

AVEVA™
InTouch HMI
formerly Wonderware

InTouch HMI and ArchedrA Integration Guide



AVEVA

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CHAPTER 1

About InTouch HMI and ArchedrA Integration

Overview

You can manage your InTouch applications with the InTouch Application Manager or with the ArchedrA IDE.

There are three types of InTouch applications, categorized by how they are managed, the types of symbols they support, and where they were published from:

- Standalone InTouch applications
- Managed InTouch applications
- Published InTouch applications

You can enhance your InTouch applications with graphic objects, the Industrial graphics.

Standalone InTouch Applications

Standalone InTouch applications are managed by the InTouch Application Manager.

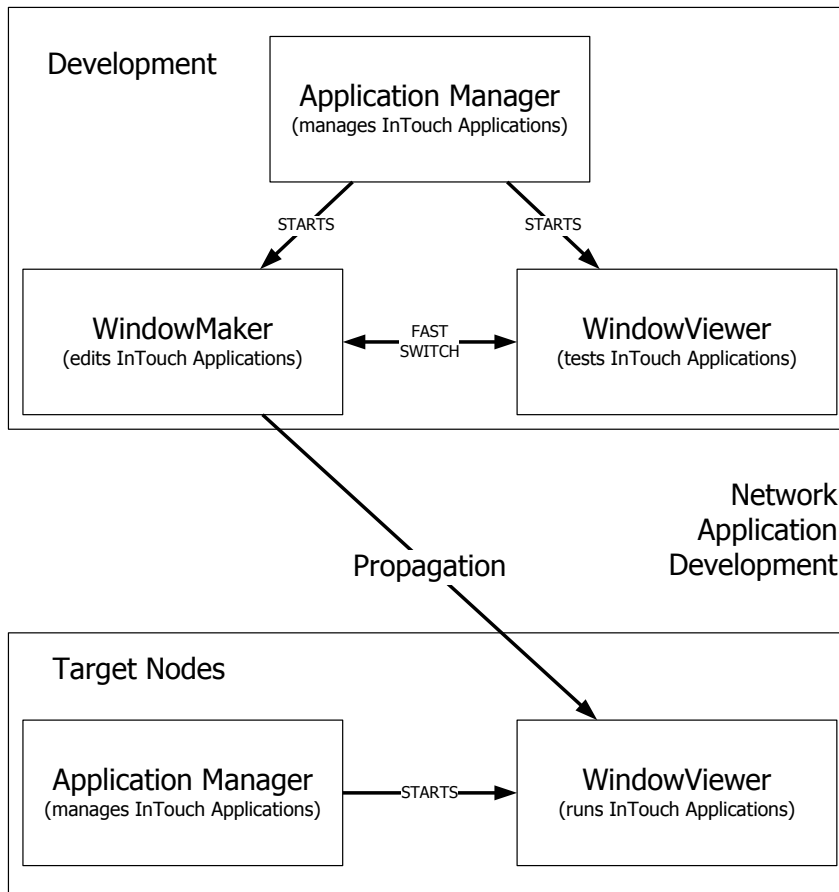
They appear in the InTouch Application Manager as **Standalone**.

Using the Application Manager, you can:

- Create and manage standalone InTouch applications.
- Start WindowMaker to edit InTouch applications
- Start WindowViewer to run InTouch applications.

You can also switch directly between WindowMaker and WindowViewer to test or run your applications and switch back to make modifications to your applications.

Network Application Development manages the propagation of changes from your InTouch application on a development node to running InTouch applications on target nodes.



Managed InTouch Applications

You can manage your InTouch applications using the ArchestrA Integrated Development Environment (IDE). These applications are called "Managed" InTouch applications.

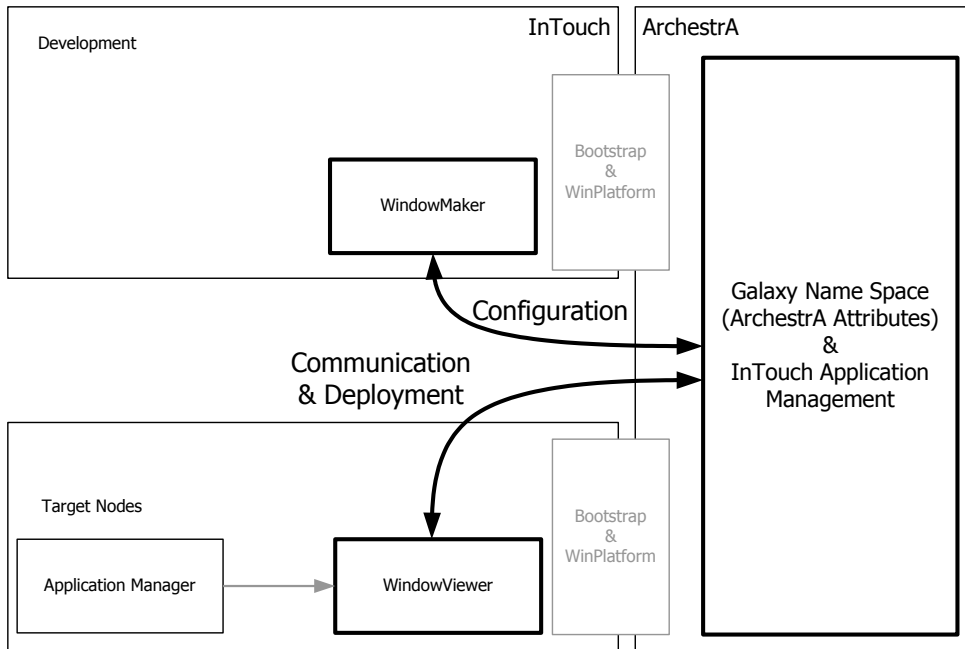
They appear in InTouch Application Manager as **Managed**.

You develop an InTouch application on one node of the Galaxy with WindowMaker. You then deploy it to one or more target nodes running WindowViewer.

When you use the system platform functionality of the ArchestrA IDE to manage your InTouch applications, you can:

- See which InTouch applications are running on what node.
- Use a central repository for InTouch applications.

- Deploy changes to WindowViewer running on the remote nodes.



Published InTouch Applications

After you edit your managed InTouch application, you can publish it.

A published application appears in InTouch Application Manager as **Published**.

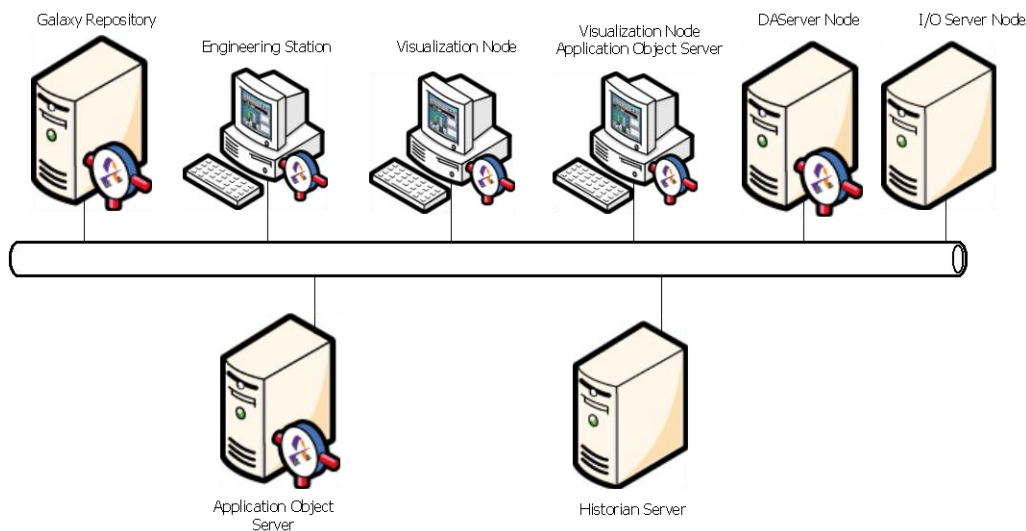
The advantage of published InTouch applications is that they can be distributed like standalone InTouch applications, but continue to support the functionality of Industrial graphics.

However, you can no longer:

- Use ArcestrA IDE to deploy InTouch applications.
- Edit or add Industrial Graphics in InTouch applications.
- Edit the published InTouch application.

Application Server Architecture

Application Server relies on ArcestrA technology to provide services for distributed InTouch HMI applications. Application Server services are distributed across a set of nodes with the InTouch HMI installed on the Visualization Node to provide the application interface.



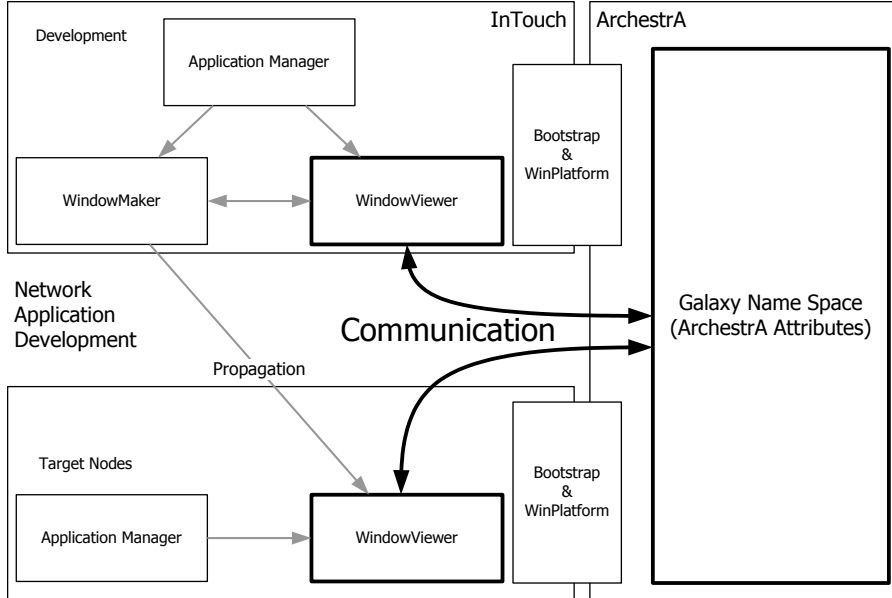
An Application Server Galaxy represents the system's configuration based on a single logical namespace that incorporates a variety of components that are distributed across multiple nodes.

Application Server can store production data similar to InTouch tags, but it supports more data types and arrays. It can provide alarm capabilities that are compatible with the InTouch alarm system. Application Server provides an InTouch HMI compatible scripting language with significant enhancements for .NET function support. To be able to read and write Galaxy data, you need to install the Application Server Bootstrap component on the InTouch node. To be able to browse the Galaxy, you need to install the Application Server IDE component.

For more information, see the Application Server documentation.

Communication within the Galaxy

ArcestrA enables the use of a Galaxy-wide name space to contain and process production-related data. It also allows a high-level visualization and administration of data access from various nodes running InTouch in the manufacturing environment.



Industrial Graphic Editor

In addition to the benefits of managing InTouch applications within the ArcestrA IDE, you can model your manufacturing environment by creating graphics with the Industrial Graphic Editor. The Industrial Graphic Editor is fully integrated into the ArcestrA IDE and supports powerful graphics editing capabilities.

The Industrial Graphic Editor includes the ability to apply an Element Style to a symbol element. An Element Style is a defined set of visual properties for text, element fill, element outlines, and lines that are applied to graphic elements. Using Element Styles makes it easy to apply standard visual styles to graphic elements and establish consistent symbol standards.

The Industrial Graphic Editor also includes the Symbol Wizard Editor, which enables you to create Symbol Wizards containing different visual and functional configurations. Using the Symbol Wizard Editor, you can, for example, create a configurable pump symbol with separate left and right inlet valve configurations. Situational Awareness Library symbols are examples of Symbol Wizards containing pre-built configurations that are selected by choosing from the symbol's Wizard Options. A single Situational Awareness Library symbol can be easily configured to represent a thermometer, a flow meter, or a pressure meter. You select the configuration you need when the Symbol Wizard is embedded in a managed InTouch application.

WindowMaker incorporates the Industrial Graphic Toolbox to select Industrial and Situational Awareness Library symbols for InTouch applications without opening the Industrial Graphic Editor. Symbols can be added by dragging and dropping them directly from WindowMaker into an InTouch window. For more information about working with Industrial and Situational Awareness Library symbols, see the Industrial Graphic Editor User Guide or WindowMaker help.

Note: In recent versions of Microsoft's rendering technologies, certain gradient features have been deprecated. To accommodate and future proof graphics built using ArcestrA, the affected features have been removed from the configuration environment. Graphics previously configured with deprecated features will continue to render as expected. See "Loading Graphics with Deprecated Features" from the Industrial Graphic Editor User Guide.

Comparing Standalone, Managed, and Published InTouch Applications

Standalone, managed, and published InTouch applications have some differences and some similarities, as described in the following table:

	Standalone InTouch Applications	Managed InTouch Applications	Published InTouch Applications
Create Application	Application Manager	ArcestrA IDE <ul style="list-style-type: none"> • New application • Importing standalone application • Importing SmartSymbols 	Not possible
Edit Application	WindowMaker started from the Application Manager	WindowMaker started from within the IDE	Not possible
Delete Application	Remove from Application Manager.	Delete InTouchViewApp template	Remove from Application Manager.
Support of Industrial graphics, including Symbol Wizards	Yes	Yes for all operations	Yes, but only for viewing, not for creating and editing
Support of DB Dump and DB Load	Yes, function within Application Manager	Yes, function within the IDE	Yes, function within Application Manager
Editing application in original resolution requires conversion	Yes	No	Yes
Management of Distributed Applications	Network Application Development (NAD)	ArcestrA IDE	Network Application Development (NAD)

	Standalone InTouch Applications	Managed InTouch Applications	Published InTouch Applications
Configuring how new InTouch application versions are accepted	Configured in Application Manager (Network Application Development)	Configured in WindowMaker	Configured in Application Manager (Network Application Development)
Use Fast-Switch to test application	Yes	Yes	Yes
Use tag value and tag parameter retention	Yes	Yes, also requires configuration of the local working directory	Yes

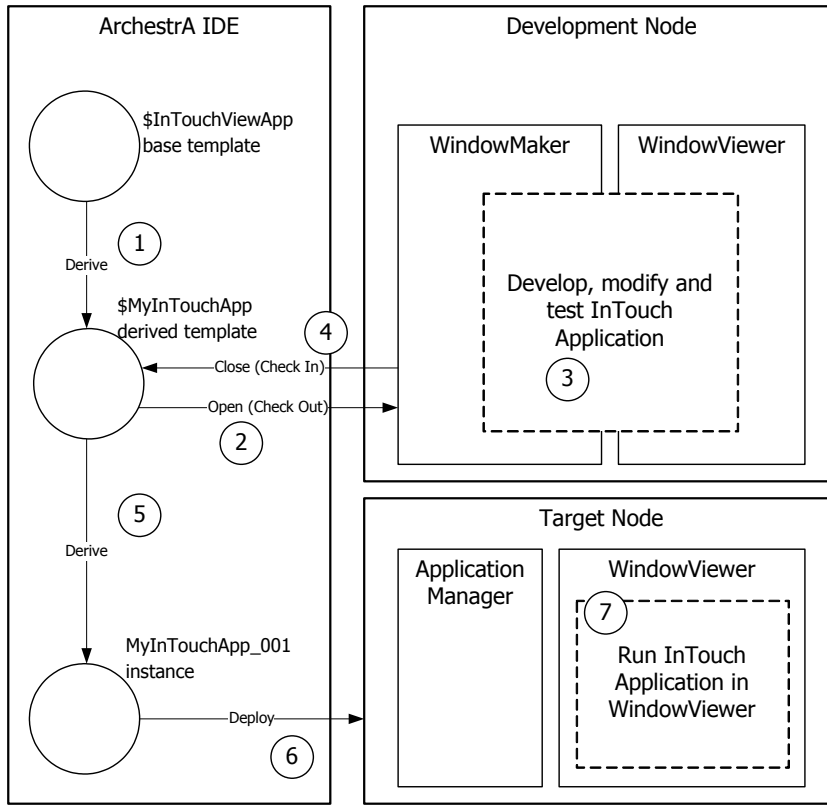
Managing InTouch Applications Using the ArcestrA IDE

You can manage your InTouch applications using the IDE. The following procedure shows you how to do this in a general way. For more specific information, see *Managing InTouch Applications with the IDE* on page 25.

The InTouch functionality in the ArcestrA IDE is handled by two AutomationObjects:

- The InTouchViewApp object represents an InTouch application at design time and run time.
- The ViewEngine object controls how an InTouch application runs on a target node in a Galaxy.

The following diagram shows how InTouch applications are managed using the ArcestrA IDE:



To use the IDE to manage your InTouch applications

1. Create a managed InTouch application in the ArcestrA IDE.
2. Open it in WindowMaker.
3. Configure your InTouch application in WindowMaker. You can switch to WindowViewer to test the application.
4. Save the InTouch application and close WindowMaker and WindowViewer.
5. Determine which nodes to deploy the InTouch application to.
6. Deploy the InTouch application to the target nodes in the Galaxy.
7. Run the InTouch application in WindowViewer on the target nodes.

InTouchViewApp Object

ArcestrA manages your InTouch applications with a specific type of ArcestrA object called the InTouchViewApp object.

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

You must create an instance of the InTouchViewApp template. This instance can be deployed to a target node. The target node is the node on which the managed InTouch application runs in WindowViewer.

To distribute an InTouch application, you create multiple instances of the same template and deploy them to multiple nodes.

Optionally, you can:

- Export and import the InTouchViewApp object to exchange managed InTouch applications across Galaxies.
- Export and import tag dictionary data as .csv files.
- Export and import windows between different types of InTouch applications.
- Publish the managed InTouch application. The published InTouch application runs like a standalone InTouch application but can contain Industrial Graphics.
- Use the attributes of the deployed InTouchViewApp object to read from and write to InTouch tags with ArcestrA attributes.

To use the InTouchViewApp object

1. Derive an InTouchViewApp template from the \$InTouchViewApp base template.
2. Associate the derived template with an InTouch application by creating a new InTouch application or importing a standalone InTouch application.
3. Open the application in WindowMaker.
4. Configure the application in WindowMaker and test it in WindowViewer.
5. Save and close WindowMaker. The InTouchViewApp template is checked in.
6. Derive instances from the InTouchViewApp template.
7. Deploy these instances to selected target nodes within the Galaxy.
8. Run Application Manager on the target nodes and run the managed InTouch applications in WindowViewer.

Associating an InTouchViewApp Template with an InTouch Application

After you create a new InTouchViewApp template, you can associate an InTouchViewApp template with an InTouch application by:

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

The InTouchViewApp template does not contain the InTouch application data itself, such as the tag configuration and values, but simply references the application.

Editing a Managed InTouch Application

You edit a managed InTouch application with WindowMaker as you do for a standalone InTouch application, except that you open the editor of the InTouchViewApp template to start the associated InTouch application in WindowMaker.

When you close WindowMaker after making changes to the InTouch application, the InTouchViewApp object is automatically checked in.

Testing a Managed InTouch Application

You can test a managed InTouch application with WindowViewer as you can with standalone InTouch applications.

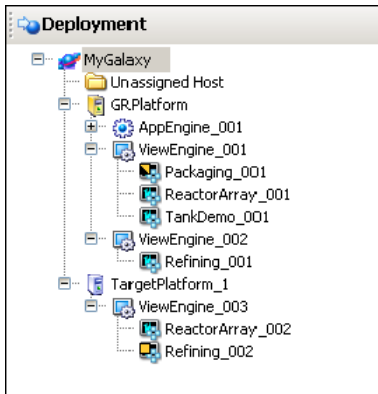
You can fast switch between WindowMaker and WindowViewer to test a managed application if you opened WindowMaker from the ArcestrA IDE.

If a managed InTouch application contains references to ArcestrA data, such as `galaxy:UDA`, then a WinPlatform object needs to be deployed to the node you are editing the InTouch application on. Otherwise, the data shows blank values.

Deploying the InTouchViewApp Object

After you derive an instance of your InTouchViewApp template, you can assign it to the target platform under a ViewEngine object.

You cannot assign multiple InTouchViewApp instances that have the same parent under one ViewEngine. Instead create a second ViewEngine instance to host additional InTouchViewApp instances with the same parent.



After you deploy the InTouchViewApp object, you can open the InTouch Application Manager on the target node. The associated managed InTouch application appears in the list together with the time stamp of its last deployment in the **Date Modified** column.

When you deploy the InTouchViewApp instance to a target node, the InTouch application is contained in:

- A folder on the development node. This contains the source for the InTouchViewApp template.
- A folder on the target node from which the InTouch application runs. This contains an instance copy of the InTouch application.

Exporting and Importing an InTouchViewApp Object

You can export the InTouchViewApp object. You do this, for example, to use the managed InTouch application together with its hosting InTouchViewApp object in other Galaxies.

When you export the object, a package file (.aaPKG) is created containing information about the object, the associated managed InTouch application, and any Industrial graphics the application uses.

When you import an InTouchViewApp object, the ArcestrA IDE also imports the managed InTouch application.

Exporting and Importing Tag Data Associated with a Managed InTouch Application

You can export tag data that is associated with a managed InTouch application to a .csv file. This is equivalent to the DB Dump function of the InTouch Application Manager.

You can import the exported tag data from a .csv file back into a managed InTouch application in the same way as the DB Load function.

The exported .csv files from a managed InTouch application and those of a standalone InTouch application are fully interchangeable.

Publishing Managed InTouch Applications

You can publish a managed InTouch application. The published InTouch application is no longer associated with the InTouchViewApp template.

The published application cannot be edited within the IDE or imported into another InTouchViewApp template. In other words, you cannot manage it with the IDE or republish it.

The published InTouch application can still communicate with the Galaxy through any embedded Industrial graphic. You can, for example, write data back to the Galaxy or visualize Galaxy data.

You can edit the Industrial graphic using basic InTouch operations such as copying, cutting, pasting, duplicating, moving, resizing, flipping, rotating, and configuring with InTouch animation links.

However, the Industrial graphics cannot be modified, nor can new Industrial graphics be embedded into the InTouch application. These operations are only allowed with managed InTouch applications.

You can do this in environments that do not support the processing requirements of ArcestrA. For example, in remote plant operations or in small networks.

Exporting and Importing InTouch Windows between InTouch Applications

You can export windows from all three InTouch application types from WindowMaker, but there are some restrictions on importing exported windows or windows directly from an InTouch application.

- For standalone InTouch applications, you cannot import any windows from published and managed InTouch applications that contain Industrial graphics. A warning message appears, and information on which windows were not imported is written to the Logger.

If you import windows from managed or published InTouch application that contain Industrial graphics, the windows are imported, but the Industrial graphics are not functional and appear as "Not Found".

- For managed InTouch applications, you can import any windows from published, stand-alone, and other managed InTouch applications. Embedded Industrial graphics are not imported.
- For published InTouch applications, you can import any windows from standalone InTouch applications. Embedded Industrial graphics are not imported.

Attributes of the InTouchViewApp Object

You can use the ArcestrA attributes of the InTouchViewApp object to access the run-time data of the tags of the associated InTouch application. This is useful for reading and writing InTouch data directly in the Galaxy name space and provides the same functionality as the InTouchProxy object.

In this example, a deployed managed InTouch application uses a real tag TankLevel to report the fill level of a tank and a discrete tag ValveOut to control the state of a valve.

To read and write the InTouch tags from the InTouchViewApp object instance

1. Right-click the deployed InTouchViewApp object, and then click **View in Object Viewer**. Object Viewer appears.
2. Right-click in the Watch area, and then click **Add Attribute Reference**. The **Add Attribute Reference** dialog box appears.
3. In the **Attribute Reference** box, type the name of the InTouchViewApp object followed by a dot and the name of the InTouch tag you want to read or write. For example, `TankDemo_001.TankLevel`.
4. Click **OK**. The attribute is added to the Watch area.
5. Repeat steps 2 through 4 for any other InTouch tags you want to read or write.

6. You can now view the InTouch tag value.

Deployment Progress		false													
LastModified	5/23/2007 11:2...														
InTouchNode															
ConnectionStatus	Connected														
<table border="1"> <thead> <tr> <th>AttributeReference</th> <th>Value</th> <th>Quality</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>TankDemo_001.TankLevel</td> <td>54.33</td> <td>C0:Good</td> <td>Ok</td> </tr> <tr> <td>TankDemo_001.ValveOut</td> <td>false</td> <td>C0:Good</td> <td>Ok</td> </tr> </tbody> </table>				AttributeReference	Value	Quality	Status	TankDemo_001.TankLevel	54.33	C0:Good	Ok	TankDemo_001.ValveOut	false	C0:Good	Ok
AttributeReference	Value	Quality	Status												
TankDemo_001.TankLevel	54.33	C0:Good	Ok												
TankDemo_001.ValveOut	false	C0:Good	Ok												

7. To write to an InTouch tag value, do the following:
- Double-click it. The **Modify Value** dialog box appears.
 - Type a new value and click **OK**. The value is written back to the tag of the running InTouch application.

Differences Between the InTouchViewApp Object and Other AutomationObjects

The InTouchViewApp object is unlike other AutomationObjects. You cannot perform some operations you can normally do with other AutomationObjects.

- If you try to configure an InTouchViewApp instance, a message appears asking if you want to open its parent template instead. You cannot configure the instance directly, only the parent template.
- If you try to open more than one InTouchViewApp template for configuration at a time on one node, IDE prevents you from doing so. Close WindowMaker, WindowViewer, and Application Manager and retry. Alternately, you can edit the InTouchViewApp object on a different node with InTouch WindowMaker.
- If you close the IDE while editing an InTouch application with WindowMaker, WindowMaker prompts you to save any changes. It then closes and the InTouchViewApp template is checked in.
- If you close the IDE while testing an InTouch application with WindowViewer, WindowViewer closes.

If you want to:

- Change the association between the InTouchViewApp and the InTouch application, create a new derived InTouchViewApp template instead.
- Use ArcestrA security (Galaxy security) in InTouch, deploy a WinPlatform instance to the node on which the deployed managed InTouch application is running.

ViewEngine Object

The ViewEngine is an ArcestrA object that hosts and runs deployed InTouchViewApp objects.

To deploy an InTouchViewApp instance to a target platform, you need to assign it to a ViewEngine object first. The ViewEngine object is then assigned to the target WinPlatform object.

The ViewEngine fulfils the same functions for the InTouchViewApp instances as the AppEngine instance does for the Application Objects. The ViewEngine:

- Sets up and initializes the InTouchViewApp objects when they are initially deployed and started, so that they can communicate with other objects in the Galaxy.
- Performs diagnostics on attributes that can be monitored, alarmed, and historized.
- Historizes data to the Historian.

You can use different ViewEngine objects to:

- Historize data to different Historians.
- Interact with deployed InTouch applications at different scan rates. This sets at which frequency InTouch tag data can interact with the Galaxy name space.

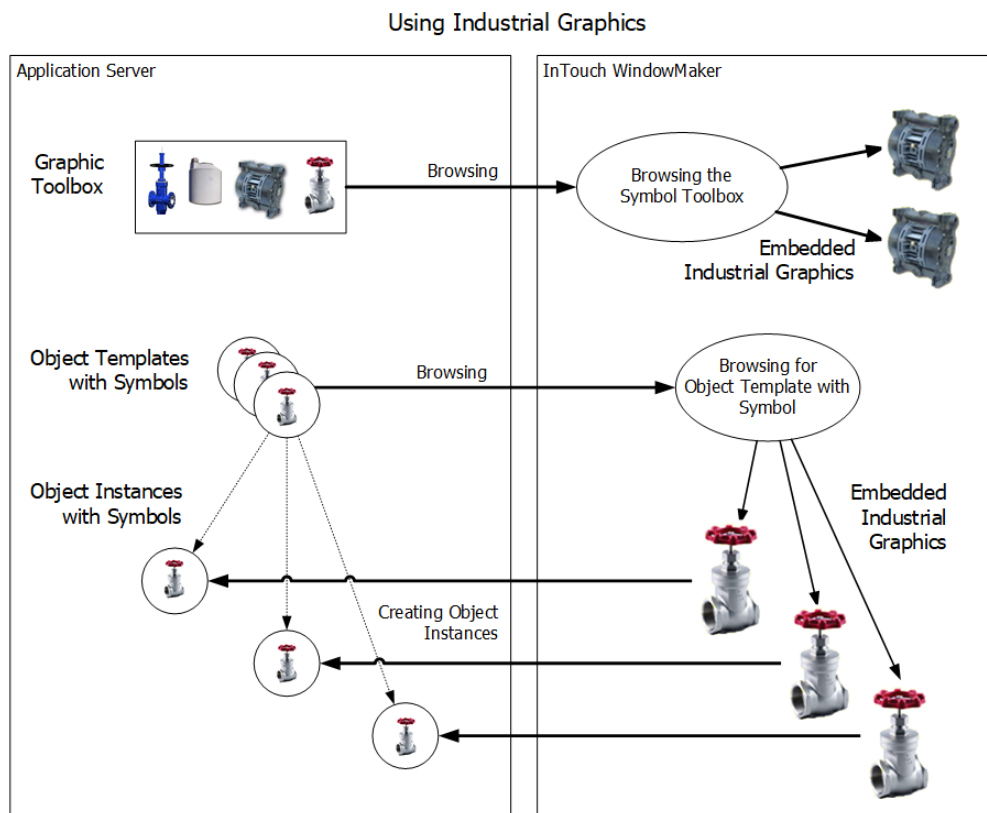
A platform can host multiple ViewEngine objects. Every InTouchViewApp must be assigned to a ViewEngine.

You cannot create multiple instances of the same InTouchViewApp template to run under the same ViewEngine object. But you can run multiple instances of the same template under different ViewEngine objects.

Industrial Graphics

The ArchestrA IDE includes a Industrial Graphic Editor to create symbols that represent production processes and provide an HMI interface to ArchestrA AutomationObjects.

The following diagram shows how symbols that are created with the Industrial Graphic Editor can be used in InTouch applications.



Creating Industrial Graphics

Industrial Graphics are created with the Industrial Graphic Editor in the IDE.

You can create:

- Industrial Graphics in the Industrial Graphic Toolbox. These are not associated with any specific ArchestrA object template or ArchestrA object instance.
- Industrial Graphics contained in a specific ArchestrA object template or instance.

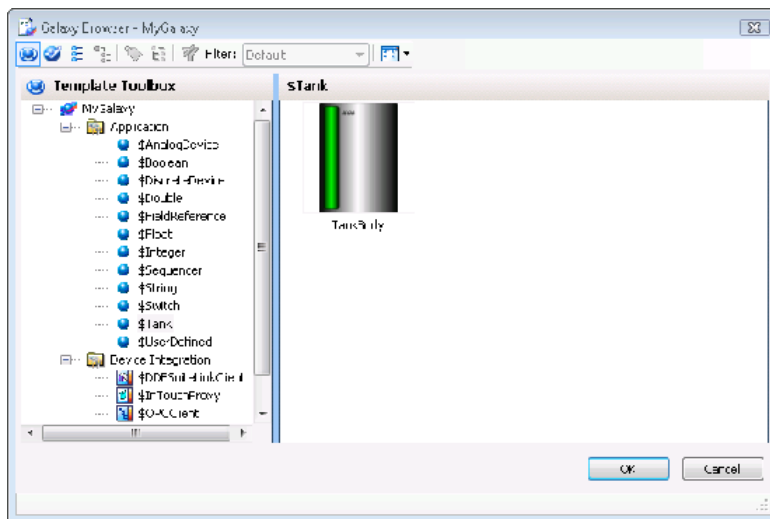
Embedding Industrial Graphics into InTouch Windows

Industrial Graphics can be embedded into a managed InTouch application and used.

You can embed an Industrial Graphic into a window of a managed InTouch application from:

- The Industrial Graphic Toolbox
- An ArcestrA object template
- An ArcestrA object instance

You embed these objects into InTouch windows by browsing the Galaxy for symbols or AutomationObjects.



Creating New ArcestrA Object Instances Automatically

If you embed an Industrial Graphic from a template, the InTouch HMI can create an instance of that object and the symbol instance references the new instance.

The following example shows you how to create a new ArcestrA object instance automatically.

To create a new ArcestrA object instance automatically

1. Create an ArcestrA object template **\$Valve1** and open it in the ArcestrA IDE object editor.
2. On the **Graphics** tab, add an Industrial Graphic called **ValveSymbol**.
3. Create a derived template of the InTouchViewApp object and open it in WindowMaker.
4. Create a new InTouch window and embed the Industrial Graphic **ValveSymbol** from the ArcestrA object template **\$Valve1**. WindowMaker prompts you for an instance name.
5. Type a name, for example `Valve1_E122` and click **OK**. The Industrial graphic is pasted on the InTouch window and the AutomationObject instance `Valve1_E122` is created in the Galaxy.

Exporting and Importing Industrial Graphics as XML Files

Use the GraphicAccess application programming interface (API) to export an existing Industrial Graphic to an XML file. Use the same API to create an Industrial Graphic in another galaxy or to overwrite an existing graphic by importing the graphic definition from an XML file.

Before using the GraphicAccess API, you must use the ArcestrA GAccess Toolkit to log in and connect to an ArcestrA Galaxy Repository. For more information about logging in and connecting to a Galaxy repository, see the *GAccess Toolkit API User's Guide*.

Implementing the GraphicAccess API

The GraphicAccess API is implemented by the ArcestrA.Visualization.GraphicAccess.dll file installed in the following folders based on 32-bit or 64-bit versions of Windows:

- 32-bit Windows: \Program Files\ArcestrA\Framework\Bin
- 64-bit Windows: \Program Files (x86)\ArcestrA\Framework\Bin

IGraphicAccess is an interface that is implemented by the GraphicAccess.dll component. IGalaxy returns the galaxy name and is obtained from the GRAccess API, and is used to log in and connect to the ArcestrA Galaxy Repository. See the *ArcestrA GRAccess Toolkit API User's Guide* for further information about using GRAccess.

IGalaxy, graphic name, and the XML file path are passed as parameters to the methods of IGraphicAccess.

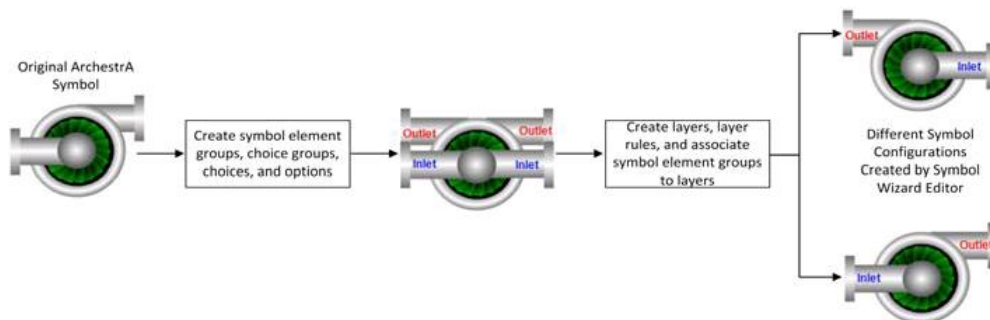
```
public interface IGraphicAccess
{
    /// <summary>
    /// Export an ArcestrA Galaxy graphic to Xml file
    /// </summary>
    /// <param name="galaxy">IGalaxy obtained from GRAccess</param>
    /// <param name="graphicName">The graphic name</param>
    /// <param name="xmlFilePath">The XML file path</param>
    /// <param name="bExportSubstituteStrings">Option to export
    SubstituteStrings</param>
    /// <returns>Result of the method</returns>
    ICommandResult ExportGraphicToXml (IGalaxy galaxy, string graphicName,
    string xmlFilePath, bool bExportSubstituteStrings);
}
```

If the Galaxy has security enforced, you must first log in to the Galaxy Repository with proper credentials. Also, the **Can Export Graphics** and **Can Import Graphics** Galaxy role permissions must be set active before attempting an import or export operation.

You can set the **Can Export Graphics** and **Can Import Graphics** Galaxy role permissions from the ArcestrA IDE **Configure Security** dialog box. For more information about setting Galaxy permissions, see the Application Server User Guide.

Creating Symbol Wizards with the Symbol Wizard Editor

The Industrial Graphic Editor includes the Symbol Wizard Editor, which can be used to create different visual and functional configurations of a symbol. These multi-configuration symbols are called Symbol Wizards. An example of creating a Symbol Wizard is a pump symbol that shows the outlet pipe on the left or right of the central blade housing. Using the Symbol Wizard Editor, both configurations can be included in one Symbol Wizard.



Symbols Wizards are not associated with any specific ArcestrA object template or ArcestrA object instance. Except for the ability to select a specific symbol configuration, Symbol Wizards behave like standard Industrial Graphics.

The ability to create Symbol Wizards with different configurations reduces the number of required symbols that need to be created for an application. Also fewer symbols results in lower maintenance and fewer design time issues.

Creating Symbol Wizards

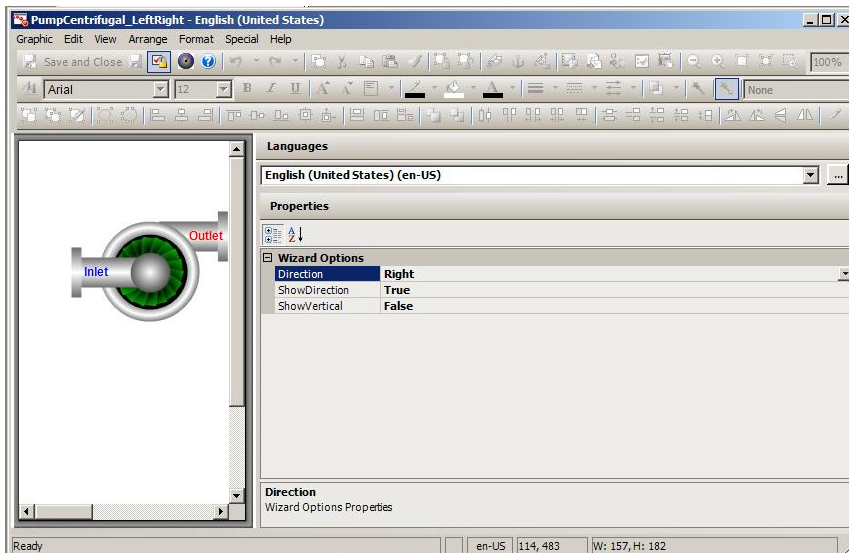
The process of creating and implementing a Symbol Wizard has two work flows, a Designer workflow and a Consumer work flow:

- A Designer creates multiple configurations of a symbols using the Symbol Wizard Editor.
- A Consumer selects the appropriate configuration of a Symbol Wizard and embeds the symbol into managed InTouch applications.

Symbol Wizard Designer Workflow

The Designer uses the Symbol Wizard Editor to define the various symbol configurations and assign graphic elements, custom properties, and scripts to symbol configurations in the form of layers. Rules are assigned with Choice Groups, Choices, and Options that determine when a layer is included in a symbol configuration. The Designer selects a configuration to be the symbol default that appears when the symbol is embedded in a managed InTouch application.

After creating all symbol configurations, the Designer verifies how each configuration of a symbol will be presented to a Consumer using the Symbol Wizard Preview. Designers use the **Wizard Options** to verify that each configuration appears as designed based on the layer rules set for the symbol.



When a Symbol Wizard is finished, the Designer saves it to the Galaxy library so that it is available to embed into managed InTouch applications.

For more information about creating Symbol Wizards, see the Industrial Graphic Editor User's Guide.

Symbol Wizard Consumer Workflow

When a Consumer embeds an instance of a Symbol Wizard into a managed InTouch application, the symbol's default configuration is selected. The Consumer can change the configuration by selecting options from the Symbol Wizard's **Wizard Options** view. Depending on the selected configuration, there can be additional configuration-related properties that can be selected by the Consumer.

While the InTouch application is running, the Symbol Wizard appears as the configuration selected by the Consumer. A symbol's configuration cannot be changed during run-time.

For more information about how to embed Symbol Wizards into a managed InTouch applications, refer to *Embedding Symbol Wizards* on page 47.

Symbol Change Propagation

Any changes to a source Industrial graphic are propagated to all embedded Industrial graphics. This affects the Industrial graphics in WindowMaker and the Industrial graphics inherited by AutomationObjects.

If a change is made to an Industrial graphic and it is used in an open InTouch window, the Symbol Changed icon appears in the bottom right corner of the status bar.

When you double-click this icon, the embedded Industrial graphic is updated with the changes.

The following example shows you how symbol change propagation works.

To propagate a symbol change

1. Follow the example from *Creating New ArcestrA Object Instances Automatically* on page 20.
2. In WindowMaker, open the window that shows the Valve symbol.
3. Open the Industrial graphic ValveSymbol that is hosted by the ArcestrA object template \$Valve1.
4. Make some changes and click **Close and Save**. The changes are propagated to ArcestrA object instance Valve1_E22. In WindowMaker, the Symbol Changed icon appears.
5. Double-click the icon to accept the changes. The embedded Industrial graphic is updated.

Symbol Dynamic Size Propagation

You can control the way that size changes of the source symbol are propagated to its embedded symbols. For example, a size change is:

- Resizing one of the elements in the source symbol so that the symbol boundary changes.
- Adding elements to or removing elements from the source symbol so that the symbol's boundary changes.

This feature is called dynamic size change propagation and can be enabled or disabled.

For more information about dynamic size propagation, see the Industrial Graphic Editor User Guide.

CHAPTER 2

Managing InTouch Applications with the IDE

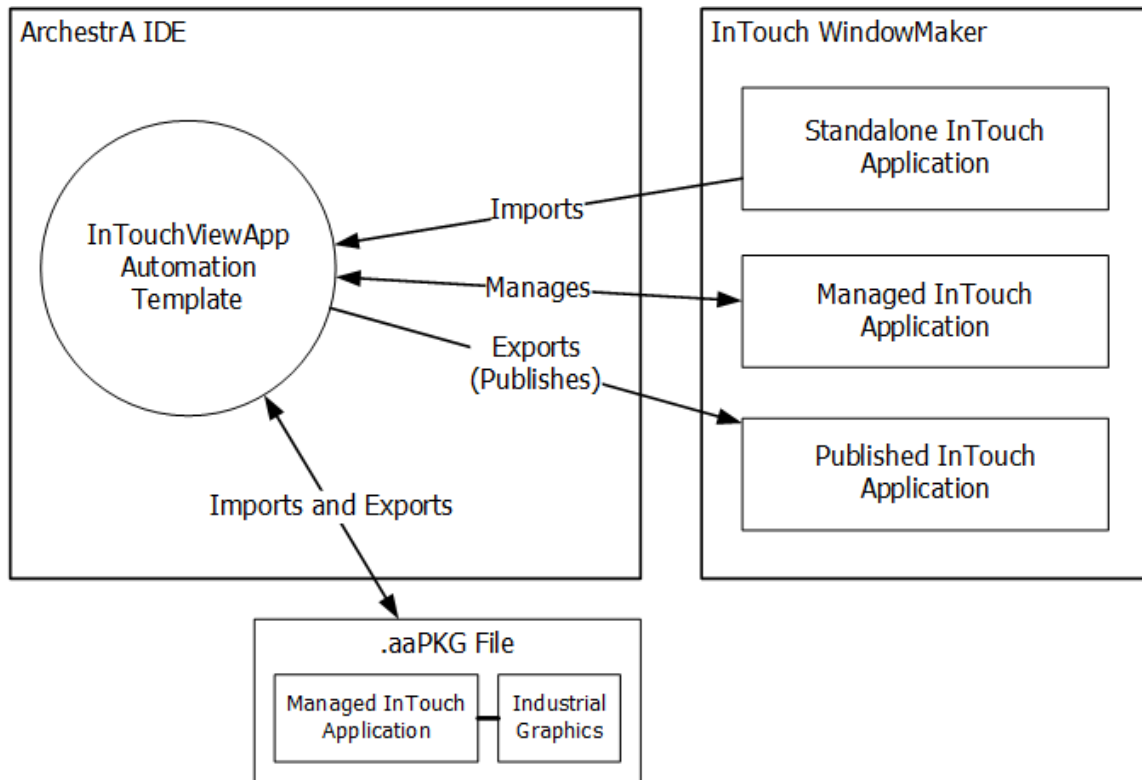
About Managing InTouch Applications with the IDE

You can use the ArcestrA IDE to:

- Create a new managed InTouch application.
- Import an existing InTouch application to use as a managed InTouch application.
- Start WindowMaker.
- Submit the changes you make in WindowMaker to a managed InTouch application.
- Export and import a managed InTouch application together with its InTouchViewApp object.
- Publish a managed InTouch application.
- Delete a managed InTouch application.
- Import and export tag data used in a managed InTouch application.
- Export tag data to and import tag data from a .csv file.
- Switch languages for a Managed InTouch application.
- Add files to a Managed InTouch application.
- Associate all Galaxy graphics with an InTouchViewApp.
- Use an application template to create a Managed InTouch application.

You can start the ArcestrA IDE from the InTouch Application Manager.

The following graphic shows how applications are imported, exported, managed, and published.



Creating a Managed InTouch Application

You create a managed InTouch application by creating and configuring an InTouchViewApp object.

You can also view application version, resolution, and description information directly from the InTouchViewApp object.

The InTouch application directory is created as a share:

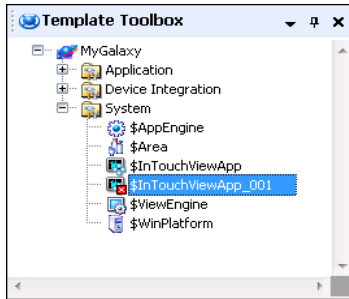
\\GRNodeName\GalaxyName-\$InTouchViewAppObjectName

This directory is managed by the IDE, not by the InTouch Application Manager.

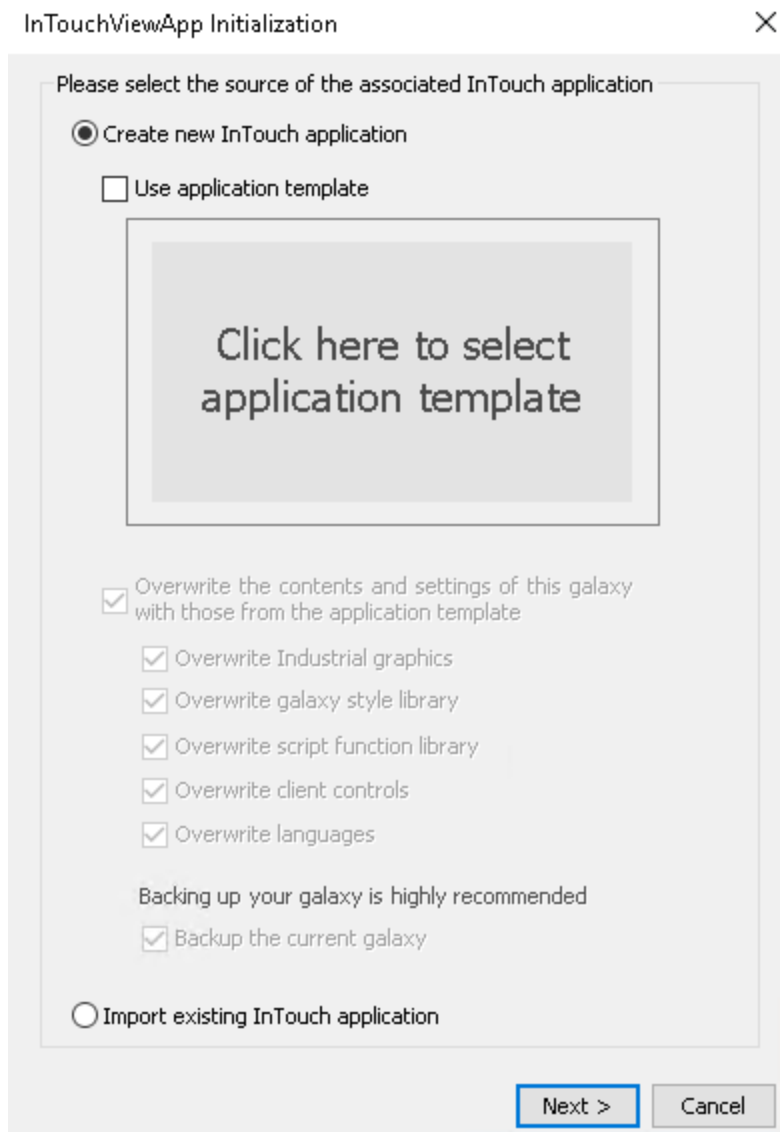
To create a managed InTouch application

1. Open the ArcestrA IDE.
2. In the **Template Toolbox**, expand the **System** toolset.
3. Derive a template from the **\$InTouchViewApp** base template. Do the following:
 - a. Right-click the **\$InTouchViewApp** base template, point to **New**, and then click **Derived Template**. A new derived template appears with a default name.

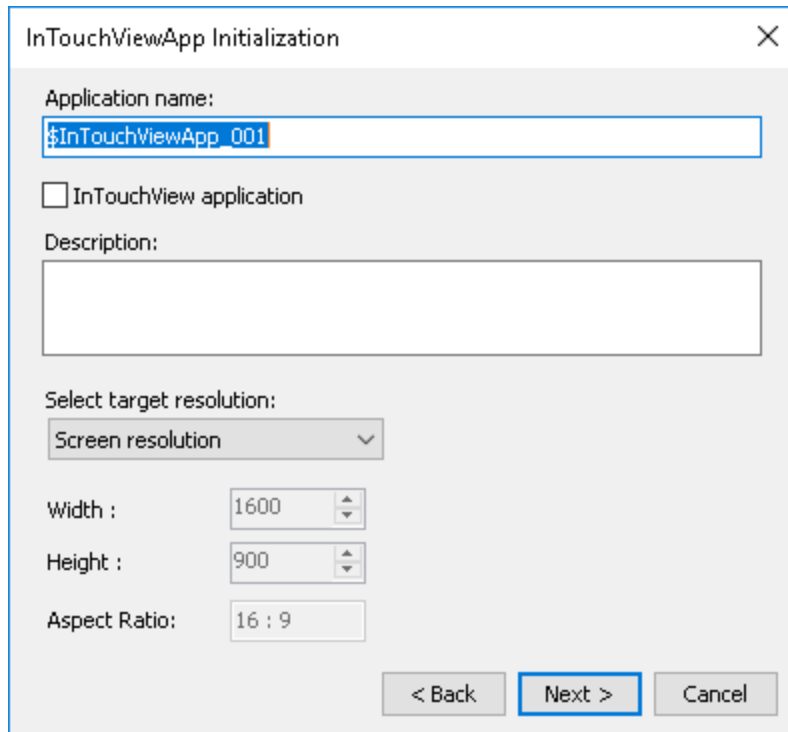
b. Rename the new template if needed.



4. Double-click the derived template. The **InTouchViewApp Initialization** dialog box appears.



5. Select **Create New InTouch Application** and click **Next**. The next panel appears.

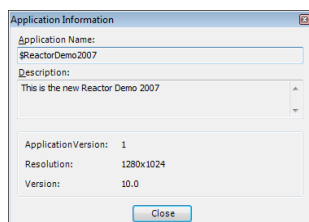


6. Type a name for the InTouch application and a description.
7. Select **InTouchView Application** to create an InTouch application that uses only ArcestrA references as an external data source.
8. Select the application target resolution if different than the default screen resolution option. Options for this field are as follows:
 - a. Click the **Select target resolution** dropdown menu to view a list of predefined target resolutions.
 - b. Click the **Select target resolution** dropdown menu and select **Custom**. The Pixel width and height fields becomes editable. The boundary limits are 150x150 and 10000x10000.
9. Click **Next**. WindowMaker starts.

Note: If you have selected a target resolution that is different from the screen resolution, you will not be prompted to convert to screen resolution upon editing the application in WindowMaker.

To view application version, resolution, and description

1. Open the Template Toolbox.
2. Right-click the InTouchViewApp template, and then click **Application Information**. The **Application Information** dialog box appears.



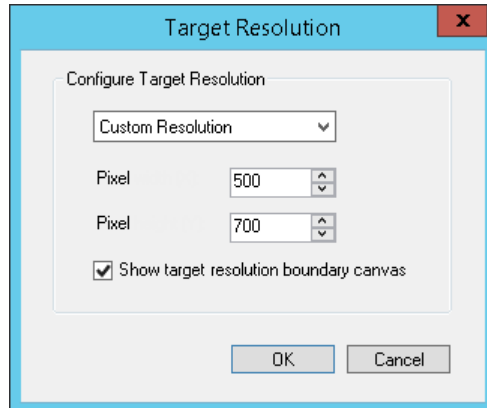
To Change Target Resolution

You can change the specified target resolution while editing the application in WindowMaker. This functionality is not available for command line.

Do the following:

1. Click **Special, Configure**, and select **Target Resolution**.

The Target Resolution dialog box appears.



2. Edit the target resolution as needed and click **OK**.

The boundary canvas updates to reflect the change. Windows, window size and window controls will remain the same.

Note: The Show target resolution boundary canvas is checked by default.

Creating a Managed Application from an Application Template

Creating a Managed InTouch application based on an application template enables you to significantly reduce design time and base your new application on existing standards.

You select which template you want to base your Managed InTouch application on using the Application Template Browser. The templates available in the Application Templates Browser are exported .aaPKG files that are loaded from an Application Templates folder in the InTouch installation directory. For example:

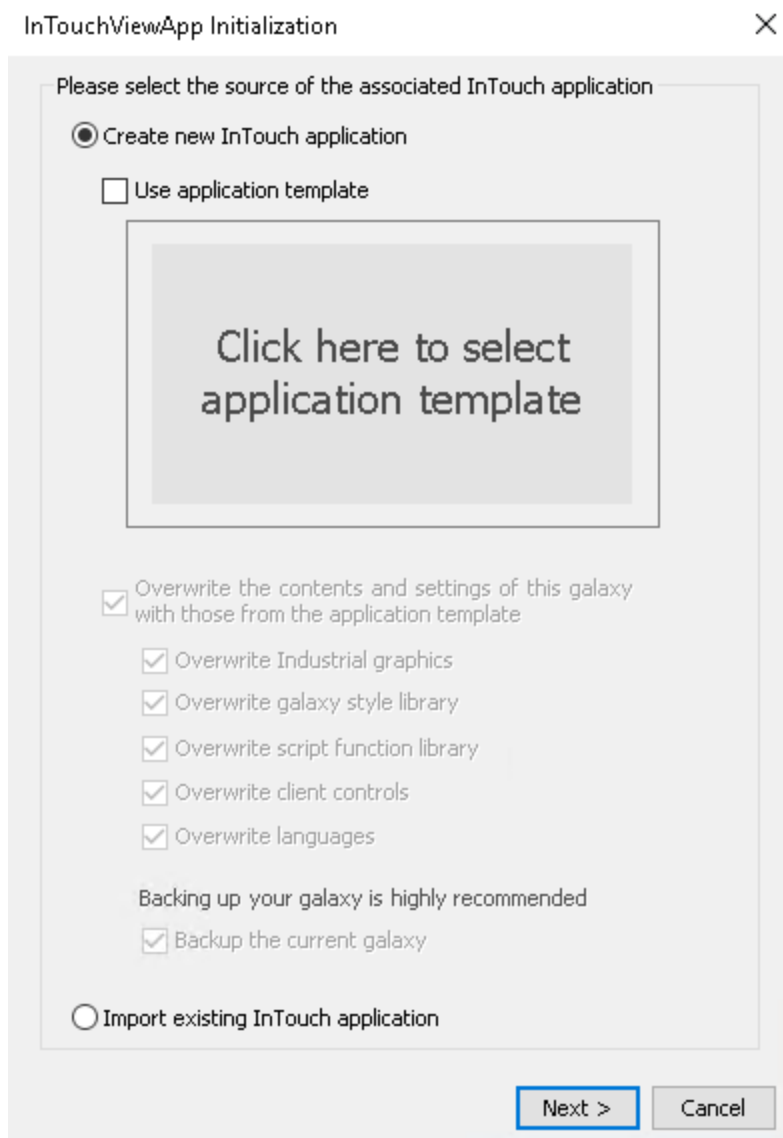
```
C:\Program Files(x86)\Wonderware\InTouch\ApplicationTemplates
```

The folder hierarchy in the **Application Templates Browser** will mimic the hierarchy in this directory.

To create a Managed application based on an application template:

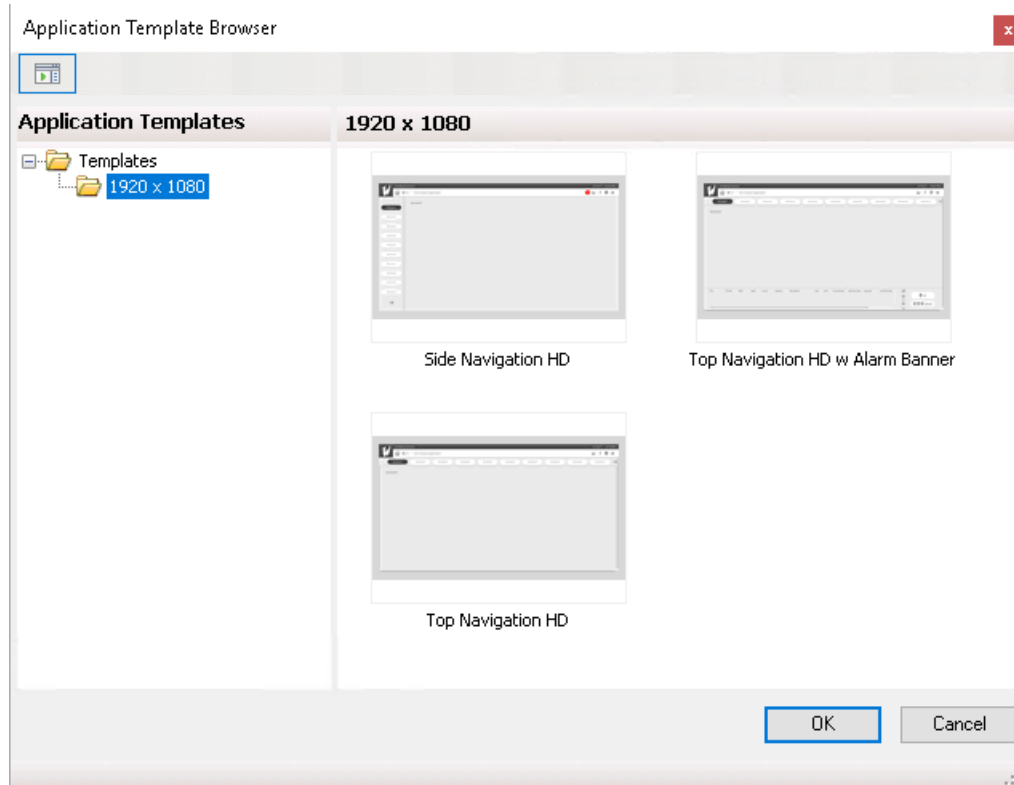
1. Open the ArcestrA IDE and create a derived template from the \$InTouchViewApp object.
You can optionally rename the derived template.
2. Double-click the derived template.

The **InTouchViewApp Initialization** dialog box appears. The **Create new InTouch application** option is selected by default.



3. Select the **Use application template** checkbox.

The **Click to select application template** command button becomes enabled. Upon click, the Application Template Browser displays.



The left pane displays a tree view of the application template folders. The right pane displays thumbnail previews of the contents of the selected folder.

Each thumbnail in the browser maintains its aspect ratio.

4. Select your preferred application template and click **OK**.
Your selection will be populated in the **InTouchViewApp Initialization** dialog box.
5. Carefully review and select your preferred galaxy settings overwrite options.

Note: The **Overwrite the contents and settings of this galaxy with those from the application template** option is selected by default. The specific galaxy settings that will be overwritten are broken down in the child options. Any or all of these options can be unchecked at this time.

The overwrite options are as follows:

- **Overwrite Industrial graphics**
If selected, galaxy symbols will be replaced by application template symbols in case of conflict.
- **Overwrite galaxy style library**
If selected, the application template style library will replace the entire galaxy style library. If unselected, this step will be skipped. There is no merge of style libraries.
- **Overwrite script function library**
If selected, the galaxy script function library will be replaced by the application template script library in case of conflict.
- **Overwrite client controls**

If selected, a galaxy client control will be replaced by the application template client control in case of conflict.

- **Overwrite languages**

If selected, the language settings defined in the application template will replace those defined in the galaxy.

If unselected, the galaxy language settings will remain in case of conflict. If unselected and no conflicts occur, the application template language settings will append to the galaxy settings.

6. Click **Next**.

If you selected the **Backup current galaxy** option, you will be prompted for the location of the file name of the backup .cab file.

Important: It is highly recommended to back up your galaxy.

7. Confirm your application name and select **InTouchView Application**.

The target resolution is set to the resolution of the template by default. The **Pixel** fields are disabled. This can be adjusted during application development.

8. Click **Next**.

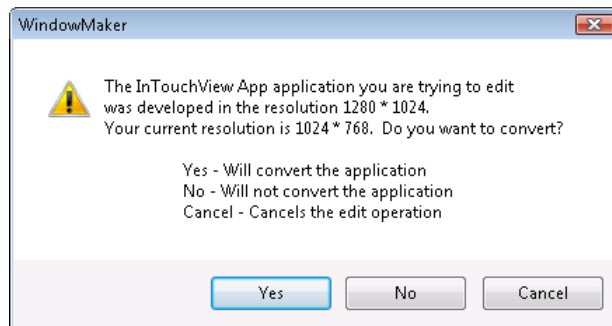
When initialization completes, you can deploy your application.

Starting WindowMaker from the ArcestrA IDE

You can edit a managed InTouch application by starting WindowMaker from within the ArcestrA IDE.

You can start WindowMaker from an InTouchViewApp template or an instance.

When opening a managed InTouch application created with a different screen resolution than your current system resolution, a message appears.



- Click **Yes** to convert the InTouch application to the current system resolution and open it.
- Click **No** to open and edit the InTouch application in its original resolution.

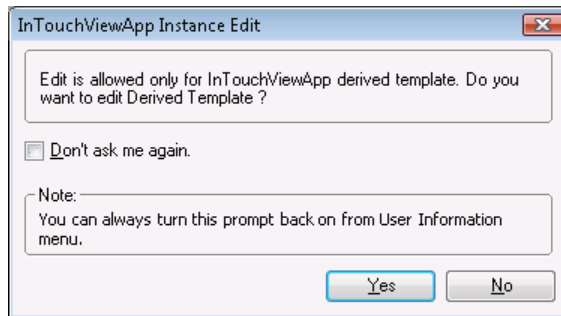
To start WindowMaker from an InTouchViewApp template

1. Open the ArcestrA IDE.
2. Locate the InTouchViewApp template that includes the managed InTouch application you want to modify.
3. Double-click the InTouchViewApp template. WindowMaker starts as the object's default editor and opens the InTouch application. You are ready to edit the managed application.

To start WindowMaker from an InTouchViewApp instance

1. Open the ArcestrA IDE.

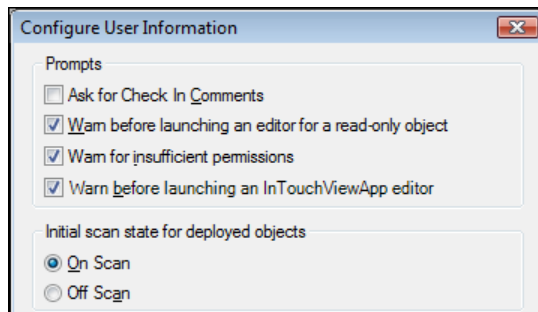
2. Locate the InTouchViewApp object whose parent hosts the managed InTouch application you want to modify.
3. Double-click the InTouchViewApp object. The **InTouchViewApp Instance Edit** dialog box appears.



4. Do any of the following:
 - o Click **No** to not open the template.
 - o Click **Yes** to open the associated InTouchViewApp template in WindowMaker.

If you select the **Don't ask me again** check box and click **Yes**, the next time you open an InTouchViewApp instance, the managed InTouch application is automatically opened from the associated InTouchViewApp template.

You can change this setting using the **Configure User Information** dialog box, which you open from the **Edit** menu.



Submitting Changes for an InTouch Application

After you modify your managed InTouch application, you can submit the changes for deployment to the target nodes.

After you make changes to a managed InTouch Application, any derived InTouchViewApp objects appear with the Pending Changes icon.

This indicates that you must redeploy the changes to the target nodes, for WindowViewer on those nodes to reflect the changes.

For more information on how to deploy the changes to the operator nodes, see *Deploying a Managed InTouch Application* on page 64 and *Accepting New Application Versions at the Operator Node* on page 65.

To submit the changes for an InTouch application

1. Modify your managed InTouch application in WindowMaker as you would with a standalone InTouch application.
2. Save your InTouch windows.
3. On the **File** menu, click **Exit**. WindowMaker closes and the focus returns to IDE. The **Check In** dialog box appears.

4. Type a comment for check in, if necessary and click **OK**. The **Check In** progress dialog box appears.
5. Click **Close**.

Importing an InTouch Application

You can import an existing InTouch application to use as a managed InTouch application. You do this in two steps:

- Create an InTouchViewApp object to associate with the imported InTouch application.
- Import the InTouch application.

The imported InTouch application becomes a managed InTouch application.

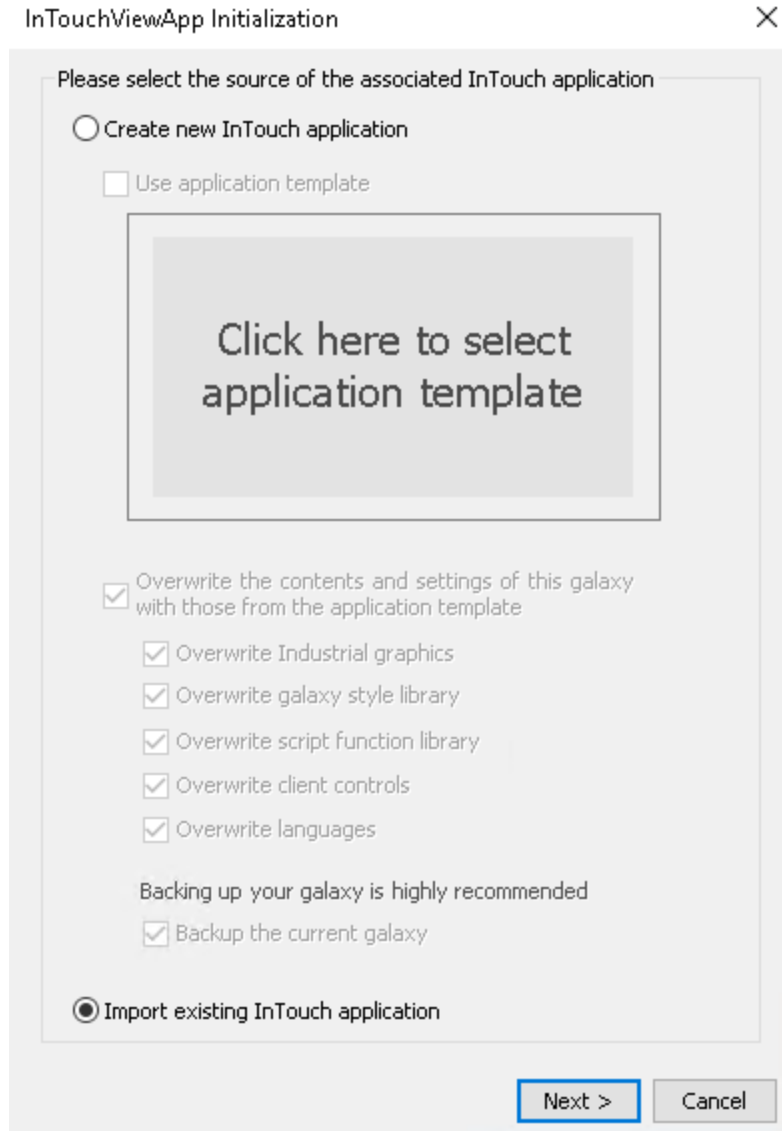
The ArcestrA IDE creates a copy of the existing InTouch application in a folder that it manages. The IDE leaves the existing InTouch application and location unchanged.

If the version of the InTouch application you are importing is 6.0 or above, a conversion message appears. The application is converted before it is opened in WindowMaker. InTouch applications versions before 6.0 cannot be converted.

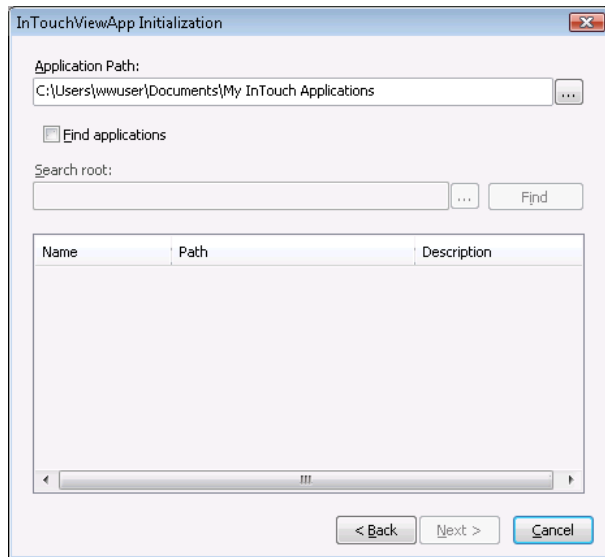
To import an InTouch application into a Galaxy

1. Open the ArcestrA IDE.
2. In the **Template Toolbox**, derive a template from the \$InTouchViewApp base template.

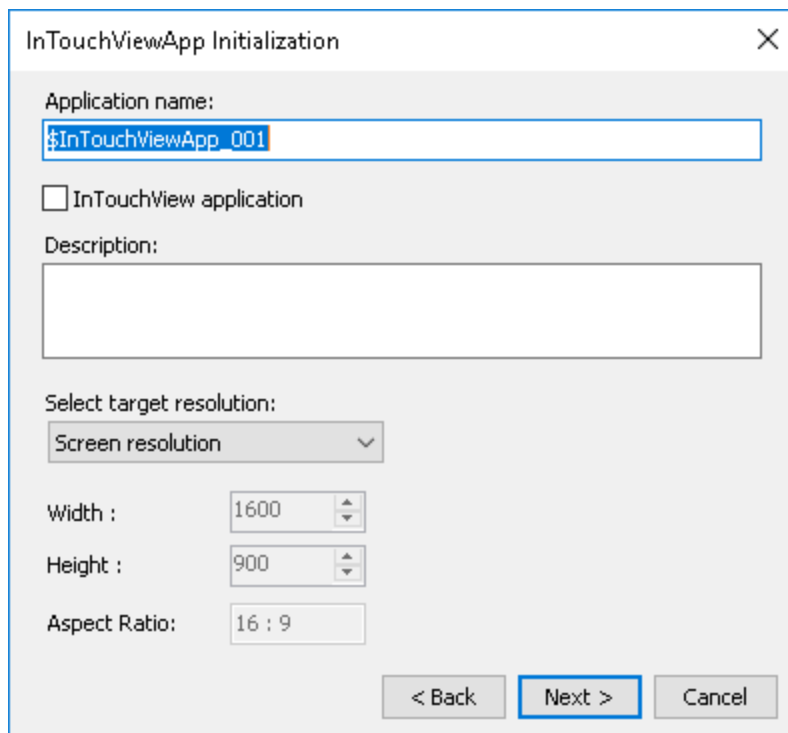
3. Open the derived template. The **InTouchViewApp Initialization** dialog box appears.



4. Click **Import Existing Application** and click **Next**. The next panel appears.



5. Locate the InTouch application. Do any of the following:
 - o Click the ellipsis button to browse for the folder that contains the managed InTouch application.
 - o To search for the application, select the **Find applications** check box. Specify a search root for the search to begin and click **Find**. Select the InTouch application from the list.
6. Click **Next**. The next panel appears.

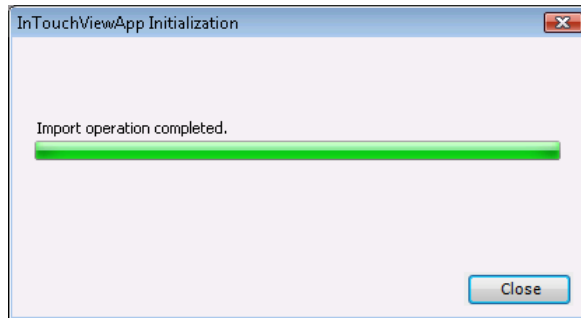


7. If needed, type a new name in the **Application Name** box and a description in the **Description** box. The name and description appear in the Application Manager when the managed InTouch application is deployed.
8. Select the application target resolution different than the default screen resolution option. Options for this field are viewable as follows:

- a. Click the **Select target resolution** dropdown menu to view a list of predefined target resolutions.
- b. Click the **Select target resolution dropdown** menu and select **Custom**. The Pixel width and height fields will become editable.

Note: If a different target resolution is selected when importing an existing application, then there will be no application resolution conversion from the source application resolution to the target resolution.

9. Click **Next**. The next panel appears and shows you the import progress.



10. Click **Close**. InTouch WindowMaker is started and you can edit the InTouch application as a managed InTouch application.

Importing and Exporting an InTouchViewApp Object

You can import and export the InTouchViewApp object in the ArcestrA IDE. The InTouchViewApp object contains all information for hosting a managed InTouch application and can be used to exchange a managed InTouch application between Galaxies.

For more information about importing and exporting AutomationObjects, see the Application Server documentation.

To import an InTouchViewApp object

1. On the **Galaxy** menu, point to **Import**, and then click **Object(s)**. The **Import Automation Object(s)** dialog box appears.
2. Select the ArcestrA package (.aaPKG) file that contains the InTouchViewApp object you want to import and click **Open**. The object and its managed InTouch application are imported.
3. Click **Close**.

To export an InTouchViewApp object

1. On the **Galaxy** menu, point to **Export**, and then click **Object(s)**. The **Export Automation Object(s)** dialog box appears.
2. Select a folder to export to, specify an ArcestrA package (.aaPKG) file name and click **Save**. The object and its managed InTouch application are exported.
3. Click **Close**.

Publishing a Managed InTouch Application

You can publish a managed InTouch application from the InTouchViewApp object that is associated with it.

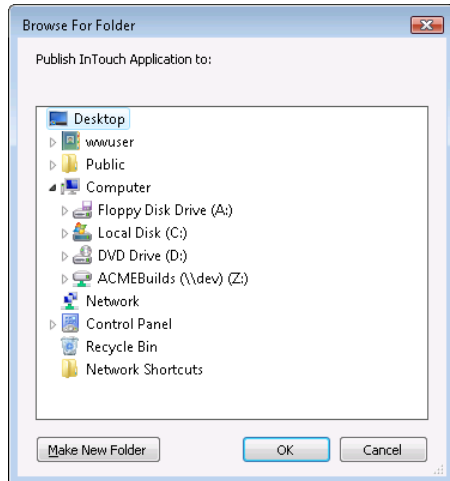
The export consists of a folder containing information about the object and the managed InTouch application.

This is different than exporting the InTouchViewApp object itself. For more information, see *Importing and Exporting an InTouchViewApp Object* on page 37.

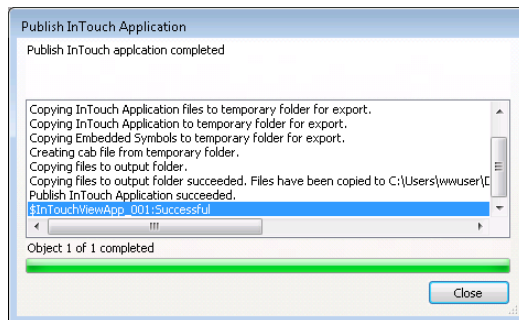
The published InTouch application cannot be reimported into an InTouchViewApp object. A published InTouch application cannot be edited.

To publish a managed InTouch application

1. Open the ArcestrA IDE.
2. Locate the InTouchViewApp object that contains the managed InTouch application you want to publish.
3. Right-click the object, and then click **Publish InTouch Application**. The **Browse For Folder** dialog box appears.



4. Specify the folder to publish to the InTouch application to. Do any of the following:
 - Browse to an existing folder.
 - Click **Make New Folder** to create a new folder or folder structure.
5. Click **OK**. The **Publish InTouch Application** progress dialog box appears.



6. When publishing is complete, click **Close**. A directory containing the new published InTouch application is created in the selected folder. You can now copy it to any run-time node.

Deleting a Managed InTouch Application

You can delete an InTouch application in the ArcestrA IDE by deleting the associated InTouchViewApp template.

When you do this, the template and the InTouch application directory associated with that template are deleted completely.

You can only delete an InTouch application if the associated InTouchViewApp object does not have any derived instances.

Deleting an InTouchViewApp instance does not delete the associated InTouch application.

To delete the InTouchViewApp template

1. Open the ArcestrA IDE.
2. Select the InTouchViewApp template that contains the managed InTouch application you want to delete.
3. On the **Edit** menu, click **Delete**. The **Delete** dialog box appears.
4. Click **Yes**. The InTouchViewApp template and the associated InTouch application folder are deleted.

Exporting and Importing Tag Data

You can export the tag data of a managed InTouch application to a .csv file. You can import this data into another managed InTouch application or a stand-alone InTouch application.

To export tag data from a managed InTouch application

1. Open the ArcestrA IDE.
2. Select the derived InTouchViewApp template that contains the managed InTouch application from which you want to export the tag data.
3. On the **Galaxy** menu, point to **Export**, and then click **DB Dump**. The **CSV File to Dump To** dialog box appears.
4. Specify a location and file name for the .csv file and click **Save**. A confirmation dialog box appears.
5. Select **Group output by types** if you want the tag data to be grouped by data types in the .csv file.
6. Click **OK**. When a success message appears, click **OK**.

To import tag data from a .csv file to a managed InTouch application

1. Open the ArcestrA IDE.
2. Select the derived InTouchViewApp template that contains the managed InTouch application to which you want to import the tag data.
3. On the **Galaxy** menu, point to **Import**, and then click **DB Load**. The **CSV File to Load From** dialog box appears.
4. Select the .csv file and click **Open**.

During the import, one or more messages may appear warning you of duplicate names. Select the appropriate option for each duplicate tag.

5. When a success message appears, click **OK**.

Retaining Tag Value and Parameters

When you use multiple managed InTouch applications on one node, all applications use the same directory. If you configure tag data or parameters to be retained and you switch applications, the run-time data is lost.

To configure retention in a managed InTouch application

1. Open the managed InTouch application with WindowMaker from the IDE.
2. On the **Special** menu, point to **Configure**, and then click WindowViewer. The WindowViewer **Properties** dialog box appears.
3. Click the **Managed Application** tab.

4. In the **Local Working Directory** box, type the name of a unique existing directory. This is the name of the directory on the target run-time node. You can also use special characters to specify the local working directory path. The following table illustrates the special characters that you can use:

Special Character	Local Working Directory Path
%SystemDrive%	System drive. For example, "C:"
%USER%	Name of the logged-on user. If WindowViewer is running as a service, the application is copied to "All Users"
%APPDATA%	Logged-on user's Application Data. If WindowViewer is running as a service, the application is copied to "All Users" Application Data
%ITUSER%	Logged-on user. If WindowViewer is running as a service or in a console session, the application is copied to "All Users"
%ITAPPDATA%	Logged-on user's Application Data. If WindowViewer is running as a service or in a console session, the application is copied to "All Users" Application Data

Language Switching for a Managed InTouch Application

For managed InTouch applications, certain language switching functionality is handled by the ArcestrA IDE instead of the InTouch HMI.

Use the ArcestrA IDE to:

- Export and import graphic text for translation.
- Configure the language used by the managed application.

For more information, see the Application Server User's Guide, Chapter - Working with Languages.

Adding Files for a Managed InTouch Application

Using WindowMaker you can add files to a managed InTouch application so that they are deployed and available at run time.

To add files to a managed InTouch application

1. Open the managed InTouch application in WindowMaker.
2. On the **File** menu, click **Open Application Folder**. The standard Windows Explorer window appears showing the InTouch application folder on the Galaxy Repository node.
3. Add new files and folders to the InTouch application folder.
4. Close the Explorer window.

Associating All Galaxy Graphics in an InTouchViewApp

Associating all Galaxy graphics with an InTouchViewApp template enables deployed and published InTouch applications to execute "show graphic" requests made of any graphic in the Galaxy without having to embed them in the application.

- The ShowGraphic() function uses the graphic as a parameter. Associating all Galaxy graphics ensures that the graphic is deployed and available at run time whether or not it is referenced by InTouchViewApp.
- Associating all Galaxy graphics ensures that template symbols referenced by the ShowGraphic() function are deployed and available at run time.

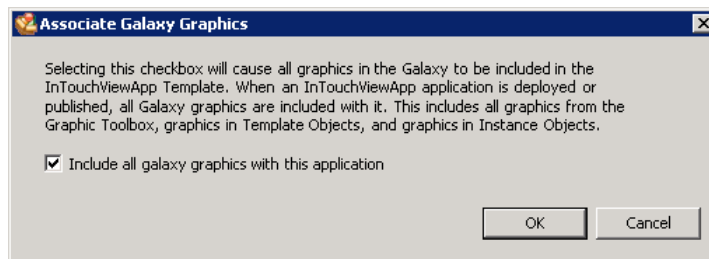
Note: The term "graphic" includes any symbol or client control present in the Graphic Toolbox, and any symbols owned or inherited by templates and instances.

For more information about associating all Galaxy graphics with an InTouchViewApp, see the Application Server User's Guide, Chapter 6, "Deploying and Running an Application".

Access the "Include all Galaxy graphics" option through the InTouchViewApp right-click context menu.

To include all Galaxy graphics with your InTouchViewApp template

1. Right-click the InTouchViewApp template you wish to configure. The InTouchViewApp context menu appears.
2. Select the **Associate Galaxy Graphics** menu item. The **Associate Galaxy Graphics** dialog box appears.



When the **Associate Galaxy Graphics** dialog appears, the \$InTouchViewApp template is checked out.

If the \$InTouchViewApp template is not yet initialized or checked out, the **Include all Galaxy graphics with this application** check box is not available.

3. Click the check box and click **OK**. A status box displays check in progress.

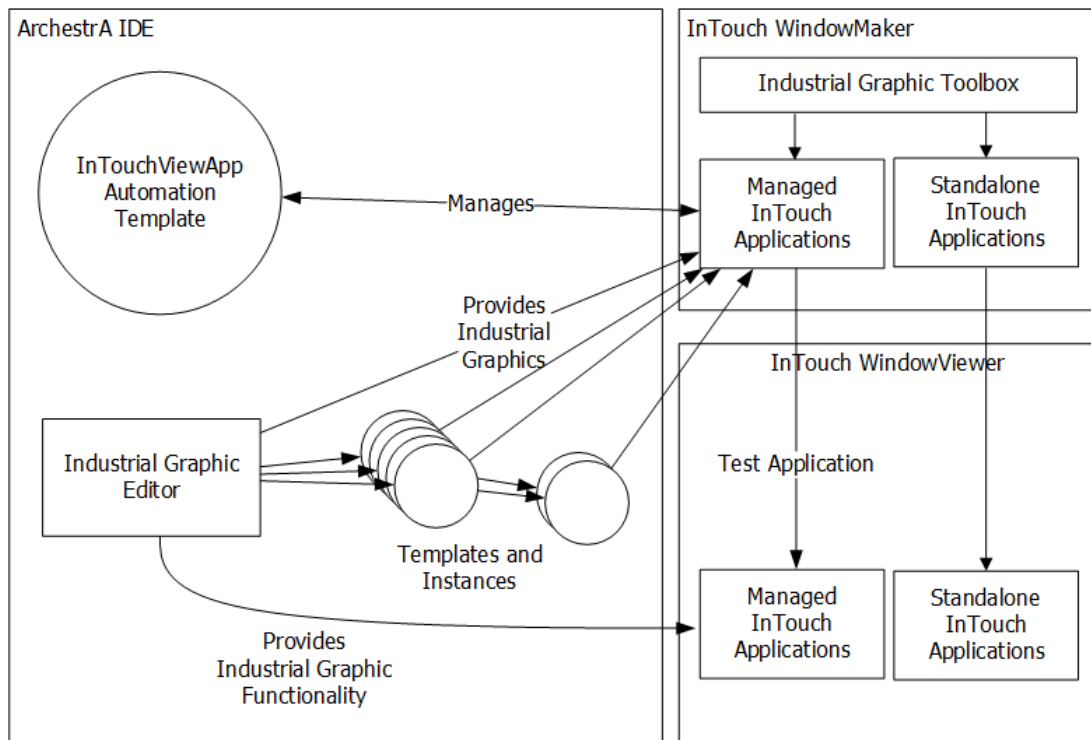
If an InTouchViewApp instance is deployed when you attempt to modify the **Include all Galaxy graphics** setting, you will see an information message to undeploy all deployed instances.

CHAPTER 3

Using Industrial Graphics in WindowMaker

About Using Industrial Graphics in WindowMaker

You can use Industrial Graphics created with the Industrial Graphic Editor in your managed or standalone InTouch applications. You can also add Industrial Graphics directly from WindowMaker's Industrial Graphic Toolbox. For more information about working with Industrial Graphics and Situational Awareness Library symbols, see the *Industrial Graphic Editor User Guide* or WindowMaker help.



You can:

- Embed Industrial Graphics into an InTouch window.
- Drag and drop Industrial Graphics directly from the Industrial Graphics Toolbox into an InTouch window.
- Resize embedded Industrial Graphics.
- Add a limited number of InTouch animations to Industrial Graphics.
- Configure the custom properties of embedded Industrial Graphics.
- Start the Industrial Graphic Editor.
- Test the Industrial Graphics in WindowViewer.
- Create a new Instance of the AutomationObject that hosts the embedded Industrial Graphic.

Embedding Industrial Graphics into an InTouch Window

You can embed an Industrial Graphic into InTouch windows of your managed and standalone InTouch application.

The Industrial Graphic can be part of:

- The Graphic Toolbox.
- An ArcestrA object template.
- An ArcestrA object instance.

The Industrial Graphics that can be embedded include symbols whose elements have Element Styles applied to them and Symbol Wizards created using the Symbol Wizard Editor.

You can publish a managed InTouch application containing Industrial Graphics in the published application. However, you cannot add new Industrial Graphics or edit existing symbols in an application that has been published.

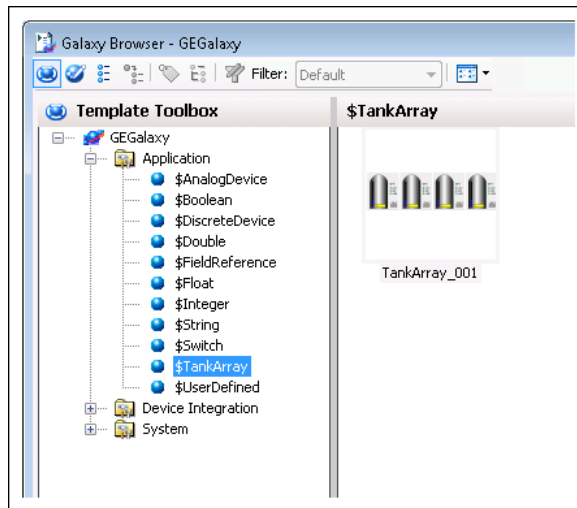
Embedding Industrial Graphics from Automation Templates

You can embed an Industrial Graphic from an Automation template that hosts Industrial Graphics. At the same time, a new derived instance of the selected template is created.

For information about creating a new instance based on an Industrial Graphic already on the InTouch window, see *Testing Industrial Graphics in WindowViewer* on page 60.

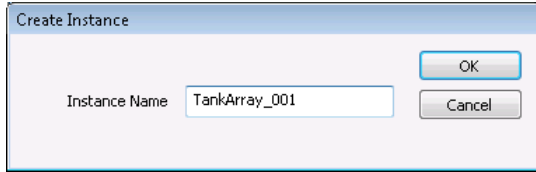
To embed an Industrial Graphic from an Automation template

1. Open WindowMaker.
2. On the **Edit** menu, click **Embed Industrial Graphic**. The **Galaxy Browser** dialog box appears.
3. Click the Template Toolbox icon. The **Template Toolbox** list appears on the left.

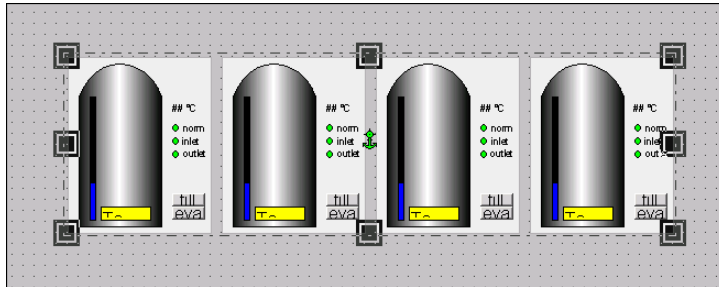


4. Select the template that contains the Industrial Graphic you want to embed. The Industrial Graphics contained in the selected template appear on the right.
5. Select the Industrial Graphic you want to embed and click **OK**. The Galaxy Browser closes and the insertion icon appears if the pointer is over the InTouch window.

6. Click in the InTouch window where you want to embed the Industrial Graphic. The **Create Instance** dialog box appears.



7. In the **Instance Name** box, type a name for the instance.
8. Click **OK**. An instance is automatically derived from the template with the name you specify. The symbol is embedded into the InTouch window.

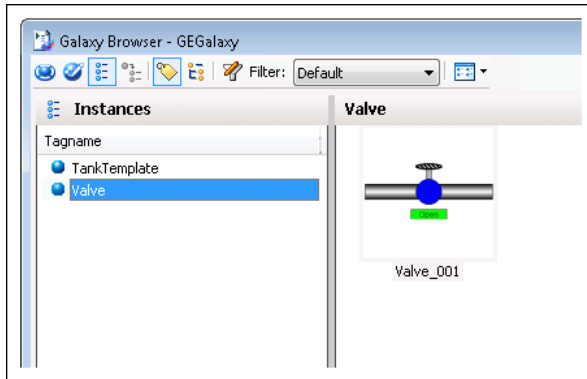


Embedding Industrial Graphics from Instances

You can embed Industrial Graphics from instances that have Industrial Graphics associated with them. When you embed an Industrial Graphic from an instance, the symbol is associated with that instance.

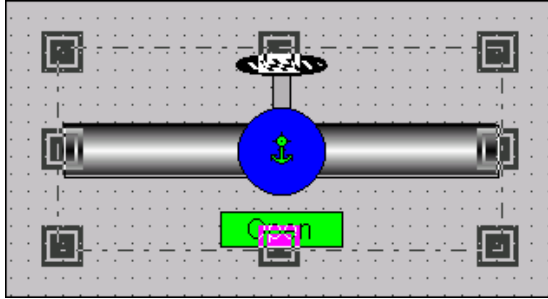
To embed an Industrial Graphic from an instance

1. Open WindowMaker.
2. On the **Edit** menu, click **Embed Industrial Graphic**. The **Galaxy Browser** dialog box appears.
3. Click the Instances icon. The **Instances** list appears on the left.



4. Click on the instance that contains the Industrial Graphic you want to embed. The Industrial Graphics associated with the selected instance appear on the right.
5. Click on the Industrial Graphic you want to embed and click **OK**. The Galaxy Browser closes and the insertion icon appears if the pointer is over the InTouch window.

- Click in the InTouch window where you want to embed the Industrial Graphic. The symbol is embedded into the InTouch window.



Embedding Industrial Graphics from the Graphic Toolbox

You can embed Industrial Graphics from the Graphic Toolbox.

To embed an Industrial Graphic from the Graphic Toolbox

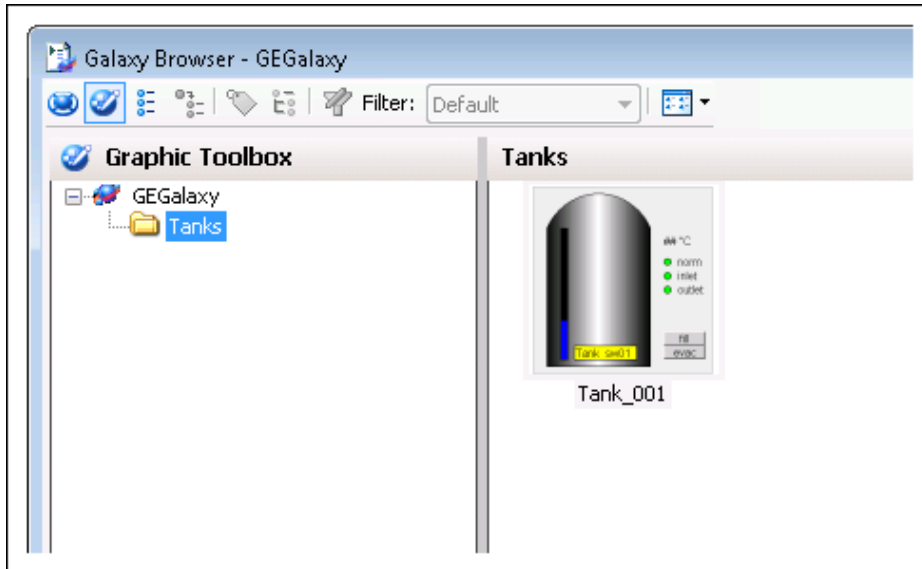
- Open WindowMaker.



- On the **Edit** menu, click **Embed Industrial Graphic**. The **Galaxy Browser** dialog box appears.



- Click the Graphic Toolbox icon. The **Graphic Toolbox** list appears on the left.



- Select the Industrial Graphic you want to embed and click **OK**. The insertion icon appears if the pointer is over the InTouch window.
- Click in the InTouch window where you want to embed the Industrial Graphic. The symbol is embedded into the InTouch window.

Embedding Industrial Graphics with Element Styles Applied

You can embed Industrial Graphics that have Element Styles applied to them. An Element Style defines one or more of the fill, line, text, blink, and outline properties of a graphic. The visual properties defined in an Element Style are applied to the graphic. Element Styles make it easy to apply consistent styles to elements. Element Styles also establish visual standards for screen builders and others who create symbols.

An Industrial graphic that has an Element Style applied to it is embedded into an InTouch window just like any other Industrial Graphic.

For more information about using Element Styles with Industrial Graphics, see Chapter 7, Working with Element Styles, in the *Industrial Graphic Editor User Guide*.

Embedding Symbol Wizards

You can embed Symbol Wizards into a window of a managed InTouch application from the ArcestrA IDE.

To embed a Symbol Wizard

1. Open WindowMaker and show the window that will contain the embedded symbol.



2. On the **Edit** menu, click **Embed Industrial Graphic**. The **Galaxy Browser** dialog box appears.

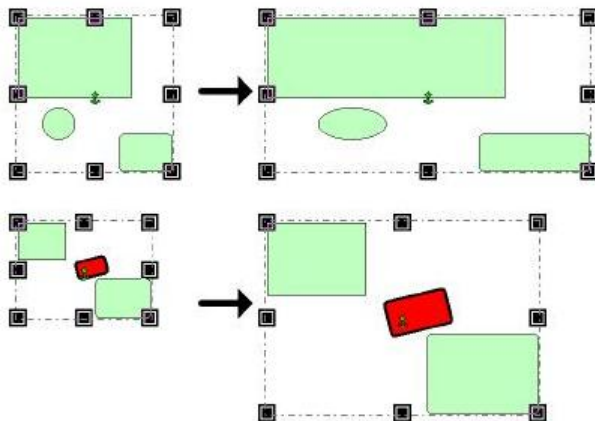


3. Click the Graphic Toolbox icon. The **Graphic Toolbox** list appears on the left.
4. Select the Symbol Wizard you want to embed into an application and click **OK**.
5. Click in the InTouch window where you want to embed the Symbol Wizard. The symbol is embedded into the InTouch window using its default Symbol Wizard configuration.

Resizing Embedded Industrial Graphics

After embedding an Industrial Graphic into an InTouch window, you can resize it with its handles or with the width and height value entry as you would with any other InTouch object.

However, if the Industrial Graphic contains at least one rotated element, you can only resize the Industrial Graphic proportionally.



You cannot resize the embedded Industrial Graphic smaller than its minimum size. The minimum size may be determined by the pen width of a contained element.

You can reset the embedded Industrial Graphic to its original size when it was created in the Industrial Graphic Editor.

To resize an embedded Industrial Graphic

1. Select the Industrial Graphic so that the handles appear.
2. Do one of the following:
 - Drag the one of the handles to resize the Industrial Graphic to the new size.
 - Enter width and height in the **W** and **H** boxes on the status bar.

To resize an embedded Industrial Graphic to its original size

- Right-click the embedded Industrial Graphic you want to change to its original size, point to **Industrial Graphic**, and then click **Symbol - Original Size**. The embedded Industrial Graphic is changed to its original size.

Configuring Industrial Graphics in WindowMaker

You can configure embedded Industrial Graphics in WindowMaker by:

- Standard editing, such as copying, cutting, pasting, duplicating, resizing, moving, and deleting.
- Setting up WindowMaker animation links.
- Connecting an Industrial Graphic with InTouch tags.
- Selecting an alternate instance of the same parent.
- Selecting an alternate symbol of the same instance.
- Enabling or disabling dynamic size propagation.

Configuring WindowMaker Animation Links of an Industrial Graphic

You configure WindowMaker animation links of an embedded Industrial Graphic in the same way as any other InTouch object. You can only configure animation links that are external to the embedded Industrial Graphic, such as:

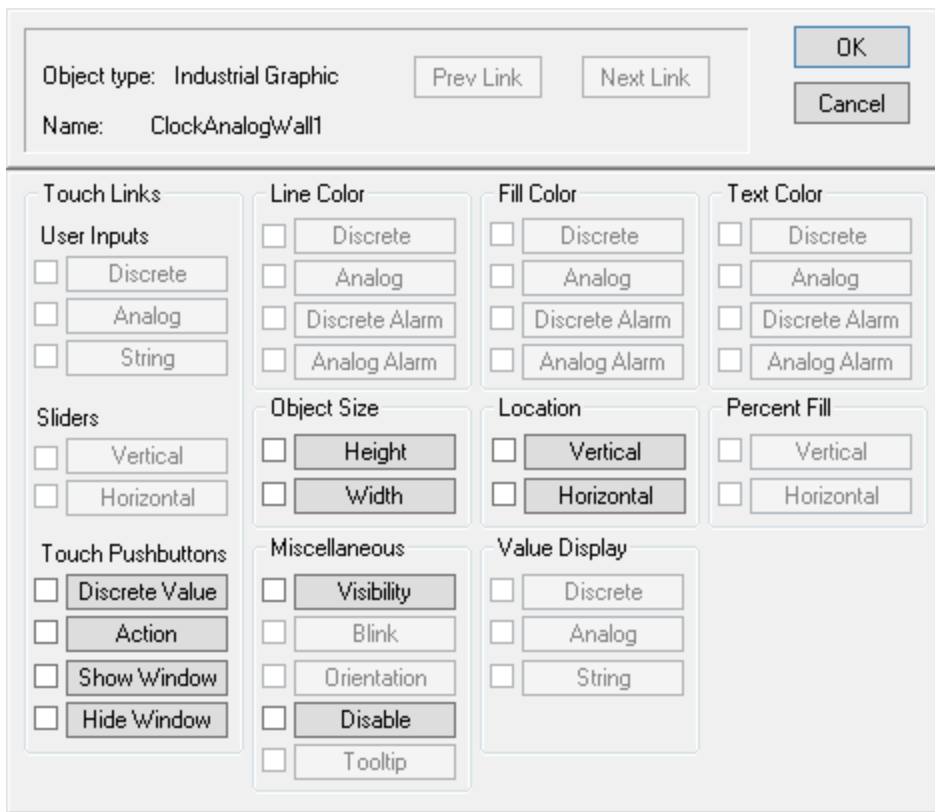
- Object size
- Object location
- Visibility
- Enablement

The animation links configured in WindowMaker are independent from those configured in the Industrial Graphic Editor. They do not inherit the settings of the Industrial Graphic and take precedence when run in WindowViewer.

To configure WindowMaker animation links of an embedded Industrial Graphic

1. Select the embedded Industrial Graphic.

2. On the **Special** menu, click **Animation Links**. The **Animation Links** dialog box appears.

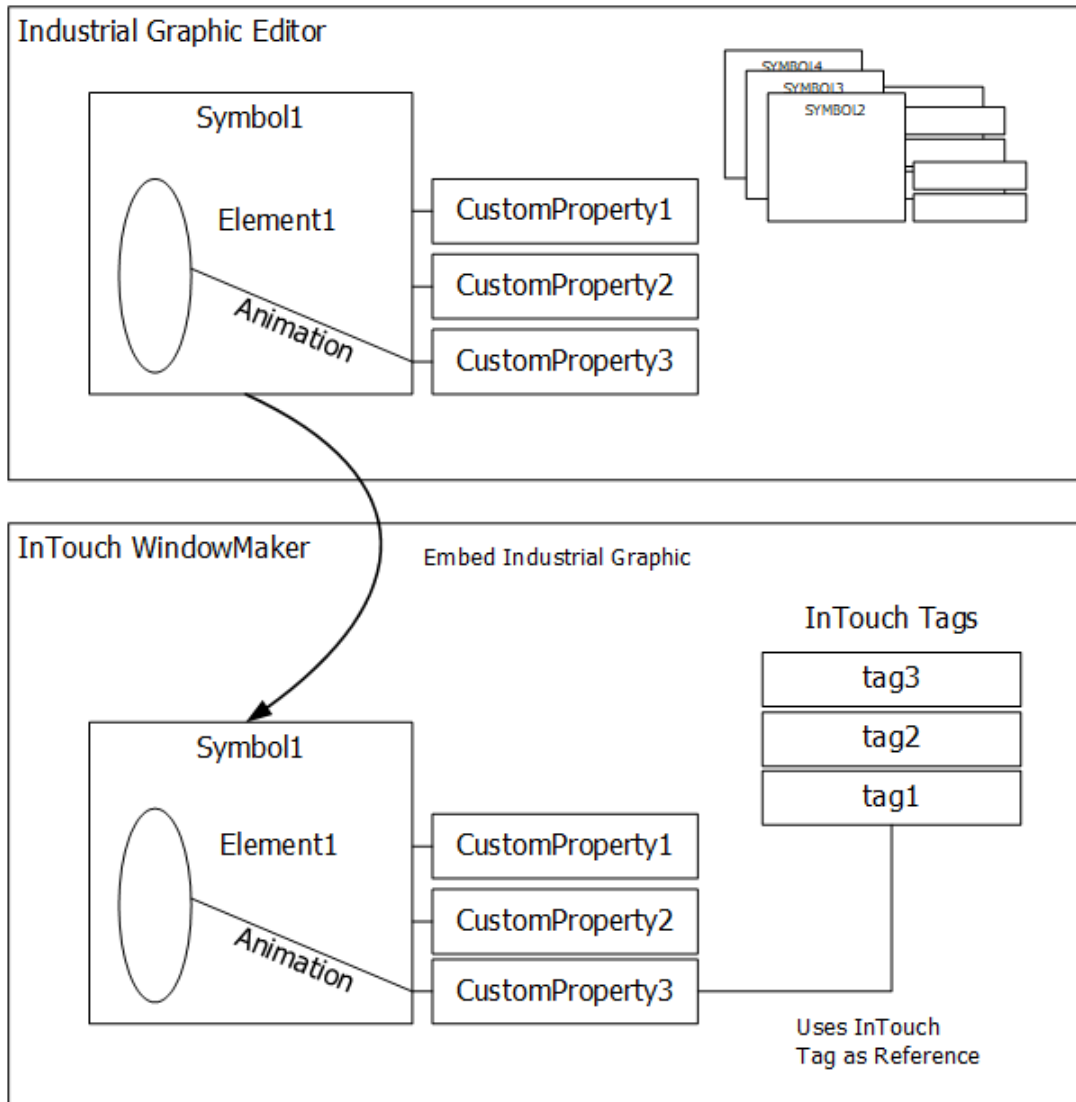


3. Make any changes as you would to any other InTouch object.
4. Click **OK**.

Connecting Industrial Graphics to InTouch Tags

You can connect Industrial Graphics to InTouch tags by overriding the custom properties of an embedded Industrial Graphic. Custom properties expose the properties of an Industrial Graphic to InTouch. Custom properties may or may not be used internally by the animations of the Industrial Graphic.

Connecting Industrial Graphics with InTouch Tags



When you embed an Industrial graphic into an InTouch window, the references in the animation links are converted, as shown in the following table:

Industrial Graphic	Embedded Industrial Graphic
Object.Extension	galaxy:Object.Extension
intouch:Tagname	Tagname

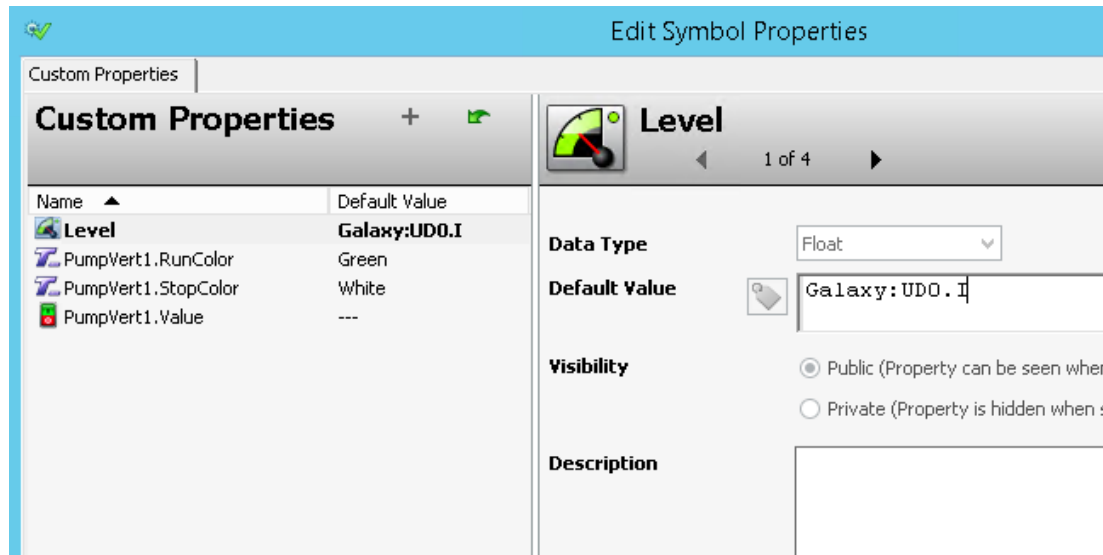
For more information about custom properties, see the *Industrial Graphic Editor User Guide*.

You can select InTouch tags directly from the Galaxy Browser when working within the animation editor or the script editor. When invoked from either of those editors, the Galaxy Browser lists all InTouchViewApp instances for the current Galaxy, and lists all InTouch tags and dot fields for the selected InTouchViewApp instance.

For more information about using the Galaxy Browser to select InTouch tags, see [Browsing Application Server Object Attributes from InTouch](#).

To connect an Industrial Graphic to an InTouch tag

1. Right-click the embedded Industrial graphic in the InTouch window, point to **Industrial Graphic**, and then click **Edit Symbol Properties**. The **Edit Symbol Properties** dialog box appears.



2. Select the custom property you want to connect to an InTouch tag. The configuration for the selected custom property appears in the right pane.
3. In the **Default Value** box, do one of the following:
 - o Type the name of the InTouch tag.
 - o Click the browse button and select a tag from the **Select Tag** dialog box.



4. To restore the original value of the custom property, click **Restore**.
5. Click **OK**. Any animation in the Industrial Graphic that is configured with the selected custom property now uses the InTouch tag value during processing.

Example of Connecting Industrial Graphics to InTouch Tags

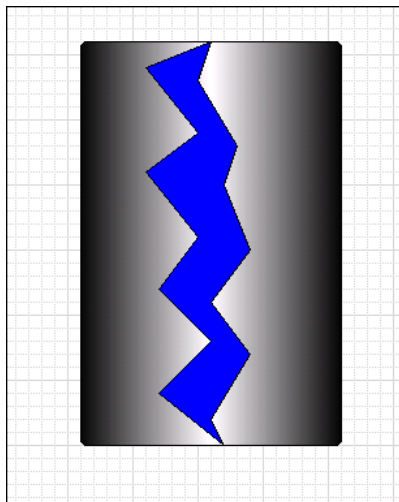
This example shows you how to connect a tank symbol with a percent vertical fill animation created by the Industrial Graphic Editor to an InTouch tag.

You do this in three main steps:

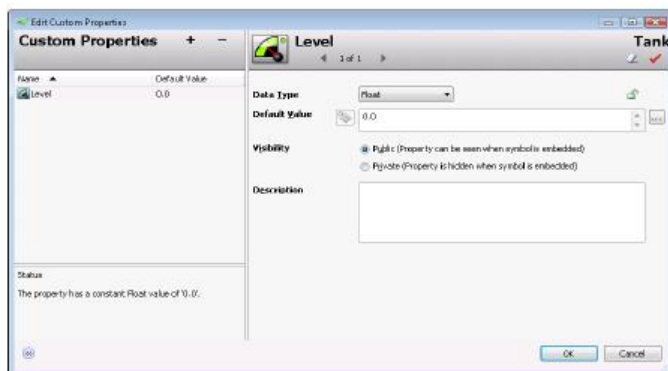
- Create a sample Tank as an Industrial Graphic.
- Create the InTouch application.
- Derive and view the sample tank in WindowViewer.

To create a sample Tank as Industrial graphic

1. In the IDE, create a new symbol called "Tank" and open it in the Industrial Graphic Editor.
2. Paste a rectangle on the canvas. Change its appearance as needed.
3. Create a colored polygon element that represents a cutout of the tank to show the tank level.

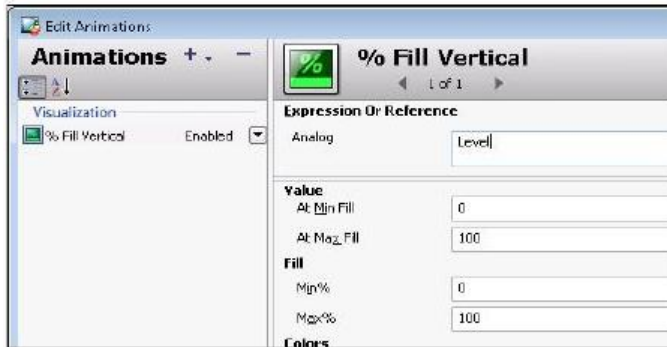


4. Click on the canvas. On the **Special** menu, click **Custom Properties**. The **Edit Custom Properties** dialog box appears.
5. Add a custom property called Level.
6. Configure the property details. Do the following:
 - o In the **Data Type** list, click **Float**.
 - o In the **Default Value** box, type 0.



7. Click **OK**.
8. Double-click on the polygon element that represents the tank level. The **Edit Animations** dialog box appears.
9. Add a **% Vertical Fill** animation.

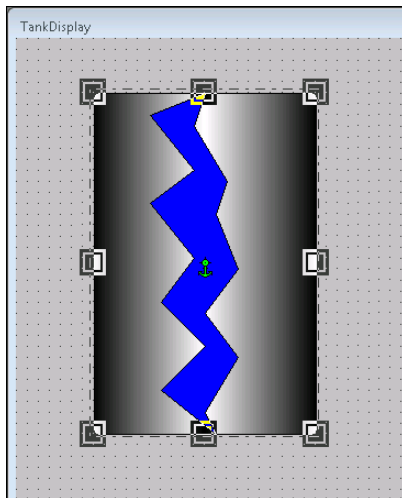
10. In the **Analog** box in the right pane, type the name of the custom property. In this example, it is Level.



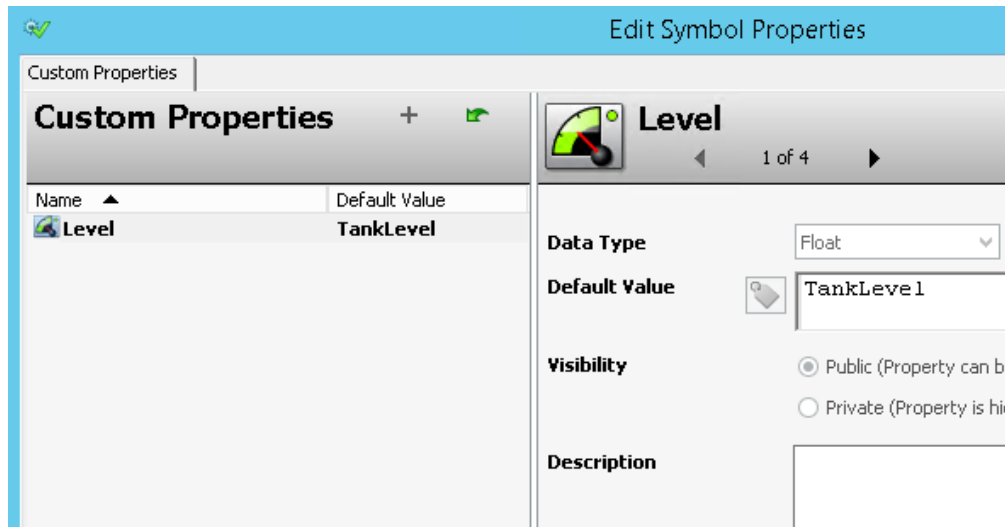
11. Click **OK** to close the **Edit Animations** dialog box.
12. Click **Close and Save** to close the Industrial Graphic Editor.

To create the InTouch application

1. In the ArcestrA IDE, create a new managed InTouch application. For more information, see *Creating a Managed InTouch Application* on page 26.
2. Open the managed InTouch application in WindowMaker.
3. Create a new window called TankDisplay.
4. Open the Tagname Dictionary and create a new real InTouch tag named TankLevel.
5. Click the Embed Industrial Graphic icon. The **Galaxy Browser** dialog box appears.
6. Select the Tank symbol and click **OK**.
7. Click in the window at the new location to embed the symbol. The Tank symbol is embedded into the window.



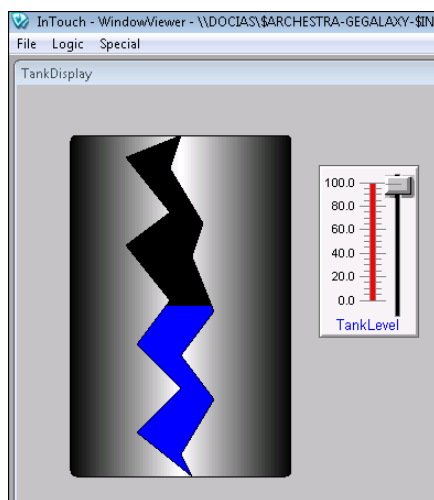
- Right-click the embedded Industrial Graphic, point to **Industrial Graphic "Tank"**, and then click **Edit Symbol Properties**. The **Edit Symbol Properties** dialog box appears.



- Select the custom property Level.
- In the **Default Value** box, type `TankLevel`. You can also click the ellipsis button to browse for TankLevel using the **Select Tag** dialog box.
- Click **OK**.
- Paste a slider on the window and configure it with the local InTouch tag TankLevel.
- Save the changes and close WindowMaker. The managed InTouch application is automatically checked in.

To derive and test the sample tank

- In the ArcestraA IDE, derive an instance of the managed InTouch application and deploy it together with a WinPlatform and a ViewEngine instance.
- Open the InTouch Application Manager and start the listed application in WindowViewer. The tank and the slider appear on the window in WindowViewer.
- You can move the slider to change the tank level.



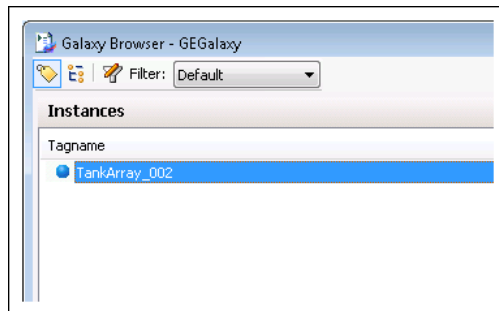
Selecting Alternate Instances from the Same Parent

You can redirect all references in the Industrial Graphic to an alternate instance. The appearance of the Industrial Graphic does not change, except possibly for its size, as it is not possible to edit inherited Industrial Graphics.

You cannot use this function with Industrial Graphics that originate from the Graphic Tool box, as they are not associated with any object.

To select an alternate instance from the same parent

1. Right-click the embedded Industrial Graphic, point to **Industrial Graphic**, and then click **Select Alternate Instance**. The **Galaxy Browser** dialog box appears. It shows all other instances that have the same parent.



2. Select an alternate instance from the list and click **OK**. The references of the Industrial Graphic are updated to point at the new alternate instance.

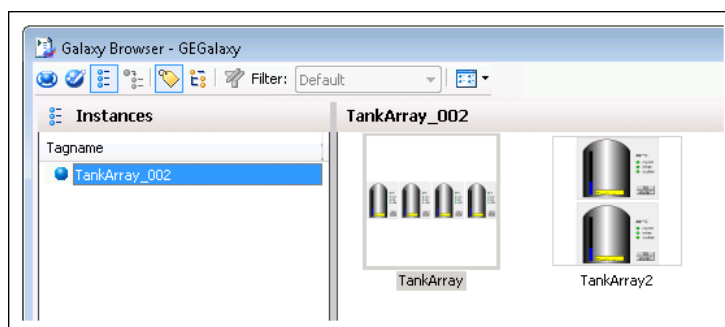
Selecting Alternate Symbols of the Same Instance

You can replace an embedded Industrial Graphic with another Industrial Graphic belonging to the same instance.

You cannot use this function with Industrial Graphics that originate from the Graphic Toolbox, as they are not associated with any object.

To select an alternate Industrial Graphic from the same instance

1. Right-click the embedded Industrial Graphic, point to **Industrial Graphic**, and then click **Select Alternate Symbol**. The **Galaxy Browser** dialog box appears.



2. Select an alternate symbol in the right pane and click **OK**.
3. If the alternate symbol is a different size than the original symbol, a message appears prompting if you want to keep the size of the currently embedded Industrial Graphic. Do any of the following:
 - Click **Yes** to keep the current size of the selected Industrial Graphic.
 - Click **No** to update the size of the selected Industrial Graphic to the size of the new Industrial Graphic.

In both cases, the embedded Industrial Graphic is updated with the new alternate Industrial Graphic.

Substituting Strings in Industrial Graphics

You can substitute all strings in an embedded Industrial Graphic with alternate strings.

To substitute all strings in an embedded Industrial Graphic

1. Select the embedded Industrial Graphic.
2. On the **Special** menu, point to **Substitute**, and then click **Substitute Strings**. The **Substitute Strings** dialog box appears.
3. Type new strings in the corresponding boxes and click **OK**. The strings in the embedded Industrial Graphic are substituted by the new alternate strings.

Substituting References in Industrial Graphics

You can substitute all references in an embedded Industrial Graphic with alternate references.

To substitute all references in an embedded Industrial Graphic

1. Select the embedded Industrial Graphic.
2. On the **Special** menu, click **Substitute Tags**. The **Substitute Tags** dialog box appears.
3. Type new references in the corresponding boxes and click **OK**. The references in the embedded Industrial Graphic are substituted by the new alternate references.

Enabling or Disabling Dynamic Size Change Propagation of Embedded Industrial Graphics

You can enable or disable the dynamic size change propagation of embedded Industrial Graphics.

If the dynamic size change propagation is enabled, any change to the absolute anchor point position of the source symbol:

- Leaves the anchor points of its embedded symbols unchanged.
- Moves the embedded symbol position accordingly.

If the dynamic size change propagation is disabled, any change to the absolute anchor point position of the source symbol:

- Moves the anchor points of its embedded symbols accordingly.
- Leaves the embedded symbol position unchanged.

For more information about dynamic size propagation, see the *Industrial Graphic Editor User Guide*.

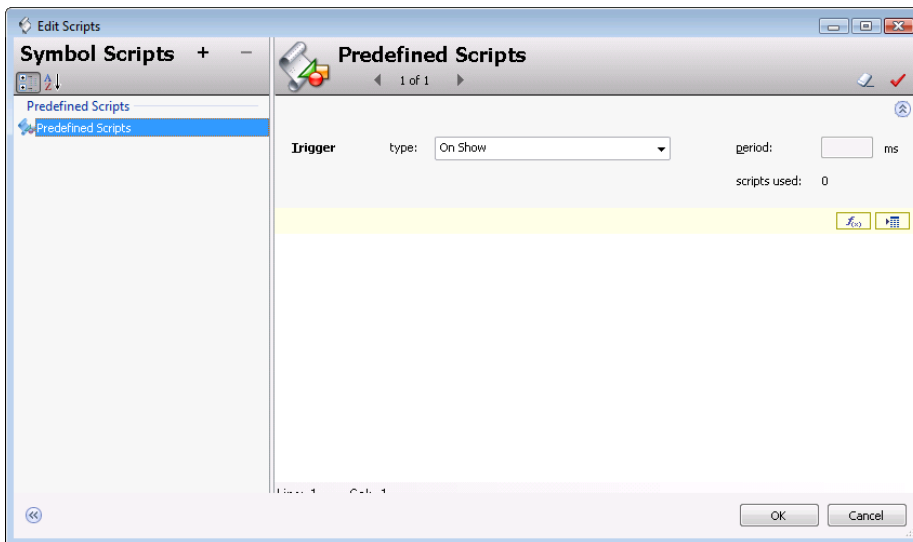
To enable or disable dynamic size change propagation of an embedded symbol

- Right-click the embedded Industrial Graphic, point to **Industrial Graphic**, and then check or uncheck **Dynamic Size Change**.

Associating Scripts with ArcestrA Symbols

You can associate scripts with the ArcestrA symbols placed in your InTouch applications. Scripts will animate your symbols or modify their elements while an InTouch application is running.

After selecting an ArcestrA symbol embedded in an InTouch window, you select the expression or reference whose value triggers the script to run. You use the ArcestrA Symbol Editor to select the trigger that runs the script.

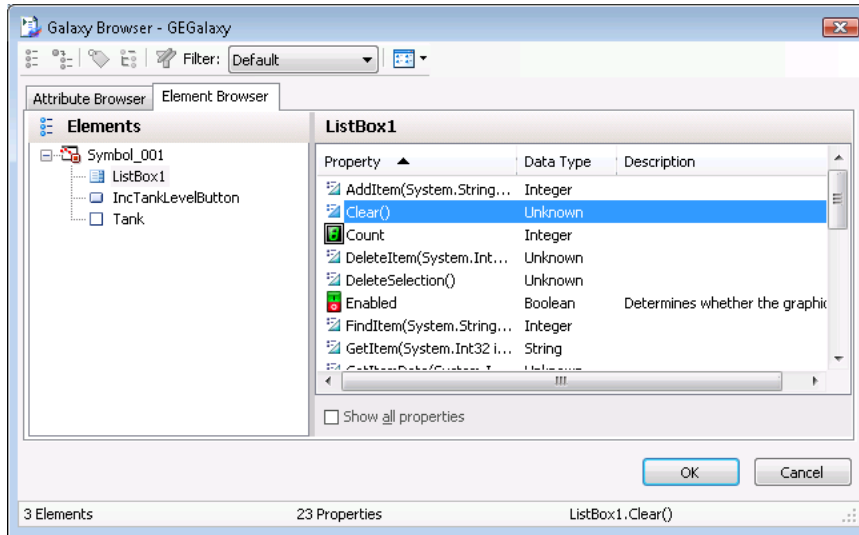


- A symbol script can be either predefined or named. A predefined script runs based on the status of the symbol in the running application. A named script runs when an expression or references associated with the script changes state.
- Predefined scripts are similar to InTouch HMI window scripts. Based upon how you configure the script trigger, a predefined symbol script can run:
 - Once after the symbol opens or is shown.
 - Periodically while the symbol appears in the running application.
 - Once after the symbol closes or is hidden.
- Based upon how you configured the script, a named symbol script can run when the trigger values or expressions are true, false, or transitioning between true and false states. Also, a named symbol script can run when data associated with the trigger expression changes value or its quality state changes value.

Using Methods in ArcestrA Symbol Scripts

Some ArcestrA elements support script methods. These methods can perform various functions on the elements themselves at run time. Typically, you configure an action script to access these methods.

You can see the supported properties and methods of any ArchestrA element by opening the Galaxy Browser and selecting the element.



- You can run a script containing an Edit Box control method to load text from a file to the control during run time. You can also run a script to save the current contents of the Edit Box control to a file during run time.
- Edit Box control methods are declared in scripts in the following form:

```
ControlName.SaveText ( FileName );
```

where *ControlName* is the name of the Edit box control and *FileName* is the name of the file containing the contents of the control to be loaded or saved. In the example above, SaveText is the name of the method to save the contents of the Edit Box control to a file.

- You can use a script containing the methods of the Combo Box and List Box controls to change the contents of their lists during run time. List items can be added, deleted, or modified.
- Combo Box and List Box control methods are declared in scripts similar to the Edit Box control.

Editing Industrial Graphics in the Industrial Graphic Editor

You can edit embedded Industrial Graphics using the Industrial Graphic Editor that is integrated in the ArchestrA IDE. You do this by:

1. Opening the embedded Industrial Graphic in Industrial Graphic Editor, modifying the symbol, and then saving it. The Industrial Graphic is updated in the template, instance or in the Graphic Toolbox.
For more information, see *Editing an Embedded Industrial Graphic* on page 58.
2. Accepting the changes in WindowMaker by clicking on the Symbol Changed icon in the right bottom corner of the status bar. The changes are then propagated to WindowMaker.
For more information, see *Accepting Symbol Changes in WindowMaker* on page 59.

Editing an Embedded Industrial Graphic

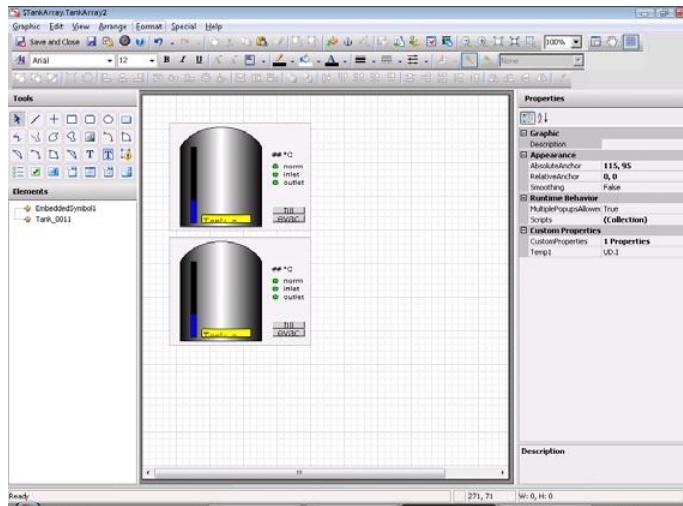
You can easily edit an embedded Industrial Graphic from within InTouch WindowMaker.

If the source symbol or its embedded symbols are used by other managed InTouch applications, the changes are propagated to the embedded symbols and the InTouch applications.

Any changes you make to the Industrial Graphic are not propagated to the embedded Industrial Graphics automatically. For more information, see *Accepting Symbol Changes in WindowMaker* on page 59.

To edit embedded Industrial Graphics using the Industrial Graphic Editor

1. Right-click the embedded Industrial Graphic, point to **Industrial Graphic**, and then click **Edit Symbol**. The **Industrial Graphic Editor** with the Industrial Graphic appears.



2. Edit the Industrial Graphic. For more information, see the *Creating and Managing Industrial Graphics User's Guide*.

Editing an Industrial Graphic includes applying an Element Style to the symbol. For more information about using Element Styles, see the *Application Server User Guide*.

3. Click **Close and Save**. The changes are saved and the Industrial Graphic Editor closes.
4. If the ArcestrA object is hosted by an instance or template, save and close the object editor in the IDE.

Accepting Symbol Changes in WindowMaker

If an Industrial Graphic changes and you are currently using it in an InTouch window in WindowMaker, you can immediately accept the change in WindowMaker.

If you do not accept the change immediately, the symbol is updated in WindowMaker when the window is closed and opened again.

The symbol is also updated if you switch to WindowViewer to test the application or if you open the application in WindowViewer on a target node.

To immediately accept symbol changes in WindowMaker

- For opened InTouch windows that contain embedded Industrial Graphics, do one of the following:
 - Double-click the Symbol Changed icon in the bottom right corner of the status bar.
 - Close the InTouch window containing the embedded Industrial Graphic and open it again.

In both cases, the changes made to the Industrial Graphic are reflected in the embedded symbol in the InTouch window.

Accepting Symbol Changes in WindowViewer

If an Industrial Graphic changes and you are currently testing it in WindowViewer, you can accept the change in WindowViewer.

For more information about testing embedded Industrial Graphics, see *Testing Industrial Graphics in WindowViewer* on page 60.

To accept symbol changes in WindowViewer when testing

- Do one of the following:
 - Fast-switch to WindowMaker and then back to WindowViewer.
 - Close the InTouch window and open it again. This only works if the **Always load windows from disk** option is checked in the **WindowViewer Properties** dialog box.

In both cases, the changes made to the Industrial Graphic are reflected in the embedded Industrial Graphic in the InTouch window.

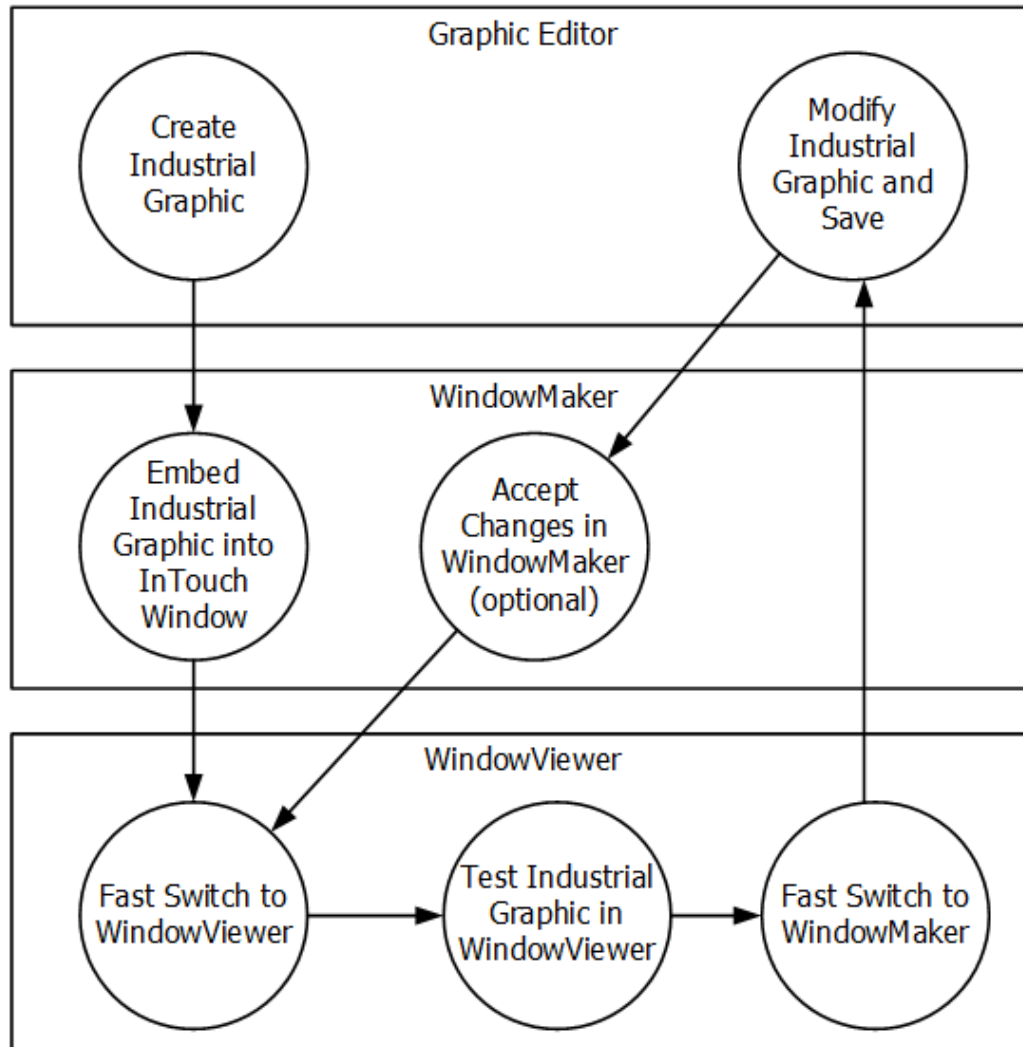
Testing Industrial Graphics in WindowViewer

You can test the embedded Industrial Graphic in an InTouch window without having to derive an InTouchViewApp instance. You can test an embedded Industrial Graphic if you previously:

- Created an Industrial Graphic in the Graphic Toolbox, in an automation template or automation instance.
- Created a managed InTouch application.

- Embedded the Industrial Graphic in the managed InTouch application.

Developing and Testing Industrial Graphics



To test embedded Industrial Graphics in WindowViewer

1. In WindowMaker, click **Runtime** to switch to WindowViewer.
2. Test the animations, behavior, and appearance of the embedded symbol as you would in a normal run-time environment.
3. You can fast-switch back to WindowMaker to make changes to the way the Industrial Graphic is embedded.

To change and test embedded Industrial Graphics in WindowViewer

1. Make changes to the Industrial Graphic in the Industrial Graphic Editor.
2. Save the changes.

If WindowViewer is open, then after a short while, a message appears in WindowViewer prompting you to accept the changes. Click **Yes**.

If WindowViewer is closed, then you can fast-switch from WindowMaker to WindowViewer to see your changes. It is faster to close WindowViewer and to re-open WindowViewer than to wait for the changes to propagate to the open WindowViewer session.

Estimating Graphic Performance

You can gauge the performance of an Industrial Graphic at run time using the Graphics Performance Index (GPI).

This tool calculates the estimated call up time when the symbol you are building in the Industrial Graphic Editor is launched at run time. Call up time pertains to the interval between the user or system requesting the pertinent graphic to appear and the graphic appearing on the screen with live data. The calculation is based on contents of the symbol launched in the InTouch WindowViewer at run time, and on a best case time estimate with completed external reference subscriptions.

For more information about using GPI, see "Estimating Graphic Performance" in the *Industrial Graphic Editor User Guide*.

Creating New Automation Instances

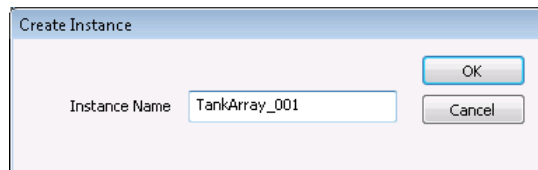
You can quickly create a new instance of the AutomationObject that hosts an embedded Industrial Graphic. This way, you do not need to switch to the Arcestra IDE and derive an instance.

The new instance is unassigned, so you need to assign and deploy it in the Arcestra IDE before you can use it.

You can only create new Automation instances for Industrial Graphics hosted by templates or instances. Industrial Graphics in the Graphic Toolbox do not have this functionality.

To create a new Automation instance

1. Right-click the embedded Industrial Graphic, point to **Industrial Graphic**, and then click **New Instance**. The **Create Instance** box dialog box appears.



2. In the **Instance Name** box, type a name for the instance.
3. Click **OK**. An instance is automatically derived from the template with the name you specify.

CHAPTER 4

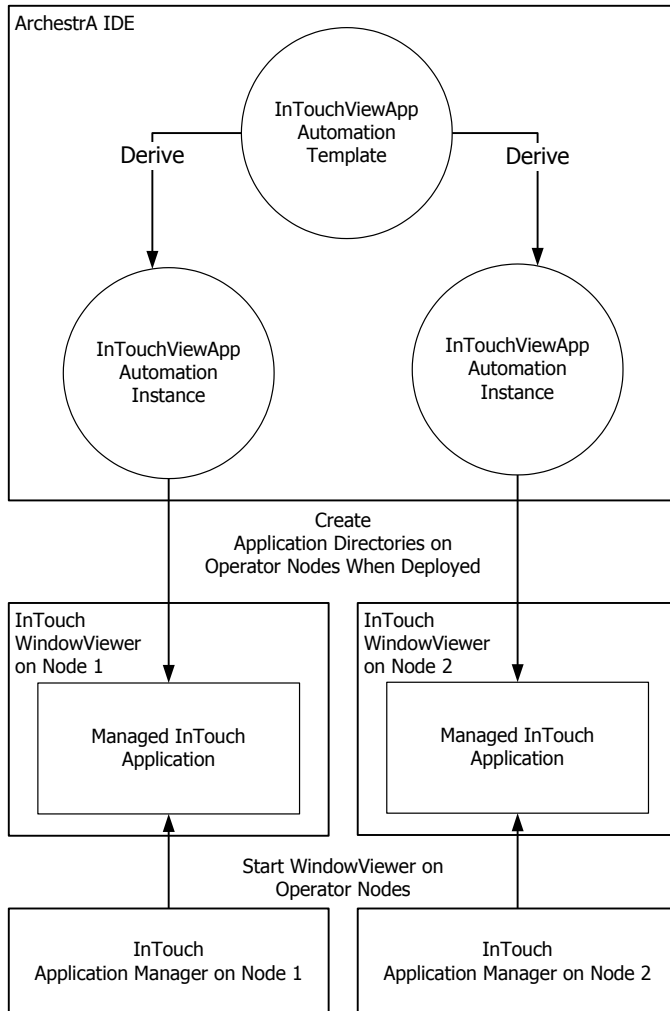
Using Managed InTouch Applications at Run Time

About Using Managed InTouch Applications at Run Time

You can run managed InTouch applications on remote nodes by deploying InTouchViewApp instances to those nodes.

You can also deploy changes of the InTouch application and contained Industrial Graphics to these nodes and select whether to accept or decline the changes for each node.

The following graphic shows how managed InTouch applications are deployed to run-time nodes.



Deploying a Managed InTouch Application

You can deploy a managed InTouch application from the ArcestrA IDE to the local node or a remote node. After you deploy the application, you can run it in WindowViewer on the remote nodes.

Note: WindowViewer can run only one application at a time. If a platform is deployed on a local node, the configured styles of the Galaxy will take precedence over any configured styles in any other standalone or managed applications.

Deploying a InTouchViewApp Object for the First Time

The first time you deploy an InTouchViewApp object, the associated InTouch application is copied to the node of the platform that hosts the object. This is called the operator node.

To deploy a managed InTouch application

1. Open the ArcestrA IDE.
2. Select the instance of the InTouchViewApp for which you want to deploy the managed InTouch application.
3. On the **Object** menu, click **Deploy**. The **Deploy** dialog box appears.
4. Click **OK**. The complete InTouch application is copied to the operator node.

Deploying Changes to a Managed InTouch Application

You can change a managed InTouch application by:

- Changing the references, content, or size of an Industrial Graphic that is used in a managed InTouch application.
- Changing the managed InTouch application itself by opening WindowMaker from the InTouchViewApp template.

In both cases, when you save the changes, the changes are propagated from the updated template to the derived instances. The changes are identified by the Pending Changes icon.

The changes are not immediately reflected in a running WindowViewer session. The operator of each node can select to accept or decline the changes. For more information, see *Accepting New Application Versions at the Operator Node* on page 65.

To deploy changes to a managed InTouch application

1. Open the ArcestrA IDE.
2. Select the instance of the InTouchViewApp for which you want to deploy the changes of a managed InTouch application.
3. On the **Object** menu, click **Deploy**. The **Deploy** dialog box appears.
4. Click **OK**. The changes are copied to the operator node.

Starting a Managed InTouch Application

From the operator node, you can start Application Manager and select the managed InTouch application you want to run.

You can also set the resolution in Application Manager to run the managed InTouch application in different resolutions.

To start the managed InTouch application

1. On the node the InTouchViewApp object is deployed to, start the InTouch Application Manager.

2. In the application list, select the managed InTouch application you want to run in WindowViewer.
3. Click the WindowViewer icon. The application starts in WindowViewer after a short while.

To set the dynamic resolution conversion settings

1. Open the InTouch Application Manager.
2. On the **Tools** menu, click **Node Properties**. The **Node Properties** dialog box appears.
3. Click the **Resolution** tab.
4. Select the **Allow WindowViewer to dynamically change resolution** check box.
If **Allow WindowViewer to dynamically change resolution** is unchecked, the managed application runs with the resolution in which it was developed.
5. Configure how you want to run the application. Do any of the following:
 - Click **Use application resolution** to run the managed application at the same resolution as it was developed in.
 - Click **Convert to screen video resolution** to convert the managed application so that it can run with the screen resolution.
 - Click **Custom resolution** to convert the managed application to a specified resolution.
6. Click **OK**.

Controlling the WindowViewer Restart Wait Period When Deploying Managed Applications

You can control the delay that occurs before WindowViewer is restarted when managed applications that require a restart are deployed. Delays are implemented to ensure the proper operation of the alarm subsystem.

The WindowViewer restart delay is controlled by the following parameters in the win.ini file, which is located in the local C:\Windows folder. All parameter values are in seconds.

- `ViewManagedRestartWaitPeriod=0`
This parameter controls the WindowViewer restart wait period. The default is 0, or no wait period.
- `ViewNADShutdownWaitPeriod=30`
For applications managed using Network Application Development (NAD), this parameter controls the delay before NAD is shutdown. The default is 30 seconds.
- `ViewNADRestartWaitPeriod=90`
For applications managed using NAD, this parameter controls the delay before NAD is restarted. The default is 90 seconds.

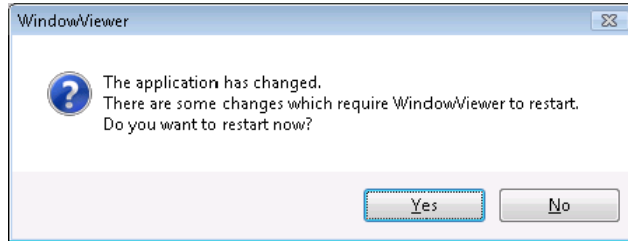
Accepting New Application Versions at the Operator Node

If the managed InTouch application is changed and its associated InTouchViewApp instance is deployed, you can select to accept or decline the changes at the run-time node.

A message appears prompting you if you want to accept the changes to the managed InTouch application:

- When you start WindowViewer from the InTouch Application Manager.

- While WindowViewer is running.



Depending on the nature of the change, you may be prompted to restart the WindowViewer application, or just reload it. You can also set the behavior of WindowViewer for application changes, such as:

- How WindowViewer accepts or rejects these changes.
- How frequently WindowViewer should remind you to reload or restart WindowViewer when changes are pending.

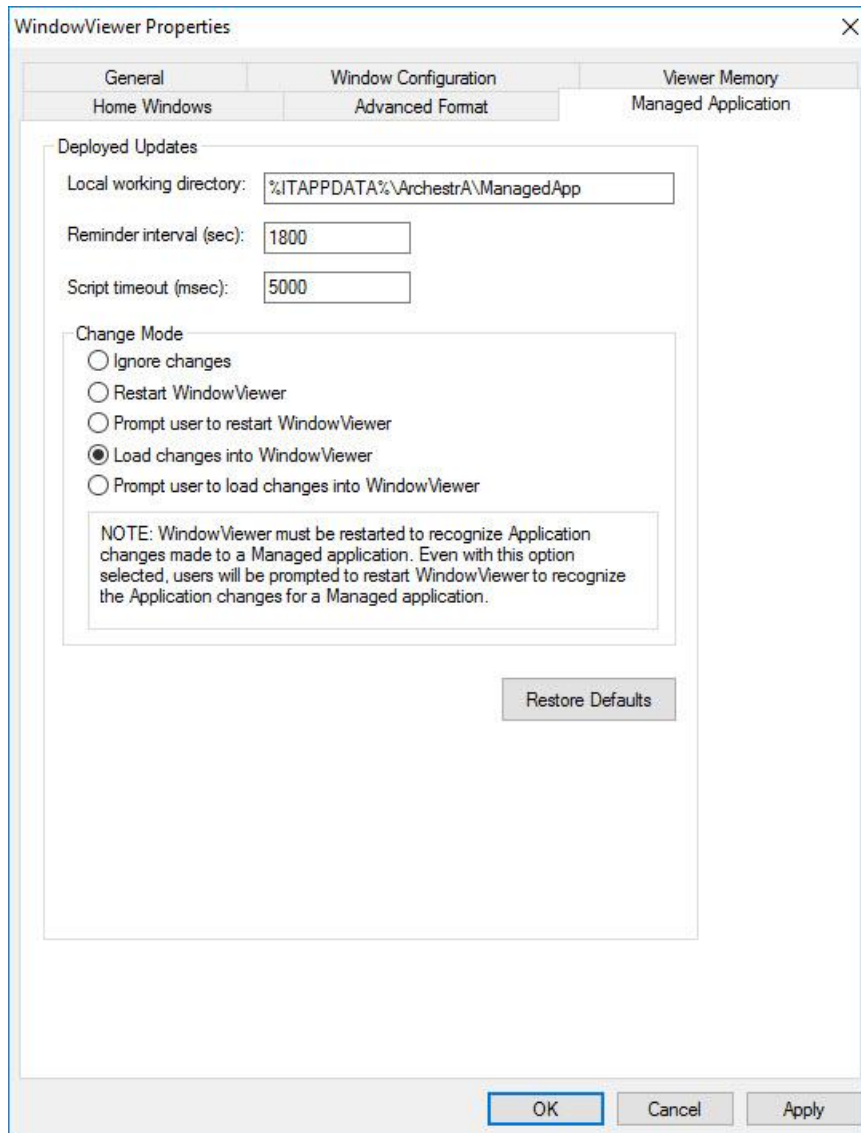
To accept new application versions at the operator node

- Click **Yes**. The changes to the managed InTouch application are copied to the operator node and WindowViewer restarts or reloads.

To set the behavior of WindowViewer for application changes

1. Open the managed InTouch application in WindowMaker.
2. On the **Special** menu, point to **Configure**, and then click WindowViewer. The WindowViewer **Properties** dialog box appears.

3. Click the **Managed Application** tab.



4. In the **Change Mode** area, configure how WindowViewer responds when changes are deployed. Do any of the following:
- Click **Ignore Changes** to have WindowViewer ignore any deployed changes. You can manually configure the RestartWindowViewer() and ReloadWindowViewer() script functions to accept the changes depending on the \$ApplicationChanged system tag.
 - Click **Restart WindowViewer** to have WindowViewer restart automatically.
 - Click **Prompt user to restart WindowViewer** to have WindowViewer prompt you to restart WindowViewer.
 - Click **Load changes into WindowViewer** to have WindowViewer load the changes automatically.
 - Click **Prompt user to load changes into WindowViewer** to have WindowViewer prompt you to load changes into WindowViewer.

Note: If you select the **Load changes into..** or **Prompt user to load..** options, WindowViewer must be restarted to recognize changes to a managed application. Even with these options selected, you will be prompted to restart WindowViewer.

5. In the **Reminder Interval (sec)** box, type how often, in seconds, the user is reminded to load or restart the changes into WindowViewer. This option is only available when the applicable change mode has been set. Set the interval to 0 to not remind the user again.
6. Click **OK**.

To set the default behavior for WindowViewer

1. Open the managed InTouch application in WindowMaker.
2. On the **Special** menu, point to **Configure**, and then click WindowViewer. The **WindowViewer Properties** dialog box appears.
3. Click the **Managed Application** tab.
4. Click **Restore Defaults**. The settings are reset to their default values.
5. Click **OK**.

Running ArcestrA Scripts in Embedded Industrial Graphics

When you run a managed InTouch application in WindowViewer, any ArcestrA scripts associated with elements or symbol scripts themselves run as expected.

However, some scripts contained in symbols can run for a long time and stop you from interacting with other InTouch elements.

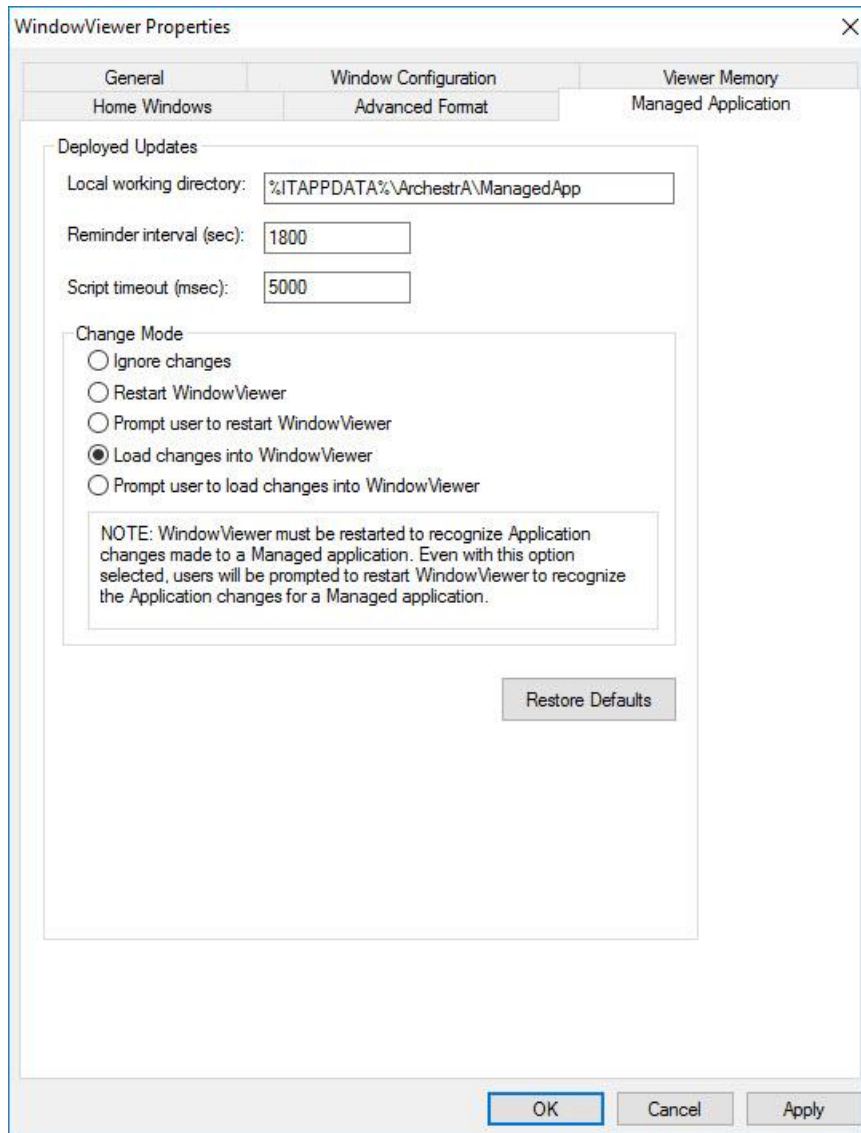
To prevent this, you can set a script time-out that is applicable for all scripts in the managed InTouch application. A script time out stops script execution and returns the control to the operator.

By default, scripts time out after 5 seconds.

To set the script time-out

1. Open a managed InTouch application in WindowMaker.
2. On the **Special** menu, click **Configure**, and then **WindowViewer**. The **WindowViewer Properties** dialog box appears.

3. Click the **Managed Application** tab.



4. In the **Script timeout (msec)** box, type a value in milliseconds.
5. Click **OK**.

Deploying the InTouchViewApp Object in a Terminal Services Environment

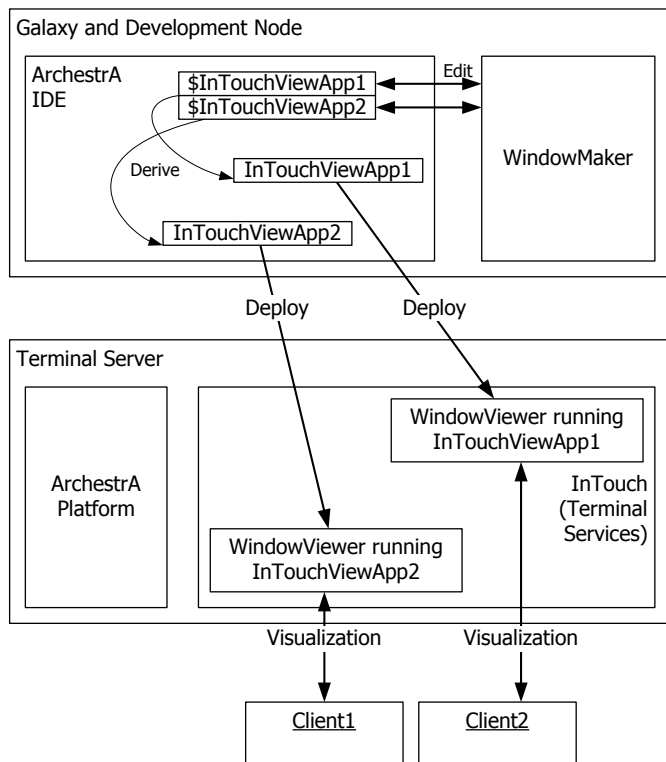
You can run managed InTouch applications in a Terminal Services environment. The main advantage of this architecture is that you can run multiple InTouch applications on one computer at the same time.

To do this, you must:

- Use InTouch Terminal Services Edition.
- Deploy each InTouchViewApp instance with its own ViewEngine host, if you have several InTouchViewApplication instances on the terminal server node.

- Run each managed InTouch application in its own terminal services client session.

Managed InTouch Applications in a Terminal Services Environment



Note: Only one InTouchViewApp object needs to be deployed on the terminal server node to make the application available to multiple terminal session clients. There is no need to deploy a separate InTouchViewApp object on the terminal server node for each client that will use the application.

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