the **Default Value** box.
- h** Click **OK** to close the **Edit Custom Properties** dialog box.

Any animation in the Industrial Graphic configured with the selected custom property now uses the object attribute value during processing.

- 3** Select the meter symbol you embedded.
- 4** Click **Special**, and then **Substitute Strings** to show the **Substitute Strings** dialog box. Do the following to change the labels that appear on the meter:



- a** Type the word **Volume** in the **Label** box.
- b** Type **Liters** in the **Units** box, and then click **OK**.
The face of the meter shows the labels you changed.
- 5** Save your work in WindowMaker.
- 6** Test your managed InTouch HMI application by switching to WindowViewer and running the Reactor application.



The analog meter symbol you embedded in the Reactor window shows the same tank volume value as the digital read-out at the bottom of the tank.

During testing, changes can be made to a symbol even without checking in the symbol. These changes are propagated to all places the symbol is

used and that switching to WindowMaker and then back to WindowViewer accepts these changes. This is the quickest way to develop a managed InTouch HMI application with Industrial Graphics. After you place your application into production, you can designate specific computers just to run your applications in WindowViewer.

These procedures explained some of the essential steps to create a managed application with the IDE. The next section includes a set of tables that list other important tasks and the books within the InTouch library that describes how to complete these tasks.

Viewing InTouch HMI Applications Remotely

InTouch HMI offers two methods to view InTouch HMI applications or graphics remotely.

- InTouch Access Anywhere
- InTouch Web Client

InTouch Access Anywhere

InTouch Access Anywhere provides you with remote access to InTouch HMI applications from almost all devices that support an HTML5 compatible web browser. Using InTouch Access Anywhere, you can show WindowViewer running your applications within a web browser on mobile phones, tablets, laptops or desktop computers.

InTouch Access Anywhere is available as an option during installation. For more information on how to install, configure and use InTouch Access Anywhere, refer to the *InTouch Access Anywhere Server Administrator Guide*.

InTouch Web Client

The InTouch Web Client feature allows you to view selected Industrial graphics used within an InTouch HMI application on any HTML5 compatible web browser. A built-in Web Server provides web browsers access to graphics, from any Microsoft Windows client or server operating system without the use of Remote Desktop Protocol (RDP) or Internet Information Services (IIS) for Microsoft Windows Server.

You can view application graphics in a web browser for both Standalone and Managed applications. Using the InTouch Web Client you can:

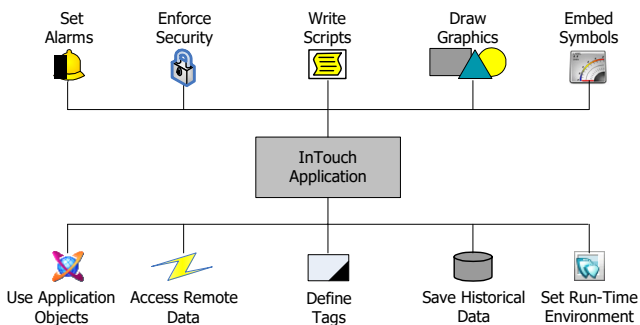
- Toggle between WindowMaker and the Web Client easily with the Web Client Fast Switch
- View graphics on multiple devices and multiple screen sizes
- Pan and zoom application graphics
- Host InTouch HMI application graphics on external websites

The InTouch Web Client is licensed separately but installed as part of the InTouch HMI installation. For more information on how to configure and use the InTouch Web Client, refer to the *Viewing InTouch Application Graphics in a Web Browser* guide.

Getting More Information

The InTouch HMI product library consists of a set of user guides and an online help system. The design of InTouch product information uses a task-based approach. This means that books and help are organized by the typical tasks to build an application using the InTouch HMI.

The following figure shows some of the typical tasks that are part of developing an InTouch application. Each user guide describes the specific tasks to set up functional aspects of an InTouch application. The tasks to set up each of these functional components are described in individual user guides or in a chapter of a user guide.



The InTouch library is offered in two different media:

- Portable Document File (PDF), which can be viewed with Adobe® Reader®. Each user guide is included on the InTouch installation DVD as a PDF file.
- Online help, which can be viewed while an InTouch HMI application is running. The help is context-sensitive and is also linked to all online InTouch information.

The following table describes the InTouch HMI documentation library, delivered as PDFs. Online help is available from each application.

Publication Name (file name)	Description
<i>The InTouch HMI Application Management and Extension Guide</i> (ITAppManagement.pdf)	Describes how to create and manage InTouch HMI applications locally and in a network environment. It also covers application-level functionality, such as security. This guide describes how to run an InTouch HMI application in different environments, such as with Terminal Services, on a Tablet PC, and using multiple monitors.
<i>The InTouch HMI Data Management Guide</i> (ITDataManagement.pdf)	Describes how to work with data items in the InTouch HMI and connect your application to the physical devices in your plant environment.
<i>The InTouch HMI Visualization Guide</i> (ITVisualization.pdf)	Describes how to develop the graphical operator interface of an InTouch HMI application. This guide includes information on how to create visualization windows, how to draw and animate graphic elements, and how to use wizards and ActiveX controls in your application.
<i>The InTouch HMI SmartSymbols Guide</i> (ITSmartSymbols.pdf)	Describes how to create reusable templates for graphic symbols that can save you a lot of engineering time and effort.
<i>The InTouch HMI and ArchestrA Integration Guide</i> (ITAAIntegration.pdf)	Describes how to integrate the InTouch HMI and ArchestrA technology to develop more robust applications that use richer graphics.

Publication Name (file name)	Description
<i>The InTouch HMI Alarms and Events Guide</i> (ITAlarmsandEvents.pdf)	Describes how to configure alarms for your data items, how to view and acknowledge alarms, and how to use the alarm clients and utilities supplied with the InTouch HMI.
<i>The InTouch HMI Scripting and Logic Guide</i> (ITScriptsandLogic.pdf)	Describes how to write scripts in the InTouch HMI to automate common tasks and processes. This guide includes a reference of the InTouch HMI scripting language and functions.
<i>Viewing InTouch Application Graphics in a Web Browser</i> (ITWebBrowser.pdf)	Describes how to configure and view application graphics on an HTML5 compatible web browser.
<i>InTouch Access Anywhere User Guide</i> (ITAA_UserManual.pdf)	Describes how to use InTouch Access Anywhere to remotely connect to your InTouch applications by means of an HTML5 compatible web browser. Administrator guides are also available to help configure and troubleshoot the ITAA features.
<i>The InTouch HMI Supplementary Components Guide</i> (ITSupplementary.pdf)	Describes software components that you can optionally install and use with the InTouch HMI. You can set up connectivity to SQL databases, create data trends, and manage industrial recipes. The supplementary components also include a library of symbols such as meters, valves, and pumps.

For information on how to contact sales, customer training, and technical support, see <https://sw.aveva.com/contact>.

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