

COMPANY CONFIDENTIAL

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View Center Designer User Guide

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About This Guide

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This document describes InControlWare's View Center and how it is used to monitor a material handling system.

1.1 InControlWare

InControlWare is a suite of software products designed to manage the operation of material handling systems and related resources in a warehouse, distribution center, or fulfillment center. It includes an intuitive user interface that is based on standard Microsoft Windows technology and leverages that technology to provide a complete front end for the systems that are being managed.

InControlWare's user interface is built around a common framework that employs menus, a toolbar, and a status bar surrounding a multi-panel display. This display area is managed with user tabs that present information based on a particular function or application within InControlWare.

The InControlWare framework can be uniquely configured to meet the needs of each client system and supports dynamic features that are specific to each station and user. Tabs, menu items, and other display features can be configured differently to meet the needs of each operating station as well as to provide or restrict access for individual users.

1.2 View Center

View Center displays a two- or three-dimensional graphical model of the material handling system. It provides an easy-to-use overview of the system, making it a valuable troubleshooting tool. It provides an excellent graphical perspective to users that are new or unfamiliar with the subtleties of a facility. All of the conveyors and many of the devices that are used in a system are displayed on the screen. Different colors are used to represent conveyor and device status. You can pan and zoom the model to view detailed areas of the system.

1.3 Documentation Conventions

Many typographical conventions are used to distinguish between the different kinds of information presented in this guide, as follows:

Table 1-1 Documentation Conventions

Convention	Description
Bold	Used to identify menu selections, toolbar selections, and section references.
<i>Italic</i>	In paragraph text, italic identifies the titles of documents that are being referenced. When used in conjunction with the monospace text described below, italic identifies a variable that should be replaced by the user with an actual value.
monospace text	Text that represents programming code.
<i>monospace italic text</i>	Variables in programming code.
CTRL+X	A combination of keystrokes that are pressed simultaneously.
Function Function	A path to a function or dialog box within an interface. For example, "Select File Open " indicates that you should select the Open function from the File menu.
() and	Parentheses enclose optional items in command syntax. The vertical bar separates items in a list of choices. For example, any of the following four items can be entered for this command: persistPolicy (Never OnTimer OnUpdate NoMoreOftenThan)

1.3.1 Notes, Tips, and Important Information

The following callouts and icons are used to highlight information throughout this guide:



Note or Tip

A Note highlights related information or information that is tangential to the topic being discussed. A Tip highlights useful information that can be used to simplify the tasks that are being discussed.



Important

Important callouts are used to highlight information of great significance or value that the reader should be certain to know before proceeding.

Notes, Tips, and Important callouts are not safety notices.

View Center Concepts

2

View Center introduces a number of important features and concepts to InControlWare. Where most of the panels in InControlWare deal with system information using HMI-style status screens, View Center provides a graphical model of the material handling system, allowing you to see the system as it appears on the floor from the InControlWare interface. At a glance, you can view system status for individual conveyor segments, logical areas such as shipping lines, and electrical devices. Search capabilities are included so that you can quickly find the conveyor or device that you would like to view.

All of the conveyors and devices that are controlled by and reporting status to the machine controller are represented in the View Center model. Colors are used to represent conveyor and device status. Gray items are not currently reporting status.

As you work within View Center, you will notice a number of new terms, concepts, and features. Terms and concepts that are unique to View Center are:

- Drag and Drop Alarms
- Areas
- Camera Views
- User Views

These concepts are discussed throughout the remainder of this chapter. Features that are unique to View Center are discussed throughout the remainder of this guide.

2.1 Adding View Center to a Project View

To add a View Center panel to a project view, you'll need to create a split panel. The VCTab class and VCToolAccordion class should then be added to the panel. Both of these classes can be found in the ViewCenter.dll. If you would also like to add the Alarm Viewer to the panel, use the AlarmViewer class in the CommandCenter.dll.

2.2 Designer vs. Runtime

Two versions of View Center are available: Designer and Runtime. View Center Designer is used by project engineering to set-up the View Center model. It includes editing tools that are used to define items and areas in the model. View Center Runtime is used by the customer. It includes tools that allow the customer to change the orientation of the model but they cannot make changes to the model itself.

This guide describes View Center Designer. For information about View Center Runtime, refer to the *View Center Runtime User Guide*.

2.2.1 Swapping Between Designer and Runtime

The Project Select SnapIn is used to swap between the Designer and Runtime versions of View Center. If the Project Select SnapIn appears in InControlWare's main toolbar, View Center Designer is active. If the Project Select SnapIn does not appear in InControlWare's main toolbar, View Center Runtime is active. InControlWare's user permissions should be used to limit users' ability to add and remove the snapin.

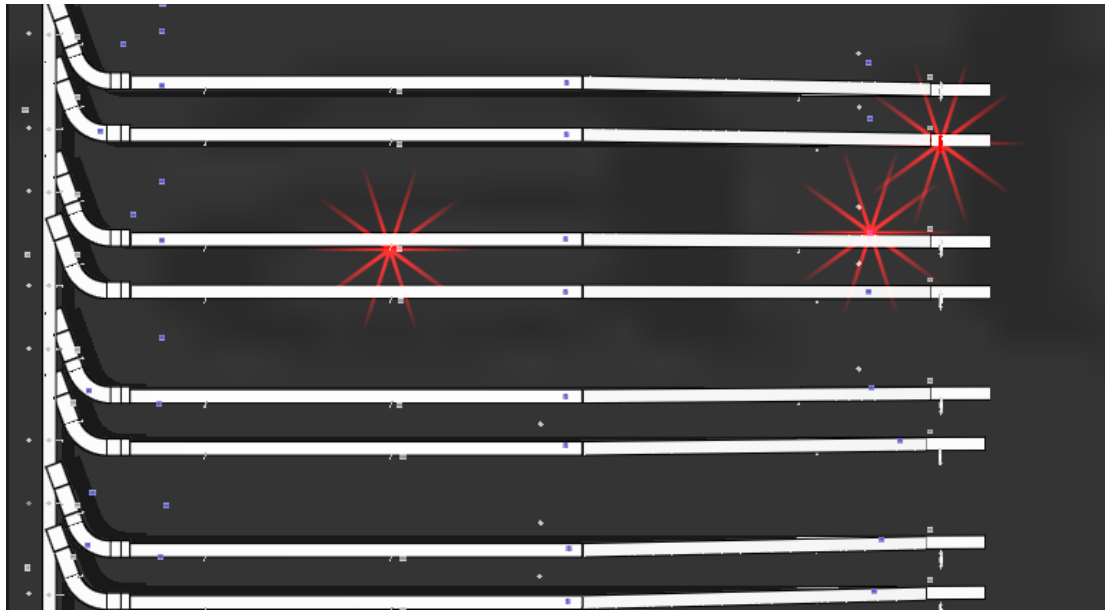
To populate the View Center model, select a project from the Project Select SnapIn's dropdown list.

2.3 Drag and Drop Alarms

Although alarms and events are standard InControlWare features, View Center introduces some additional functionality. If a conveyor or device is in an alarm state, it will be highlighted with a starburst in the model. If the current view does not show the faulted equipment, and if the Alarm Viewer panel has been configured to display with View Center, you can drag the alarm from the Alarm Viewer into the model. This causes View Center to pan the view so that the starburst appears in the center of the window.

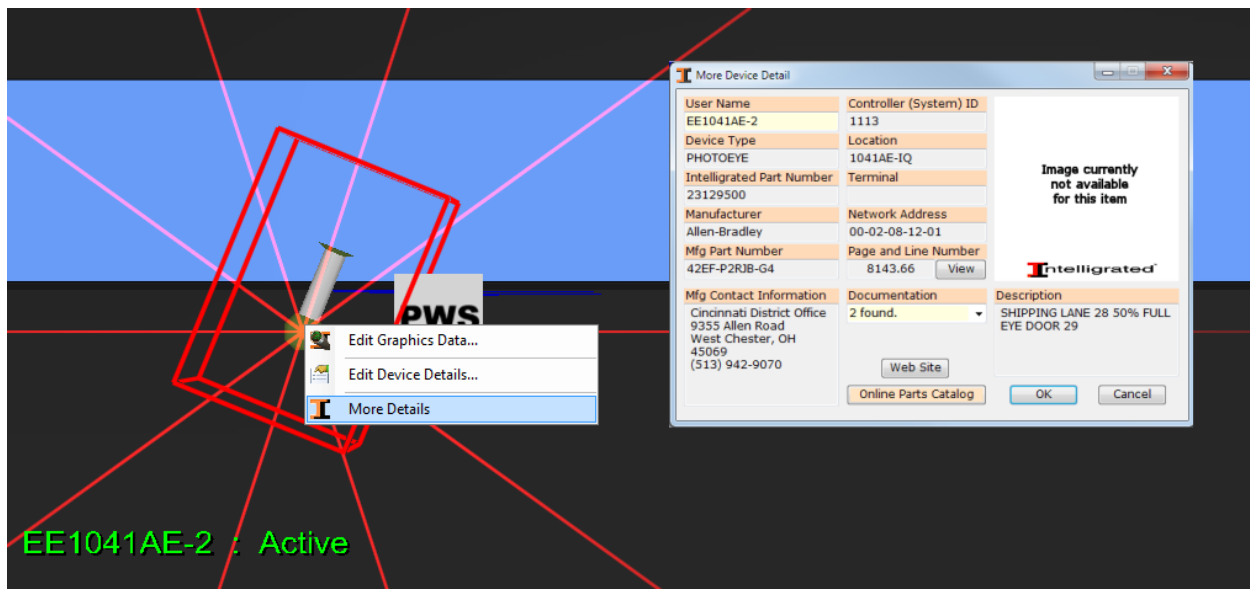


Figure 2-1 View Center Alarms



You can then zoom in on the component and right click on it to view further details.

Figure 2-2 Device Details



2.4 Areas

Areas are logically-grouped, viewable segments of the material handling system. These segments can:

- share common properties (e.g., common control sources).
- represent physically related components (e.g., a main merge subsystem).

Areas can be defined at various times during the project development process and for a variety of reasons. For example, engineers can define areas while they are building a project to accelerate the development process. The use of areas focuses in on and displays only the portion of the system that is of current interest. In addition, a defined area can be captured as a user view so that the user can return to that viewpoint at any time.

There are several types of areas that can be defined.

Table 2-1 Area Types

Type	Description
Design Areas	Design Areas are created when the project's ICAD information is imported into InControlWare. They identify mechanical areas in the model. The areas are named during the ICAD import and cannot be changed. New Design Areas cannot be created in View Center.
Functional Areas	Functional areas are electrical areas in the model. They identify portions of the system that share electrical control. This includes control panels, subsystems, and Emergency Stops (EStops).
Operational Areas	Operational Areas are working areas in the model. They identify portions of the system that a system operator might want to view as the system is monitored and controlled on a daily basis. These areas can be defined on a line-of-sight basis, for example, or according to specific components that should be monitored in unison. Operational Areas can be very useful when used at the control station level.

For additional information about areas, refer to Section 6.5, **Defining Areas**.



2.5 Camera Views

Camera views are changes to the perspective of the model in View Center. As you adjust the view, zooming in and out or dragging the model around to see different components, View Center takes snapshots of the perspectives. For this reason, each perspective can be considered a camera position or a camera view. View Center saves the camera views so that you can return to them at any time. For additional information about camera views, refer to Section 4.1.8, **Previous and Next Camera Views**.

2.6 User Views

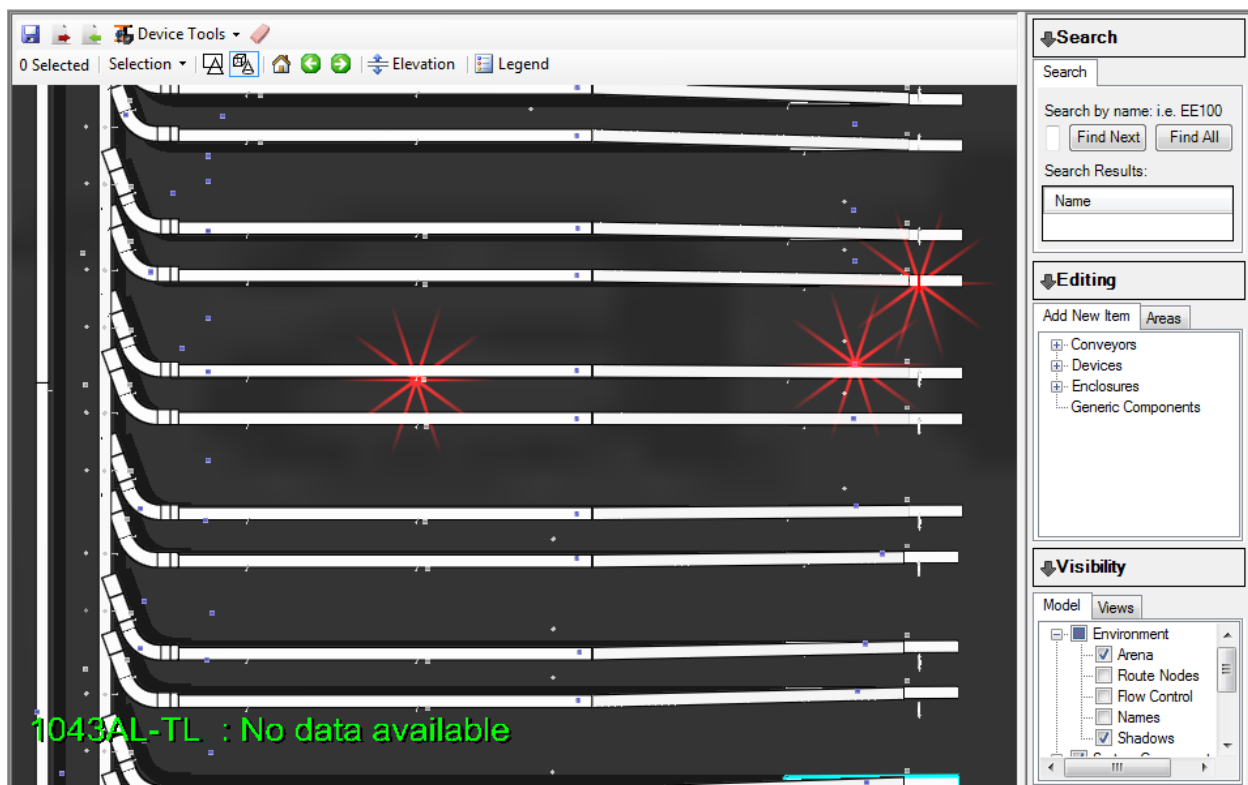
There are several features in View Center that you can use to change the view of the system model. This allows you to focus in on specific areas or components and to view the system from different perspectives. If you find that you are often returning to a specific perspective, you can save it as a user view. In this way, you can return to that view at any time without having to repeatedly perform the individual tasks that created the view. For additional information about user views, refer to Section 7.2, **Working with User Views**.

The View Center Designer Panel

3

The View Center Designer panel contains a Tool Accordion, a toolbar, and a model of the system. The Tool Accordion contains a number of features that can be used to search for items, define viewing areas, and change the items that are displayed. The toolbar provides additional features that can be used to alter the view of the system in the model.

Figure 3-1 View Center Designer



3.1 The Tool Accordion

The Tool Accordion contains the Search, Editing, and Visibility groups. You can expand and collapse each of these groups by clicking on the group's heading. The fields and other items within each group can be used as follows:

Table 3-1 Tool Accordion Groups

Group	Description
Search	The Search group contains fields and buttons that you can use to search for components in the View Center model. For a complete description of this group, refer to Chapter 5, Using the Search Feature .
Editing	The Editing group contains items that you can use to define viewable areas as well as to add items to the model. This group is only available in Designer mode. For a complete description of this group, refer to Chapter 6, Using the Editing Features .
Visibility	The Visibility group contains items that you can use to show/hide items in the View Center model. For a complete description of this group, refer to Chapter 7, Using the Visibility Features .

The groups in the Tool Accordion provide a convenient way for you to manage, filter, and locate all of the items that have been rendered in the View Center model. Each of the groups can contain one or more tabs that add functionality to the group.

3.2 The Toolbar

The View Center toolbar is located at the top of the model window. You can use the buttons in this toolbar to perform a variety of tasks.

Figure 3-2 View Center Toolbar



For a complete description of the toolbar, refer to **Chapter 4, Working with the View Center Model**.



3.3 The Model

The model window contains the rendering of the material handling system. The parts of the system that are displayed will depend on the selections you have made in the Tool Accordion. Similarly, the manner in which they are displayed (e.g., two or three dimensional, part of the system or all of it) will depend on the selections you have made in the Tool Accordion and the toolbar.

You can manipulate the view of the system in the model window using your mouse and keyboard. For additional information, refer to the *View Center Quick Reference Guide*.

3.4 The Alarm and Event Viewers

It is also possible for the View Center panel to include the Alarm and/or Event Viewers. These viewers are standard InControlWare panels that can appear with any panels in the interface. For detailed information about the Alarm and Event Viewers, refer to the *Alarms & Events User Guide*. For information about functionality that is unique to View Center, refer to **Section 2.3, Drag and Drop Alarms**.

Working with the View Center Model

The model in the View Center window is a graphical representation of the material handling system. As you monitor the system, it is likely that you will want to focus in on areas and items of interest. To do so effectively, you will need to pan, zoom, rotate, and otherwise manipulate the model so that these key items and areas are clearly visible. This chapter provides the information needed to manipulate the system model in the View Center window.

4.1 The View Center Toolbar

The View Center toolbar is located at the top of the model window.

Figure 4-1 View Center Toolbar




You can use the buttons in this toolbar to:



- Save, export, or import models.
- Automatically populate devices.
- Delete objects in the model.
- Select conveyors and devices in the model.
- Make the view of the model two-dimensional or three-dimensional.
- Return to the default model view.

- Switch to previous and next camera views.
- Change the elevations that are displayed in the model.
- Review the color codes and quick key information for the model.

4.1.1 Saving the Model

To save the model to the InControlWare database, click the save () button.


4.1.2 Exporting and Importing the Model

To export the model to an XML file, click the export () button. To import a model from an XML file, click the import () button. When either button is clicked, a Explorer window is displayed. Navigate to the folder where you would like to export/import the model. Provide a filename and click **OK** to complete the task.

4.1.3 Device Tools

You can use the options in the Device Tools menu to automatically populate devices. For additional information, refer to the *ICWStudio Project Application Guide*.

4.1.4 Deleting an Object

To permanently remove an object from the model, select the object and click on the Delete () toolbar button. A prompt will be displayed asking you to confirm the action. Select **Yes** to delete the object.

4.1.5 Making Selections in the Model

The two leftmost items in the second toolbar row are the **Selected** field and the **Selection** dropdown menu. The Selected field identifies how many objects in the model are currently selected. The Selection dropdown menu allows you to make different types of selections in the model.

Figure 4-2 Selected Field

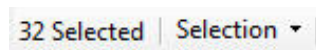
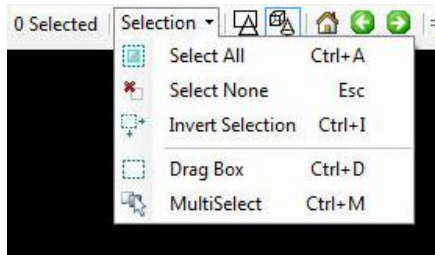


Figure 4-3 Selection Dropdown Menu



Select an option from the **Selection** dropdown menu. The operation will either be performed immediately or you will need to click or drag in the model to complete the operation.

The following table contains the shortcut keys that can be used to perform the tasks in the Selection menu.

Table 4-1 Selection Menu Shortcut Keys

Combination	Description
CTRL + A	Select All. Choosing this option will select and highlight all of the conveyors and devices in the model.
ESC	Select None. Choosing this option will deselect any items that are currently selected in the model. You can also deselect all items by double clicking in an empty area in the model window.
CTRL + I	Invert Selection. Choosing this option will deselect all of the items that are currently selected and select all of the items that are currently unselected. This can be useful if you want to select all but one or two items. Instead of having to make many selections, select the one or two items that should not be included and then invert the selection.
CTRL + D	Drag Box. Choosing this option will allow you to draw a box around the portion of the system that you want to select. To draw the box, click and hold the left mouse button and drag the mouse pointer across the system. A box will appear and get larger as you drag. Release the mouse button to make the selection. Everything within the box will be selected and highlighted.
CTRL + M	Multi-Select. Choosing this option will allow you to make multiple, individual selections within the model window. This can be useful if you would like to select items that are not in close proximity to each other. To make each selection, double click on a component. Press ESC to exit Multi-Select mode.
Mouseover	Display the name and state of a component.

For a complete list of quick keys, mouse controls, and combos that can be used in the model window, refer to the *View Center Quick Reference Guide*.

4.1.6 Viewing the Model in Two and Three Dimensions

You can display the model in either two dimensions or three dimensions by selecting the the following buttons:

Table 4-2 Two-Dimensional and Three-Dimensional Buttons



Button	View	Description
	2D	Displays the system as a two-dimensional model. Controls that do not apply to two-dimensional models are grayed out in this mode.
	3D	Displays the system as a three-dimensional model.

Figure 4-4 Two-Dimensional View

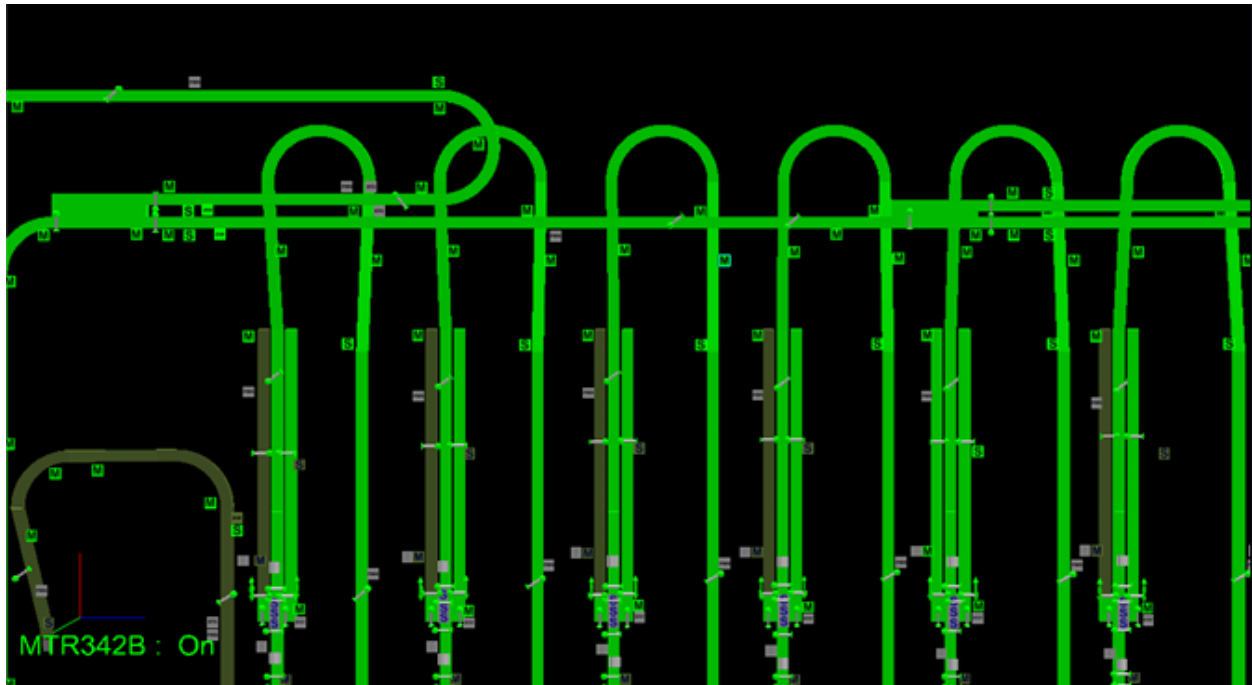
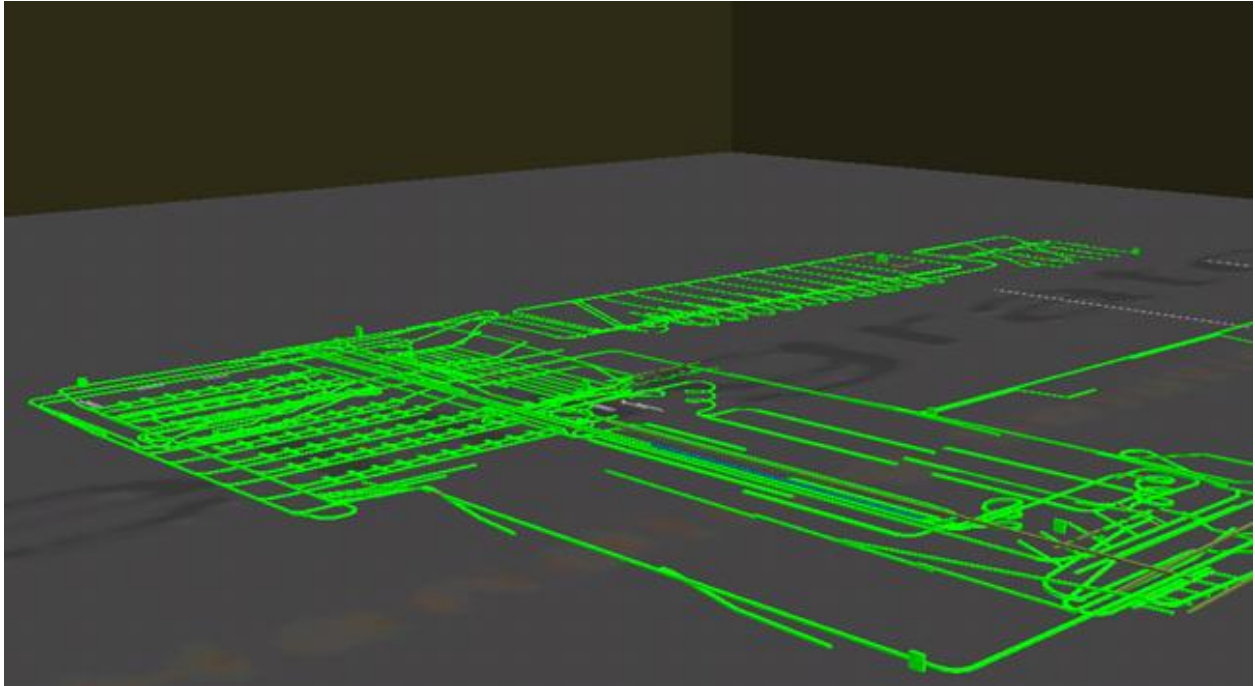




Figure 4-5 Three-Dimensional View



4.1.7 The Home View




You can use the Home () button to display the model in its default view.

Figure 4-6 Sample Home View



4.1.8 Previous and Next Views

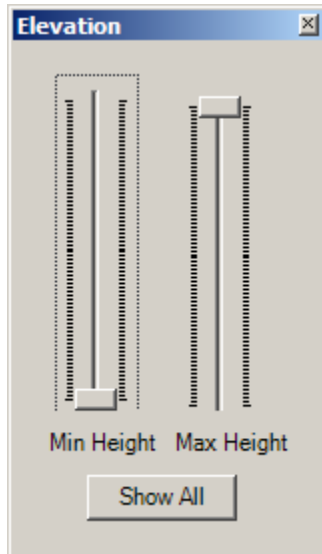
Views are changes to the perspective of the model. As you adjust the view, zooming in and out or dragging the model around to see different areas, View Center takes snapshots of the perspectives. View Center then saves the views so that you can return to them at any time.

Use the **Previous View** button () to go back to earlier views and the **Next View** button () to go forward to later ones.

4.1.9 Changing the Model's Elevation

You can use the model's elevation to hide different levels of the system. This can be useful if you are trying to zoom in on a single component and you would like to eliminate the visual clutter in the area. To change the elevation of the model:

1. Select the **Elevation** button in the toolbar. A dialog box appears.



2. Use the **Min Height** slider to hide components from the bottom up.
3. Use the **Max Height** slider to hide components from the top down.
4. To display all of the components again, select the **Show All** button.

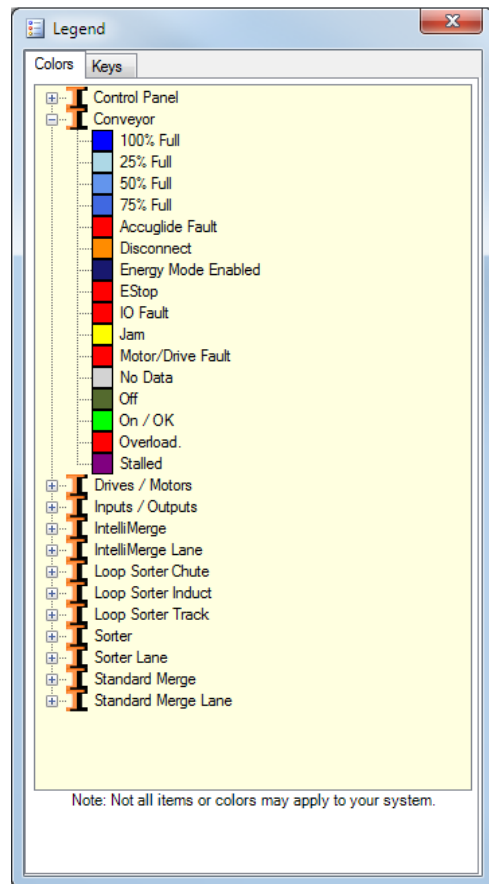
4.1.10 Using the Legend

A legend is included in View Center to help you translate the color codes that are used in the model and to provide a list of the shortcut keys that can be used to change the view of the model. To view the legend, select the **Legend** button in the toolbar. The two available tabs in the legend, Colors and Keys, are described in the following sections.

Colors

The Colors tab provides a list of the colors that are used in the model and the statuses that they identify.

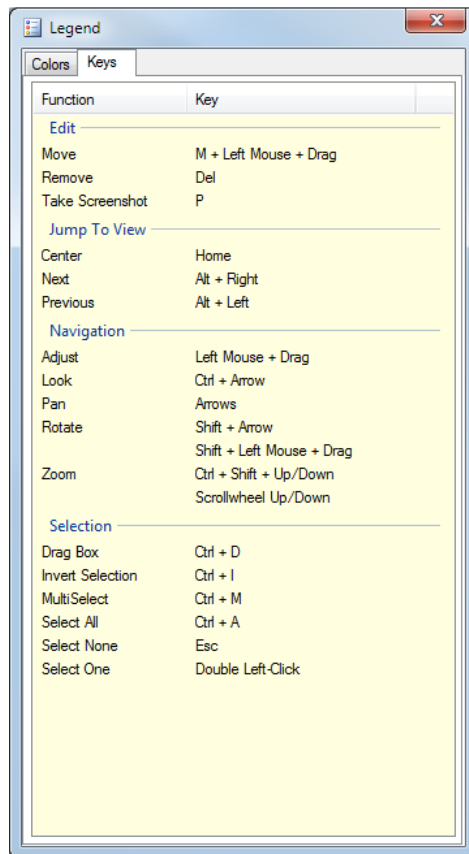
Figure 4-7 Legend Colors Tab



Keys

The Keys tab provides a list of the shortcut keys that can be used to adjust the model view.

Figure 4-8 Legend Keys Tab



4.1.11 Rotating, Panning, and Adjusting Elevation

You can rotate, pan, zoom, and adjust the elevation of the model in the View Center window. Different tools are available depending on whether you are viewing the model in two or three dimensions.

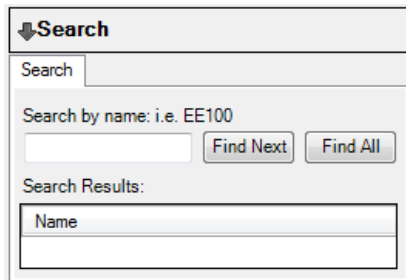
For a complete list of quick keys, mouse controls, and combos that can be used in the model window, refer to the *View Center Quick Reference Guide*.

Using the Search Feature

5

You can use the Search feature in the Tool Accordion to search for components in the model by name. The components that match the entered string are listed in the Search Results list. Double-clicking on one of the search results centers the model window on that component and selects it.

Figure 5-1 Search Feature

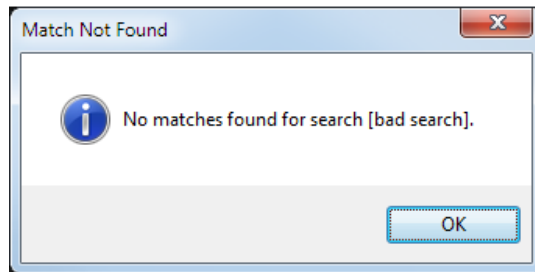


The screenshot shows a 'Search' dialog box. At the top is a tab labeled 'Search'. Below the tab is a text input field containing 'Search by name: i.e. EE100'. To the right of this field are two buttons: 'Find Next' and 'Find All'. Below these buttons is a section labeled 'Search Results:'. Under this label is a table with a single header row containing the word 'Name'. The table body is currently empty.

To perform a search, complete the following steps:

1. Enter the name or a portion of the name that you want to search for in the **Search by Name** field.
2. Press ENTER or click the **Find All** button. View Center will search for the names of any components that include the string that you entered and display the results in the Search Results list.

If the string that you enter does not have any matching component names in the model, a prompt will be displayed informing you of this.



3. Double click on a component in the Search Results list to view it in the model. You can use the **Find Next** button to display the next item in the Search Results list.

Using the Editing Features

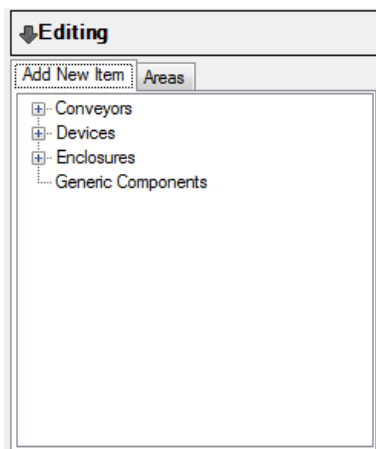
6

The Editing group in the Tool Accordion allows you to add/remove items from the model as well as create areas in the model. This functionality is only available in Designer mode, which should be disabled before the system is turned over to the customer.

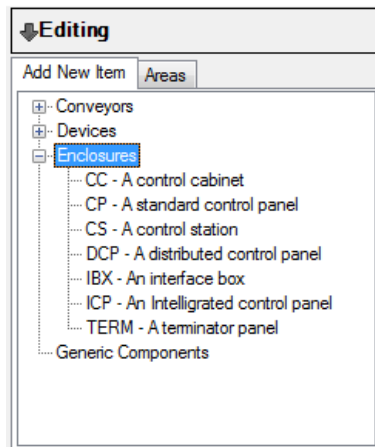
6.1 Adding a Component to the Model

Conveyor, devices, and enclosures can all be added to the View Center model. You will complete the same basic process to add any of these components to the model, as follows:

1. Display View Center.
2. In the **Editing** group, select the **Add New Item** tab.



- Expand one of the nodes by clicking on the plus sign to its left. A list of components of that type is displayed.



- Right click on the component that you would like to add. A context menu appears.
- Select the **Add new XX** option from the menu. A dialog box appears.
- Complete the fields in the dialog box with the correct information for that component. To easily enter a Part Number, you can do a Part Search by clicking on the **Search** (🔍) button.
- Select **OK** to create the new component.

If the new component already exists in the model, a prompt appears asking if you would like to update the existing component with the new data you provided.

If the item does not exist, a prompt appears asking you to select a component in the model. The new component will appear next to your selection.

- Select **OK** to clear the prompt and double click on a component in the model. The new component will appear in the model.
- Double-click on the component to select it.
- Press and hold the M key and click and drag the component to the correct location in the model.
- Repeat this process for component that you want to add to the model.

For additional information that is specific to a component type, refer to the following sections.



6.2 Adding a Conveyor

When you add conveyor to the model, keep the following information in mind:

- When you name the conveyor, use a name that identifies the type of conveyor, such as IQ100 for an IntelliQ conveyor.

6.2.1 Adding Duplicate Conveyors

ICWStudio is designed to accept duplicate items when necessary, such as when conveyors contain multiple sections (e.g., MDR diverging spurs). To create a duplicate conveyor, create a conveyor as described in the previous section but use the same name as the conveyor you want to duplicate. When you select **OK**, a prompt appears. Select the **Add New** button to create a duplicate conveyor.

6.3 Adding a Device or Enclosure

When you add devices and enclosures to the model, keep the following information in mind:

- When you name a control panel, the **CP** prefix should be used.

6.4 Adding a Generic Component

Generic components do not represent physical devices. Instead, they represent the location of potential errors/alarms that do not occur on a device. For this reason, they do not require a component type or a part number in order to be created.

6.5 Defining Areas

Areas are logically-grouped, viewable segments of the system that:

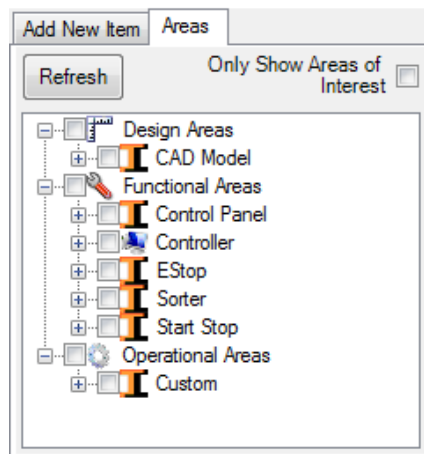
- share common properties (e.g., common control sources).
- represent physically related components (e.g., a main merge).

Design and Functional Areas are automatically defined when the system information is imported into InControlWare. Only Operational Areas can be defined in View Center.

6.5.1 Creating Operational Areas

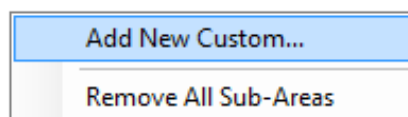
The Areas group contains a list of the Design, Functional, and Operational Areas that have been defined for a system. To expand the list, click on the plus signs to the left of the list entries. To highlight a listed area in the model window, click in the checkbox next to the name of the area.

Figure 6-1 Areas Group



To create an Operational Area, complete the following steps:

1. Expand the Operational Areas node.
2. Right click on the Custom area. A context menu appears.





2. Select the **Add New Custom** option. A dialog box appears.

3. Complete the fields in the dialog box as described in the following table.

Type	Description
ID	The ID for this area. This is assigned by InControlWare and cannot be changed.
Description	Enter a description of the area.
Name	Enter a name for the area.
Type	The area's type, which cannot be changed.
Color	Select a color for the area. When this area is highlighted in the model, it will appear in this color.
User Defined Name	A user-friendly alias for this area. This is convenient when an area must be named something that is difficult to remember or understand.
XML Configuration	Enter any additional configuration you would like applied to the area.

4. Select **OK** to save the information and exit the dialog box. The new area appears in the Operational Areas list.

5. In the model, press and hold CTRL+D and drag the outline around the portion of the system that you want to be included in the area. You can also use multi-select (i.e., CTRL+M) to select individual conveyors that should be added to the area.
6. Right click on the area in the Editing group and select **Add Selected Conveyor**. View Center saves the selected components as part of the area and applies the color that you selected when you created the area. You can view this area at any time by clicking in the checkbox next to the area's name.

If you would like to remove components from the area, right click the area and use one of the Remove commands. To select all of the components in the area, right click the area and select **Select This Area**.

6.5.2 Showing Areas of Interest

To minimize the components that are visible in the View Center window and make it easier to view items that you are interested in, use the **Only Show Areas of Interest** feature on the Areas panel, as follows:

1. Enable the **Only Show Areas of Interest** checkbox. An empty list appears at the bottom of the Editing group and the system model disappears from the View Center window.
2. Click on an area in the tree view at the top of the Areas panel and drag it to the empty list. The conveyors associated with the selected area will now appear in the model.
3. Repeat Step 2, as needed, until all of the areas you are interested in appear in the model.



Note

Enabling the checkboxes next to the areas in the Areas of Interest list highlights the equipment in each area in the color that is defined for the area.

To remove an item from the list, right click it and select **Remove** from the context menu. To close the list, disable the **Only Show Areas of Interest** checkbox.

Using the Visibility Features

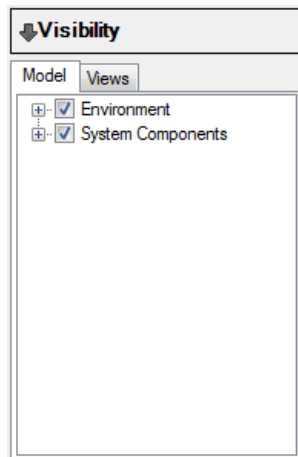
7

The View Center Visibility features allow you to change what is displayed in the model. You can do so in two ways: by changing which components are displayed or by changing the view that is used.

7.1 Showing/Hiding System Components

The Model tab in the Visibility group contains a list of checkboxes that you can use to select what is displayed in the model. There are two categories: Environment and System Components.

Figure 7-1 Model Tab



The following table describes the items in the list:

Table 7-1 Component List Selections

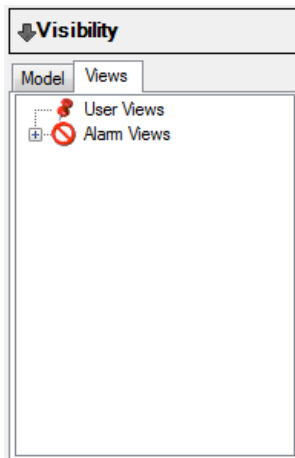
Option	Description
Arena	Enable this checkbox to display the two back walls in the model.
Names	Enable this checkbox to display the names of the components.
Shadows	Enable this checkbox to display the shadows that are created by the virtual light source. This will improve performance on older machines.
Conveyor	Enable this checkbox to display all of the conveyors in the system. Click on the plus (+) symbol next to this checkbox to view a sub list of conveyor types. Enable checkboxes in this sub list to view specific conveyor types in the model. Disable checkboxes to hide conveyor types in the model.
Devices	Enable this checkbox to display all of the devices in the system. Click on the plus (+) symbol next to this checkbox to view a sub list of device types. Enable checkboxes in this sub list to view specific device types in the model. Disable checkboxes to hide device types in the model.
Enclosures	Enable this checkbox to display all of the enclosures in the system. Click on the plus (+) symbol next to this checkbox to view a sub list of enclosure types. Enable checkboxes in this sub list to view specific enclosure types in the model. Disable checkboxes to hide enclosure types in the model.
Generic Components	Enable this checkbox to display all of the generic components in the system. Generic components are not necessarily physical objects. They might be items of interest that do not fit into the other categories, such as to highlight an alarm at a specific location.
Flow Control	Enable this checkbox to display the direction of product flow at the infeed of each conveyor. Only available in View Center Designer.
Show Data Access	Enable this checkbox to display the data access settings with the component status. These settings are always available from the Edit Graphics Data context menu. Only available in View Center Designer.

7.2 Working with User Views

As you adjust the view in the model, you can create user views. Creating a user view saves the model's current perspective so that you can return to it at any time.

To begin creating user views, select the **Views** tab in the Visibility group. This tab contains a list of the user views and alarm views that have been created.

Figure 7-2 Views Tab



Note

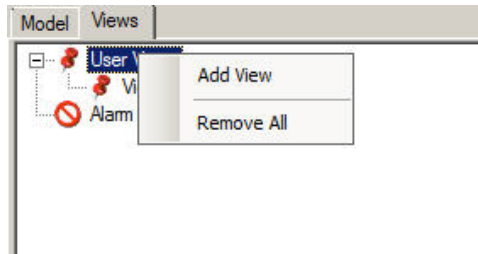
Alarm views are automatically created by View Center. Devices that are in an alarm state will have an entry in the Alarm Views list. Double click the device in the list to locate and display that device in the model.

When the user views are displayed, you can work with them as described in the following sections.

7.2.1 Adding a User View

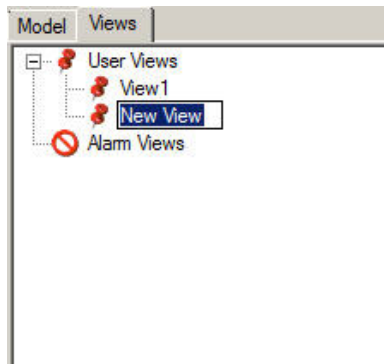
To create a new user view, complete the following steps:

1. Highlight the **User View** item in the Views list.
2. Right click the **User View** item to display the context menu.



3. Select **Add View** from the context menu.

A new item named New View will appear in the User View list.



4. Enter the name of the view in the **New View** field. The name should describe the view so that you can readily identify it in the future.
5. Press ENTER to save the view.
6. You can now return to that view at any time by double clicking on it in the list or by right clicking it and selecting **Go To** from the context menu.



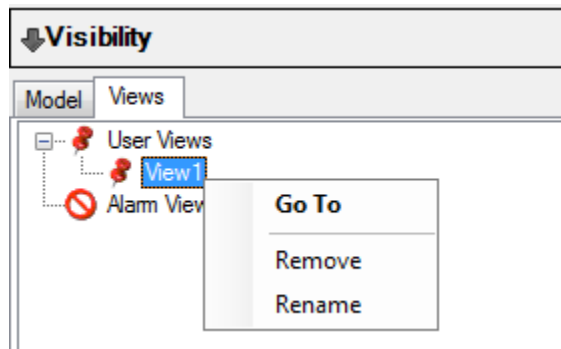
Note

User views are saved as part of the View Center model. They are not stored for individual users.

7.2.2 Renaming a User View

To rename a user view, complete the following procedure:

1. Highlight the view in the list and right click it to display the context menu.



2. Select the **Rename** option from the menu. The view's field will become active.
3. Enter a new name for the view.
4. Press ENTER to save the new name.

7.2.3 Deleting a User View

To delete a user view, highlight the view in the list and right click it to display the context menu. Select **Remove** from the menu. The highlighted view will be removed from the list.



Note

If you would like to delete all of the views, highlight the **User View** item at the top of the list and right click it to display the context menu. Select **Remove All** to delete all of the user views. Keep in mind that this will delete the views for all users.

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