BACnet/IP systems
Desigo Control Point
Engineering
Edition notice

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1 About this document

1.1 Scope
This manual provides advanced procedures for using Desigo Control Point. It contains the following sections:

Commissioning
This section outlines topics that are not included in the Desigo Control Point Operation Manual (A6V11211557). This includes connecting to the application and initial login, using the Setup wizard, discovering and assigning devices, subscribing to the time master and its synchronization, and operating and monitoring features.

Data point integration
Includes an overview of the user interface, the procedure for integrating data points, options for controlling the number of BACnet objects that are integrated and the procedure for manually adding or removing individual BACnet objects.

Graphics engineering
The Graphics Builder program contains sample graphics and additional tools to help you easily create graphics to meet the needs of your facility. This section provides an overview of the most commonly-used tools in the program and procedures for configuring kiosk presentations and working with dashboards.

Tips and tricks
This section provides best practice tips and outlines important guidelines for creating Desigo Control Point projects.

1.2 Target reader
This manual is written for Engineers who are performing the following tasks in Desigo Control Point:
- Tool-free (online) commissioning.
- Creating engineering graphics to control the system.
- Configuring dashboards to display detailed information on the energy consumption of a building.

NOTICE
Desigo Control Point is an open protocol monitoring and operating solution that is compatible with certified BACnet devices. The content, structure, icons and navigation for each system depend on the BACnet device being used. The data displayed on your system may look different than what is shown in this manual.

Prerequisite
You should read the following documents before using this manual:
- Desigo Control Point Operation Manual (A6V11211557) is intended for facility managers who are configuring Desigo Control Point devices and managing user accounts, trends and alarms, and room operators who are performing daily operation tasks.
- Desigo Touch Panel Clients Commissioning Manual (A6V11604303) provides information on configuring a Desigo Touch Panel Client (PXMy0-x) for use with an HTML5.0 Web Server.
- BACnet systems Desigo Control Point Basic Documentation (A6V11666339) provides information on typical topologies and limitations, cable types, compatibility and mounting devices.
1.3 Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABT-SSA</td>
<td>Setup &amp; Service Application included in Desigo Control Point. Mainly intended for commissioning, service and other more advanced tasks. Also provides a generic data point list to operate all supported BACnet objects and properties of the assigned devices.</td>
</tr>
<tr>
<td>automation station</td>
<td>Primarily controls equipment and plants. An automation station samples and processes field data, initiates control actions, communicates with its operators, and generates reports, displays, and warnings.</td>
</tr>
<tr>
<td>BACnet/IP device</td>
<td>BACnet-certified device used for building automation.</td>
</tr>
<tr>
<td>BACnet/IP system</td>
<td>Includes 1…n BACnet devices.</td>
</tr>
<tr>
<td>BACnet/IP touch panel</td>
<td>Touch device with an integrated Web Server that processes data from BACnet building automation and control devices and presents it to Web clients via HTML5.0 Web pages. For example, Siemens devices PXM30.E, PXM40.E, PXM50.E.</td>
</tr>
<tr>
<td>BACnet/IP Web interface</td>
<td>Provides Web-based, graphical operation of BACnet automation stations using touch panels and devices with an HTML5.0 Web browser. For example, Siemens devices PXG3.W100-1, PXG3.W200-1.</td>
</tr>
<tr>
<td>Desigo Control Point</td>
<td>A full-featured Web-based solution that provides operating and monitoring functions for building automation and control systems.</td>
</tr>
<tr>
<td>Desigo Control Point device</td>
<td>A device that is primarily used for operating and monitoring systems. Standard BACnet devices, such as computers, tablets and smart phones with HTML5.0 Web browsers, are fully supported. For example, Siemens devices PXM30.E, PXM40.E, PXM50.E, PXM30-1, PXM40-1, PXM50-1, PXG3.W100-1, PXG3.W200-1.</td>
</tr>
<tr>
<td>Desigo PXM wall mounting kit</td>
<td>PXA.V40, PXA.V50.</td>
</tr>
<tr>
<td>Desigo Touch Panel Client</td>
<td>Touch device for communication using an HTML5.0 web server. For example, Siemens devices PXM30-1, PXM40-1, PXM50-1.</td>
</tr>
<tr>
<td>HTML5.0 Web Server</td>
<td>Enables access from a standard Web browser to a specific system and provides its content in Web pages.</td>
</tr>
<tr>
<td>PXMxx-1</td>
<td>Touch panel clients PXM30-1, PXM40-1, PXM50-1</td>
</tr>
<tr>
<td>Touch panel client</td>
<td>A Web client for communicating with HTML5.0 capable web servers. For example, Siemens devices PXM30-1, PXM40-1, PXM50-1.</td>
</tr>
</tbody>
</table>

1.4 References

The following Desigo Control Point documents are available on the Internet:

Siemens Download center
- BACnet systems Desigo Control Point Basic Documentation (A6V11666339) provides information on typical topologies and limitations, cable types, compatibility and mounting devices.
- Desigo Control Point Operation Manual (A6V11211557) is intended for facility managers who are configuring Desigo Control Point devices and managing user accounts, trends and alarms, and room operators who are performing daily operation tasks.
- Desigo Touch Panel Clients Commissioning Manual (A6V11604303) provides information on configuring a Desigo Touch Panel Client (PXMx0-1) for use with an HTML5.0 Web Server.
- Data sheets
  - Desigo Control Point BACnet Web Interface (PXG3.W100-1, PXG3.W200-1) (A6V10808336)
2 Commissioning

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
</table>
| Changes to the Desigo Control Point device configuration are saved in non-volatile memory every 30 minutes and whenever you log out of the device.  
• Save and log out to immediately save changes to the device configuration.  
• Changes to the device configuration are lost if a power cycle occurs within 30 minutes of the change and before you have logged out. |

2.1 Default connection

Use the appropriate procedure for your configuration:
• Connecting through a BACnet/IP touch panel  
• Connecting through a BACnet/IP Web interface

 Connecting through a BACnet/IP touch panel

1. Tap to select a screen orientation.

2. Tap to display the Desigo Web login page.

 Connecting through a BACnet/IP Web interface

1. Connect to the USB port of the Desigo Control Point device.
2. Type the IP address 192.168.250.1 in the address bar of a browser.
   The Desigo Web login page displays.

2.2 Initial login

1. Log in to the application using the Administrator account.
2. Enter one of the following passwords:
   - Enter OneBT if the device status is Unconfigured. For example, a new device or after a firmware update.
   - Enter the password selected during the previous configuration if the device status is Download Required.
3. Change the password as required.
   The Commissioning wizard displays to guide you through the device and network setup and application activation.
2.3 Setup wizard

The Setup wizard displays when you log in to any Desigo Control Point device with the status Unconfigured or Download Required.

The Desigo Control Point device restarts at the end of this procedure to save your configuration settings in non-volatile memory.

Using the Setup wizard

1. Use the tables in this section to complete the Setup wizard.
2. At the final pane of the Setup wizard, click Save to complete the commissioning.

The device restarts and the login screen displays. The device is now available on the network.

Device fields

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device name</td>
<td>(Required) Name of the Desigo Control Point device. This name displays in the status bar.</td>
</tr>
<tr>
<td>Device instance number</td>
<td>(Required) A unique number in the range from 0 through 4194302. The number must not be used by any other device on the BACnet network.</td>
</tr>
<tr>
<td>Description</td>
<td>Text field to describe the device. This description displays in the work area.</td>
</tr>
<tr>
<td>Location</td>
<td>Text field to describe the device location.</td>
</tr>
<tr>
<td>Time zone</td>
<td>Drop-down list of global time zones.</td>
</tr>
<tr>
<td>Model name</td>
<td>(Information only) Model number of the Desigo Control Point device.</td>
</tr>
<tr>
<td>Operation URL</td>
<td>(Information only) IP address of the Desigo Control Point device.</td>
</tr>
<tr>
<td>Firmware revision</td>
<td>(Information only) Current firmware revision loaded in the device.</td>
</tr>
<tr>
<td>Serial number</td>
<td>(Information only) Serial number of the Desigo Control Point device.</td>
</tr>
<tr>
<td>Local date</td>
<td>(Information only) Current date.</td>
</tr>
<tr>
<td>Local time</td>
<td>(Information only) Current time.</td>
</tr>
</tbody>
</table>

Table 1: Device fields.

Figure 1: Commissioning wizard, Device fields.
Network settings fields

Figure 2: Commissioning wizard, Network settings.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHCP check box</td>
<td>Select to use dynamic IP addressing. Otherwise, complete the IP address, Subnet mask and Router fields to use a fixed IP address.</td>
</tr>
<tr>
<td>MAC Address</td>
<td>(Information only) MAC address of the device.</td>
</tr>
<tr>
<td>SNMP check box</td>
<td>If selected, SNMP monitoring is active.</td>
</tr>
<tr>
<td>Read community string</td>
<td>Community string that allows reading information from a device.</td>
</tr>
<tr>
<td>Port</td>
<td>(Information only) Port defined for IP communication.</td>
</tr>
<tr>
<td>Enable</td>
<td>(Information only) Online status of the IP communication port.</td>
</tr>
<tr>
<td>Network number</td>
<td>Number that identifies the IP network. Range is 0 to 65534. Default: 0</td>
</tr>
<tr>
<td>UDP port</td>
<td>UDP port number that the service uses to communicate. Range is 0 to 65535. Default: 47808 (BAC0)</td>
</tr>
<tr>
<td>Status</td>
<td>(Information only)</td>
</tr>
</tbody>
</table>

Table 2: Network settings fields.
### Discover and assign devices

The devices you want to operate and monitor must be assigned to the Desigo Control Point device.

1. Select > Favorite commissioning > Device discovery.
2. Click to activate Edit mode.
3. Click Discover and then click OK to clear the message.
   - While the system is updating, the work area is cleared and the message No items displays.
4. Select the check box(es) for the discovered device(s) you want to monitor.
5. Click Copy.
7. Click Paste.
8. When you are finished adding devices, click to close Edit mode.

The copied devices are added to the Assigned devices structure and are now available for monitoring.

If you are using a BACnet/IP touch panel, see the Desigo Touch Panel Clients Commissioning User Guide (A6V11604303) for procedures to set the screen orientation, define the default graphic that should display after a power cycle and set up Favorites that can be accessed through the touch panel.
2.5 Subscribing to the time master

The Desigo Control Point device time can be set or obtained from a time master. Complete this procedure to identify a time master for the Desigo Control Point device.

If a time master is not being used, see the Settings section of the Desigo Touch Panel Clients Commissioning Manual (A6V11604303) to set the device time.

Note
The Desigo Control Point device cannot be a time master.

1. Select Favorite commissioning > [operating and monitoring device].
2. Click to display all properties.
3. Select Time master reference, enter the device instance number of the time master and click OK.

 fistsubscribe

A time synchronization subscription is issued to the device you identified as the Time master reference.

fistrefresh

If the operating and monitoring device restarts, the current time is requested from the Time master reference.

2.6 Time synchronization of the time master

This procedure uses the local time of the Desigo Control Point device to synchronize the time of all devices in the Assigned devices list. This time synchronization command is most often used in small systems where there is no other time master.

1. If necessary, select Favorite commissioning > [operating and monitoring device] and click to display all properties.
2. Click Synchronize to issue a one-time Time synchronization command to all devices in the Assigned devices list.

 anytime

Any time masters in the Assigned devices list receive the current local time from the operating and monitoring device.

Possible next step: Configuring for kiosk graphics on a touch panel.

2.7 Touch panel settings

Touch panel settings are documented in the Desigo Touch Panel Clients Commissioning Manual (A6V11604303).
2.8 Operating and monitoring features

Use the workflow in this section to set up user accounts, add email recipients, and configure network and alarm settings in the application.

<table>
<thead>
<tr>
<th>Commissioning Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Setting up user accounts [➙ 17]</td>
</tr>
<tr>
<td>2</td>
<td>Configuring email recipients [➙ 17]</td>
</tr>
<tr>
<td>3</td>
<td>Configuring an SMTP server [➙ 17]</td>
</tr>
<tr>
<td>4</td>
<td>Configuring FTP [➙ 18]</td>
</tr>
<tr>
<td>5</td>
<td>Configuring Alarms settings [➙ 20]</td>
</tr>
<tr>
<td></td>
<td>• Alarm polling</td>
</tr>
<tr>
<td></td>
<td>• Alarm history</td>
</tr>
<tr>
<td></td>
<td>• Alarm routing</td>
</tr>
<tr>
<td>6</td>
<td>Configuring alarm notifications [➙ 21]</td>
</tr>
<tr>
<td>7</td>
<td>Data point integration settings [➙ 24]</td>
</tr>
</tbody>
</table>

2.8.1 Setting up user accounts

1. Select > Manage users in the status bar.
2. Click Add and then complete the fields outlined in the following table.
3. Click Add to save the new user profile and return to the Manage users page.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User name</td>
<td>Type a user name. Each user profile must have a unique User name.</td>
</tr>
<tr>
<td>New password and Confirm password</td>
<td>If necessary, click Change password to display the password fields. Type and confirm a password that complies with the password policy for your site.</td>
</tr>
<tr>
<td>User role</td>
<td>Select a role from the drop-down list. The User role controls access to functions and tools.</td>
</tr>
<tr>
<td>Language</td>
<td>Select the user interface language.</td>
</tr>
<tr>
<td>Date format</td>
<td>Select a date format. For example, DD.MM.YYYY, YYYY/MM/DD or MM-DD-YYYY.</td>
</tr>
<tr>
<td>Time format</td>
<td>Select the 24h or 12h time format.</td>
</tr>
</tbody>
</table>

Table 4: Manage users fields.

Possible next step: Configuring email recipients [➙ 17]

2.8.2 Configuring email recipients

This procedure adds email addresses for those who are allowed to receive emails from Desigo Control Point.

1. Select > > Configure email recipients > .
   The Add email recipients dialog box displays.
2. Type one or more email addresses separated by a comma and click Apply to save your changes.
3. If desired, select the Send test email check box to send a test email to the list of recipients.
4. Click OK to complete the procedure.

Possible next step: Configuring an SMTP server [➙ 17]

2.8.3 Configuring an SMTP server

This procedure configures an SMTP server to send emails through Desigo Control Point.
1. Select 🌐 > 🛠 > SMTP settings to display the SMTP settings from the project database.

2. Use the information in the following table to update the settings and then click Apply. The Test connection dialog box displays.

3. To send a test email, enter an email address in the Recipient field and click Test. Otherwise, click Cancel to finish the configuration.

4. If the test fails, click Edit to review the settings and fix any errors. If the settings are correct, contact your IT department.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMTP server</td>
<td>The name of the SMTP server being used to route emails. For example, smtp.gmail.com.</td>
</tr>
<tr>
<td>User name</td>
<td>The user name of an account that is allowed to send emails using the SMTP server. For example, <a href="mailto:username@gmail.com">username@gmail.com</a>.</td>
</tr>
<tr>
<td>Password</td>
<td>The password for the specified account that is allowed to send emails. For security, the actual characters do not display in this field.</td>
</tr>
<tr>
<td>Sender</td>
<td>The email address from which all Desigo Control Point emails are sent. For example, <a href="mailto:server@sample.com">server@sample.com</a>.</td>
</tr>
<tr>
<td>Port number</td>
<td>Port used by the SMTP server. Ports 465 (default) and 587 are supported. Contact your IT department for the proper settings at your site. Note: There are no restrictions on the port for the SMTP configuration. However, many ISPs and hosting providers block or restrict SMTP connections on port 25 due to security risks.</td>
</tr>
<tr>
<td>SSL and Plain text/TLS</td>
<td>• SSL uses the SSL security protocol when sending emails. • Plain text/TLS sends emails without SSL encryption.</td>
</tr>
</tbody>
</table>

Table 5: SMTP settings dialog box.

Possible next step: Configuring FTP [➙ 18]

### 2.8.4 Configuring FTP

This procedure configures Desigo Control Point to save data to an FTP server.

1. Select 🌐 > 🛠 > FTP settings to display the FTP settings from the project database.

2. Use the information in the following table to update the settings and then click Apply. The FTP settings dialog box displays.

3. To test the FTP settings, click Test, enter the file path for the test and click Apply. Otherwise, click Cancel to finish the configuration.

4. If the test fails, click OK to review the settings and fix any errors. If the settings are correct, contact your IT department.
### Setting | Description
--- | ---
FTP server | The IP address or DNS name of the FTP server that stores off-loaded data. For example, `ftp://Host`.  
User name | The user name of an account that is allowed to access the FTP server. For example, `Administrator`.  
Password and Confirm password | Type and confirm a password that complies with the password policy for your site. For security, the actual characters do not display in these fields.

*Table 6: FTP settings dialog box.*

Possible next step: Configuring Alarms settings [➙ 20]

#### 2.8.5 Modifying the Default Site settings

The "Default site" settings function displays under ➔ > Settings for all core functions that a user role is allowed to access.

**Showing / Hiding the “Default site” node**

Use this procedure to show or hide the Default Site node if no devices are displayed under it.

1. Select ➔ > "Default site" settings > to show or hide the Default Site node.
2. Click OK to close the confirmation message.

   ![Info](image)

   If Default Site is hidden and you later integrate data points from a controller that will display under it, Default Site is automatically displayed. If you later remove that controller from Assigned devices, Default Site is automatically hidden again.

**Renaming the “Default site” node**

Use this procedure to rename the Default Site node.

1. Select ➔ > "Default site" settings >
2. Enter a new name for the Default Site node and click Apply.
3. Click OK to close the confirmation message.
2.8.6 Configuring Alarms settings

This section configures the following settings for Alarms:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm polling</td>
<td>How often the database is checked for any objects with an active alarm state, an acknowledge-required state, or a reset-required state.</td>
</tr>
<tr>
<td></td>
<td>• By default, the database is polled every two seconds.</td>
</tr>
<tr>
<td></td>
<td>• For sites with a very high network load, adjusting the Alarm polling settings may help to optimize performance of the device.</td>
</tr>
<tr>
<td>Alarm history</td>
<td>Determines when old alarms are purged from the system.</td>
</tr>
<tr>
<td></td>
<td>By default, alarms in the History view that are more than one year old are purged every day at 10:00 P.M.</td>
</tr>
<tr>
<td>Alarm routing</td>
<td>Configures the number of minutes the application waits before resending an email for an unacknowledged alarm.</td>
</tr>
<tr>
<td></td>
<td>• The alarm routing function checks the Desigo Control Point database once per minute for alarms that need to be sent.</td>
</tr>
<tr>
<td></td>
<td>• If there are multiple alarm notices for a recipient, they are sent in a single email.</td>
</tr>
<tr>
<td></td>
<td>• By default, the application makes three attempts to send an alarm notification email if the alarm has not been acknowledged. The default interval between each attempt is 15 minutes.</td>
</tr>
</tbody>
</table>

### NOTICE

The alarm history purge can take up to 2 minutes.

The Alarms display may not refresh while the system is purging old alarms. Users can continue to work in Desigo Control Point while the purge is taking place.

#### Alarm polling

- Alarms is selected in the core function pane.

1. Select > > Alarm polling.
2. Select a value from the Poll rate drop-down list.
3. To save your selections, click Apply.

#### Alarm history

- Alarms is selected in the core function pane.

1. Select > Alarm history > .
2. Use the following table to make selections in the Alarm history dialog box.
3. To save your selections, click Apply.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove alarms older than</td>
<td>The default setting is 1 year.</td>
</tr>
<tr>
<td></td>
<td>• Amount field: Valid entries are numbers greater than 0.</td>
</tr>
<tr>
<td></td>
<td>• Unit of measure drop-down list: Days, Weeks, Months, Years or All.</td>
</tr>
<tr>
<td>Purge</td>
<td>The default setting is Daily.</td>
</tr>
<tr>
<td>If Field 1 is …</td>
<td>Field 2 options</td>
</tr>
<tr>
<td></td>
<td>Field 3 options</td>
</tr>
<tr>
<td>Daily</td>
<td>–</td>
</tr>
</tbody>
</table>
### Alarm routing

1. Select ☰ > ☰ > Alarm routing.
2. Use the following table to make selections in the Alarm routing dialog box.
3. To save your selections, click Apply.

### Prerequisites

- Email recipients are configured.
- Data points from the devices being monitored for alarms are integrated to the Desigo Control Point device.

#### Setting

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. number of resend attempts</td>
<td>The maximum number of times the application attempts to send an alarm notification email if the alarm requires an acknowledgement and it has not yet been acknowledged. If the object is no longer in alarm, an alarm notification email is not resent even if the alarm requires an acknowledgement, but it has not yet been acknowledged. Valid entries are numbers greater than or equal to 0. The default is 3.</td>
</tr>
<tr>
<td>Retry interval (minutes)</td>
<td>The number of minutes the application waits before resending an email for an unacknowledged alarm. Valid entries are numbers greater than or equal to 1. The default is 15.</td>
</tr>
</tbody>
</table>

#### Table 7: Configure alarm routing dialog box.

#### 2.8.7 Configuring alarm notifications

This procedure configures alarm routing so that recipients only receive the notifications that apply to them. For example, a selected list of recipients only receives emails for alarms that occur on weekends or during a specific timeframe.

### Prerequisites

- Email recipients are configured.
- Data points from the devices being monitored for alarms are integrated to the Desigo Control Point device.

1. Select ☰ > ☰ > Configure alarm routing > ☰.
2. Use the Table Configure alarm routing dialog box to make selections in the first dialog box.
3. Click Next.
4. Use the Table *Alarm filter dialog box* to make selections in the second dialog box.

5. Click **Apply** to save your selections.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of the alarm routing configuration. Default: <strong>Alarm routing</strong>. If a configuration is saved with the default name, subsequent default names are <strong>Alarm routing</strong>.</td>
</tr>
<tr>
<td>Email subject</td>
<td>The email subject line for the routed alarm. Default: <strong>Alarm notifications</strong>.</td>
</tr>
<tr>
<td>Email recipients</td>
<td>Select one or more email addresses from the predefined list. Press <strong>CTRL</strong> and click to select multiple items. Default: No email addresses are selected.</td>
</tr>
<tr>
<td><strong>Select all contents</strong> check box</td>
<td>Select to include all the <strong>Contents</strong> fields in the routed emails. Default: Check box is selected and all fields are included in the email.</td>
</tr>
<tr>
<td>Contents</td>
<td>A list of predefined alarm fields that can be included in the body of the email. Fields include: • Initiating device • Site • Object name • Priority • Alarm state • Date/Time • Message text</td>
</tr>
</tbody>
</table>

Table 9: Configure alarm routing dialog box.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time range</td>
<td><strong>Start</strong> Route alarms that occur after this time on the selected day(s). Default: 8:00 or 8:00 AM. Time is displayed in the format selected by the currently logged in user.</td>
</tr>
<tr>
<td></td>
<td><strong>End</strong> Route alarms that occur before this time on the selected day(s). Default: 17:00 or 5:00 PM. Time is displayed in the format selected by the currently logged in user.</td>
</tr>
<tr>
<td>Days</td>
<td>Route alarms on the selected day(s) during the selected time range. Default: No days are selected.</td>
</tr>
<tr>
<td>Priority range</td>
<td>Priority or range of priorities where: • Entering a single priority (for example, 100) only routes alarms or events of that priority. • Entering a range of priorities (for example, 1-255) routes alarms or events within that range of priorities • Entering a selection of individual priorities (for example 100, 200, 256) only routes alarms or events of these priorities. Default: 1-255</td>
</tr>
<tr>
<td>Type</td>
<td>The type of alarm events that the email recipients receive. Options are: • Alarm • Event • Acknowledgement/Reset Default: All event types are selected</td>
</tr>
<tr>
<td>State</td>
<td>The alarm state values that the email recipients receive. Options are: • Alarm • Fault • Return to normal Default: All states are selected</td>
</tr>
</tbody>
</table>
## Editing an alarm routing

This procedure modifies an existing alarm routing.

1. **Alarms** is selected in the core function pane.

2. Select `>` > `Configure alarm routing` > `Edit`.

   The **Edit alarm routings** dialog box displays the settings for each schedule.

3. Select an alarm routing from the drop-down list and select **Edit**.

4. Make the necessary changes in the **Configure alarm routing** dialog box and select **Next**.

5. Make the necessary changes in the **Alarm filter** dialog box.

6. Select **Apply** to save your changes.

For information on the **Configure alarm routing** and **Alarm filter** dialog boxes, see the procedure Configuring alarm notifications [➙ 21].
Purging an alarm routing
This procedure removes an alarm routing from the database.

△ Alarms is selected in the core function pane.

1. Select △ > ▲ > Configure alarm routing > ▲.
   ✗ The Purge alarm routings dialog box displays all alarm routings.
2. Select the alarm routing(s) to be removed and select Remove.
3. Select Apply to complete the removal.

2.8.8 Data point integration settings

Data point integration only displays under △ > ▲ Settings if a user role has been granted access to ▲ Tools.

The selections for Data point integration determine if data points from monitored automation stations are automatically integrated to the application and how many BACnet objects are saved to the Desigo Control Point device when data points are integrated.

Data point integration for newly assigned and updated devices

1. Select △ > ▲ > Data point integration.
2. Select or clear the options for newly assigned and updated devices. See the following table for more information.
3. Set the Cache timeout.
4. Select or clear the option for integrating data points outside the building structure. See the following table for more information.
5. Click Apply to save the settings.

Note
Each device manufacturer determines what type of update causes the BACnet database revision number to change. Occasionally, you may find that data points from an updated device have not been automatically integrated because the BACnet database revision number did not change. Should this happen, you must manually reintegrate the data points through △ > ▲ > Data point integration.
### Commissioning

#### Operating and monitoring features

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Automatically integrate newly assigned devices** | • If selected, data points are automatically integrated as soon as the automation station is assigned to the Desigo Control Point device.  
• If cleared, you must manually integrate data points for newly-assigned devices.                                                                 |
| **Automatically update assigned devices**     | • If selected, data points from an assigned device are automatically integrated if there is a change in the device type or the BACnet database revision number. When data points are automatically integrated:  
  – The system uses the original Integration level as well as any advanced selections that were originally made for including or excluding objects.  
  – Any new data points that meet the selected Integration level are integrated.  
  – Any objects that are no longer in the updated object list are removed.  
• If cleared, you must manually reintegrate the device through Data point integration.                                                                 |

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Integrate data points outside of building structure also** | Applies to PXC3... devices.  
☐ Any data points outside the defined building hierarchy are not included under Default Site.  
☑ Default. Any data points outside the defined building hierarchy are included under Default Site.                                                                 |

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Integrate data points outside of building structure also** | Applies to PXC3... devices.  
☐ Any data points outside the defined building hierarchy are not included under Default Site.  
☑ Default. Any data points outside the defined building hierarchy are included under Default Site.                                                                 |

Table 11: Data point integration dialog box.

### 2.8.9 Managing Documents

User roles that have been granted access to Tools can upload documents, edit the document file properties and remove documents from the Desigo Control Point device.

#### Determining where files are available

The ContentOn filter makes a document available at a specific location in the building hierarchy. For example, data sheets and manuals can be made available at the Root, while electrical plans are available at the position of the control cabinet.

- **An absolute binding** limits document availability to one specific location in the building hierarchy. In this case, the ContentOn filter is set to a specific point ID or navName in the database. For example:
  - baUniqueId=="9f97c0b7b956f64e2ed02abddaa7292d97d69ec1"
  - navName=="Room segment 113"

- **A relative binding** uses semantic tags to make a document available at multiple locations of the building hierarchy that have a similar structure. For example, the following ContentOn filter makes a document available for all rooms and room segments at the same relative position in the building hierarchy:
  area and equip and room or roomSegment
2.8.9.1 Uploading documents
Use this procedure to upload documents to the Desigo Control Point device and determine where the documents are available in the building hierarchy.

Uploading documents
1. Navigate to the building hierarchy location where the document will be used.
2. Select \(\text{ }\text{ }\text{ }\text{ }\text{ }\) > \(\text{ }\text{ }\text{ }\text{ }\text{ }\) > Online file management > \(\text{ }\text{ }\text{ }\text{ }\text{ }\).
3. Click Choose file, navigate to the document location on your local computer and click Open.
4. Enter a Resource name. Note: This field is required.
5. (Optional) Edit the ContentOn filter. This field defaults to a relative binding filter that applies to the current level of the building hierarchy.
6. Click Add and then OK to clear the message.
   Note
   The upload process stops if the maximum file size or the maximum memory is exceeded.
   The document is now available at the selected location in the building hierarchy.

2.8.9.2 Editing the document file properties
Use this procedure to modify the document name displayed in the Online files list, modify the ContentOn filter, or to replace the document file.

Editing file properties
1. Select \(\text{ }\text{ }\text{ }\text{ }\text{ }\) > \(\text{ }\text{ }\text{ }\text{ }\text{ }\) > Online file management > \(\text{ }\text{ }\text{ }\text{ }\text{ }\).
2. Select a document and click Edit.
3. To replace the current document, click Choose file, navigate to the document location on your local computer and click Open.
4. Edit the Resource name or ContentOn filter if desired.
5. Click Add and then OK to clear the message.
   The document file properties have been updated.

2.8.9.3 Removing a document
Use this procedure to remove a document from the Desigo Control Point device.

Removing a document
1. Select \(\text{ }\text{ }\text{ }\text{ }\text{ }\) > \(\text{ }\text{ }\text{ }\text{ }\text{ }\) > Online file management > \(\text{ }\text{ }\text{ }\text{ }\text{ }\).
   A list of documents on the Desigo Control Point device displays.
2. Select the document(s) to remove and click Remove and Yes.
3. Click OK to close the confirmation dialog box.
   The selected documents are removed from the device.
3 Data point integration

The Data point integration function displays under Tools for all core functions that a user role is allowed to access.

Data points from the devices being monitored must be integrated to the Desigo Control Point device. The Desigo Control Point device determines the total number of data points that can be integrated.

For BACnet devices and systems all data points are integrated by default.

3.1 Data point integration user interface

![Data point integration user interface diagram]

1. **Desigo Control Point device information**
   - Device name and percent of the device capacity that is used by integrated data points. The model of the Desigo Control Point device determines the total number of BACnet objects that can be integrated.
   - Number of currently cached devices / total number that can be simultaneously cached for data point integration or for using Advanced functionality.

2. **Default template**
   - Does not apply for BACnet devices and systems.

3. **Integrate button**
   - Starts the integration process. This button is available when at least one device is selected.
   - **Note**
     The integration process stops if the number of data points being integrated exceeds the capacity of the Desigo Control Point device.

4. **Release cache button**
   - Manually releases all devices from the cache. Devices are only automatically released after you exit Desigo Control Point.
   - **Note**
     The check box in the Device column has no effect when Release cache is selected.

5. **Organize templates button**
   - Does not apply for BACnet devices and systems.

6. **Close button**
   - Closes the Data point integration function and return to the work area.

7. **Device name and integration check box**
   - Select an individual check box to queue the device for data point integration. The cursor changes to Not available if the device is not available or not ready for data point integration.

8. **Device state**
   - Indicates the availability of each device for data point integration. See the following Table Device state indications for more detail on each state.
Data point integration

Data point integration user interface

- **Status**: Indicates whether the objects from the device have been integrated to the Desigo Control Point device for monitoring. See the following Table Status indications for more information.

- **Filled**: Percent of the Desigo Control Point device capacity used by this device.

- **Template**: Does not apply for BACnet devices and systems.

- **Cache / Advanced**
  - Select **Cache** to load data points into the Desigo Control Point device memory. A device must be cached in order to access the **Advanced** integration function.
  - Select **Advanced** to manually integrate or remove individual data points for a device.

**Device state**

<table>
<thead>
<tr>
<th>Device state</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caching</td>
<td>The Desigo Control Point device is loading objects into memory in preparation for data point integration.</td>
</tr>
<tr>
<td>Cache error</td>
<td>An error occurred while the Desigo Control Point device was loading objects into memory.</td>
</tr>
<tr>
<td>Not available</td>
<td>The device is disconnected or not functioning.</td>
</tr>
<tr>
<td>Not cached</td>
<td>Objects are currently not loaded into the Desigo Control Point device memory.</td>
</tr>
<tr>
<td>Ready</td>
<td>The device is ready, cached and available for data point integration.</td>
</tr>
</tbody>
</table>

Table 12: Device state indications.

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated</td>
<td>Data points from the device have been successfully integrated.</td>
</tr>
<tr>
<td>Integration error</td>
<td>An error occurred while integrating data points from the device. Resolving errors related to data point integration [➙ 33]</td>
</tr>
<tr>
<td>Integration outdated</td>
<td>Data points from the device were previously integrated, but the current device attributes do not match the Desigo Control Point database.</td>
</tr>
<tr>
<td>Not integrated</td>
<td>Data points from the device have not been integrated.</td>
</tr>
<tr>
<td>Integrating</td>
<td>Data points from the device are in the process of being integrated.</td>
</tr>
<tr>
<td>Capacity exceeded</td>
<td>The number of data points being integrated exceeds device capacity.</td>
</tr>
</tbody>
</table>

Table 13: Status indications.
3.2 Advanced integration functions

Use the Advanced integration functions to manually add or remove BACnet objects from the Desigo Control Point device. (See ④ and ⑤ in the following figure.)

① Device name
② Applied template
   Does not apply for BACnet devices and systems.
③ Reset change button
   Apply button
   Applies your changes and closes the Advanced integration function.
   Cancel button
   Cancels all changes and closes the Advanced integration function.
④ Select all and Deselect all buttons
   Click Select all or Deselect all to include or exclude all data points for integration.
⑤ Manually add or remove individual BACnet objects
   Expand the tree view to select or clear the check boxes for individual BACnet objects.
   ⑥ Select the check box to manually add a data point for integration.
Creating filter strings

This section outlines some common filter operators that can be used with Desigo Control Point.

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>[tag name]</td>
<td>Matches any record that has the tag, regardless of its value.</td>
<td>coil includes any record with the coil tag</td>
</tr>
<tr>
<td>==</td>
<td>Equal to</td>
<td>navName == &quot;Outside air temperature&quot;</td>
</tr>
<tr>
<td>!=</td>
<td>Not equal to</td>
<td>baObjectType != &quot;0&quot;</td>
</tr>
<tr>
<td>&lt;</td>
<td>Less than</td>
<td>Temp &lt; 75</td>
</tr>
<tr>
<td>&lt;=</td>
<td>Less than or equal to</td>
<td>Temp &lt;= 75</td>
</tr>
<tr>
<td>&gt;</td>
<td>Greater than</td>
<td>Temp &gt; 75</td>
</tr>
<tr>
<td>&gt;=</td>
<td>Greater than or equal to</td>
<td>Temp &gt;= 75</td>
</tr>
<tr>
<td>or or and</td>
<td>Use to combine filters. For example,</td>
<td>site or equip</td>
</tr>
<tr>
<td></td>
<td></td>
<td>equip and netObjectAccess &gt;= 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>equip and not hvacRtu</td>
</tr>
<tr>
<td>-&gt;</td>
<td>Dereference operator. Use the dereference operator to dereference a tag that has a Ref value. For example, if your equipRef has a siteRef tag that references the site, you can query that Ref as follows: equipRef-&gt;navName == &quot;Universal&quot;</td>
<td>equipRef-&gt;navName == &quot;Universal&quot;</td>
</tr>
<tr>
<td></td>
<td>equipRef, ahuRef or siteRef are valid entity references.</td>
<td></td>
</tr>
</tbody>
</table>

Reading the expression equipRef->navName == "Universal" describes an object that meets the following characteristics:

- Building
  - Universal
    - HVAC
    - Chiller
    - Boiler

- It (HVAC, Chiller, Boiler) has an equipRef tag which is a ref
- and what the equipRef tag points to has a navName tag
- and the value of that navName tag is equal to Universal
Example
The filter `coil and netObjectAccess >= 5` has been applied in the following figure. In this case, objects are only included if they have both the tag `coil` and `netObjectAccess >= 5`.
The filter `equipRef->navName == "Cooling coil"` has been applied in the following figure. Reading the expression `equipRef->navName == "Cooling coil"` describes a point that meets the following characteristics:

- It (HVAC, Chiller, Ref) has an `equipRef` tag which is a `ref`
- and what the `equipRef` tag points to has a `navName` tag
- and the value of that `navName` tag is equal to `Cooling coil`
3.3 Resolving errors related to data point integration

Complete this procedure if a cache or integration error occurs.

1. Manually remove the device in ABT-SSA:
   - Select 🔄 > Setup & Service > Assigned devices.
   - Select Assigned devices in the work area and click 🔄 to open Edit mode.
   - Click 🔄 for the device with the error.
   - Click Delete to confirm the action.

2. Re-add the device to the Assigned devices structure:
   - Navigate to the Discovered devices structure.
   - Click Discover to trigger a discovery and click OK to close the confirmation message.
   - Select the check box for the device to be re-added.
   - Click Copy.
   - Navigate to Assigned devices and click Paste.
   - Click 🔄 to close Edit mode.

3. Repeat the data point integration process in Desigo Control Point:
   - Select 🔄 > 🕵️‍♂️ > Data point integration.
   - Select the check box for the device that requires data point integration.
   - If necessary, change the template for the device by selecting a new value from the drop-down list.
   - Click Integrate.
4 Graphic features

4.1 Plant view Tools

The Plant view core function provides custom graphical views of the current control within your facility.

Graphics available for viewing in the Plant view are based on the type of binding applied to the graphic the context of where the user is in the navigation. For example, a room segment graphic with relative binding will be available for all room segments at the same relative position in the building hierarchy. For more information, see the Data point binding section.

This section outlines the following Plant view > Tools topics:

- Adding a graphic
- Editing a graphic
- Removing a graphic
- Displaying the URL of a graphic
- Exporting graphics
- Importing graphics
- Enable / disable graphics and kiosks
- Defining graphics as a startup page
User interface

1. **Root icon and breadcrumb navigation**
   
   Click ■ to navigate to the top of the hierarchy for all devices being monitored. Graphics at this level are designed to encompass an entire project and display data from multiple sites. For example, a dashboard graphic that displays data for all fire sensors in a project.

2. **Lower levels of the building hierarchy**
   
   Graphics in lower levels of the building hierarchy are designed to display data at the site or equip level, such as a room. Click the Object name or ➡ to display the Graphics list for the selected site or equip.

3. **Magic bubbles / additional object properties**
   
   Click the icon for the object type (ⓐ), for example [object], to open the magic bubbles (ⓑ), which display additional object properties that are used for engineering graphics.
   
   - Click ☑ to copy the tags for the object to the clipboard.
   - Click ☑ to copy the baUniqueid for the object to the clipboard.
   - Click ☑ to display the shortName, navName, Object name and nodeSubType for the object.
   - The bottom bubble displays the icon for the object type and the location of the object in the building hierarchy.
4.1.1 Adding a graphic

When adding a graphic, start at the point in the building hierarchy where the graphic will be used. For example, when creating a room segment graphic, start at a room segment in the building hierarchy. Alternately, when creating a dashboard graphic, start at the Root of the building hierarchy.

Although a graphic is created at a particular location in the building hierarchy, adding a GRAPHIC ON query makes the graphic available at similar locations in the building hierarchy. For example, a GRAPHIC ON query with relative binding is applied to a room segment graphic in the building hierarchy. This room segment graphic will be available for all room segments at the same relative position in the building hierarchy.

GRAPHIC ON binding query [➙ 62]

The options displayed in the graphics wizard are context-sensitive.

- When you add a graphic at the Root of the building hierarchy, such as a dashboard, you are only able to select the data points to be displayed in the graphic.
- When you add a graphic to a particular location in the building hierarchy, such as a Room, you are able to select the following options:
  - Graphic backgrounds (VAV, AHU, Room operator unit, portrait or Room operator unit, landscape).
  - The type of data point binding to use.
    Data point binding [➙ 58]
  - Data points to be displayed in the graphic.

Using the graphics wizard

1. Navigate to the building hierarchy location where the graphic will reside. For example, a Room.
2. Select ☑ > ☐ > Configure graphics > ☑.
3. Enter a unique name.
4. (Optional) Select a background from the Select template drop-down list.
5. Select the type of data point binding and click Next.
   - For absolute binding, select Show graphic for this equipment.
   - For relative binding, select Show graphic for equipment like this.
     The GRAPHIC ON filter displays a query that applies to the current level of the building hierarchy. For example, equip and plant.
     Modify the query, if desired, and click Next.
     A list of available equipment and data points displays.
6. Select the equipment and data points to display on the graphic and click Next.
   - The system creates the graphic.
7. Click OK to clear the message.
   - The graphic opens in Graphics Builder for further editing.
   - A VIRTUAL POINT has been created for every data point selected in the wizard.
(Optional) Adding graphic components
1. Drag-and-drop graphic components from the COMPONENTS pane.
2. Drag-and-drop the appropriate data point from the EQUIPMENTS pane onto the component.
3. (Optional) Right-click the component and select TOOLS > RELATIVIZE.
   Select the binding options to create a relative reference and click APPLY.

(Optional) Adding smart labels
1. Drag-and-drop a numeric point from the EQUIPMENTS pane.
2. (Optional) Select the smart label, right-click and select TOOLS > RELATIVIZE.
   Select the binding options to create a relative reference and click APPLY.

Saving the graphic
1. Click to save your changes and SAVE to confirm the file name and location.
2. Close the tab to close Graphics Builder.
   ➤ The new graphic is listed in the Graphics section of the Plant view work area.
Continue with creating a thumbnail image and enabling the graphic so that it can be viewed by room users.
Thumbnails [➙ 146]
Enable / disable graphics and kiosks [➙ 40]

4.1.2 Editing a graphic
The process for editing a graphic is context-sensitive.
• You can display a list of graphics in the Plant view and select one or more graphics to edit.
• You can edit the graphic you are currently viewing.

Editing a graphic
Note
Use the following procedure to edit custom graphics. For working with supersample graphics, see Optimizing supersample graphics.

1. Do one of the following:
   – Select > Configure graphics > in the Plant view to display a list of graphics. Select the graphic(s) to edit and click Edit.
   – Display the graphic you want to edit and then select > Configure graphics > .
   ➤ Graphics Builder opens each selected graphic in a new tab.
2. Modify the selected graphic(s).
3. If necessary, click in the menu bar to display your changes in Graphics Builder.
4. Click and SAVE to save your changes.
5. Close the tab to close Graphics Builder.
4.1.3 Removing a graphic
The process for removing a graphic is context-sensitive.

- You can display a list of graphics in the Plant view and select one or more graphics to remove.
- You can remove the graphic you are currently viewing.

Removing a graphic

- Do one of the following:
  - Select 📈 > ☰ > Configure graphics > 📈 in the Plant view to display a list of graphics. Select the graphic(s) to remove, click Remove and then click Apply.
  - Display the graphic you want to remove and then select 📈 > ☰ > Configure graphics > 📈.

⚠️ The selected graphic(s) are removed.

4.1.4 Displaying the URL of a graphic
If your system contains a touch panel, ABT-SSA uses the URL of a graphic to define the startup page that displays after a power cycle. For more information, see the Home URL section in the Desigo Touch Panel Clients Commissioning Manual (A6V11604303).

1. View the desired graphic.
2. Select 📈 > ☰ > Configure graphics > 📈.

⚠️ The URL of the selected graphic is displayed.

4.1.5 Exporting graphics
The simplest process for reusing graphics is to put all of the custom components into one graphic and then export that graphic. When the graphic is imported to another device, your custom components are available in VIEW ASSETS 📁.

- The file type for graphics is *.fst.
- All exported graphics are marked disabled.
- Graphics can be exported as a Graphics or as Models. Only Graphics can be used with BACnet/IP systems.
  - Graphics maintain absolute references within the exported file. Object references are specific to the current building hierarchy element.
  - Models use virtual points to create relative references so that the exported file can be used as a template. The relative references are recognized when the model is imported into a different job that contains a similar building hierarchy.

Note
When exporting graphics, you may need to allow the browser to accept pop-ups. Do the following to enable popups in a Chrome browser:

1. At the top right corner of the window, select ☰ > Settings.
2. Scroll to the bottom of the page and expand the Advanced section.
3. In the Privacy and security section, expand Content settings.
4. Select Pop-ups and set the Blocked/Allowed switch to Allowed.
5. Close the Settings tab.
Exporting graphics for sharing across jobs

Use this procedure to export your custom graphics for use on another Desigo Control Point device.

Create a graphic that contains all of the custom components to be used elsewhere.

1. Select 📁 > 🎨 > Export files.
2. Select Graphics or Models.
3. Select the desired graphic(s) or model(s) in the dialog box and click Next.
   - The dialog box displays a list of the files selected for export.
4. Click Export to generate the *.fst file and save it to your computer.
   - A link to the file displays in the status bar at the bottom of the page.

4.1.6 Importing graphics

1. Select 📁 > 🎨 > Import files.
   - The Import files dialog box displays.
2. Click Choose files and select the desired *.fst file(s) from your computer.
3. Click Import files to complete the process and click OK to close the message.
4.1.7 Enable / disable graphics and kiosks

Room users can only view graphics and kiosks that have been enabled in the Desigo Control Point device. The model of Desigo Control Point device determines the total number of graphics and kiosks that can be enabled.

1. Select `>` > Enable/disable graphics & kiosks.
   ⇨ The Enable/disable graphics & kiosks dialog box indicates how many graphics and kiosks are enabled.

2. Select the graphic(s) or kiosk(s) to be enabled for viewing in the Disabled graphics & kiosks section.
3. Select any graphic(s) or kiosk(s) to be disabled for viewing in the Enabled graphics & kiosks section.
4. Click Apply to enable or disable the selected items and click Close to close the dialog box.
   ⇨ The enabled graphics and kiosks are now available for viewing in the building hierarchy location where they reside.
4.1.8  Defining graphics as a startup page

Graphics that are defined as a startup page are the default view for a particular level of the building hierarchy. This feature helps to maintain relative references if you are using hyperlinks to navigate between graphics.

1. Select 🗂️ > 🖋️ > Define startup page.
   - The Define startup page dialog box displays all graphics in the application.

   ![Define startup page dialog box]

2. Select the graphic(s) to define as a startup page in the Not startup pages section.
3. Select any graphics that should no longer be defined as a startup page in the Startup pages section.
4. Click Apply to assign or remove the selected graphics and then click Close to close the dialog box.
   - The graphics defined as a startup page are now the default view in the building hierarchy level where they reside.
4.2 Kiosk graphics

A PX... touch panel may be used to display kiosk graphics. A kiosk displays graphics in a controlled manner that prevents users from accessing information and system features outside the scope of the controlled display.

- An activated kiosk displays graphics in full-screen mode.
- Exiting full-screen mode requires a special touch sequence and user authentication.
- Thumbnail images are currently not supported for kiosk graphics.

Kiosks can be configured as either an interactive graphic or a slideshow of graphics.

- A kiosk configured for an interactive graphic allows users to command data points, view magic bubbles and navigate to additional graphics through hyperlinks.
  Configuring interactive graphics [➙ 45]
- A kiosk configured for a slideshow of graphics only displays information and does not contain elements for commanding objects. For example, a slideshow may display various building management results for energy consumption.
  Configuring a slideshow of graphics [➙ 46]

<table>
<thead>
<tr>
<th></th>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not delete graphics that are currently displayed in a kiosk.</td>
<td></td>
</tr>
<tr>
<td>While a kiosk is currently displayed, you are not prevented from deleting that kiosk through a browser. Should this happen, the touch panel freezes and you need to do one of the following:</td>
<td></td>
</tr>
<tr>
<td>- Use ABT Site to re-load the Desigo Control Point device.</td>
<td></td>
</tr>
<tr>
<td>- Login through a browser using the Administrator account. Recreate a kiosk graphic with the same name.</td>
<td></td>
</tr>
</tbody>
</table>

4.2.1 Touch panel power cycle recovery

This procedure configures the touch panel to display the correct startup page and return to kiosk mode after a power cycle.

When a power cycle occurs and recovery is complete, the hand icon displays. The operator must tap the icon to reactivate the kiosk.

Configuring the touch panel for kiosk operation

1. Log in to the touch panel through a computer.
2. Select Plant view and display the kiosk graphic that should display after a power cycle.
3. Select > Configure graphics > URL.
4. Copy the URL in the dialog box and click Close.
5. Select > Setup & Service > Favorite commissioning > Touch panel settings.
6. Click to display all properties.
7. Select Home URL, paste the URL of the kiosk graphic in the field and click OK.
8. Set Keep user logged in to Yes and click OK.

For more information, see the Home URL section of the Desigo Touch Panel Clients Commissioning Manual (A6V11604303).
4.2.2 Designing interactive graphics

This section outlines the recommended layout to optimize user experience during room operation. As a security measure to prevent malware attacks, Web browsers do not allow the display to change to full-screen mode without user interaction. Using a different layout may cause the icon to display, which indicates that a tap or click is required to authorize full-screen mode.

**NOTICE**

When using any kiosk graphic with hyperlinks, always ensure there is a way to hyperlink back to the kiosk before initiating full-screen mode.

---

**Overview**

- A single graphic is assigned to a kiosk configured for an interactive graphic.
  - This graphic is initially displayed when the kiosk is activated and whenever a user navigates to the kiosk.
  - This graphic can contain hyperlinks to other graphics, which allows multiple graphics to be used for room operation.
- It is only possible to enter or exit full-screen mode by hyperlinking to the kiosk.
  - Hyperlinking to the graphic assigned to the kiosk supports room operation but does not support the touch sequence to exit full-screen mode.
  - Navigating to the kiosk to exit from full-screen mode requires clicking the icon.
- Configure hyperlinks so that users can always navigate to the kiosk from any graphic used in room operation. Use one of the following methods to provide this navigation:
  - *(Recommended)* Create a direct hyperlink to the kiosk from each graphic.
  - Create a hyperlink to the kiosk on only one graphic and ensure that this graphic can be accessed from all others.

For example, the **Sample Room** graphic is assigned to a kiosk and contains a hyperlink to the **Sample room segment** graphic. The kiosk is activated by touching the icon and full-screen mode is enabled. If the kiosk operator selects the hyperlink to navigate to the **Sample room segment** graphic, there must be a way to return to the kiosk to which **Sample Room** graphic is assigned. Although the **Sample room segment** graphic provides a hyperlink back to the **Sample room** graphic, it is not possible to exit full-screen mode from either graphic. The display is stuck in full-screen mode.

- A hyperlink that navigates to the kiosk itself is required in the **Sample Room** graphic.
- A hyperlink that navigates to the kiosk itself is recommended in the **Sample room segment** graphic.

**Recommended layout**

The recommended layout for an interactive graphic with hyperlinks uses a starting graphic to provide a clear, visual indication that the user has navigated to the kiosk. The starting graphic should clearly provide the following information:

- Confirmation that the touch sequence to exit full-screen mode is available for users with the appropriate access.
- The navigation sequence to initiate or return to room operation.
Interactive kiosk
Only one graphic can be assigned to an interactive kiosk. This graphic displays when a user navigates to the kiosk. Navigating to the kiosk and navigating to the graphic assigned to the kiosk appear the same to the user; however, it is only possible to enter or exit full-screen mode from the kiosk.

Starting graphic
If graphics with hyperlinks are used, a starting graphic should be assigned to the kiosk to optimize user experience. The starting graphic should clearly indicate how to initiate or return to room operation and must provide a hyperlink to the main graphic used in room operation.

Hyperlink to plant or room operation
Create a hyperlink from the starting graphic to the main graphic for room operation. Tap this hyperlink to begin room operation.

Navigation in full-screen mode
Create hyperlinks between the graphics used in room operation. Full-screen mode is automatically maintained when navigating away from the kiosk and between various graphics during room operation.

Hyperlink to the kiosk
- Create a hyperlink to the kiosk in at least one graphic that is always accessible in room operation.
- Hyperlinks from all room operation graphics to the kiosk are recommended, but not required.

Exit sequence
An engineer can only exit full-screen mode by hyperlinking to the kiosk and executing the exit touch sequence. Hyperlinking to the graphic assigned to the kiosk does not support the kiosk exit sequence.
4.2.3 Workflow for configuring a kiosk presentation

<table>
<thead>
<tr>
<th>Workflow step</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Configuring a user account for the kiosk operator [➙ 45]</td>
</tr>
<tr>
<td>2. Configuring interactive graphics [➙ 45]</td>
</tr>
<tr>
<td>or</td>
</tr>
<tr>
<td>Configuring a slideshow of graphics [➙ 46]</td>
</tr>
<tr>
<td>3. Activating a kiosk presentation [➙ 47]</td>
</tr>
</tbody>
</table>

Configuring a user account for the kiosk operator
This procedure configures a user account for the kiosk operator that does not automatically log out and is limited to running the kiosk.

1. In ABT Site, select **Settings > User profiles > Roles**.
2. For the kiosk operator user account, set the **Automatic logout** field to **No**.

For more information, see the Managing automatic logout section of the Desigo Web Interface User Guide (A6V11936631).

Configuring interactive graphics

**Note**
When working at the **Root** level of the building hierarchy, you can only create kiosk graphics with absolute binding. The option to select the type of data point binding does not display.

Adding the interactive graphic

- Navigate to the building hierarchy location where the kiosk should reside.

  1. Select **榭 > ⬗ > Configure kiosks > 📁**.
  2. Enter a unique name for the kiosk.
  3. Select **Interactive graphic**.
  4. Select the type of data point binding.
     - Data point binding [➙ 58]
       - For absolute binding, select **Show kiosk for this equipment** and click **Next**.
       - For relative binding, select **Show kiosk for equipment like this** and click **Next**.
       - The **KIOSK ON filter** displays a query that applies to the current level of the building hierarchy. For example, **equip and plant**.
       - Modify the query, if desired, and click **Next**.

- The kiosk is created at the selected level of the building hierarchy.

  5. Click **OK** to clear the message.

Assigning an interactive graphic and enabling the kiosk

- The graphic to display in the kiosk presentation is enabled for viewing.

Enable / disable graphics and kiosks [➙ 40]

  1. Select **榭 > ⬗ > Configure kiosks > 📁**.
  2. Select the new interactive graphic and click **Edit**.

- The **Configure kiosks – Edit** dialog box displays.

  3. Select the interactive graphic to display for this kiosk and click **Apply**.
4. Select ☰ > ☰ > Enable/disable graphics & kiosks.

5. Select the new kiosk in the Disabled graphics & kiosks section, click **Apply** to enable it and then click **Close**.
   ✤ The interactive graphic kiosk is enabled for viewing.

**Configuring a slideshow of graphics**

A slideshow of graphics can be assigned one graphic or multiple graphics to be displayed in sequence.

*Note*

When working at the Root ☰ level of the building hierarchy, you can only create kiosk graphics with absolute binding. The option to select the type of data point binding does not display.

**Adding the slideshow kiosk**

▷ Navigate to the building hierarchy location where the kiosk should reside.

1. Select ☰ > ☰ > Configure kiosks > ‡.

2. Enter a unique name for the kiosk.

3. Select Slideshow of graphics.

4. Select the type of data point binding.
   - For absolute binding, select **Show kiosk for this equipment** and click **Next**.
   - For relative binding, select **Show kiosk for equipment like this** and click **Next**.
     - The **KIOSK ON filter** displays a query that applies to the current level of the building hierarchy. For example, **equip** and **plant**.
     - Modify the query, if desired, and click **Next**.
     ✤ The kiosk is created at the selected level of the building hierarchy.

5. Click **OK** to clear the message.

**Adding slides and enabling the kiosk**

▷ Graphic(s) to display in the kiosk presentation are enabled for viewing.

Enable / disable graphics and kiosks [⇒ 40]

1. Select ☰ > ☰ > Configure kiosks > ‡.

2. Select the new slideshow kiosk and click **Edit**.

3. Select Add slides and click **Next**.

4. Do the following in the Configure kiosks – Edit dialog box:
   - Select a graphic to display in the slideshow.
   - Select the target (equip or site) where the components bind to display values and states.
   - Select the number of seconds the current graphic displays.
   - Select the position of the current graphic in the slideshow sequence.
   - Click **Add**.

5. Click **Next** to add more graphics to the slideshow.

6. Click **Close** when you are finished adding slides.

7. Select ☰ > ☰ > Enable/disable graphics & kiosks.

8. Select the new kiosk in the Disabled graphics & kiosks section, click **Apply** to enable it and then click **Close**.
   ✤ The slideshow kiosk is enabled for viewing.
Activating a kiosk presentation

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always activate the kiosk while logged in with the kiosk user account.</td>
</tr>
<tr>
<td>Activating the kiosk while logged in with an advanced user account, such as an administrator or engineer, allows the kiosk operator to access non-kiosk system functions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>User accounts with limited access cannot log in if the previous user logged out from the ABT Setup &amp; Service Assistant (SSA).</td>
</tr>
<tr>
<td>If the following error displays when a user account with limited access tries to log in, a user account with access to ABT-SSA must log in, navigate to Desigo Control Point, and log out. The user account with limited access is then able to log in.</td>
</tr>
</tbody>
</table>

1. Log in to the touch panel with the kiosk user account.
2. Navigate to the building hierarchy location where the kiosk resides.
3. Tap the kiosk graphic to be displayed.
4. Tap 🖐️ to activate the kiosk.

4.2.4 Editing an interactive graphic

The following options are available for editing an interactive graphic:

- Select a different graphic
- Modify the graphic name

The graphic to be used in the kiosk presentation is enabled for viewing.
Enable / disable graphics and kiosks [➙ 40]

1. Select 🚿 > 🔄 > Configure kiosks > 📀.
   ➤ The Configure kiosks - Edit dialog box displays all kiosks in the application.
2. Select the kiosk to edit and click Edit.
3. Refer to the following figure for editing options.
4.2.5 Editing a slideshow kiosk

The following options are available for editing a slideshow of graphics:

- Edit kiosk properties
- Add slides
- Edit slides
- Remove slides

The graphic to be used in the kiosk presentation is enabled for viewing.

Enable / disable graphics and kiosks [้ง 40]

1. Select }>{Configure kiosks}.
   The Configure kiosks - Edit dialog box displays all kiosks in the application.

2. Select the kiosk to edit and click Edit.

3. Refer to the appropriate following subsection to complete the desired procedure.

---

① Name
Type a new name to rename the kiosk graphic.

② KIOSK ON filter
Modify the KIOSK ON filter to change the equip or site where the components bind to display values and states.

③ Select graphic
Select the interactive graphic to display for this kiosk.

④ Select target
Select the equip or site where the components bind to display values and states.
### Editing kiosk properties

**Name**
Type a new name to rename the kiosk graphic.

**KIOSK ON filter**
Modify the KIOSK ON filter to change the equip or site where the components bind to display values and states.

### Adding slides

**Select graphic:**
Sample Dashboard Facility Manager
Sample Room/Operator Landscape

**Select target:**
Default Site?AS_TRA_QMX7?Automation station view?Room QMX7

**Timer (seconds):**
15

**Order:**
4

Select the graphic to display in the slideshow.

The equip or site where the components bind to display values and states.

The number of seconds each slide displays.

The position of the current graphic in the slideshow sequence.

Click Add to add another graphic to the slideshow.
Click Close when you are finished adding slides.
Editing slides

1. The graphic name.
2. The equip or site where the components bind to display values and states.
3. The number of seconds each slide displays.
4. The position of the current graphic in the slideshow sequence.
5. Fields for editing the next slide in the slideshow.
Removing slides

1. Select the slide(s) to remove from the slideshow.
2. Click Remove and OK to confirm the removal.

4.2.6 Removing a kiosk

1. Select > > Configure kiosks > Remove.  
   The Remove kiosks dialog box displays all kiosks in the application.
2. Select the kiosk(s) to remove and click Remove.
3. Click Remove to confirm the removal.

4.2.7 Logging out of a kiosk

<table>
<thead>
<tr>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>The touch sequence in the log out procedure only displays the Log out screen—it does not end the kiosk session. As a security measure, the user account that activated the kiosk session must log out before a new user can log in.</td>
</tr>
</tbody>
</table>

Logging out of a kiosk

1. Tap the upper left corner of the touch panel and then, consecutively, within 30 seconds, tap the lower right corner of the touch panel.  
   The Log out screen displays.
2. Enter the **User name** and password of the user account that activated the kiosk session to log out and end the kiosk session.

   - The **Log in** screen displays, and any user can log in.

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
</table>

**Do the following if you do not know which user account activated the kiosk session:**

- Tap **Cancel** on the **Log out** screen. An error may display.
- Swipe down to display the URL bar and tap 🔄 to display ABT-SSA.
- Select **Log out** from the **User management** menu.

ABT-SSA may display the next time the user account that originally activated the kiosk session logs in. If this user account does not have access to ABT-SSA, the only option is to tap 🔄 > 🤼 to navigate to Desigo Control Point and then tap 🤼 to reactivate the kiosk.

### 4.3 Engineering notations

An **engineering notation** is an additional tag that can be added to equipment or data points to help you quickly distinguish between objects with similar names. Engineering notations are displayed in the “magic bubbles” for an object.

Occasionally, you may also need to apply additional tags if the semantic tags applied during data point integration are insufficient to identify a specific data point.

**Learn devices overview**

**Adding an engineering notation**

1. Navigate through the building hierarchy to display the equipment and/or data points where the engineering notation is being added.

2. Select 📃 > 📃 > **Edit engineering notation** > 📃.
3. In the top section of the dialog box, select the equipment to which an engineering notation is being added.

4. In the middle section of the dialog box, select the data point(s) to which an engineering notation is being added.

5. Type the engineering notation in the **engNotation key value** field and click **Apply**.

6. Display the magic bubbles to verify the engineering notations. The notation format is: **engNotation: "[tag name]"**
Editing an engineering notation

1. Open the List view and navigate to the level of the building hierarchy where the equipment and/or data points with an engineering notation reside.

2. Select > Edit engineering notation > .
   - All engineering notation tags at the selected location in the building hierarchy are displayed.

3. Edit the tag information and click Apply.

Removing an engineering notation

1. Open the List view and navigate to the level of the building hierarchy where the equipment and/or data points with an engineering notation reside.

2. Select > Edit engineering notation > .
   - All engineering notation tags at the selected location in the building hierarchy are displayed.

3. Select the engineering notation(s) to remove. Press CTRL and click to select multiple items.

4. Click Remove and Apply to confirm the removal.
5 Graphics Builder
Graphics Builder is the graphic design tool for Desigo Control Point.

5.1 Overview
This section provides an overview of the Graphics Builder user interface and terms and concepts that are important for understanding how to use the program.

User interface

1. **Builder pane**
   Provides tools for building graphics or displays information about the current graphic.
   Panes tools [→ 70]

2. **Builder pane navigation**
   - Click to view a different pane or to arrange the selected pane.
   - Toggle button to collapse or expand the selected pane.
   - Undocks the pane.
   - Re-docks the pane.
   - Adds another tool to the Builder pane.
   - Closes the pane.
Graphics Builder
Overview

① Command bar and MENU flyout
Contain basic tools, such as copy, paste, save, open and drawing shapes.

The MENU flyout also provides SAVE AS GRAPHIC
Command bar and MENU icons [➙ 57]

② Currently not used.

③ PREVIEW button
Click to preview the current graphic. Animated components are active and objects that depend on the context display. For example, a room segment graphic displays the correct number of lighting controls for the currently selected location in the building hierarchy.

④ Graphic tabs
A tab displays the name of each graphic that is currently open. Click to close a graphic.

⑤ Display language
Select the user interface language from a drop-down list.

Builder pane icons
The Builder panes provide tools that help with the graphic building process or display information about the graphic that is currently open. The following Builder panes are available:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PROPERTIES</td>
<td>Allows you to view, edit, add or remove any object, or modify the properties of a graphic component, including the background of the graphic itself.</td>
</tr>
<tr>
<td></td>
<td>COMPONENTS</td>
<td>Contains the graphic components provided in the graphic library as well as any models or animations that you have saved in the Graphics Builder.</td>
</tr>
<tr>
<td></td>
<td>LAYERS</td>
<td>Displays a hierarchical structure for all components and objects in a graphic. Objects can be moved to a higher or lower layer in the graphic.</td>
</tr>
<tr>
<td></td>
<td>VIRTUAL POINTS</td>
<td>Allows you to work with the binding and tagging properties of the data points used in a graphic.</td>
</tr>
<tr>
<td></td>
<td>EQUIPMENTS</td>
<td>Displays the database tree architecture and allows you to drag-and-drop sites, floors, equips and data points into the graphic.</td>
</tr>
<tr>
<td></td>
<td>EVENTS</td>
<td>Displays all of the events available within the graphic. For information on working with the EVENTS pane, see the J2 Graphics Builder documentation (<a href="https://finproducts.atlassian.net/wiki">https://finproducts.atlassian.net/wiki</a>).</td>
</tr>
<tr>
<td></td>
<td>PROGRAMS</td>
<td>Displays all programs within the current graphic. For information on working with the PROGRAMS pane, see the J2 Graphics Builder documentation (<a href="https://finproducts.atlassian.net/wiki">https://finproducts.atlassian.net/wiki</a>).</td>
</tr>
</tbody>
</table>

Table 14: Builder panes.
Command bar and MENU icons

The command bar and MENU flyout contain basic tools, such as copy, paste, save, open, and drawing shapes.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Name</th>
<th>Key combination</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Icon]</td>
<td>NEW GRAPHIC</td>
<td>–</td>
<td>Opens an empty graphic page.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>OPEN GRAPHIC</td>
<td>–</td>
<td>Opens graphics from the current project.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>SAVE GRAPHIC</td>
<td>CTRL+S</td>
<td>Saves and publishes the current graphic.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>SAVE AS GRAPHIC</td>
<td></td>
<td>Only available in the MENU flyout. Saves a copy of the current graphic with a different name.</td>
</tr>
<tr>
<td></td>
<td>Note:</td>
<td></td>
<td>When using SAVE AS GRAPHIC, always choose a unique graphic name. SAVE AS GRAPHIC does not overwrite an existing graphic with the same graphic name.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>VIEW ASSETS</td>
<td>–</td>
<td>Displays all models, images and other components that have been imported and are stored in the device. Assets are used by creating a reference to them; each unique asset is imported only once. For example, one company logo file is stored in the assets but it can be used in many graphics.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>UNDO</td>
<td>CTRL+Z</td>
<td>Undoes the last action or change. This only applies to actions done in the graphical &quot;work space&quot;. This does not affect changes done on the left or right menu.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>REDO</td>
<td>SHIFT+CTRL+Z</td>
<td>Redoes the last action or change that was undone. This does not affect changes done on the left or right menu.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>CUT</td>
<td>CTRL+X</td>
<td>Cuts an object out of the graphic work space.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>COPY</td>
<td>CTRL+C</td>
<td>Copies the selected object in the work area to the clipboard.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>PASTE</td>
<td>CTRL+V</td>
<td>Pastes an object from the clipboard into the work area.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>SELECTION TOOL</td>
<td>–</td>
<td>The standard mouse cursor to click and select objects.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>POLYGON TOOL</td>
<td>–</td>
<td>Draw a free-form polygon which is saved as an SVG. Commonly used for creating zones on a floor plan or a building image.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>EDIT POLYGON TOOL</td>
<td>–</td>
<td>Edits an existing polygon SVG image.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>RECTANGLE TOOL</td>
<td>–</td>
<td>Automatically draws a four-sided polygon.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>ELLIPSE</td>
<td>–</td>
<td>Automatically draws a round shape.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>VIEW DATABASE</td>
<td>–</td>
<td>Query records, tags, components, data points and any other objects that can be queried from within the graphic. This query only checks records within the graphic.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>HIDE/SHOW PANEL</td>
<td>–</td>
<td>Toggle button to display or hide the Builder panes on the left side of the screen.</td>
</tr>
</tbody>
</table>
Data point binding

*Data point binding* refers to the type of connection between a graphic component and an integrated data point. Graphics Builder uses the following types of data point binding:

- **Absolute binding** is a fixed connection to a **point ID** or **equip ID** that is unique to a specific database.
  - An absolute binding always fetches data from a specific instance of a point in this database.
  - Graphics with absolute binding always display data for the same components of a system and cannot be reused elsewhere without rebinding.

- **Relative binding** is a *binding query* that dynamically searches for a **point** or **equip** in any database relative to where the graphic is opened for viewing.
  - A relative binding fetches data from a point that is identified by one or more semantic tags describing function and the point’s relative position in the building hierarchy.
  - Graphics with relative binding can be reused wherever you have the same structure of components in a system.

Data point binding options

This section outlines the characteristics of the following data point binding options:

- Absolute by Point id
- Relative by navName

**Absolute by Point id binding**

**Absolute by Point id** binding has a hardcoded ID that matches one set of equipment. For example:

```
baUniqueId="ed476dc20bcb02adbc7eb4b9068e6121ea5576f9"
```

<table>
<thead>
<tr>
<th>View Bindings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binding (Building&gt;ventilation &amp; air cond)&gt;AHU_ERCP1_HC_HUM_H_TPH&gt;Outside air temperature) (Outside air temperature_model225)</td>
</tr>
<tr>
<td>baUniqueId=&quot;ed476dc20bcb02adbc7eb4b9068e6121ea5576f9&quot;</td>
</tr>
</tbody>
</table>

*Figure 4: Example of baUniqueId in a binding query.*

- The binding path is hardcoded to retrieve data from a specific data point regardless of where the graphic is loaded.
- If the graphic is loaded on other equipment, the graphic still references that specific data point ID in the database and loads the information from it.

**Recommended use:**

- One-time solutions.
- Graphics displaying specific instance data that is integrated to a specific device database. For example, a specific **Plant**, custom equipment, and summary-style or dashboard graphics for a specific site.
Relative by navName binding

Relative by navName binding has a query that contains an equipRef and a navName. For example:

```
equipRef==$id
and
(point or shadowPoint) and navName=="Outside air temperature"
```

---

**Figure 5:** Example of navName in a binding query.

- The binding query works on any equipment where the structure of the building hierarchy and the navName naming convention are a match.
- If the graphic is loaded on other equipment, the binding query looks for a data point at the same relative position in the building hierarchy and with the same navName, and loads the information for the data point it dynamically identifies.
- **Recommended use:** BACnet/IP systems where the application engineering reliably adheres to a well-known naming convention.
How semantic tags create structure in the system

Desigo Control Point uses a semantic tagging model, which is based on the open source Project Haystack model. Rather than object instance numbers or proprietary data point names, a semantic tagging model uses standardized, descriptive metadata to categorize and interpret data point information.

The Haystack tags **site**, **equip** and **point** create a basic hierarchy in Desigo Control Point. The following figure outlines how these tags are used in the context of a building hierarchy.

1. **site**
   The **site** tag represents a building or other type of facility with a unique street address. In this example, both **Building** and **Default site** have a **site** tag.

2. **equip**
   The **equip** tag represents an equipment asset, which is often a physical asset, such as an AHU, boiler, or chiller. An **equip** tag can also be used for a logical grouping, such as a chiller plant. **equip** objects are structured and can have references to other **equip** objects or to **site** objects. In this example:
   - **Cooling coil** has a parent **equip** reference (**equipRef**) to **Air handling unit West Wing**.
   - **Air handling unit West Wing** has a parent **equip** reference (**equipRef**) to **Vent & air cond.plants**.
   - **Vent & air cond.plants** has a parent **site** reference (**siteRef**) to **Building**.
③ **point or shadowPoint**
Every data point in the system has a **point** or **shadowPoint** tag.

**Point or shadowPoint** objects are not structured and have references to a parent **equip** or **site** object. In this example, **Valve** is an analog output point and has a parent **equip** reference (**equipRef**) to **Cooling coil**.

Each data point also has one of the following tags to classify its type:
- **cmd**, which classifies a data point as an output, AO/BO, command, or actuator.
- **sensor**, which classifies a data point as an input, AI/BI, or sensor.
- **sp**, which classifies a data point as a setpoint, soft point or process control variable.

**Note**
A best practice when working with binding queries is to use (**point or shadowPoint**) to cover both possible cases and accommodate future enhancements.

**How a point or equip is identified in the system**
Relative bindings create a structure that is used to dynamically identify a **point** or **equip**. References in relative bindings always start at lower levels of the building hierarchy and link to higher levels. That is, “parents” do not reference their “children”. Rather, data points reference their “parent” in the building hierarchy, the “parent” references the “grandparent”, and so forth.

The following figure outlines the information flow in the system.
1. **Describing the relative position of a point or equip in the hierarchy**

   References in relative bindings always start at lower levels of the building hierarchy and link to higher levels. For example, references link from a **point** (or **shadowPoint**) to an **equip** to a **site** to the Desigo Control Point device at the **Root**.

2. **Dynamic structure**

   Relative bindings create a structure that is used to dynamically identify a **point** or **equip**. In this example, relative bindings link the **Heating coil valve position** (**point** or **shadowPoint**) to the **Heating coil** (**equip**) 🅁, which is linked to the **Automation station view** (**equip**) 🅂 and then linked to the **Default site** (**site**) 🅁.

3. **Equipment assets**

   - The **equip** tag can be used in multiple levels of the building hierarchy. In this example, the **Heating coil**, **Supply air VAV** and **Automation station view** have **equip** tags.
   - Additional tags may be available to uniquely identify the function of each object. For BACnet/IP systems, the ability to identify the function of an object depends on the conventions used in your application engineering.
     For more information, see *Additional object properties* in the Plant view Tools [➙ 34] section.

4. **Site level of the building hierarchy**

5. **Root of the database**

   The top-most level of the building hierarchy for all devices being monitored. This special object is tagged **topLevel**. Graphics may be assigned to display at this location, but you cannot access or modify the tags at this level of the hierarchy.

   For more information, see GRAPHIC ON binding query [➙ 62].

### GRAPHIC ON binding query

The **GRAPHIC ON** binding query determines where the graphic displays in the building hierarchy. The query can be manually modified to best identify the building hierarchy object(s) on which the graphic may be loaded.

- For graphics with absolute binding, the **GRAPHIC ON** can be set to any specific **Object name** or **point ID** in the database. No matter where the graphic is opened for viewing, the bindings always connect to the same object instances.

- For graphics with relative binding, the **GRAPHIC ON** query acts as a filter to determine which **site** or **equip** the objects in this graphic can target when opened for viewing.
  - When the graphic is opened, the graphic components connect to the object instances that reference this **target object**. This function allows one graphic to be reused for other target objects in the building hierarchy that have the same or similar structures.
  - The **$id** variable in each relative binding query dynamically assumes the value of the **site** (for example, a building) or the **equip** (for example, an AHU plant) where the graphic is opened for viewing. That is, the **target object**.
  - In Desigo Control Point, the root of the **GRAPHIC ON** query is expected to be an **equip**. To create graphics at the site level or **Root** of the project, see the Creating site and Root level graphics [➙ 65] section.
  - When saving a graphic, consider where it should be available within the building hierarchy. For example, **equip and navName=="Plant01" or navName=="Plant02"** makes a graphic available for opening and reuse at multiple locations in the building hierarchy. Alternately, the query string **topLevel** makes a dashboard graphic available at the **Root** of the project.
### Binding query | Type of binding | Description
--- | --- | ---
baUniqueId | Fixed for a specific application on a specific system device. | • Query stays constant within a device unless the application structure is changed. • Useful for one-time solutions.

<table>
<thead>
<tr>
<th>Type of binding</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>semantic tags</td>
<td>Can be reused with similar applications and other system devices. Query can be used across systems and is extensible by individual libraries.</td>
</tr>
<tr>
<td>shortName</td>
<td>Can be reused with similar applications and other system devices. Query is proprietary to a system.</td>
</tr>
<tr>
<td>navName</td>
<td>Fixed for a specific application on a specific system device. Query can be engineered to be reused.</td>
</tr>
</tbody>
</table>

| Table 15: Types of GRAPHIC ON binding queries. |

Occasionally, you may want to add additional tags to the GRAPHIC ON query so that the graphic is recognized in more locations of the building hierarchy. For example, when you view the GRAPHIC ON query for a plant, you find that it only contains the equip tag. This tag alone is insufficient to identify a specific data point in the database.

- Manually adjusting the GRAPHIC ON query maintains the relative data point binding.
- You may need to add tags that are not automatically used for this query, such as navName.
- You may need to add an engineering notation that uniquely identifies the data point.

**Using Relative by navName binding**

Depending on the structure of an application for a BACnet/IP system, it may be possible to create graphics with Relative by navName binding that can be reused. In this case, navName is the point or equip name that displays in the Desigo Control Point List view and Plant view. You can verify the navName by displaying the magic bubbles for an object. For more information, see the Verifying relative binding queries [→ 67] section.

**Note**

The discussion in this section assumes the following:

- Data points are not structured according to a building hierarchy. That is, all points may belong directly to a site object, or many points may belong to just a few equip objects.
- Your application consistently uses a naming convention that allows an equip or point to be uniquely identified. The naming convention may be applied consistently from Plant-to-Plant on the same device, or in the application structure shared from device-to-device.

<table>
<thead>
<tr>
<th>Workflow Step</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The procedure Discover and assign devices [→ 15] is complete. A graphic has been created according to the procedure Adding a graphic [→ 36]. The graphic has been saved at the point in the building hierarchy where it will be opened for viewing. For example, a room segment graphic has been created and saved at a room segment in the building hierarchy.</td>
</tr>
</tbody>
</table>

| 2             | Verifying the object binding |

<table>
<thead>
<tr>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>The procedure Discover and assign devices [→ 15] is complete. A graphic has been created according to the procedure Adding a graphic [→ 36]. The graphic has been saved at the point in the building hierarchy where it will be opened for viewing. For example, a room segment graphic has been created and saved at a room segment in the building hierarchy.</td>
</tr>
</tbody>
</table>
Configuring the binding options

1. In the Plant view, display the graphic that will use **Relative by navName** binding.

2. Select > > Configure graphics > .
   ➔ Graphics Builder opens the graphic in a new tab.

3. Do the following for each component and smart label in the graphic:
   - Select the item, right-click and select TOOLS > RELATIVIZE.
   ➔ The Component binding options dialog box displays.

   - In the Top Equip section, select a location in the building hierarchy where the graphic will be used.
     ➔ By default, the object on which you opened this graphic for editing is selected. Another object can be manually selected, if necessary.
     ➔ The Top Equip is used as the root when describing the relative location of the point within the hierarchy.
     ➔ This specific Top Equip will be replaced with the variable $id in the generated binding query. The $id variable allows the binding to work when the graphic is opened from any other place in the hierarchy that has the same structure.
   - Select the Relative: By navName radio button and click APPLY.

Verifying the object binding

Complete this procedure for each component and smart label in the graphic.

1. Select a component or smart label, right-click and select TOOLS > VIEW BINDINGS.
   Data point binding [= 58]

2. Verify that the data point binding is a relative reference. For example:
   (point or shadowPoint) and navName="Setpoint for cooling" is a relative binding.
   baUniqueId="9a0cffe8a0088543bfe4734dd93630bff4302fa7" is an absolute binding.

3. Modify the binding directly in the View bindings dialog box, if necessary.

4. When you are finished, click to save your changes and SAVE to confirm the file name and location.
Creating site and Root level graphics

This section outlines tips for creating graphics that reside at the site level of the building hierarchy or at the Root, which is the top of the hierarchy for all devices being monitored.

- site level graphics display data for an entire facility. For example, a graphic that displays the occupied status of all conference rooms in a building or closely-related buildings.

- Root level graphics display data from multiple sites or data for an entire project. For example, a dashboard graphic that displays data for all fire sensors in a project.

Creating site level graphics

Desigo Control Point assumes that the top level of graphic reuse is at the equip level, such as an AHU, boiler or chiller plant. Therefore, the relativize function currently does not generate a siteRef tag if a site is selected in the Component binding options dialog box.

This procedure creates a graphic that displays data for an entire facility.

1. Create or open a graphic at an equip level that is located immediately below the desired site. How semantic tags create structure in the system [➙ 60]

2. Do the following for each component and smart label in the graphic:

   - Select the item, right-click and select TOOLS > RELATIVIZE.

   - In the Top Equip section, select the equip that is located immediately below the desired site.

   - Select Relative: By navName and click APPLY. A relative binding query has been created for the component.

3. Do the following for each component and smart label in the graphic:

   - Individually select each component or smart label, right-click and select TOOLS > VIEW BINDINGS.

   - Add the siteRef to the binding query and click SAVE. See the following table for more information.

   - The binding query has been modified for the component.

4. Click and modify the GRAPHIC ON such that the graphic can be opened on the appropriate site or sites. See the following figure and the GRAPHIC ON binding query [➙ 62] section for more information.

   - The adjusted bindings work for any site that has the same or similar structures in the building hierarchy.
### GRAPHIC ON

<table>
<thead>
<tr>
<th>GRAPHIC ON</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>site</td>
<td>This graphic can be opened for viewing on any site.</td>
</tr>
<tr>
<td>site and navName=&quot;your site name 1&quot; or navName=&quot;your site name 2&quot;</td>
<td>This graphic can be opened for viewing on either of the specified sites, which are known to have the same or similar structures in the building hierarchy.</td>
</tr>
</tbody>
</table>

Table 16: Modifying the GRAPHIC ON.

--- SAVE PROJECT ---

![Sample AHU_ERC_H_TP]

![Sample AHU_ERC_H_TP (2D)]

![Sample AHU_ERC_HC_TP]

![Sample AHU_ERC_HC_TP (2D)]

![Sample AHU_ERC_HU_HUM_H_TPH]

![Sample AHU_ERC_HU_HUM_H_TPH (2D)]

![Sample AHU_ERC_Roo_HC_TP]

![Sample AHU_ERC_Roo_HC_TP (2D)]

![Sample AHU_MIX_HC_TP]

![Sample AHU_MIX_HC_TP (2D)]

![Sample CDP_Top]

FILE NAME: Site Graphic 1

GRAPHIC ON: site and navName="Building 10"

TYPE: GRAPHIC

CANCEL  SAVE

Figure 6: Modifying the GRAPHIC ON.

### Creating Root level graphics

This topic outlines tips for creating a graphic that displays data from multiple sites or data for an entire project.

- When using TOOLS > RELATIVIZE to generate bindings, the root of the search pattern is always the $id variable.

  - The binding query is always relative to the structured object in the Plant view where the graphic is opened for viewing or editing.
    - The $id variable in each relative binding query dynamically assumes the value of the site (for example, a building) or equip (for example, an AHU plant) where the graphic is opened for viewing or editing.
    - The $id variable cannot assume the value of topLevel, which is the tag that identifies the Root level in the Plant view.
    - There is not a “topLevelRef” that behaves like siteRef or equipRef to describe the parent/child structure in a binding query.

- The binding query can be manually altered in advanced cases, such as where the binding always starts from the same structured object. For example, a specifically named site under the Root level.

- Use > Export files and Import files to reuse a Root level graphic on another system device that has the same building hierarchy and uses the same naming convention.
• The $id can be manually removed and replaced with a specific navName.
  – Binding defined by navName instead of the $id variable is not affected by where the graphic is opened for viewing.
  – GRAPHIC ON can then be set to any place in the project structure where it is convenient for this graphic to appear, including the special topLevel tag that identifies the Root level.

<table>
<thead>
<tr>
<th>View Bindings</th>
<th>View Bindings</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINDING (Building 10 Vent &amp; air cond. plants/ Air handling unit/ West Wing/ Outside air temperature)</td>
<td>BINDING (Building 10 Vent &amp; air cond. plants/ Air handling unit/ West Wing/ Outside air temperature)</td>
</tr>
<tr>
<td>equipRef-&gt;siteRef==$id and (point or shadowPoint) and navName=&quot;Outside air temperature&quot;</td>
<td>equipRef-&gt;siteRef-&gt;siteRef-&gt;siteRef-&gt;$id and (point or shadowPoint) and navName=&quot;Outside air temperature&quot;</td>
</tr>
</tbody>
</table>

Table 17: Modifying the binding query.

<table>
<thead>
<tr>
<th>GRAPHIC ON</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>topLevel</td>
<td>This graphic can be opened for viewing at the Root level in any system device with the same structure.</td>
</tr>
</tbody>
</table>

Table 18: Modifying the GRAPHIC ON.

**Verifying relative binding queries**

To verify relative binding queries, the binding on a graphic component is compared to the tags applied to the object in the List view.

1. Display the desired graphic in the Plant view and then select Configure graphics.
   – The graphic opens in Graphics Builder.
2. Select a component or smart label in the graphic, right-click and select TOOLS > VIEW BINDINGS.
   – The binding query for selected object is displayed.
3. In a separate window on your computer, select List view in the Desigo Control Point application.
   – Data points for the graphic selected in Step 1 are displayed.
4. Locate the data point that is linked to the smart label or component that you viewed in Graphics Builder.
5. Select the object icon for the data point to display the magic bubbles. For example, .
6. Select to display the data point information and compare it to the binding query.
7. If necessary, modify the binding query in the View Bindings dialog box and click SAVE.
Reusing graphics on other devices

**Reusing graphics on other Desigo Control Point devices**

Graphics with relative binding can be reused on other Desigo Control Point devices that have the same or similar applications.

- **Relative by Tags** binding is recommended for all supported standard applications because semantic tags are automatically applied during data point integration.
- Always use semantic tags that follow the Haystack conventions when creating relativized graphics. Data point binding [➙ 58]
- All graphics in the supersample graphics library use relative binding. Refer to these graphics to create your own graphic that contains a superset of the components in your system. Supersample graphics library

**Reusing graphics on devices with non-standard applications**

Semantic tags are not automatically applied to BACnet devices or devices with non-standard applications. In this case, **Relative by navName** binding is recommended.

Using Relative by navName binding [➙ 63]

Use the following procedure to re-bind a graphic after it is imported to a new Desigo Control Point device.

1. Open the **EQUIPMENTS** pane.
2. Drag-and-drop the appropriate data points to re-bind them to the graphic components.
   - An absolute binding is created, which adapts the graphic to the structure of the new application.
3. Do the following for each component and smart label in the graphic:
   - Select a component or smart label, right-click and select **TOOLS > RELATIVIZE**.
   - The **Component binding options** dialog box displays.

   ![Component binding options dialog box](image)

   - In the **Top Equip** section, select the building hierarchy location where the graphic will be used.
   - By default, the object on which you opened this graphic is selected. Another object can be manually selected, if necessary.
   - The tool uses the **Top Equip** as the root when describing the relative position of the point in the building hierarchy.
   - This specific **Top Equip** will be replaced with the variable `$id` in the generated binding query. This variable allows the binding to work when the graphic is opened from any other place in the hierarchy that has the same structure.
   - Select **Relative: By navName** and click **APPLY**.

4. Select an updated component or smart label, right-click and select **TOOLS > VIEW BINDINGS** to view the type of binding used.
   - For example: (point or shadowPoint) and navName="Setpoint for cooling" is a relative binding.
   - baUniqueId="9a0cffe8a0088543bfe4734dd93630bff4302fa7" is an absolute binding.

5. Modify the binding directly in the **View bindings** dialog box, if necessary.

6. Click 🔄 to save your changes and **SAVE** to confirm the file name and location.

**Note**
Once you're comfortable with the data point binding process, consider using the procedure Modifying the binding option for multiple points [➙ 178].
5.2 Pane tools

The Builder pane displays on the left side of the Graphics Builder and contains the following tools for building robust graphics:

- PROPERTIES [➙ 70]
  Used to view, edit, add or remove any object, or modify the properties of a graphic component.

- COMPONENTS [➙ 74]
  Provides components for dashboard graphics and HTML elements and images for physical components.

- LAYERS [➙ 132]
  Displays a hierarchical structure for all the components in a graphic.

- VIRTUAL POINTS [➙ 133]
  Displays the data points that belong to the graphic.

- EQUIPMENTS [➙ 138]
  Allows you to select objects from your building hierarchy that represent a value, setpoint or status.

- EVENTS pane
  For information, see the J2 Graphics Builder documentation (https://finproducts.atlassian.net/wiki).

- PROGRAMS pane
  Allows you to create custom programs.

5.2.1 PROPERTIES

Use ☑ PROPERTIES to view, edit, add or remove any object, or modify the properties of a graphic component, including the background of the graphic itself.

The ☑ PROPERTIES pane has two sections: BASIC and ADVANCED. The properties available for each component depend on the component type.
BASIC PROPERTIES

Use the BASIC PROPERTIES to modify the graphic name or change the appearance of the selected component.

This section outlines the properties that are common to all components. See the COMPONENTS tools [➙ 74] and HTML COMPONENTS [➙ 101] sections for information on specific components.

<table>
<thead>
<tr>
<th>General properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Component icon and Name field (not labeled)</td>
</tr>
<tr>
<td>The name of the currently-selected graphic component.</td>
</tr>
<tr>
<td>To rename a graphic, click on an open area of the graphic background until the current graphic name displays in the Name field. Enter a new name for the graphic and click and SAVE.</td>
</tr>
<tr>
<td>Note: SAVE AS GRAPHIC will not rename the current graphic. This command saves a copy of the current graphic with a different name.</td>
</tr>
<tr>
<td>● (Unlock / Lock)</td>
</tr>
<tr>
<td>Locks the current properties for the selected component.</td>
</tr>
<tr>
<td>Lock a component to prevent it from being selected and moved while you are editing the graphic.</td>
</tr>
<tr>
<td>● Classes field</td>
</tr>
<tr>
<td>Specifies classes from a pre-defined cascading style sheet (css) to change the appearance of a component. For more information, see the J2 Graphics Builder documentation (<a href="https://finproducts.atlassian.net/wiki">https://finproducts.atlassian.net/wiki</a>).</td>
</tr>
<tr>
<td>● SAVE MODEL</td>
</tr>
<tr>
<td>Saves the currently-selected component to the COMPONENTS&gt;MODELS pane so that it can be reused.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BACKGROUND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a color or image to use as a background.</td>
</tr>
<tr>
<td>● Click the COLOR field to open the palette. Select a color and click the COLOR field again to save your selection.</td>
</tr>
<tr>
<td>● Select IMAGE from the TYPE drop-down list. Click Browse to select a file from the models, images and other components that have been imported to the Desigo Control Point device.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>POSITION &amp; SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjust the position, width and height of the selected component.</td>
</tr>
<tr>
<td>● Position</td>
</tr>
<tr>
<td>Adjust the X and Y settings to change the position of a component.</td>
</tr>
<tr>
<td>● Size</td>
</tr>
<tr>
<td>Click on an open area of the graphic background until the current graphic name displays in the Name field. Then adjust the W and H settings.</td>
</tr>
</tbody>
</table>
**BORDER**
Adds a border to the selected component.
- Enter a point value in the **WIDTH** field and select a line **TYPE** from the drop-down list.
- Select \[ \] to change all borders at once.
- Select \[ \] or \[ \] to change individual sections of the border.
- Click the **COLOR** field to open the palette. Select a color and click the **COLOR** field again to save your selection.
- Use the **RADIUS** field to change the appearance of the corners of the selected component.

**ROTATION**
Use the slider or select an option from the drop-down menu to rotate the selected component.

**DROP SHADOW**
Adds a drop shadow to the selected component.
- Enter a point value in the **HORIZONTAL** and **VERTICAL** fields and select a shadow **TYPE** from the drop-down list.
- **HORIZONTAL** and **VERTICAL**
  Determine if the position of the shadow. For example, a shadow can display to the right or left and above or below the selected component.
- **BLUR**
  Changes the edges of the shadow.
- **SPREAD**
  Changes the size of the shadow.
- Click the **COLOR** field to open the palette. Select a color and click the **COLOR** field again to save your selection.
- **Form field**
  Specifies an HTML form that the component belongs to. Using this field is an advanced task.
- **Text field**
  If the selected component is a **Label**, the label text displays in this field.
ADVANCED PROPERTIES

Use the ADVANCED PROPERTIES section to add, edit and remove tags for the selected component.

① binding property
A string tag that displays binding information for the selected component.

Data point binding [⇒ 58]
- For components with absolute binding, the ID for a specific data point in the database is displayed. For example, \text{id} == @20a3572b-28b7e002.
- For components with relative binding, a query string is displayed. For example, \text{equipRef}==$id and (point or shadowPoint) and navName=="Setpoint for cooling".

② Property type
Changes the property type or removes the tag from the selected component. The following property types are available:

- MARKER is a simple tag with only a name; it has no associated value. For example, point or valve or plant.
- STRING is a property tag with a value that is a string. For example, \text{engNotation}=="WestBoiler" contains the tag \text{engNotation}, and its string value is "WestBoiler".
- NUMBER, for example, \text{stage}==2.
- BOOLEAN, for example, \text{enabled}==TRUE.
- ARRAY
- OBJECT
- REMOVE removes the currently-selected tag.

③ virtualPointRef property
A query that identifies an object in the database. When verifying data point binding for a component, use the \text{virtualPointRef} property along with the magic bubbles and VIEW BINDINGS from the right-click TOOLS menu.

④ (Add)
Adds a new property tag to the selected component.
5.2.2 COMPONENTS

The **COMPONENTS** pane provides the following tools for creating graphics:

- Components that are mainly used for dashboard graphics. For example, tools to create charts and gauges, embed graphics, display a motion jpeg and create custom interfaces with the RactiveJS library.
- Components to add HTML elements.
- Components that simplify the configuration of bar, circle, half-circle, and icon gauges.
- A container to group multiple components, act as a label, or display the *curVal* of a virtual point.
- Images for physical components, such as central plant components, coils, dampers, ducts and fans.
- Pre-built groups of components that model the behavior of a single data point, such as a light, or a piece of equipment, such as an exhaust fan. Any models or animations that you save in Graphics Builder are added to the pre-built groups of components.

**COMPONENTS tools**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.png" alt="graphic" /></td>
<td>AM</td>
<td>CHART [➔ 75]</td>
</tr>
<tr>
<td><img src="image.png" alt="graphic" /></td>
<td>DATA GRID [➔ 85]</td>
<td>Displays data in a spreadsheet-like view.</td>
</tr>
<tr>
<td><img src="image.png" alt="graphic" /></td>
<td>GAUGE [➔ 88]</td>
<td>Displays the current value (curVal) of a virtual point in a gauge format.</td>
</tr>
<tr>
<td><img src="image.png" alt="graphic" /></td>
<td>AM</td>
<td>GAUGE [➔ 89]</td>
</tr>
<tr>
<td><img src="image.png" alt="graphic" /></td>
<td>GRAPHIC INCLUDE [➔ 90]</td>
<td>Creates a frame that embeds a graphic in another graphic. This is similar to an iframe element.</td>
</tr>
<tr>
<td><img src="image.png" alt="graphic" /></td>
<td>GROUP [➔ 92]</td>
<td>Holds components together for making models.</td>
</tr>
<tr>
<td><img src="image.png" alt="graphic" /></td>
<td>BASIC IMAGE [➔ 93]</td>
<td>Displays an image.</td>
</tr>
</tbody>
</table>
### Table 19: COMPONENTS tools.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ITEM RENDERER</td>
<td>Renders a list of models based on a query from a virtual point. Example Used in the Sample Room Segment graphic. (Lights and blinds are rendered with an Item renderer.)</td>
</tr>
<tr>
<td></td>
<td>KIOSK</td>
<td>This is a basic component for custom programming only. See the Desigo Control Point kiosk tools, which provide the standard workflow for creating kiosks with robust functionality. Kiosk graphics [➙ 42]</td>
</tr>
<tr>
<td></td>
<td>MJPEG [➙ 94]</td>
<td>Displays a motion jpeg (MJPEG) image stream. Only MJPEG-encoded CCTV videos are supported.</td>
</tr>
<tr>
<td></td>
<td>MODEL LOADER [➙ 95]</td>
<td>Creates a custom model that can be reused.</td>
</tr>
<tr>
<td></td>
<td>RACTIVE [➙ 97]</td>
<td>Makes custom interfaces using the RactiveJS library. For more information, see <a href="https://ractive.js.org/">https://ractive.js.org/</a>. Example Used in the Sample Room graphic. (The navigator model for the room segment is a Ractive control.) Additional examples can be found at: <a href="https://finproducts.atlassian.net/wiki/spaces/FINStack/pages/91603570/GB+Ractive">https://finproducts.atlassian.net/wiki/spaces/FINStack/pages/91603570/GB+Ractive</a></td>
</tr>
<tr>
<td></td>
<td>SVG</td>
<td>Renders a scalable vector graphic (svg) image from the graphics database.</td>
</tr>
<tr>
<td></td>
<td>TIMER [➙ 99]</td>
<td>Generates an event at specified intervals. This is generally used for timing programs. For example, it sets a delay for a program to start or an interval for a program to refresh and continue running. This component runs in the background and is only visible in the Graphics Builder editor.</td>
</tr>
</tbody>
</table>

**AM|CHART**

An AM|CHART displays historical data (his) from a query or the current value (curVal) of a virtual point.

This section outlines the COMPONENTS > AM CHARTS category, which is recommended for creating graphs and charts.

**NOTICE**

The data displayed in Graphics Builder depends on the version of the Desigo Control Point device and may look different on your system. For more information, see the J2 Graphics Builder documentation [https://finproducts.atlassian.net/wiki/spaces/FINFramework/pages/770709383/FIN+Chart+Components+finAmChartComponents](https://finproducts.atlassian.net/wiki/spaces/FINFramework/pages/770709383/FIN+Chart+Components+finAmChartComponents).

**Basic workflow**

Data points for curVal charts are selected from a drop-down list of VIRTUAL POINTS that are associated with the graphic. If the desired data point is not in the list, drag-and-drop numeric points from the EQUIPMENTS pane onto the chart. This creates new VIRTUAL POINTS that are associated with the graphic and available in the drop-down list.
Graphics Builder
Pane tools

Table 20: Basic workflow for AM CHARTS.

<table>
<thead>
<tr>
<th>Workflow step</th>
<th>More Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create trend(s) for Historical (his) charts. See Trends tools in the Desigo Control Point Operation Manual (A6V11211557).</td>
</tr>
<tr>
<td>2</td>
<td>Create the dashboard component. Drag-and-drop a chart from COMPONENTS &gt; AM CHARTS onto the work area. Optionally, drag-and-drop from the COMPONENTS pane onto the work area to set a refresh interval for the chart data. See TIMER [➙ 99] to set a refresh interval.</td>
</tr>
<tr>
<td>3</td>
<td>Right click on the chart and select TOOLS &gt; CONFIGURE DASHBOARD COMPONENT. Use the appropriate table in the Configure Dashboard Component [➙ 76] section.</td>
</tr>
<tr>
<td>4</td>
<td>Specify the time range and how data should be summarized in Historical (his) charts. See Configure Dashboard Component History [➙ 84].</td>
</tr>
<tr>
<td>5</td>
<td>Select the data points to display, and (optional) select a color to represent each data point in the chart. See Configure Dashboard Component Points [➙ 85].</td>
</tr>
</tbody>
</table>

Configure Dashboard Component

The following table outlines the number of data points and the type of data supported for each type of chart.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Name</th>
<th>Number of points</th>
<th>Type of data</th>
</tr>
</thead>
<tbody>
<tr>
<td>➡️</td>
<td>Area chart [➙ 77]</td>
<td>10 maximum</td>
<td>his</td>
</tr>
<tr>
<td>➡️</td>
<td>Column chart [➙ 78]</td>
<td>10 maximum</td>
<td>his or curVal</td>
</tr>
<tr>
<td>➡️</td>
<td>Column layered chart [➙ 79]</td>
<td>exactly 2</td>
<td>his</td>
</tr>
<tr>
<td>➡️</td>
<td>Column line chart [➙ 80]</td>
<td>exactly 2</td>
<td>his</td>
</tr>
<tr>
<td>➡️</td>
<td>Column stacked chart [➙ 81]</td>
<td>10 maximum</td>
<td>his</td>
</tr>
<tr>
<td>➡️</td>
<td>Line chart [➙ 82]</td>
<td>10 maximum</td>
<td>his</td>
</tr>
<tr>
<td>➡️</td>
<td>Pie chart [➙ 83]</td>
<td>10 maximum</td>
<td>curVal</td>
</tr>
</tbody>
</table>

Table 21: AM CHARTS properties.
**Area chart**
Displays historical data (his) for up to ten points.

![Area chart example](image)

Figure 7: Area chart example.

1. Main Title
2. Chart Scrollbar
3. Side Title
4. Chart Cursor
5. Legend

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart type</td>
<td><strong>Historical</strong> is the only option.</td>
</tr>
<tr>
<td>Number of points</td>
<td>Number of points to display in the chart. Maximum is 10.</td>
</tr>
<tr>
<td>Timer</td>
<td><em>(Optional)</em> Select a timer to set a refresh interval for the chart data.</td>
</tr>
<tr>
<td>✓ Legend</td>
<td>Select to display a legend below the chart.</td>
</tr>
<tr>
<td>✓ Chart Cursor</td>
<td>Select to display the cursor and data point value when scrolling over the chart.</td>
</tr>
<tr>
<td>✓ ChartScrollbar</td>
<td>Select to display a scrollbar at the top. Resize the scrollbar to zoom.</td>
</tr>
<tr>
<td>Main Title</td>
<td><em>(Optional)</em> Enter a title to display at the top of the chart.</td>
</tr>
<tr>
<td>Side Title</td>
<td><em>(Optional)</em> Enter a title to display at the side of the chart.</td>
</tr>
<tr>
<td>✓ Show Background</td>
<td>Select to make the background opaque and display a frame around the chart.</td>
</tr>
</tbody>
</table>

Table 22: Area Chart dialog box.
**Column chart**

Displays historical data (his) or current values (curVal) for up to ten points. Values can be displayed in either vertical or horizontal bars.

![Column chart example](image)

Figure 8: Column chart example.

1. Main Title
2. Y Axis Max
3. Side Title
4. Show Background
5. Y Axis Min

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart type</td>
<td>Select Current Val or Historical.</td>
</tr>
<tr>
<td>Number of points</td>
<td>Number of points to display in the chart. Maximum is 10.</td>
</tr>
<tr>
<td>Timer</td>
<td>(Optional) Select a timer to set a refresh interval for the chart data.</td>
</tr>
<tr>
<td>Main Title (3)</td>
<td>(Optional) Enter a title to display at the top of the chart.</td>
</tr>
<tr>
<td>Side Title (2)</td>
<td>(Optional) Enter a title to display at the side of the chart.</td>
</tr>
<tr>
<td>Rotate</td>
<td>Select to display the columns horizontally.</td>
</tr>
<tr>
<td>Show Background</td>
<td>Select to make the background opaque and display a frame around the chart.</td>
</tr>
<tr>
<td>Y Set Min Max</td>
<td>Select to specify minimum and maximum values for the Y axis.</td>
</tr>
<tr>
<td>Y Axis Min</td>
<td>Enter a Y axis minimum value if Y Set Min Max is selected.</td>
</tr>
<tr>
<td>Y Axis Max</td>
<td>Enter a Y axis maximum value if Y Set Min Max is selected.</td>
</tr>
</tbody>
</table>

Table 23: Column Chart dialog box.
Column layered chart
Displays historical data (his) for exactly two points. Values can be displayed in either vertical or horizontal bars.

![Column layered chart example](image)

Figure 9: Column layered example.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart type</td>
<td><strong>Historical</strong> is the only option.</td>
</tr>
<tr>
<td>Number of points</td>
<td>Number of points to display in the chart. Must be exactly 2.</td>
</tr>
<tr>
<td>Timer</td>
<td>(Optional) Select a timer to set a refresh interval for the chart data.</td>
</tr>
<tr>
<td>Chart Cursor</td>
<td>Select to display the cursor and data point value when scrolling over the chart.</td>
</tr>
<tr>
<td>Legend</td>
<td>Select to display a legend below the chart.</td>
</tr>
<tr>
<td>Chart Scrollbar</td>
<td>Select to display a scrollbar at the top. Resize the scrollbar to zoom.</td>
</tr>
<tr>
<td>Main Title</td>
<td>(Optional) Enter a title to display at the top of the chart.</td>
</tr>
<tr>
<td>Side Title</td>
<td>(Optional) Enter a title to display at the side of the chart.</td>
</tr>
<tr>
<td>Rotate</td>
<td>Select <strong>Vertical</strong> or <strong>Horizontal</strong> column orientation.</td>
</tr>
<tr>
<td>Dimension 3</td>
<td>Select to display a three-dimensional chart.</td>
</tr>
<tr>
<td>Show Background</td>
<td>Select to make the background opaque and display a frame around the chart.</td>
</tr>
</tbody>
</table>

Table 24: Column layered dialog box.
**Column line chart**

Displays historical data (**his**) for exactly two points. One value is displayed in vertical bars, and one value is displayed as a line graph.

---

**Figure 10: Column line example.**

- **①** Main Title
- **②** Chart Scrollbar
- **③** Side Title
- **④** Show Background
- **⑤** Chart Cursor
- **⑥** Legend

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart type</td>
<td><strong>Historical</strong> is the only option.</td>
</tr>
<tr>
<td>Number of points</td>
<td>Number of points to display in the chart. Maximum is 10.</td>
</tr>
<tr>
<td>Timer</td>
<td><em>(Optional)</em> Select a timer to set a refresh interval for the chart data.</td>
</tr>
<tr>
<td>✔ Chart Cursor</td>
<td>Select to display the cursor and data point value when scrolling over the chart.</td>
</tr>
<tr>
<td>✔ Legend</td>
<td>Select to display a legend below the chart.</td>
</tr>
<tr>
<td>✔ Chart Scrollbar</td>
<td>Select to display a scrollbar at the top. Resize the scrollbar to zoom.</td>
</tr>
<tr>
<td>Main Title</td>
<td><em>(Optional)</em> Enter a title to display at the top of the chart.</td>
</tr>
<tr>
<td>Side Title</td>
<td><em>(Optional)</em> Enter a title to display at the side of the chart.</td>
</tr>
<tr>
<td>✔ Show Background</td>
<td>Select to make the background opaque and display a frame around the chart.</td>
</tr>
</tbody>
</table>

Table 25: Column Line dialog box.
Column stacked chart
Displays historical data (his) for up to ten points. Values are displayed in vertical bars.

![Column stacked chart example]

Figure 11: Column stacked example.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart type</td>
<td><strong>Historical</strong> is the only option.</td>
</tr>
<tr>
<td>Number of points</td>
<td>Number of points to display in the chart. Maximum is 10.</td>
</tr>
<tr>
<td>Timer</td>
<td><em>(Optional)</em> Select a timer to set a refresh interval for the chart data.</td>
</tr>
<tr>
<td>✓ Legend</td>
<td>Select to display a legend below the chart.</td>
</tr>
<tr>
<td>✓ Chart Cursor</td>
<td>Select to display the cursor and data point value when scrolling over the chart.</td>
</tr>
<tr>
<td>✓ Chart Scrollbar</td>
<td>Select to display a scrollbar at the top. Resize the scrollbar to zoom.</td>
</tr>
<tr>
<td>Main Title</td>
<td><em>(Optional)</em> Enter a title to display at the top of the chart.</td>
</tr>
<tr>
<td>Side Title</td>
<td><em>(Optional)</em> Enter a title to display at the side of the chart.</td>
</tr>
<tr>
<td>Stacked</td>
<td><strong>Regular</strong> – Each bar’s length indicates a numeric value. Each bar is comprised of a number of sub-bars that indicate intermediate values. 100% - All bars are the same height. Each sub-bar displays the percentage contribution to the whole. See the Figure Column stacked example.</td>
</tr>
<tr>
<td>✓ Dimension 3</td>
<td>Select to display a three-dimension chart.</td>
</tr>
<tr>
<td>✓ Show Background</td>
<td>Select to make the background opaque and display a frame around the chart.</td>
</tr>
</tbody>
</table>

Table 26: Column Stacked dialog box.
**Line chart**

Displays historical data (*his*) for up to ten points.

![Line chart example](image)

**Figure 12: Line chart example.**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart type</td>
<td><em>Historical</em> is the only option.</td>
</tr>
<tr>
<td>Number of points</td>
<td>Number of points to display in the chart. Maximum is 10.</td>
</tr>
<tr>
<td>Timer</td>
<td><em>(Optional)</em> Select a timer to set a refresh interval for the chart data.</td>
</tr>
<tr>
<td>Legend</td>
<td>Select to display a legend below the chart.</td>
</tr>
<tr>
<td>Chart Cursor</td>
<td>Select to display the cursor and data point value when scrolling over the chart.</td>
</tr>
<tr>
<td>Chart Scrollbar</td>
<td>Select to display a scrollbar at the top. Resize the scrollbar to zoom.</td>
</tr>
<tr>
<td>Main Title</td>
<td><em>(Optional)</em> Enter a title to display at the top of the chart.</td>
</tr>
<tr>
<td>Side Title</td>
<td><em>(Optional)</em> Enter a title to display at the side of the chart.</td>
</tr>
<tr>
<td>Show Background</td>
<td>Select to make the background opaque and display a frame around the chart.</td>
</tr>
</tbody>
</table>

*Table 27: Line chart dialog box.*
**Pie chart**

Displays current values (**curVal**) for up to ten points.

---

**Field** | **Description**
--- | ---
Chart type | **Current Val** is the only option.
Number of points | Number of points to display in the chart. Maximum is 10.
Timer | *(Optional)* Select a timer to set a refresh interval for the chart data.
Legend | Select to display a legend below the chart.
Dimension 3 | Select to display a three-dimension chart.
Chart type | Select **Pie Chart** or **Donut Chart**.
Table 28: Pie chart dialog box

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart Cursor</td>
<td>Select to display the data point value when scrolling over the chart.</td>
</tr>
<tr>
<td>Animate Slice</td>
<td>Select to pull out an individual slice of the pie chart when it is clicked.</td>
</tr>
<tr>
<td>Main Title</td>
<td>Title shown at top of chart, if left blank it does not display a title.</td>
</tr>
<tr>
<td>Show Background</td>
<td>Select to make the background opaque and display a frame around the chart.</td>
</tr>
</tbody>
</table>

Table 29: Configure dashboard component history dialog box.

**Configure Dashboard Component History**

The **Configure Dashboard Component History** dialog box allows you to specify the time range and how data should be summarized in **Historical** charts.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Single Date</td>
<td>One specific date.</td>
</tr>
<tr>
<td>Use Date Range</td>
<td>A time frame with a specific start and end date.</td>
</tr>
<tr>
<td>Use Date Function</td>
<td>A time frame in relation to the current day. For example, <em>Today, Yesterday, This month, Period Past Week,</em> or <em>Last Year.</em></td>
</tr>
<tr>
<td>Use Relative Span</td>
<td>A time frame in relation to the current time or day. Options are: <em>Seconds, Minutes, Hours, Days, Weeks, Months, Years.</em></td>
</tr>
</tbody>
</table>

**Rollup Function**

Options for grouping and summarizing the data:

- **None**
- **Average** - The average of all input values is supplied after each time interval for the polling cycle.
- **Count** - The number of data points observed in the time interval.
- **Maximum** - The maximum value seen in the time interval.
- **Median value** - The middle value that separates the higher half from the lower half.
- **Minimum** - The minimum value seen in the time interval.
- **Spread** - Indicates how much the individual values vary from the average.
- **Standard deviation** - An overall measurement of the variation in the values collected. A lower standard deviation indicates the values collected are close to the average value. A higher standard deviation indicates the values collected are spread out over a wide range.
- **Sum** - The sum of all data points for the time interval.

**Rollup Interval**

Interval for summarizing the data. Options are: *Seconds, Minutes, Hours, Days, Weeks, Months, Years.*
Configure Dashboard Component Points

Prerequisites

- Data points for the chart are available in the VIRTUAL POINTS pane.
- The Num Points field in the Configure Dashboard Comp dialog box reflects the number of data points to display in the chart.

Data points for curVal charts are selected from a drop-down list of VIRTUAL POINTS that are associated with the graphic. If the desired data point is not in the list, drag-and-drop numeric points from the EQUIPMENTS pane onto the chart. This creates new VIRTUAL POINTS that are associated with the graphic and available in the drop-down list.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point number prompt</td>
<td>Select a point to display in the chart.</td>
</tr>
</tbody>
</table>
| (Optional) Color number prompt | To use default colors, leave this field blank. Otherwise, enter a color name (in English only), RGB, or hex color code. For example:  
- red or #FF0000 or RGB(255,0,0)  
- pink or #FFC0CB or RGB(255,192,203)  
- orange or #FFA500 or RGB(255,165,0)  
- yellow or #FFFF00 or RGB(255,255,0)  
- purple or #800080 or RGB(128,0,128)  
- green or #008000 or RGB(0,128,0)  
- blue or #0000FF or RGB(0,0,255)  
- brown or #A52A2A or RGB(165,42,42)  
- white or #FFFFFF or RGB(255,255,255)  
- gray or #808080 or RGB(128,128,128)  
- black or #000000 or RGB(0,0,0)  
For additional color options, see https://htmlcolorcodes.com/color-names/|

Table 30: Configure dashboard component points dialog box.

DATA GRID

A DATA GRID displays data in a spreadsheet-like view.

Configuring a DATA GRID

- This procedure uses the PROPERTIES, COMPONENTS and VIRTUAL POINTS panes.

1. From the COMPONENTS > COMPONENTS pane, drag-and-drop onto the work area and then select it.

2. Click at the bottom of the ADVANCED PROPERTIES pane to add a new tag. A string tag is added.

3. Click and select MARKER to change the tag type.

4. Name the new tag basicBinding and click .
5. Click + at the bottom of the **VIRTUAL POINTS** pane to add a new virtual point.

6. Name the virtual point (if desired) and click ✔.

7. Click → for the new virtual point and select **ADD PROPERTY**.

8. A string tag is added.

9. Name the property **query** and click ✔.

9. Select the value for the **query** property (initially named **NULL**), change it to **readAll(site)** and click ✔.
10. Drag-and-drop the new virtual point onto the **DATA GRID** to bind it to the component.

11. Click **PREVIEW** in the upper right corner to display the data.
GAUGE

A 🗑 GAUGE displays the current value of a virtual point in a gauge format.

Configuring a GAUGE

* This procedure uses the 🙊 PROPERTIES, 📑 COMPONENTS, 📍 VIRTUAL POINTS and 🛠 EQUIPMENTS panes.

1. From the 📑 COMPONENTS > COMPONENTS pane, drag-and-drop 🗑 GAUGE onto the work area.

2. (Optional) Select the new 🗑 GAUGE and use the BASIC 🙊 PROPERTIES to modify the appearance of the gauge.

Working with gauges [➙ 167]

3. From the 🛠 EQUIPMENTS pane, drag-and-drop a 📍 numeric point onto the work area to create a smart label for the gauge.

4. In the 📍 VIRTUAL POINTS pane, locate the virtual point associated with the 📍 numeric point that was used to create the smart label.

5. Drag-and-drop the new virtual point onto the 🗑 GAUGE to bind it to the component.

6. Click PREVIEW in the upper right corner to display the gauge.
AMIGAUGE

An AMIGAUGE displays the current value (curVal) of a virtual point in a gauge format. This component is typically used in combination with a PROGRAM and a GROUP.

Configuring an AMIGAUGE

1. Drag-and-drop from COMPONENTS > COMPONENTS onto the work area.
2. Drag-and-drop a numeric point from EQUIPMENTS onto the work area to create a smart label for the gauge.
3. In the VIRTUAL POINTS pane, locate the virtual point associated with the numeric point that was used to create the smart label.
4. Drag-and-drop the virtual point onto the gauge to bind it to the component.
5. *(Optional)* Select the gauge and use the **BASIC PROPERTIES** to modify the **End value**, **Start value** or **Title**.

**BASIC PROPERTIES** [➔ 71]

6. Click **PREVIEW** in the upper right corner to display the gauge updating with the current value.

---

**GRAPHIC INCLUDE**

**GRAPHIC INCLUDE** creates a frame that embeds a graphic into another graphic. For an example, see the **FIN Include Program** in the **PROGRAMS** pane of the **Sample room segment** graphic.

**Configuring a GRAPHIC INCLUDE**

▷ This procedure uses the **PROPERTIES** and **COMPONENTS** panes.

▷ Get the **id** of the graphic that you want to display.

▷ Get the **id** of the target (the **site** or **equip** or **floor**) that the graphic will use.

1. From the **COMPONENTS > COMPONENTS** pane, drag-and-drop [ ] onto the work area and then select it.

2. Do the following in the **BASIC PROPERTIES** pane:
   
a. Enter the **id** of the graphic that will display in the **File Ref** field.

b. Enter the **id** of the target (the **site** or **equip** or **floor**) in the **Target Ref** field.

   c. Set the **Auto Load** switch to **ON** to automatically load the graphic within the frame when the main graphic displays, or to **OFF** to only load the graphic after a trigger event.
3. Click **PREVIEW** in the upper right corner to display the 📦 **GRAPHIC INCLUDE**.
GROUP
Groups are typically used to hold components together for making models. Graphics Builder provides two options for holding components together:

- Using \texttt{GROUP} in the \texttt{COMPONENTS > COMPONENTS} pane.
- Selecting \texttt{CREATE GROUP} from the right-click menu.

Creating a group with the GROUP component

\begin{itemize}
\item This procedure uses the \texttt{COMPONENTS} and \texttt{LAYER} panes.
\end{itemize}

1. Drag the desired components onto the work area.

2. From the \texttt{COMPONENTS \> COMPONENTS} pane, drag-and-drop onto the work area and resize it so that it fits over the components.

3. Do the following in the \texttt{LAYER} pane:
   \begin{itemize}
   \item \textbf{a.} Expand the \texttt{Layer} and the \texttt{Group}.
   \item \textbf{b.} Press \texttt{CTRL} and click to select all the components to be grouped together.
   \item \textbf{c.} Drag the selected components onto the \texttt{Group} component.
   \end{itemize}

\begin{itemize}
\item The components are grouped together and move as a single unit.
\end{itemize}
Creating a group through the right-click menu

This procedure uses the **COMPONENTS** pane.

1. Drag-and-drop the desired components onto the work area.

![Gauge](image)

2. Use the mouse to select the components, right click and select **CREATE GROUP**.

![Create Group](image)

- The components are grouped together and move as a single unit.

**BASIC IMAGE**

**BASIC IMAGE** adds an image to a graphic.

**Configuring a BASIC IMAGE**

This procedure uses the **PROPERTIES** and **COMPONENTS** panes.

1. From the **COMPONENTS > COMPONENTS** pane, drag-and-drop onto the work area and then select it.

2. In the **BACKGROUND** section of the **PROPERTIES** pane, select **IMAGE** from the **TYPE** drop-down list.

3. Click the **BROWSE** button, select an image in the dialog box and click **IMPORT**.

**Note**

If the image is not already in the database, see the Guidelines for adding images to the database [182] topic.
4. Click **PREVIEW** in the upper right corner to display the **BASIC IMAGE**.

**ITEM RENDERER**

**ITEM RENDERER** uses a program to query for points or equipment in the currently selected location of the building structure. For each point or equipment found, the **ITEM RENDERER** renders and binds a graphic component, such as a fan or light, and displays the correct number of components. For example, a room segment graphic displays the correct number of light controls for the currently selected location. Scrolling is automatically provided if additional space is required for the number of components rendered.

Use the **ITEM RENDERER** when the number of objects is variable and unknown at engineering time.

**Example**

See the program in the **Sample Room Segment** graphic, which uses one **ITEM RENDERER** for lights and another for blinds.

**KIOSK**

**KIOSK** is a basic component for custom programming only.

The Desigo Control Point kiosk tools are recommended for kiosk graphics. See the Kiosk graphics [➙ 42] section for more information as well as a standard workflow for creating kiosks with robust functionality.

**Workflow for configuring a kiosk presentation [➙ 45]**

**MJPEG**

**MJPEG** displays a motion jpeg (MJPEG) image stream. Only MJPEG-encoded CCTV videos are supported.

**Configuring an MJPEG image stream**

This procedure uses the **PROPERTIES** and **COMPONENTS** panes.

1. From the **COMPONENTS > COMPONENTS** pane, drag-and-drop onto the work area.

2. To get the URL for the MJPEG image stream you want to use, right-click on the image and copy the address.
   - The image at [http://www.opentopia.com/webcam/16391](http://www.opentopia.com/webcam/16391) is shown as an example.
3. Select the new MJPEG component.

4. Do the following in the BASIC PROPERTIES pane:
   a. Paste the URL of the MJPEG image stream in the Source field.
   b. (Optional) Enter a value in the Delay (Ms) field to set the update interval of the image.

```
PROPERTIES

BASIC

MJPEG

Classes:

SAVE MODEL: SAVE

Delay (Ms): 0

Source: opia.com/webcam/16391
```

5. Click PREVIEW in the upper right corner to display the image stream in the MJPEG component.

MODEL LOADER

The MODEL LOADER creates a custom model that can be reused.

Configuring a MODEL LOADER

This procedure uses the PROPERTIES and COMPONENTS panes.

1. Do the following to create a group of components:
   a. Drag the desired components onto the work area.
b. Use the mouse to select the components, right-click and select CREATE GROUP.

2. In the BASIC PROPERTIES pane, enter a name in the field and click SAVE.

3. To use the model, locate it in the COMPONENTS > MODELS pane and drag-and-drop it onto the work area.
Editing a model

**Note**
Editing a model creates a new copy of it. You cannot update and save an existing model, and you are not prevented from assigning the same name to multiple models.

1. Select **VIEW ASSETS** in the command bar.
   - The **IMPORT** dialog box displays all models and images stored in the device.

2. Select the model you want to edit and click **IMPORT**.
   - The model is added to the work area.

3. Right-click on the model, select **UNGROUP** and make the desired edits.

4. Use the mouse to select all the model components, right click and select **CREATE GROUP**.

5. In the **BASIC PROPERTIES** pane, enter a name in the field and click **SAVE**.

**RACTIVE**

RACTIVE makes custom interfaces using the RactiveJS library. For more information, see the J2 Graphics Builder documentation ([https://finproducts.atlassian.net/wiki](https://finproducts.atlassian.net/wiki)).

**Example**

See the navigator model in the Sample Room Segment graphic, which uses a RACTIVE component that has been wrapped as a model for reuse.

**Adding the RACTIVE component**

- This procedure uses the **PROPERTIES, COMPONENTS** and **PROGRAMS** panes.
1. From the COMPONENTS > COMPONENTS pane, drag-and-drop onto the work area.

2. In the BASIC PROPERTIES pane, expand RACTIVE EDITOR and click OPEN EDITOR.

3. Go to the FIN Stack online documentation Web site (https://finproducts.atlassian.net/wiki/spaces/FINStack/pages/91603570/GB+Ractive) and select a custom interface.

4. Copy the code from the Template, Model, Style and Init sections and paste it into the corresponding tab of the RACTIVE EDITOR dialog box.

5. Click SAVE to close the dialog box.

6. Click at the bottom of the PROGRAMS pane to add a new program.

7. Type a name in the PROGRAM NAME field.

8. Follow the remaining instructions on the FIN Stack documentation Web site for the selected custom interface.
**TIMER**

The **TIMER** generates an event at specified intervals. This component is generally used for timing programs. For example, it sets a delay for a program to start or an interval for a program to refresh and continue running.

**Configuring a TIMER**

- This procedure uses the **PROPERTIES**, **COMPONENTS** and **PROGRAMS** panes.

1. From the **COMPONENTS > COMPONENTS** pane, drag-and-drop ** onto the work area and then select it.

2. In the **BASIC PROPERTIES** pane, enter a delay or refresh value in the **Delay (Ms)** field.

3. Click ** at the bottom of the **PROGRAMS** pane to add a new tag. 
   - The **PROGRAM EDITOR** dialog box opens.

4. Type a name in the **PROGRAM NAME** field.

5. Click ** in the upper right corner of the **PROGRAM EDITOR** dialog box and select **VARIABLES**.
   - The **PROGRAM VARS** pane opens.
   - Click ** at the top of the **PROGRAMS VARS** pane to add a new variable.

6. Click **Settings** for the new variable and then do the following.
   - Type **timer** in the filter field.
   - Set the **Invokes the Function?** toggle switch to **ON**.
   - From the **SELECT EVENT** drop-down list, select **CUSTOM EVENT**.
   - Type **timer** in the **CUSTOM EVENT** field and click **SAVE**.
7. Click **SAVE** to save the program and close the **PROGRAM EDITOR**.
   - The program runs or refreshes at the specified interval.

**To use a Timer on a Program**

1. Click ![icon] in the **PROGRAMS** pane to edit the program.

2. Click ![icon] in the upper right corner of the **PROGRAM EDITOR** dialog box.

3. Click ![icon] at the top of the **PROGRAMS VARS** pane.

4. Click **Settings** ![icon] for the new variable and then do the following.
   a. Type **timer** in the filter field.
   b. Set the **Invokes the Function?** toggle switch to **ON**.
   c. From the **SELECT EVENT** drop-down list, select **CUSTOM EVENT**.
   d. Type **timer** in the **CUSTOM EVENT** field and click **SAVE**.

5. Click **SAVE** to save the program and close the **PROGRAM EDITOR**.
   - The program runs or refreshes at the specified interval.
HTML COMPONENTS

CAUTION

Minimize links to external URLs. Linking to external URLs, such as Favorites, Webcams and external Web services poses a security risk.

- URLs shall only direct to secure services, such as Web servers hosted by devices in the building automation control network. Using touch panels for applications other than building automation, for example, to display a news Web site, exposes your system to the risk of downloading and executing malicious scripts.
- The system integrator is responsible for making a risk-benefit decision about providing external URLs and for informing the customer of potential risks.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>☞</td>
<td>ANCHOR [➔ 102]</td>
<td>Creates a link to a URL. This is the HTML hyperlink element (&lt;a&gt;).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In Graphics Builder, the ADD HYPERLINKS feature in the right-click TOOLS menu uses a wizard to add hyperlinks.</td>
</tr>
<tr>
<td>☐</td>
<td>BUTTON [➔ 105]</td>
<td>Typically used to start an action within a graphic. This is the HTML button element (&lt;button&gt;).</td>
</tr>
<tr>
<td>—</td>
<td>H-RULE [➔ 107]</td>
<td>A separating line used to define a thematic break in the graphic.</td>
</tr>
<tr>
<td>📈</td>
<td>IMAGE [➔ 107]</td>
<td>Renders an image from a URL or the graphics database.</td>
</tr>
<tr>
<td>📦</td>
<td>INCLUDE [➔ 109]</td>
<td>Adds an HTML element to a graphic. This is an iframe element.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use the include component to embed a Web page in a graphic. For more information, see the J2 Graphics builder documentation for Web include <a href="https://finproducts.atlassian.net/wiki/spaces/FINBuilder/pages/5964024/Web+Include">https://finproducts.atlassian.net/wiki/spaces/FINBuilder/pages/5964024/Web+Include</a></td>
</tr>
<tr>
<td>☺</td>
<td>INPUT [➔ 111]</td>
<td>An HTML input field, which is compatible with the standard HTML input field types. This is used as input for programs.</td>
</tr>
<tr>
<td>☟</td>
<td>LABEL [➔ 113]</td>
<td>A text box on the graphic.</td>
</tr>
<tr>
<td>☉</td>
<td>METER [➔ 114]</td>
<td>A meter component that shows progress linearly.</td>
</tr>
<tr>
<td>☩</td>
<td>PROGRESS BAR [➔ 114]</td>
<td>A progress bar component that indicates either a loading animation or a view of the current progress percentage.</td>
</tr>
<tr>
<td>✗</td>
<td>SELECT [➔ 114]</td>
<td>An HTML combobox that provides a list of choices.</td>
</tr>
<tr>
<td>Ⓜ</td>
<td>SPAN [➔ 117]</td>
<td>Span element that is specific to graphics components. This is similar in behavior to an HTML span element.</td>
</tr>
<tr>
<td>⎢</td>
<td>TEXT AREA [➔ 117]</td>
<td>An HTML text box that accepts user input for a program.</td>
</tr>
<tr>
<td>🎬</td>
<td>VIDEO [➔ 118]</td>
<td>A component to view videos from the graphics database.</td>
</tr>
</tbody>
</table>

Table 31: HTML COMPONENTS.
ANCHOR

The **ANCHOR** component creates a link to a URL. This is the HTML hyperlink element (`<a>`).

The following table outlines attributes of the **ANCHOR** component that can be modified in the BASIC **PROPERTIES** pane. The minimum requirement is an `href` value. For more information on this element or its attributes, visit [https://www.w3schools.com/tags/tag_a.asp](https://www.w3schools.com/tags/tag_a.asp).

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coords</td>
<td><strong>Coordinates</strong>&lt;br&gt;Used with the <code>Shape</code> attribute to specify the size, shape and placement of a link within an object or image. Not supported in HTML5.&lt;br&gt;Default: Field is blank.</td>
</tr>
<tr>
<td>Download</td>
<td><strong>Filename</strong>&lt;br&gt;Downloads the target file when the hyperlink is selected (rather than navigating to the file). If a value is entered, it is used as the name of the downloaded file. If a value is not entered, the original filename is used.&lt;br&gt;Default: Field is blank.</td>
</tr>
<tr>
<td>Href</td>
<td><strong>URL of the linked page</strong>&lt;br&gt;This attribute is required.&lt;br&gt;Default: Field is blank</td>
</tr>
<tr>
<td>Hreflang</td>
<td><strong>Language code</strong>&lt;br&gt;The language of the linked document.&lt;br&gt;Default: Field is blank</td>
</tr>
<tr>
<td>Media</td>
<td><strong>Media query</strong>&lt;br&gt;Used with the <code>href</code> attribute to specify what media/device the linked document is optimized for.&lt;br&gt;Default: Field is blank</td>
</tr>
<tr>
<td>Name</td>
<td><strong>Name of the anchor component</strong>&lt;br&gt;Not supported in HTML5.&lt;br&gt;Default: The name entered in the BASIC <strong>PROPERTIES</strong>.</td>
</tr>
<tr>
<td>Rel</td>
<td><strong>Relationship</strong>&lt;br&gt;Specifies the relationship between the current document and the linked document. Options are:&lt;br&gt;• alternate (Default)&lt;br&gt;• author&lt;br&gt;• bookmark&lt;br&gt;• external&lt;br&gt;• help&lt;br&gt;• license&lt;br&gt;• next&lt;br&gt;• nofollow&lt;br&gt;• noreferrer&lt;br&gt;• noopen&lt;br&gt;• prev&lt;br&gt;• search&lt;br&gt;• tag</td>
</tr>
<tr>
<td>Rev</td>
<td><strong>Relationship</strong>&lt;br&gt;Specifies the relationship between the current document and the linked document. Not supported in HTML5.&lt;br&gt;Default: Field is blank</td>
</tr>
<tr>
<td>Shape</td>
<td>Shape of the link</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td>Used with the <code>Coords</code> attribute to specify the shape of a link. Not supported in HTML5. Options are:</td>
</tr>
<tr>
<td></td>
<td>● default (Default)</td>
</tr>
<tr>
<td></td>
<td>● rect</td>
</tr>
<tr>
<td></td>
<td>● circle</td>
</tr>
<tr>
<td></td>
<td>● poly</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target</th>
<th>Where to open the linked document</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Options are:</td>
</tr>
<tr>
<td></td>
<td>● <code>_blank</code> (Default)</td>
</tr>
<tr>
<td></td>
<td>● <code>_parent</code></td>
</tr>
<tr>
<td></td>
<td>● <code>_self</code></td>
</tr>
<tr>
<td></td>
<td>● <code>_top</code></td>
</tr>
<tr>
<td></td>
<td>Framename</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Select <code>_top</code> for PXM... devices.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Text</th>
<th>Text displayed in the graphic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Default: Link Text</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Media_type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Used with the <code>href</code> attribute to specify the media type of the linked document.</td>
</tr>
<tr>
<td></td>
<td>Default: Field is blank</td>
</tr>
</tbody>
</table>

Table 32: ANCHOR attributes.

Creating an anchor that opens the Siemens Building Technologies Web site

This procedure creates an anchor that opens the Siemens Building Technologies Web site in a new window or tab.

- This procedure uses the [PROPERTIES](#) and [COMPONENTS](#) panes.

1. From the [COMPONENTS](#) > HTML COMPONENTS pane, drag-and-drop [onto the work area and then select it.](#)

2. In the BASIC [PROPERTIES](#) pane, do the following in the attributes section:
   - Enter Building Technologies in the `Text` field.

3. Click [PREVIEW](#) in the upper right corner and click the [ANCHOR](#) component to test it.
The **BUTTON** component is typically used to start an action within a graphic. This is the HTML button element `<button>`.

The following table outlines attributes of the **BUTTON** component that can be modified in the BASIC **PROPERTIES** pane. The minimum requirement is to specify an action. For more information on this element or its attributes, visit [https://www.w3schools.com/tags/tag_button.asp](https://www.w3schools.com/tags/tag_button.asp).

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled</td>
<td>Disable the component. Switch <strong>OFF</strong> to enable the component. Switch <strong>ON</strong> to disable the component. Default: <strong>OFF</strong></td>
</tr>
<tr>
<td>Form</td>
<td><strong>Form ID</strong>&lt;br&gt;The <strong>ID</strong> attribute of a <code>&lt;form&gt;</code> element in the same document. Default: Field is blank</td>
</tr>
<tr>
<td>Formaction</td>
<td><strong>URL for sending form data</strong>&lt;br&gt;Only valid when the <strong>Type</strong> attribute is set to <code>submit</code>. Specifies a URL for sending the form data when a form is submitted. Default: Field is blank</td>
</tr>
<tr>
<td>Formenctype</td>
<td><strong>Form data encoding</strong>&lt;br&gt;Only valid when the <strong>Type</strong> attribute is set to <code>submit</code>. Specifies how form-data should be encoded before sending it to a server. Options are:&lt;br&gt; - application/x-www-form-urlencoded (Default)&lt;br&gt; - multipart/form-data&lt;br&gt; - text/plain</td>
</tr>
<tr>
<td>Formmethod</td>
<td><strong>HTTP method for sending form data</strong>&lt;br&gt;Only valid when the <strong>Type</strong> attribute is set to <code>submit</code>. Specifies how to send the form-data. Options are:&lt;br&gt; - <code>get</code> (Default)&lt;br&gt; - <code>post</code></td>
</tr>
<tr>
<td>Formnovalidate</td>
<td><strong>Validate form data on submission</strong>&lt;br&gt;Only valid when the <strong>Type</strong> attribute is set to <code>submit</code>. Switch <strong>OFF</strong> if the form data should not be validated. Switch <strong>ON</strong> if form data should be validated. Default: <strong>OFF</strong></td>
</tr>
<tr>
<td>Formtarget</td>
<td><strong>Form target</strong>&lt;br&gt;Only valid when the <strong>Type</strong> attribute is set to <code>submit</code>. Specifies where to display the response after submitting the form. Options are:&lt;br&gt; - <code>_blank</code> (Default)&lt;br&gt; - <code>_self</code>&lt;br&gt; - <code>_parent</code>&lt;br&gt; - <code>_top</code>&lt;br&gt; - <code>framename</code></td>
</tr>
<tr>
<td>Name</td>
<td><strong>Name of the BUTTON component</strong>&lt;br&gt;Not supported in HTML5. Default: <strong>Button</strong></td>
</tr>
<tr>
<td>Label</td>
<td><strong>Text displayed on the BUTTON component</strong>&lt;br&gt;Default: <strong>Submit</strong></td>
</tr>
</tbody>
</table>
### Table 33: BUTTON attributes.

<table>
<thead>
<tr>
<th>Type</th>
<th>Button type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Specifies the type of button. Options are:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● button, a clickable button</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● reset, resets the form data to initial values</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● submit, submits form data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Default: No selection</td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td>Initial value</td>
<td>Specifies an initial value for the button in a form. Default: Field is blank</td>
</tr>
</tbody>
</table>

Creating a button that displays a JavaScript alert dialog box and switches the button’s text

- This procedure uses the ℹ️ PROPERTIES and 🔌 COMPONENTS panes.

1. From the 🔌 COMPONENTS > HTML COMPONENTS pane, drag-and-drop □ onto the work area and then select it.
2. Enter On in the Label attribute field of the BASIC ℹ️ PROPERTIES pane.
3. Right-click on the □ BUTTON component and select CREATE EVENT > MOUSE > MOUSE CLICK.
4. Paste the following code into the SCRIPT EDITOR and click SAVE.
   ```javascript
   var buttonText = this.textContent;
   if(buttonText == 'On')
   {
      this.textContent = 'Off';
   }
   else{
      this.textContent = 'On';
   }
   alert('Toggling button to '' + this.textContent + ''.');
   ```
5. Click PREVIEW in the upper right corner and click the □ BUTTON component to test it.
**H-RULE**

The **H-RULE** component is a separating line used to define a thematic break in a graphic. This is the HTML horizontal-rule element (`<hr>`).

The following table outlines attributes of the **H-RULE** component that can be modified in the **BASIC PROPERTIES** pane. For more information on this element or its attributes, visit [https://www.w3schools.com/tags/tag_hr.asp](https://www.w3schools.com/tags/tag_hr.asp).

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Description</th>
</tr>
</thead>
</table>
| Color      | Color picker  
Color of the **H-RULE** component. |
| Noshade    | Shading  
Specifies that the **H-RULE** component should render in one solid color (not shaded), instead of a shaded color. |
| Size       | Height  
The height (in pixels) of the **H-RULE** component. |

*Table 34: H-RULE attributes.*

**IMAGE**

Graphics Builder provides two options for adding an image to a graphic:

- The **IMAGE** component in the **COMPONENTS > HTML COMPONENTS** pane.
- The **VIEW ASSETS** tool in the Graphics Builder toolbar.

**Using the IMAGE HTML component**

The **IMAGE** component displays an image (jpg, png, gif, etc). This is the HTML image element (`<img>`).

The **src** attribute in the **BASIC PROPERTIES** pane references the image file. The **src** is usually the address of an image on a server or Web page.

The following table outlines attributes of the **IMAGE** component that can be modified in the **BASIC PROPERTIES** pane. For more information on this element or its attributes, visit [https://www.w3schools.com/tags/tag_img.asp](https://www.w3schools.com/tags/tag_img.asp).

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| alt       | Alternate text  
Alternate text that will display if the image cannot be displayed.  
Default: Field is blank. |
| border    | Image border  
Width of the border (in pixels) around an image. Not supported in HTML5.  
Default: 0 |
| Crossorigin | Allow cross-origin access  
Allow images from non-Siemens sites that allow cross-origin access to be used with canvas. Options are:  
- anonymous (Default)  
- use-credentials |
| hspace    | Horizontal space  
Width of the white space (in pixels) on the left and right sides of an image. Not supported in HTML5.  
Default: 1 |
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ismap</td>
<td><strong>Image map</strong>&lt;br&gt;Specifies that the image is part of a server-side image-map. Switch OFF if the image is not part of an image map. Switch ON if the image is part of an image map.&lt;br&gt;Default: OFF</td>
</tr>
<tr>
<td>longdesc</td>
<td><strong>Long description</strong>&lt;br&gt;A URL to a detailed description of an image.&lt;br&gt;Default: Field is blank.</td>
</tr>
<tr>
<td>src</td>
<td><strong>Source</strong>&lt;br&gt;The URL of an image.&lt;br&gt;Default: Field is blank.</td>
</tr>
<tr>
<td>usemap</td>
<td><strong>Use map</strong>&lt;br&gt;Specifies an image as a client-side image-map.&lt;br&gt;Default: Field is blank.</td>
</tr>
<tr>
<td>vspace</td>
<td><strong>Vertical space</strong>&lt;br&gt;Width of the white space (in pixels) on the top and bottom of an image. Not supported in HTML5.&lt;br&gt;Default: 1</td>
</tr>
</tbody>
</table>

*Table 35: IMAGE attributes.*
Using the VIEW ASSETS tool

- Do one of the following to import an image:
  - Drag-and-drop it from your local computer onto the work area
  - Use VIEW ASSETS in the toolbar to select an image from the database.

○ The fileRef property in the ADVANCED PROPERTIES pane references the image file.

INCLUDE

The INCLUDE component embeds a Web page into a graphic by setting the src attribute to the Web site’s address. This is the HTML iframe element (<iframe>).

There may be some restrictions as to which Web sites can be added to an INCLUDE component. For example, if the X-Frame-Options for a Web page are set to sameorigin, the iFrame cannot display that Web page if the domain names differ. Likewise, using an INCLUDE component to display a non-secure Web page (http) on a secure Web page (https) will not work.
The following table outlines attributes of the INCLUDE component that can be modified in the BASIC PROPERTIES pane. For more information on this element or its attributes, visit https://www.w3schools.com/tags/tag_iframe.asp.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| frameborder | Frame border Displays a border around an iframe. Not supported in HTML5. Options are:  
  1 Border on (default)  
  0 Border off |
| sandbox   | Restrict content in an iframe Enables an extra set of restrictions for the content in an iframe. Options are:  
  allow-forms  
  allow-pointer-lock  
  allow-popups  
  allow.same-origin  
  allow-scripts  
  allow-top-navigation |
| scrolling | Display scrollbars in an iframe Options are:  
  Yes  
  No  
  Auto |
| src       | The address of the document (URL) to embed in the iframe. |

Table 36: INCLUDE attributes.

Example

This example displays the Sample Dashboard Facility Manager graphic within the INCLUDE component.

1. Select > > Enable/disable graphics & kiosks and enable the Sample Dashboard Facility Manager graphic.
2. While viewing the Sample Dashboard Facility Manager graphic, select > > Configure graphics > to display the URL for the graphic.
3. Copy the URL and save it for later use.
4. From the COMPONENTS > HTML COMPONENTS pane in Graphics Builder, drag-and-drop onto the work area and resize it as needed.
5. In the BASIC PROPERTIES pane for the INCLUDE component, paste the URL for the Sample Dashboard Facility Manager graphic in the src field.

The graphic (or Web page) now displays within the INCLUDE component.
**INPUT**

The **INPUT** component gathers input from the user, typically in the form of a text-box. This component can also take the form of a text-area, checkbox, file upload, radio buttons, etc. This is the HTML input element (`<input>`).

The following table outlines attributes of the **INPUT** component that can be modified in the BASIC **PROPERTIES** pane. For more information on this element or its attributes, visit https://www.w3schools.com/tags/tag_input.asp.
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>autocomplete</td>
<td>Enable autocomplete. Enables autocomplete for the <code>&lt;input&gt;</code> element. Options are:</td>
</tr>
<tr>
<td></td>
<td>• On</td>
</tr>
<tr>
<td></td>
<td>• Off</td>
</tr>
<tr>
<td>autofocus</td>
<td>Autofocus switch. On = Autofocus is enabled for the <code>&lt;input&gt;</code> element when the page loads.</td>
</tr>
<tr>
<td>disabled</td>
<td>Disabled switch. On = the <code>&lt;input&gt;</code> element is disabled.</td>
</tr>
<tr>
<td>form</td>
<td>Form field. Specifies one or more forms the <code>&lt;input&gt;</code> element belongs to. Enter the form_id for each form.</td>
</tr>
<tr>
<td>formnovalidate</td>
<td>Formnovalidate switch. Defines that form elements should not be validated when submitted.</td>
</tr>
<tr>
<td>maxlength</td>
<td>The maximum number of characters allowed in an <code>&lt;input&gt;</code> element.</td>
</tr>
<tr>
<td>name</td>
<td>Text field for the name of an <code>&lt;input&gt;</code> element.</td>
</tr>
<tr>
<td>pattern</td>
<td>Regular expression (regexp) that an <code>&lt;input&gt;</code> element's value is checked against.</td>
</tr>
<tr>
<td>placeholder</td>
<td>A short description for the expected value of an <code>&lt;input&gt;</code> element.</td>
</tr>
<tr>
<td>readonly</td>
<td>Readonly switch. On = The input field is read-only.</td>
</tr>
<tr>
<td>required</td>
<td>Required switch. On = an input field must be completed before submitting the form.</td>
</tr>
<tr>
<td>size</td>
<td>Element size. The width, in characters, of an <code>&lt;input&gt;</code> element.</td>
</tr>
<tr>
<td>type</td>
<td>Type of <code>&lt;input&gt;</code> element. Options are:</td>
</tr>
<tr>
<td></td>
<td>• button</td>
</tr>
<tr>
<td></td>
<td>• checkbox</td>
</tr>
<tr>
<td></td>
<td>• color</td>
</tr>
<tr>
<td></td>
<td>• date</td>
</tr>
<tr>
<td></td>
<td>• datetime-local</td>
</tr>
<tr>
<td></td>
<td>• email</td>
</tr>
<tr>
<td></td>
<td>• file</td>
</tr>
<tr>
<td></td>
<td>• hidden</td>
</tr>
<tr>
<td></td>
<td>• image</td>
</tr>
<tr>
<td></td>
<td>• month</td>
</tr>
<tr>
<td></td>
<td>• number</td>
</tr>
<tr>
<td></td>
<td>• password</td>
</tr>
<tr>
<td></td>
<td>• radio</td>
</tr>
<tr>
<td></td>
<td>• range</td>
</tr>
<tr>
<td></td>
<td>• reset</td>
</tr>
<tr>
<td></td>
<td>• search</td>
</tr>
<tr>
<td></td>
<td>• submit</td>
</tr>
<tr>
<td></td>
<td>• tel</td>
</tr>
<tr>
<td></td>
<td>• text</td>
</tr>
<tr>
<td></td>
<td>• time</td>
</tr>
<tr>
<td></td>
<td>• url</td>
</tr>
<tr>
<td></td>
<td>• week</td>
</tr>
<tr>
<td>value</td>
<td>Value text field. The value of an <code>&lt;input&gt;</code> element.</td>
</tr>
</tbody>
</table>

Table 37: `INPUT` attributes.

Creating a text input that will attempt to auto-complete and has placeholder text of Enter text here

1. From the **COMPONENTS > HTML COMPONENTS** pane in Graphics Builder, drag-and-drop `<input>` onto the work area and then select it.

2. In the **BASIC ** pane for the `<input>` component, set the **placeholder** attribute to Enter text here.
LABEL

The 📶 LABEL component displays simple text in the graphic. The text attributes, such as size, color and font can be modified in the BASIC ➔ PROPERTIES pane for the 📶 LABEL component. This is the HTML label element (<label>).

The following table outlines attributes of the 📶 LABEL component that can be modified in the BASIC ➔ PROPERTIES pane. For more information on this element or its attributes, visit https://www.w3schools.com/tags/tag_label.asp.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>Specifies one or more forms the label belongs to. Value: form_id</td>
</tr>
<tr>
<td>Text</td>
<td>The text displayed in the label.</td>
</tr>
</tbody>
</table>

Table 38: LABEL attributes.
**METE**

The 📈 METER component is rendered as a simple bar. This is the HTML meter element (`<meter>`).

The following table outlines attributes of the 📈 METER component that can be modified in the BASIC 🔍 PROPERTIES pane. You can also drag and drop a virtual point onto the 📈 METER to display a specific point’s `curVal` as the value property. For more information on this element or its attributes, visit [https://www.w3schools.com/tags/tag_meter.asp](https://www.w3schools.com/tags/tag_meter.asp).

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Number range that is considered to be a high value.</td>
</tr>
<tr>
<td>Low</td>
<td>Number range that is considered to be a low value.</td>
</tr>
<tr>
<td>Max</td>
<td>Maximum value of the range.</td>
</tr>
<tr>
<td>Min</td>
<td>Minimum value of the range.</td>
</tr>
<tr>
<td>Optimum</td>
<td>Optimal value for the gauge.</td>
</tr>
<tr>
<td>Value</td>
<td>Current value of the gauge. This field is required.</td>
</tr>
</tbody>
</table>

*Table 39: METER attributes.*

**PROGRESS BAR**

The 🔄 PROGRESS BAR component is similar to the meter bar. This is the HTML progress element (`<progress>`).

The following table outlines attributes of the 🔄 PROGRESS BAR component that can be modified in the BASIC 🔍 PROPERTIES pane. You can also drag and drop a virtual point onto the 🔄 PROGRESS BAR to display a specific point’s `curVal` as the value property. For more information on this element or its attributes, visit [https://www.w3schools.com/tags/tag_progress.asp](https://www.w3schools.com/tags/tag_progress.asp).

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max</td>
<td>Specifies how much work the task requires in total.</td>
</tr>
<tr>
<td>Label</td>
<td>Specifies how much of the task has been completed.</td>
</tr>
<tr>
<td>Value</td>
<td>Specifies how much of the task has been completed.</td>
</tr>
</tbody>
</table>

*Table 40: PROGRESS attributes.*

**SELECT**

The 📊 SELECT component is used for a drop-down list. The options that populate the list need to be supplied by a program. These can be the results of a query to the FINstack database using `finstack.eval` or a hard-coded list supplied in the function. This is the HTML drop-down list (`<select>`).

The following table outlines attributes of the 📊 SELECT component that can be modified in the BASIC 🔍 PROPERTIES pane. For more information on this element or its attributes, visit [https://www.w3schools.com/tags/tag_select.asp](https://www.w3schools.com/tags/tag_select.asp).
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled</td>
<td>Specifies that a drop-down list should be disabled. Value: Disabled</td>
</tr>
<tr>
<td>Form</td>
<td>Defines one or more forms the select field belongs to Value: form_id</td>
</tr>
<tr>
<td>Multiple</td>
<td>Specifies that multiple options can be selected at once Value: multiple</td>
</tr>
<tr>
<td>Name</td>
<td>Defines a name for the drop-down list Value: name</td>
</tr>
<tr>
<td>Required</td>
<td>Specifies that the user is required to select a value before submitting the form Value: required</td>
</tr>
<tr>
<td>Size</td>
<td>Defines the number of visible options in a drop-down list Value: number</td>
</tr>
</tbody>
</table>

Table 41: SELECT attributes.

![Table Image]
Creating a drop-down list of food groups that is populated using the following program:

1. From **COMPONENTS > HTML COMPONENTS**, drag-and-drop onto the work area.
2. Click + at the bottom of the **PROGRAMS** pane to add a new program.
   - The **PROGRAM EDITOR** dialog box opens.
3. Type a name in the **PROGRAM NAME** field.
4. Type **world** in the **PROGRAM TARGET FILTER** field.

![PROGRAM EDITOR dialog box](image)

5. Click in the upper right corner of the **PROGRAM EDITOR** dialog box and select **VARIABLES**.
   - The **PROGRAM VARS** pane opens.
6. Move your cursor over the row for the **this** variable and then click 🎉.
7. Set the **Invokes the Function?** toggle switch to **ON**.
8. From the **SELECT EVENT** drop-down list, select **CUSTOM EVENT**.
9. Type **start** in the **Custom Event Name** field and click **SAVE**.

![PROGRAM VARS pane](image)

10. Enter the code in the following figure and click **SAVE** to save the program and close the **PROGRAM EDITOR** dialog box.
11. Click **PREVIEW** in the upper right corner to display the graphic.
**SPAN**

The SPAN element is similar in behavior to an HTML span, but specific to graphics components. For more information on this element or its attributes, visit https://www.w3schools.com/tags/tag_span.asp.

**TEXT AREA**

The TEXT AREA component displays a text input that is larger than a single line. Typically used to get input from a user for programs within the graphic. This is the HTML text-area element (<textarea>).</p>

The following table outlines attributes of the TEXT AREA component that can be modified in the BASIC PROPERTIES pane. For more information on this element or its attributes, visit https://www.w3schools.com/tags/tag_textarea.asp.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cols</td>
<td>Specifies the visible width of a text area</td>
</tr>
<tr>
<td>Disabled</td>
<td>Specifies that a text area should be disabled</td>
</tr>
<tr>
<td>Form</td>
<td>Specifies one or more forms the text area belongs to</td>
</tr>
<tr>
<td>Maxlength</td>
<td>Specifies the maximum number of characters allowed in the text area</td>
</tr>
<tr>
<td>Name</td>
<td>Specifies a name for a text area</td>
</tr>
<tr>
<td>Placeholder</td>
<td>Specifies a short hint that describes the expected value of a text area</td>
</tr>
<tr>
<td>Readonly</td>
<td>Specifies that a text area should be read-only</td>
</tr>
<tr>
<td>Required</td>
<td>Specifies that a text area is required/must be filled out</td>
</tr>
<tr>
<td>Rows</td>
<td>Specifies the visible number of lines in a text area</td>
</tr>
<tr>
<td>Text</td>
<td>Specifies the text that is present in the text area</td>
</tr>
</tbody>
</table>
| Wrap      | Specifies how the text in a text area is to be wrapped when submitted in a form. Options are:  
  - hard  
  - soft |

Table 42: TEXT AREA attributes.
The **VIDEO** component supports h.264 video. To show a video, the video’s link must be set as the `src` attribute in the BASIC PROPERTIES pane. This is the HTML video element (`<video>`).

The following table outlines attributes of the **VIDEO** component that can be modified in the BASIC PROPERTIES pane. For more information on this element or its attributes, visit [https://www.w3schools.com/tags/tag_video.asp](https://www.w3schools.com/tags/tag_video.asp).

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls</td>
<td>Specifies that video controls should be displayed (such as a play/pause button etc).</td>
</tr>
<tr>
<td>Loop</td>
<td>Specifies that the video will start over again, every time it is finished.</td>
</tr>
<tr>
<td>Muted</td>
<td>Specifies that the audio output of the video should be muted.</td>
</tr>
<tr>
<td>Poster</td>
<td>Specifies an image to be shown while the video is downloading, or until the user hits the play button.</td>
</tr>
</tbody>
</table>
| Preload | Specifies if and how the author thinks the video should be loaded when the page loads. Options are:  
  * auto  
  * metadata  
  * none  
| Src | Specifies the URL of the video file.  
Value: URL |

Table 43: VIDEO attributes.

### 5.2.2.1 SVG GAUGES

The **SVG GAUGES** category provides a series of dialog boxes that simplify the configuration of bar, circle, half-circle, and icon gauges.

Gauges display the current value (`curVal`) of a virtual point in a gauge format. They are typically used to display data which is shown using gauges in real life, such as speed, volume equalizer or a clock.

> **NOTICE**

The data displayed in Graphics Builder depends on the version of the Desigo Control Point device and may look different on your system. For more information, see the J2 Graphics Builder documentation [https://finproducts.atlassian.net/wiki/spaces/FINFramework/pages/770709383/FIN+Chart+Components+finAmChartComponents](https://finproducts.atlassian.net/wiki/spaces/FINFramework/pages/770709383/FIN+Chart+Components+finAmChartComponents).

The following figure outlines the SVG GAUGE types.
Figure 14: SVG GAUGES category.

① Bar Gauges [➙ 120]
② Circle Gauges [➙ 123]
③ Half-circle Gauges [➙ 124]
④ Icon Gauges [➙ 130]

Basic workflow
1. Drag-and-drop a gauge from COMPONENTS > SVG GAUGES onto the work area.
2. Drag-and-drop a VIRTUAL POINT onto the gauge.
3. Right click on the chart and select TOOLS > CONFIGURE GAUGE. Use the appropriate table in the following topics.

The examples in the following topics show the default colors. Enter a color name (in English only), RGB, or hex color code to change the colors. For additional color options, see Configure Dashboard Component Points [➙ 85] and https://htmlcolorcodes.com/color-names/.
Bar Gauges

Bar Gauge 1

Figure 15: Bar gauge 1 example in default configuration.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotate</td>
<td>Horizontal or vertical bar.</td>
</tr>
<tr>
<td>□ Border Color</td>
<td>Color of the border around the gauge. Default: #000000.</td>
</tr>
<tr>
<td>□ Text Color</td>
<td>Color of the value. Default: #000.</td>
</tr>
<tr>
<td>□ Number Color</td>
<td>Color of Min Value and Max Value. Default: #000.</td>
</tr>
<tr>
<td>□ Gradient Color 1</td>
<td>Gradient color on the left (top for vertical). Default: #8B90C7</td>
</tr>
<tr>
<td>□ Gradient Color 2</td>
<td>Gradient color in the middle. Default: #FFFFFF</td>
</tr>
<tr>
<td>□ Gradient Color 3</td>
<td>Gradient color on the right (bottom for vertical). Default: #E97D84</td>
</tr>
<tr>
<td>□ Min Value</td>
<td>Lowest value displayed on the gauge. Default: minVal of the virtual point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>□ Max Value</td>
<td>Highest value displayed on the gauge. Default: maxVal of the virtual point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>v Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
</tbody>
</table>

Table 44: Bar Gauge 1 dialog box.

Bar Gauge 2

Figure 16: Bar Gauge 2 example in default colors.
### Graphics Builder

**Pane tools**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotate</td>
<td>Horizontal or vertical bar.</td>
</tr>
</tbody>
</table>

① **Min Value**  
Lowest value displayed on the gauge.  
Default: `minVal` of the virtual point if one exists. Otherwise, the default is 0.

② **Max Value**  
Highest value displayed on the gauge.  
Default: `maxVal` of the virtual point if one exists. Otherwise, the default is 100.

③ **Number Color**  
Color of **Min Value** and **Max Value**.

④ **Low Range Color**  
Color of the bar when the value is less than the specified **Mid Range**.

**Mid Range Color**  
Color of the bar when the value is within the specified **Mid Range**.

⑥ **High Range Color**  
Color of the bar when the value is greater than the specified **Mid Range**.

⑦ **Mid Range**  
Range in which the bar changes colors. Enter the lower value first.

⑧ **Show Background**  
Select to make the background opaque and display a frame around the gauge.

**Table 45: Bar Gauge 2 dialog box.**

---

**Bar Gauge 3**

**Table 46: Bar Gauge 3 dialog box.**

---

**Figure 17: Bar Gauge 3 example in default colors.**
Bar Gauge 4

Figure 18: Bar Gauge 4 example in default colors.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotate</td>
<td>Horizontal or vertical bar.</td>
</tr>
<tr>
<td>Color</td>
<td>Color of the bar. Default: #29abe2</td>
</tr>
<tr>
<td>Min Value</td>
<td>Lowest value displayed on the gauge.</td>
</tr>
<tr>
<td></td>
<td>Default: minVal of the virtual point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>Max Value</td>
<td>Highest value displayed on the gauge.</td>
</tr>
<tr>
<td></td>
<td>Default: maxVal of the virtual point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
</tbody>
</table>

Table 47: Bar Gauge 4 dialog box.

Bar Gauge 5

Figure 19: Bar Gauge 5 example in default colors.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotate</td>
<td>Horizontal or vertical bar.</td>
</tr>
<tr>
<td>Short Name</td>
<td>Name displayed with the gauge. If shortName is if blank, navName of the virtual point is displayed.</td>
</tr>
<tr>
<td>Text Color</td>
<td>Color of the text. Default: #000</td>
</tr>
<tr>
<td>Background Color</td>
<td>Color of the whole gauge. Default: #29abe2</td>
</tr>
<tr>
<td>Fill Color</td>
<td>Color of the gauge fill. Default: #e6e6e6</td>
</tr>
<tr>
<td>Min Value</td>
<td>Lowest value displayed on the gauge.</td>
</tr>
<tr>
<td></td>
<td>Default: minVal of the virtual point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>Max Value</td>
<td>Highest value displayed on the gauge.</td>
</tr>
<tr>
<td></td>
<td>Default: maxVal of the virtual point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
</tbody>
</table>

Table 48: Bar Gauge 5 dialog box.
Circle Gauges

Circle Gauge 1

![Circle Gauge 1 example in default colors.](image)

Table 49: Circle Gauge 1 dialog box.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Short Name</td>
<td>Name displayed with the gauge. If shortName is if blank, navName of the virtual point is displayed.</td>
</tr>
<tr>
<td>② Needle Color</td>
<td>Color of the needle.</td>
</tr>
<tr>
<td>③ Dot Color</td>
<td>Color of the dot behind the needle.</td>
</tr>
<tr>
<td>④ Min Value</td>
<td>Lowest value displayed on the gauge.</td>
</tr>
<tr>
<td></td>
<td>Default: minVal of the virtual point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>⑤ Max Value</td>
<td>Highest value displayed on the gauge.</td>
</tr>
<tr>
<td></td>
<td>Default: maxVal of the virtual point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>☑ Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
</tbody>
</table>

Circle Gauge 2

![Circle Gauge 2 example in default colors.](image)
Table 50: Circle Gauge 2 dialog box.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Short Name</td>
<td>Name displayed with the gauge. If <code>shortName</code> is blank, <code>navName</code> of the virtual point is displayed.</td>
</tr>
<tr>
<td>② Needle Color</td>
<td>Color of the needle (behind the gradient).</td>
</tr>
<tr>
<td>③ Min Value</td>
<td>Lowest value displayed on the gauge.</td>
</tr>
<tr>
<td></td>
<td>Default: <code>minVal</code> of the virtual point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>④ Max Value</td>
<td>Highest value displayed on the gauge.</td>
</tr>
<tr>
<td></td>
<td>Default: <code>maxVal</code> of the virtual point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>⑤ Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
</tbody>
</table>

Half-circle Gauges

Half-circle Gauge 1

Figure 22: Half-circle Gauge 1 example in default colors.

Table 51: Half-circle Gauge dialog box.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Short Name</td>
<td>Name displayed with the gauge. If <code>shortName</code> is blank, <code>navName</code> of the virtual point is displayed.</td>
</tr>
<tr>
<td>② Text Color</td>
<td>Color of the text.</td>
</tr>
<tr>
<td>③ Needle Color</td>
<td>Color of the needle.</td>
</tr>
<tr>
<td>④ Gradient Color 1</td>
<td>Hex color of the left-side gradient. Default: <code>#7dc5f0</code></td>
</tr>
<tr>
<td>⑤ Gradient Color 2</td>
<td>Hex color of the right-side gradient. Default: <code>#006bac</code></td>
</tr>
<tr>
<td>⑥ Min Value</td>
<td>Lowest value displayed on the gauge.</td>
</tr>
<tr>
<td></td>
<td>Default: <code>minVal</code> of the virtual point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>⑦ Max Value</td>
<td>Highest value displayed on the gauge.</td>
</tr>
<tr>
<td></td>
<td>Default: <code>maxVal</code> of the virtual point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>⑧ Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
</tbody>
</table>
Half-circle Gauge 2

Figure 23: Half-circle Gauge 2 example in default colors.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Short Name</td>
<td>Name displayed with the gauge. If <code>shortName</code> is blank, <code>navName</code> of the virtual point is displayed.</td>
</tr>
<tr>
<td>② Text Color</td>
<td>Color of the main value.</td>
</tr>
<tr>
<td>③ Number Color</td>
<td>Color of the numbers.</td>
</tr>
<tr>
<td>④ Needle Color</td>
<td>Color of the needle.</td>
</tr>
<tr>
<td>⑤ Min Value</td>
<td>Lowest value displayed on the gauge. Default: <code>minVal</code> of the virtual point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>⑥ Max Value</td>
<td>Highest value displayed on the gauge. Default: <code>maxVal</code> of the virtual point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>⑦ Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
</tbody>
</table>

Table 52: Half-circle Gauge 2 dialog box.

Half-circle Gauge 3

Figure 24: Half-circle Gauge 3 example in default colors.
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Short Name</td>
<td>Name displayed with the gauge. If shortName is if blank, navName of the virtual point is displayed.</td>
</tr>
<tr>
<td>② Text Color</td>
<td>Color of the text displaying the value.</td>
</tr>
<tr>
<td>③ Needle Color</td>
<td>Color of the needle.</td>
</tr>
<tr>
<td>④ Min Value</td>
<td>Lowest value displayed on the gauge. Default: minVal of the virtual point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>⑤ Max Value</td>
<td>Highest value displayed on the gauge. Default: maxVal of the virtual point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>☑ Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
</tbody>
</table>

Table 53: Half-circle Gauge 3 dialog box.

### Half-circle Gauge 4

![Image of Half-circle Gauge 4]

Figure 25: Half-circle Gauge 4 example in default colors.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Short Name</td>
<td>Name displayed with the gauge. If shortName is if blank, navName of the virtual point is displayed.</td>
</tr>
<tr>
<td>② Text Color</td>
<td>Color of the value inside the dot.</td>
</tr>
<tr>
<td>③ Number Color</td>
<td>Color of the numbers.</td>
</tr>
<tr>
<td>④ Color</td>
<td>Color for the gauge. Default: #d1d3d4</td>
</tr>
<tr>
<td>⑤ Dot Color</td>
<td>Color for the dots. Default: #be1e2d</td>
</tr>
<tr>
<td>⑥ Min Value</td>
<td>Lowest value displayed on the gauge. Default: minVal of the virtual point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>⑦ Max Value</td>
<td>Highest value displayed on the gauge. Default: maxVal of the virtual point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>☑ Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
</tbody>
</table>

Table 54: Half-circle Gauge 4 dialog box.
Half-circle Gauge 5

![Figure 26: Half-circle Gauge 5 example in default colors.](image)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Short Name</td>
<td>Name displayed with the gauge. If <code>shortName</code> is if blank, <code>navName</code></td>
</tr>
<tr>
<td>② Accent Color</td>
<td>Color of the horizontal line, semi-circle, and needle.</td>
</tr>
<tr>
<td>③ Text Color</td>
<td>Color of the text inside the semi-circle.</td>
</tr>
<tr>
<td>④ Min Value</td>
<td>Lowest value displayed on the gauge. Default: <code>minVal</code> of the virtual</td>
</tr>
<tr>
<td></td>
<td>point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>⑤ Max Value</td>
<td>Highest value displayed on the gauge. Default: <code>maxVal</code> of the virtual</td>
</tr>
<tr>
<td></td>
<td>point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>✔ Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
</tbody>
</table>

Table 55: Half-circle Gauge 5 dialog box.

Half-circle Gauge 6

![Figure 27: Half-circle Gauge 6 example in default colors.](image)
### Property | Value
--- | ---
① Short Name | Name displayed with the gauge. If `shortName` is if blank, `navName` of the virtual point is displayed.
② Background Color | Color of the gauge.
③ Number Color | Color of `Min Value` and `Max Value`.
④ Needle Color | Color of the needle.
⑤ Accent Color | Color of the tic marks inside the gauge.
⑥ Text Color | Color of the `navName`/Short Name and `curVal`.
⑦ Min Value | Lowest value displayed on the gauge. Default: `minVal` of the virtual point if one exists. Otherwise, the default is 0.
⑧ Max Value | Highest value displayed on the gauge. Default: `maxVal` of the virtual point if one exists. Otherwise, the default is 100.
⑨ Show Background | Select to make the background opaque and display a frame around the gauge.

Table 56: Half-circle Gauge 6 dialog box.

### Half-circle Gauge 7

![Half-circle Gauge 7 example in default colors.](image)

Table 76: Half-circle Gauge 7 example in default colors.

### Property | Value
--- | ---
① Short Name | Name displayed with the gauge. If `shortName` is if blank, `navName` of the virtual point is displayed.
② Dot Color | Color for the dots. Default: #ba2835
③ Number Color | Color of `Min Value` and `Max Value`.
④ Gradient Color 1 | Color of the left side gradient. Default: #fbb040
⑤ Gradient Color 2 | Color of the left side gradient. Default: #be1e2d
⑥ Needle Color | Color for the needle. Default: #000
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>⑦ Text Color</td>
<td>Color of the <strong>curVal</strong> inside the needle.</td>
</tr>
<tr>
<td>⑧ Min Value</td>
<td>Lowest value displayed on the gauge. Default: <strong>minVal</strong> of the virtual point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>⑨ Max Value</td>
<td>Highest value displayed on the gauge. Default: <strong>maxVal</strong> of the virtual point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>⑩ Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
</tbody>
</table>

Table 57: Half-circle Gauge 7 dialog box.

**Half-circle Gauge 8**

![Half-circle Gauge 8 example.](image)

Figure 29: Half-circle Gauge 8 example.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Short Name</td>
<td>Name displayed with the gauge. If <strong>shortName</strong> is if blank, <strong>navName</strong> of the virtual point is displayed.</td>
</tr>
<tr>
<td>② Gradient Color 1</td>
<td>Color of the left side gradient. Default: <strong>#1b75bc</strong></td>
</tr>
<tr>
<td>③ Gradient Color 2</td>
<td>Color of the right side gradient. Default <strong>#000</strong></td>
</tr>
<tr>
<td>④ Number Color</td>
<td>Color of <strong>Min Value</strong> and <strong>Max Value</strong></td>
</tr>
<tr>
<td>⑤ Text Color</td>
<td>Color of the <strong>curVal</strong> inside the needle.</td>
</tr>
<tr>
<td>⑥ Dot Color</td>
<td>Color for the dots. Default: <strong>#1b75bc</strong></td>
</tr>
</tbody>
</table>
### Icon Gauges

#### Battery Gauge

![Battery Gauge examples](image)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Short Name</td>
<td>Name displayed with the gauge. If <code>shortName</code> is if blank, <code>navName</code> of the virtual point is displayed.</td>
</tr>
<tr>
<td>② Min Value</td>
<td>Lowest value displayed on the gauge. Default: <code>minVal</code> of the virtual point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>③ Max Value</td>
<td>Highest value displayed on the gauge. Default: <code>maxVal</code> of the virtual point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>④ Low Range Color</td>
<td>Color of the bar when the value is less than the specified <code>Mid Range</code>. Default: #d40000</td>
</tr>
<tr>
<td>⑤ Mid Range Color</td>
<td>Color of the bar when the value is within the specified <code>Mid Range</code>. Default: #e79621</td>
</tr>
<tr>
<td>⑥ High Range Color</td>
<td>Color of the bar when the value is greater than the specified <code>Mid Range</code>. Default: #5cb85c</td>
</tr>
<tr>
<td>⑦ Mid Range</td>
<td>Range in which the bar changes colors. Enter the lower value first.</td>
</tr>
<tr>
<td>⑧ Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
</tbody>
</table>

Table 59: Battery Gauge dialog box.
Other Icon Gauges

Figure 31: Other Icon Gauge examples.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text Color</td>
<td>Color of text. (Only displays when Show Label is selected.)</td>
</tr>
<tr>
<td>Color</td>
<td>Color of the icon fill.</td>
</tr>
<tr>
<td>Short Name</td>
<td>Name displayed with the gauge. If shortName is if blank, navName of the virtual point is displayed.</td>
</tr>
<tr>
<td>Min Value</td>
<td>Lowest value displayed on the gauge. Default: minVal of the virtual point if one exists. Otherwise, the default is 0.</td>
</tr>
<tr>
<td>Max Value</td>
<td>Highest value displayed on the gauge. Default: maxVal of the virtual point if one exists. Otherwise, the default is 100.</td>
</tr>
<tr>
<td>Show Background</td>
<td>Select to make the background opaque and display a frame around the gauge.</td>
</tr>
<tr>
<td>Show Label</td>
<td>Displays the name and value next to the gauge.</td>
</tr>
</tbody>
</table>

Table 60: Other Icon Gauges dialog box.

5.2.2.2 TITLES AND CONTAINERS

The □ Label Container can be used for the following:

- To group multiple components.
- As a label, such as the title for a graphic.
- To display the curVal of a virtual point that is associated with the Label Container. For example, Airflow: 49 cfm.

Basic workflow

1. Drag-and-drop □ from COMPONENTS > TITLES AND CONTAINERS onto the work area.
2. To group multiple components, drag-and-drop them onto □.
3. To configure the Label Container as a label, right-click on □ and select TOOLS > CONFIGURE GAUGE. See the following table for more information.
4. To display a curVal, drag-and-drop a ✈ VIRTUAL POINT onto the Label Container.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Name</td>
<td>Name displayed with the gauge. If shortName is if blank, navName of the virtual point is displayed.</td>
</tr>
<tr>
<td>Text Size</td>
<td>Font size of the text.</td>
</tr>
<tr>
<td>Text Color</td>
<td>Color of text. Default: #000. Enter a color name (in English only), RGB, or hex color code to change the text color. For additional color options, see Configure Dashboard Component Points [➙ 85] and <a href="https://htmlcolorcodes.com/color-names/">https://htmlcolorcodes.com/color-names/</a>.</td>
</tr>
<tr>
<td>Text Alignment</td>
<td>Horizontal text alignment: Center (default), Left, or Right.</td>
</tr>
<tr>
<td>Position Text</td>
<td>Vertical text alignment: Top (default), Center, or Bottom.</td>
</tr>
<tr>
<td>Hide Background</td>
<td>Select to make the Label Container background transparent.</td>
</tr>
</tbody>
</table>

Table 61: Label Container dialog box.
5.2.3 LAYERS

The LAYERS pane displays a hierarchical structure for all the components in a graphic. Components at the top of the list are in the top layer of the graphic. Components lower in the list are in lower layers of the graphic. Components can be added to a layer or moved to a different layer by dragging-and-dropping.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Show/Hide</td>
<td>Shows or hides components on the graphic.</td>
</tr>
<tr>
<td></td>
<td>Lock</td>
<td>Prevents a component from being selected and moved while you are editing the graphic.</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Adds a new layer to the pane.</td>
</tr>
<tr>
<td></td>
<td>Delete</td>
<td>Deletes the selected component or layer and its components.</td>
</tr>
</tbody>
</table>

Table 62: LAYERS pane icons.

![Image of LAYERS pane icons](image)

Figure 32: Hierarchical structure of the LAYERS pane.

Displaying layers for editing

The Sample dashboard public graphic in the Supersample graphics library contains multiple layers and uses a navigation bar to make one layer visible while hiding all other layers.

When a graphic with multiple layers is opened in Graphics Builder, you may need to use Show/Hide to display the layer to edit. For example, the Sample dashboard public graphic contains three dashboard layers—Weather, Energy and Water. The Weather layer is the default view. To display the Energy or Water layer for editing, you would do the following:

1. In the LAYERS pane, click to hide the Weather layer.
2. Click to display the layer to edit. For example, Energy.
3. When you’re done editing:
   - Click to hide the control layers you edited.
   - Click to return the Weather layer to the default view.
Adding a component to a layer
1. In the LAYERS pane, select the layer to which the component is being added.
2. Drag-and-drop an element from the COMPONENTS pane onto the selected layer.
   For example, select the Energy layer in the Sample dashboard public graphic and drag-and-drop an HTML COMPONENT onto it.

Moving a component to a different layer
1. In the LAYERS pane, select the component to move.
2. Drag-and-drop the component onto the desired layer.
   For example, drag the Label component from the Cooling layer and drop it onto the Weather layer.

![Figure 33: Moving an element to a different layer.]

5.2.4 VIRTUAL POINTS

The VIRTUAL POINTS pane displays the data points that belong to the graphic.

A virtual point is created for every data point used in the graphic. Each virtual point has a binding property that displays the ID or query that fetches information from a data point at runtime. A single virtual point can be associated with many graphic components.

Use the VIRTUAL POINTS pane to do the following:
- Create smart labels [➙ 134].
- Bind data points to a graphic component [➙ 135].
- Rename a virtual point [➙ 136].
- Add a new tag or property tag to a data point [➙ 138].

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔗</td>
<td>Object</td>
<td>Adds a property tag to the virtual point.</td>
</tr>
<tr>
<td>+</td>
<td>Add</td>
<td>Adds a new virtual point.</td>
</tr>
<tr>
<td>−</td>
<td>Delete</td>
<td>Deletes the selected virtual point.</td>
</tr>
</tbody>
</table>

Table 63: VIRTUAL POINTS pane icons.
Creating a smart label

A smart label displays information about a data point and allows users with the appropriate access to command objects. If desired, command access for a smart label can be changed to read-only.

Creating a smart label and modifying the command status

This procedure creates a smart label and changes the command status to read-only.

1. Drag-and-drop data points onto the work area. Press **CTRL** and click to select multiple data points.
   - For absolute binding, select numeric point(s) from the **EQUIPMENTS** pane.
   - For relative binding, select virtual point(s) from the **VIRTUAL POINTS** pane.
   ⇒ A smart label is created for each data point. Smart labels include command access for point types that can be commanded.

2. Select the smart label, click and type `readOnly` in the **ADD TAGS** field.

   Tags are case-sensitive and must be entered in English.

3. Click and then to display the updated smart label.
   ⇒ The smart label is now read-only.
Removing read-only status from a smart label

1. Select the smart label and display the **ADVANCED** properties.
2. Find the **readOnly** property, click **✓** and select **✗ REMOVE**.
3. Click **✓** and then **✗** to display the updated smart label. The smart label now has command access.

Binding data points to a graphic component

To bind data points to a graphic component, drag-and-drop the data point from the **VIRTUAL POINTS** pane onto the graphic component.

![Figure 34: Binding a data point to a graphic component.](image-url)
Renaming a virtual point

To rename the virtual point within the graphic, modify the text in the Name field. This only changes the virtual point name in the current graphic.

![Virtual Points pane](image)

Working with data points that have the same name

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adding multiple data points with an indistinct name, such as valve, without using REFORMAT NAME creates a nested structure in the VIRTUAL POINTS pane. If you are working with data points that have the same name, select TOOLS &gt; REFORMAT NAME each time a data point is added.</td>
</tr>
</tbody>
</table>

For example, two data points are named valve: one is the valve for the cooling coil, and the other is the valve for the preheater. Using REFORMAT NAME after each data point is added automatically renames the virtual point based on the application hierarchy and keeps the names in proper order.

![Nested structure in the VIRTUAL POINTS pane.](image)

Using REFORMAT NAME

1. From the EQUIPMENTS pane, drag-and-drop a data point onto the graphic.
   - A virtual point is automatically created.
2. In the VIRTUAL POINTS pane, right-click on the new data point and select TOOLS > REFORMAT NAME.
   - The virtual point is automatically renamed based on its location in the application hierarchy.
Deleting a nested structure

If you accidentally create a nested structure in the VIRTUAL POINTS pane, do the following to delete it:

1. Collapse all levels of the tree in the VIRTUAL POINTS pane.
2. Select the virtual point at the main level in the VIRTUAL POINTS pane and click Minus to delete it.

The nested virtual point is now at the main level in the pane.

3. Select the remaining virtual point and click Minus to delete it.

The nested structure is deleted.

4. Re-add the data points and select TOOLS > REFORMAT NAME after adding each data point.
Adding a new tag or property tag

1. Click 🔄 for the data point and select **ADD PROPERTY**.

2. If necessary, change the property type.

3. Name the tag.

5.2.5 **EQUIPMENTS**

The **EQUIPMENTS** pane allows you to select objects from your building hierarchy that represent a value, setpoint or status. To automatically create a smart label with an absolute binding, drag-and-drop an object onto the graphic.

Data point binding [➙ 58]

*Figure 36: EQUIPMENTS pane.*
5.3 Graphics libraries

The Graphics Builder program on your Desigo Control Point device contains the following graphics libraries:

- Supersample graphics [➙ 139]
- Graphics models
- Graphics components [➙ 141]

**Note**
Graphics models cannot be used with BACnet/IP systems. The pre-built components in this library rely on tags that are applied to data points in Siemens applications. Therefore, detailed information for graphics models is not provided in this manual.

**Updating the graphics library**

ABT Site must be used to update the graphics libraries. Updating the graphics libraries only adds new resources or updates existing library resources. The update procedure does not affect any new graphics you created or any graphics created by using **SAVE AS GRAPHIC**.

For more information, see *Updating the graphics library* in the ABT Site online help.

### 5.3.1.1 Supersample graphics

- Supersample graphics are designed for use with the most common applications. Each graphic contains a super-set of components that are most commonly used for the application. For example:
  - The graphic *Sample-AHU-ERC-HC-TP* provides a layout for a *rotary energy recovery system* with object labels that display the present value and current status of *heating and cooling*, and *temperature and pressure* control objects.
  - The graphic *Sample-RSeg-HVAC-FNC* provides a layout for a *room segment* with object labels that display the present values, setpoints and status for a *fan coil HVAC* system.

- Supersample graphics are recommended as a starting point for creating new graphics.
- All graphics in the supersample graphics library use relative binding.

*Figure 37: Example of a supersample AHU graphic.*
5.3.1.2 Pre-loaded supersample graphics library

This section outlines the graphics that are pre-loaded in Desigo Control Point devices.

<table>
<thead>
<tr>
<th>Graphic type</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary supersample</td>
<td>Use with PXC4/5 controllers:</td>
</tr>
<tr>
<td></td>
<td>Datapoint binding must be redone.</td>
</tr>
<tr>
<td></td>
<td>Relativization to be done by shortName.</td>
</tr>
<tr>
<td></td>
<td>Use with BACnet standard devices:</td>
</tr>
<tr>
<td></td>
<td>Datapoint binding must be redone.</td>
</tr>
<tr>
<td></td>
<td>Relativization to be done by navName. See Using Relative by navName binding [➔ 63].</td>
</tr>
</tbody>
</table>

| Application example           | Relativized example graphic compatible with Desigo primary controllers PXC4/5, engineered with ABT Site. |
|                               | Relativization done by shortName. |
|                               | Example graphic compatible with the PXC4/5 application program examples. |
|                               | Manual rework required to match the example graphic with the project specific application program. |

| Dashboard template            | Template graphic for energy dashboards. |
|                               | Additional engineering effort per project required. |
|                               | Use with BACnet standard devices must be tested individually. |

Table 64: Properties of pre-loaded graphics.

<table>
<thead>
<tr>
<th>Supersample graphic name</th>
<th>Style</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample AHU_ERCPL_HC_HUM_H_TPH</td>
<td>2D+ / 2D*</td>
<td>AHU; ERC (plate); heating and cooling; humidifier; humidity, temperature and pressure control</td>
</tr>
<tr>
<td>Sample AHU_ERCRunacl_HC_TP</td>
<td>2D+ / 2D*</td>
<td>AHU; ERC (run around coil); heating and cooling; temperature and pressure control</td>
</tr>
<tr>
<td>Sample AHU_ERC_HC_TP</td>
<td>2D+ / 2D*</td>
<td>AHU; ERC (rotary); heating and cooling; temperature and pressure control</td>
</tr>
<tr>
<td>Sample AHU_ERC_H_TP</td>
<td>2D+ / 2D*</td>
<td>AHU; ERC (rotary); heating only; temperature and pressure control</td>
</tr>
<tr>
<td>Sample AHU_MIX_HC_TP</td>
<td>2D+ / 2D*</td>
<td>AHU; ERC (mixing circuit); heating and cooling; temperature and pressure control</td>
</tr>
<tr>
<td>Sample CGEN_1Ch</td>
<td>2D+ / 2D*</td>
<td>Cooling generation: one chiller</td>
</tr>
<tr>
<td>Sample CGRP_1Grp</td>
<td>2D+ / 2D*</td>
<td>Cooling group: one group</td>
</tr>
<tr>
<td>Sample CGRP_1Grp_Pu</td>
<td>2D+ / 2D*</td>
<td>Cooling group: one group with mixing circuit</td>
</tr>
<tr>
<td>Sample Dhw_DhwHyd</td>
<td>2D+ / 2D*</td>
<td>Domestic hot water: with hydraulic charge</td>
</tr>
<tr>
<td>Sample HGEN_1Bo</td>
<td>2D+ / 2D*</td>
<td>Heat generation: one boiler</td>
</tr>
<tr>
<td>Sample HGEN_2Bo</td>
<td>2D+ / 2D*</td>
<td>Heat generation: two boilers</td>
</tr>
<tr>
<td>Sample HGRP_1GRP</td>
<td>2D+ / 2D*</td>
<td>Heat generation: one group</td>
</tr>
<tr>
<td>Sample HGRP_1GrpPu</td>
<td>2D+ / 2D*</td>
<td>Heat generation: one group with mixing circuit</td>
</tr>
<tr>
<td>Sample Heating Curve</td>
<td>–</td>
<td>Calculates the flow temperature setpoint based on outside air temperature, room setpoint and other factors, such as wind and solar.</td>
</tr>
</tbody>
</table>

Table 65: Primary supersample graphics.

* The 2D style graphics with _PXM40_ in the graphic name are optimized for use with PXM40... These graphics have a fixed resolution and sharper data point text, the option Scale to Fit is disabled, and they will load without rescaling.
<table>
<thead>
<tr>
<th>Example graphic name</th>
<th>Application program example</th>
<th>Style</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample NG AHU ERC_HC_TP</td>
<td>Ahu21</td>
<td>2D+ / 2D</td>
<td>AHU; ERC (rotary); speed-controlled fans; chilled water cooling coil; hot water heating coil; shut-off dampers.</td>
</tr>
<tr>
<td>Sample NG DHW DhwHyd</td>
<td>Dhw21</td>
<td>2D+ / 2D</td>
<td>Domestic hot water: with demand-controlled heating and controller storage tank charging.</td>
</tr>
<tr>
<td>Sample NG HGEN 2Bo</td>
<td>HGen21</td>
<td>2D+ / 2D</td>
<td>Heat generation: two boilers; modulating burner; single-stage burner.</td>
</tr>
<tr>
<td>Sample NG HGRP</td>
<td>HCr21 HCr22</td>
<td>2D+ / 2D</td>
<td>Heating circuit: radiators; weather-dependent flow temperature control.</td>
</tr>
</tbody>
</table>

Table 66: Application example graphics.

<table>
<thead>
<tr>
<th>Template name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample dashboard public</td>
<td>Designed for use in public spaces to share information with the general public. It has three tabs, which include the current weather, typical building energy consumption and typical building water consumption. Public dashboard [→ 152]</td>
</tr>
<tr>
<td>Sample dashboard facility manager</td>
<td>Provides detailed information regarding the energy consumption of a building. Displays total electrical energy generation and consumption, a 15-minute average of maximum power demand and current energy consumption values. Facility manager dashboard [→ 147]</td>
</tr>
</tbody>
</table>

Table 67: Dashboard templates.

### 5.3.2 Graphics components

The graphics components library provides the following:

- Standard 2D, 2D+ and 3D images for physical components.
- Siemens-specific components. For example, ductwork, coils, pumps, valves and burners.

When components are dragged from the COMPONENTS pane, you must create a reference between the graphic component and an object in your database.

COMPONENTS [→ 74]

The following tables outline the categories of available components.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
<td>Dashboard components and wizards for creating graphs, charts, and gauges.</td>
</tr>
<tr>
<td>• AM charts</td>
<td></td>
</tr>
<tr>
<td>• SVG gauges</td>
<td></td>
</tr>
<tr>
<td>HTML components</td>
<td>HTML components for an interactive display.</td>
</tr>
<tr>
<td>Central plant 2D</td>
<td>Valves, chillers, pumps, boilers, cooling towers and pipes.</td>
</tr>
<tr>
<td>Central plant sensors, 2D</td>
<td>Flow, pressure and temperature sensors and a generic VFD.</td>
</tr>
<tr>
<td>Coils, 3D</td>
<td>Cooling and heating coils, including brand-specific images.</td>
</tr>
<tr>
<td>Dampers, 2D+ and 3D</td>
<td>Barometric, bypass, circular and cone dampers and brand-specific vertical dampers.</td>
</tr>
<tr>
<td>Ducts, 2D+</td>
<td>Various duct components.</td>
</tr>
<tr>
<td>Fans, 2D+and 3D</td>
<td>Centrifugal, duct, mushroom, propeller, and squirrel cage fans and brand-specific VFD images.</td>
</tr>
<tr>
<td>Filters, 2D+</td>
<td>Various types of filters.</td>
</tr>
<tr>
<td>Misc, 2D+</td>
<td>AC unit, baseboard valve, compressor, controller, fume hood and brand-specific actuators.</td>
</tr>
<tr>
<td>Round ducts, 2D+</td>
<td>Various round duct components.</td>
</tr>
<tr>
<td>Sensors, 2D+ and 3D</td>
<td>Airflow, averaging, CO2, halo, humidity, low limit, smoke detector, temperature and brand-specific inside and outside sensors.</td>
</tr>
</tbody>
</table>

Table 68: Standard components.
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siemens 2D air</td>
<td>Cooling and heating coils, dampers, detectors, duct components, energy recovery exchangers, humidifiers and sensors.</td>
</tr>
<tr>
<td>2D cooling</td>
<td>Condenser, evaporators, chiller element exchanger, compressor and cooling tower.</td>
</tr>
<tr>
<td>2D electrical</td>
<td>Lights.</td>
</tr>
<tr>
<td>2D heating</td>
<td>Boiler and burners.</td>
</tr>
<tr>
<td>2D HVAC</td>
<td>Detectors, sensors, pumps and valves.</td>
</tr>
<tr>
<td>2D room</td>
<td>Presence and window detectors and room sensors.</td>
</tr>
<tr>
<td>2D services</td>
<td>Fire, heat and smoke detectors and meter.</td>
</tr>
<tr>
<td>2D water</td>
<td>Air separator, convectors, radiators, heaters, exchanger, pipe components and water tank.</td>
</tr>
<tr>
<td>2D+ air</td>
<td>Duct components.</td>
</tr>
<tr>
<td>2D+ animation</td>
<td>Fans.</td>
</tr>
<tr>
<td>2D+ cooling</td>
<td>Chiller and cooling tower.</td>
</tr>
<tr>
<td>2D+ device</td>
<td>Generic BACnet device and TX-I/O</td>
</tr>
<tr>
<td>2D+ global</td>
<td>Server racks, printers, computers and UPS.</td>
</tr>
<tr>
<td>2D+ heating</td>
<td>Boilers and burner.</td>
</tr>
<tr>
<td>2D+ HVAC</td>
<td>Pumps and valves.</td>
</tr>
<tr>
<td>2D+ room</td>
<td>Temperature sensors, presence detector and room sensor.</td>
</tr>
<tr>
<td>2D+ water</td>
<td>Plate exchanger and water tank.</td>
</tr>
</tbody>
</table>

*Table 69: Siemens-specific components.*
6 Graphics engineering

Plant view graphics are created using the Graphics Builder application, which is accessed through Desigo Control Point when working online, and through ABT Site when working offline.

Graphics Builder contains sample graphics and additional tools to help you easily create graphics to meet the needs of your facility.

Supersample graphics library

This document provides guidelines for the most commonly-used tools in the Graphics Builder program. If your site requires advanced features, such as custom programming, or if you want to create your own graphic templates and models, see the J2 Graphics Builder documentation (https://finproducts.atlassian.net/wiki). A good understanding of graphic programs and commonly-used open source tools, such as Haystack and Java, is required to successfully complete advanced tasks.

6.1 Using supersample graphics

This section outlines how to use a supersample graphic to create a graphic for your system that uses Relative by navName binding.

Prerequisites

- Review the Using Relative by navName binding [➙ 63] section.
- Review the list of supersample graphics and determine which one most closely matches your system.

Supersample graphics library

Saving the supersample graphic

If a graphic is currently displayed in the Plant view, click or an item in the breadcrumb list to close it.

1. Select > Tools > Configure graphics > .
   - The Configure graphics – Edit dialog box displays all graphics in the application.
2. Select the desired supersample graphic and click Edit.
   - Graphics Builder opens the selected graphic in a new tab.
3. Select MENU > SAVE AS GRAPHIC , enter a unique file name and click SAVE.
   - You are not prevented from assigning the same graphic name to multiple graphics.
   - The new file name displays in the tab for the graphic.
Customizing the graphic
1. Delete the components and smart labels that do not apply to your system.
2. *(Optional)* Do the following to add graphic components:
   - Drag-and-drop graphic components from the COMPONENTS pane onto the work area.
   - Drag-and-drop the appropriate data point from the EQUIPMENTS pane onto each new graphic component.
3. *(Optional)* Drag-and-drop data point(s) from the EQUIPMENTS pane onto the work area to add smart labels.
   - The graphic contains the required components and smart labels for your system. The graphic currently uses Absolute by Point id binding.

Optimizing the graphic
This procedure removes virtual points that were only used for objects that have been deleted.
1. Click in the panels menu and select the VIRTUAL POINTS pane.
2. Right-click on the list of virtual points and select CLEAN VIRTUAL POINTS.
3. Click APPLY to remove the unused virtual points.
Modifying the data point binding

This procedure creates a Relative by navName binding for the graphic components.

1. Individually select each component and smart label in the graphic, right-click, and select TOOLS > RELATIVIZE.

   ➤ The Component binding options dialog box displays.

   ![Component binding options dialog box]

   2. In the Top Equip section, select a location in the building hierarchy where the graphic will be used.

   ➤ The tool uses the Top Equip as the root when describing the relative location of the point within the hierarchy.

   3. Select the Relative: By navName radio button and click Apply.

   4. Click ✡ to save your changes and Save to confirm the file name and location.

   Note
   Once you’re comfortable with the data point binding process, consider using the procedure Modifying the binding option for multiple points [➙ 178].

Verifying the binding in the graphic

1. Individually select each component or smart label, right-click and select TOOLS > VIEW BINDINGS to view the type of binding used. For example:

   (point or shadowPoint) and navName=="Setpoint for cooling" is a relative binding.

   baUniqueId="9a0cffe8a0088543bfe4734dd93630bff4302fa7" is an absolute binding.

   ![View Bindings]

   2. See Verifying relative binding queries [➙ 67] for the procedure to compare the graphic component bindings to the navName tags displayed in the List view.

Continue with creating a thumbnail image and assigning the graphic to the Desigo Control Point device so that it can be viewed.

Thumbnails [➙ 146]
Enable / disable graphics and kiosks [➙ 40]
6.2 Optimizing graphics for PXM touch panels and standard devices

This topic provides tips for creating graphics that are displayed on a touch panel.

The **Scale to fit** setting in the **BASIC » PROPERTIES** defines how the graphic is rendered on the operating client.

**PROPERTIES [→ 70]**

<table>
<thead>
<tr>
<th>Property</th>
<th><strong>Scale to Fit is ON (default)</strong></th>
<th><strong>Scale to Fit is OFF</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphic size</td>
<td>Automatically resizes the graphic to fit the display size when the graphic is loaded.</td>
<td>• Graphic is sized for exactly one display resolution.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- If the graphic resolution &gt; display resolution: Graphic cannot be fully displayed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- If the graphic resolution &lt; display resolution: Graphic is fully displayed but with a boarder.</td>
</tr>
<tr>
<td>Rendering</td>
<td>Graphic is rendered in two steps due to the resizing.</td>
<td>Graphic is rendered in one step because resizing is not required.</td>
</tr>
<tr>
<td>Number of graphics</td>
<td>One graphic is required for different clients with different resolutions.</td>
<td>Multiple graphics may be required for different clients with different resolutions.</td>
</tr>
</tbody>
</table>

Table 70: Graphic rendering and Scale to Fit settings.

**Recommended resolutions for graphics displayed on PXM touch panels**

Use the following settings for the best user experience with graphic rendering on PXM touch panels.

The recommended setting for **Scale to Fit** is **OFF** for graphics displayed on PXM touch panels.

<table>
<thead>
<tr>
<th>PXM touch panel</th>
<th>Kiosk graphics</th>
<th>Regular graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>PXM30.E / PXM30-1</td>
<td>1024 × 600</td>
<td>814 × 494</td>
</tr>
<tr>
<td>PXM40.E / PXM40-1</td>
<td>1280 × 800</td>
<td>1070 × 694</td>
</tr>
<tr>
<td>PXM50.E / PXM50-1</td>
<td>1368 × 768</td>
<td>1158 × 662</td>
</tr>
</tbody>
</table>

Table 71: Recommended graphic resolutions.

6.3 Thumbnails

1. Click **VIEW ASSETS** to display the images already on the device. If there is not an image to use as a thumbnail, create a screen capture of the graphic and save it to your computer.

2. Right-click on the graphic and select **TOOLS > UPLOAD THUMBNAIL**.
3. Do one of the following:
   - To upload a new image, click Choose File and select the screen capture that was saved to your computer.
   - To select an image already on the device, click the Existing image field to select a file and select the Use existing image check box.

4. Click Apply.

5. Click SAVE and close the graphic.

6.4 Dashboards

Dashboards are a specific application of graphics that display trend data and present values in elements, such as bar charts, pie charts and gauges. Dashboards only display information—they do not contain elements for commanding objects.

When working with dashboards, it is recommended that you start with a sample dashboard from the Supersample graphics library and use SAVE AS GRAPHIC to save your customized version. The Supersample graphics library contains the following sample dashboard graphics:

- **Sample dashboard facility manager**, which provides a facility manager with detailed information regarding the energy consumption of a building.
- **Sample dashboard public**, which is designed for use in public spaces to share information about a building.

The sample dashboard graphics have been designed to require minimal set-up. Most users only need to add trend definitions for the data to be displayed and add the data sources to the graphic.

**Facility manager dashboard**

**Public dashboard**

Navigation in Graphics Builder and the procedures to import, export and edit dashboard graphics are the same as with any other graphic. Creating new dashboard graphics (rather than starting with a sample graphic) is an advanced task. See the following sections of this manual for more information:

- Importing graphics
- Exporting graphics
- Editing a graphic
- Adding a graphic

6.4.1 Facility manager dashboard

The Sample dashboard facility manager graphic provides a facility manager with detailed information regarding the energy consumption of a building.
Energy and maximum power demand (bar and line chart)
Created with the AM chart component.
ⓐ Electrical energy generation and consumption.
ⓑ 15-minute average maximum power demand for the selected reporting interval ⓐ.
ⓒ Reporting period selection (Year, Month, Week, Day).
ⓓ Reporting interval. When the reporting period is changed, the corresponding interval is automatically displayed (Month, Day, Hour).

Energy consumption of selected subsystems (pie chart)
Created with the AM chart component.

Present values of selected objects (gauges)
Created with the Gauge component.

Configuring the Facility manager dashboard
This topic outlines the workflow to configure the Facility manager dashboard so that it displays data from your system.
Modifying the chart types or default settings of the Facility manager dashboard are advanced tasks that require a good understanding of graphic programs and commonly-used open source tools, such as Haystack and Java. For more information, see the J2 Graphics Builder documentation (https://finproducts.atlassian.net/wiki).

<table>
<thead>
<tr>
<th>Workflow step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Saving a copy of the sample graphic</td>
</tr>
<tr>
<td>2</td>
<td>Setting up energy and maximum power demand (bar and line chart)</td>
</tr>
<tr>
<td>3</td>
<td>Setting up energy consumption of selected subsystems (pie chart)</td>
</tr>
<tr>
<td>4</td>
<td>Setting up present values of selected objects (gauges)</td>
</tr>
</tbody>
</table>
1. Saving a copy of the sample graphic

- Plant view is selected and you are working at the Root level of the building hierarchy.

1. Open the Sample dashboard facility manager graphic.

2. Select > Configure graphics > Graphics Builder opens the Facility manager dashboard graphic in a new tab.

3. In Graphics Builder, select MENU > SAVE AS GRAPHIC, enter a unique file name and click SAVE.

When using SAVE AS GRAPHIC, always choose a unique graphic name. You are not prevented from assigning the same name to multiple graphics.

2. Setting up energy and maximum power demand (bar and line chart)

Two trended data points must be added to the Energy and maximum power demand bar and line chart: one for energy consumption, and one for energy generation.

a. Adding a trend definition for online trended objects

If the trend is already defined, skip to b. Adding a trended data point to the Energy and Water layers.

- Trends is selected in the core function pane.

1. Select > Configure trend definitions >

2. Navigate through the building hierarchy and select the object(s) to trend.

3. Click Next.

4. Select the desired settings in the Trend data collection settings dialog box.

5. Click Apply to save the trend definition.

For more information on adding a trend definition, see the Trends tools section of the Desigo Control Point Operation Manual (A6V11211557).

b. Adding trended data points to the bar and line chart

1. In the EQUIPMENTS pane, press CTRL and click to select one trended data point for energy consumption and one trended data point for energy generation to supply data for the chart.

   Note: The data points must be assigned together. They cannot be added one-by-one.

   - A star ⭐ displays to indicate that a data point is selected.

2. Drag-and-drop the group of data points onto the chart.

   - Two new virtual points are created for energy consumption and energy generation.

   For more information, see the Adding information from a trended data point [163] section.

c. Displaying the Daily Max Power line

This procedure adds a property to the energy consumption data point to display the 15-minute average maximum power demand line on the chart.
1. In the **VIRTUAL POINTS** pane, click ➩ for the *energy consumption* data point and select **ADD PROPERTY**.

![VIRTUAL POINTS pane](image)

⇒ A string tag is added.

2. Scroll down to find the new property, change its name to **forMaxPower** and click ✅.

![Property name change](image)

3. Click ➩ and select **BOOLEAN** to change the property type.

![Property type change](image)

4. Set the toggle switch to **true** (ON) and click ✅.

![Toggle switch](image)

5. Click ➩ and **SAVE** to save the graphic.

### 3. Setting up energy consumption of selected subsystems (pie chart)

The pie chart displays a summary of energy consumption for multiple data points.

1. In the **EQUIPMENTS** pane, press **CTRL** and click to select all the **Present value** points ➩ that supply data for the chart.

   **Note:** All the data points must be assigned together. They cannot be added one-by-one.

⇒ A star ⭐ displays to indicate that a data point is selected.
2. Drag-and-drop the group of data points onto the chart.
   - A new virtual point is created for each **Present value** point.
   - The following message displays: **Retrieve History From Point(s)?**

3. Click **No**.

4. For each **Present value** point in the chart, do the following to change its label:
   - In the **VIRTUAL POINTS** pane, click to expand the point and scroll down to the **displayName** string tag.
   - Select the value for the **displayName** string tag (initially named **Present value**), change it to the desired label name and click.

   **Hint:** If you want to use the device name, it is displayed two fields above in the **dis** field.

For additional details, see the Step **Editing the chart labels** in the Working with pie charts [➙ 171] section.

4. Setting up current values of selected objects (gauges)
   Complete this procedure for each gauge in the Facility manager dashboard.
   1. In the **EQUIPMENTS** pane, select the data point that is the source for the gauge.
   2. Drag-and-drop the data point onto the gauge.
   3. *(Optional)* Delete any unused gauges.
   4. Click **✓** and **SAVE** to save the graphic.

   The Facility manager dashboard configuration is now complete.
6.4.2 Public dashboard

The Sample dashboard public graphic is designed for use in public spaces to share information about a building.

This graphic contains three dashboard layers—Weather, Energy and Water—and a navigation bar at the top to navigate between the layers. The Weather layer is the default view.

1. Navigation bar (MainLayer)
   Contains the date and time display, the tabbed buttons and the company logo. This layer is always visible.
   The navigation bar uses the Toggle buttons program, which is in the Sample dashboard public graphic.

2. Weather layer
   Contains a Ractive component that embeds external media to display the current weather conditions plus a three-day forecast.

3. and 4. Energy and Water layers
   - Each layer contains a Ractive component that compares the building’s resource consumption to common household devices.
     - The number of icons displayed in color represents the maximum daily consumption over the last four weeks.
     - For the Energy layer, an electric oven is the default device used for comparison.
     - For the Water layer, a washing machine is the default device used for comparison.
     - To change the icons, see Overview of the Energy and Water resource consumption graphics [155]
   - Each layer contains a background image, which can be modified.
     Adding or replacing a background image [162]
   - Each layer contains a timer that refreshes the data displayed in the tab. By default, the data is refreshed every three hours.
     Changing the refresh interval for a trended data point [164]
Displaying the Energy and Water layers for editing

The **Sample dashboard public** graphic contains three dashboard layers and a navigation bar at the top to navigate between the layers. When editing this graphic, you may need to click **Show/hide** in the **LAYERS** pane to display the layer to edit. The **Weather** layer is the default view.

1. Click **Show/hide** to hide the **Weather** layer and display a different layer for editing.

2. When you’re done editing:
   - Click **Show/hide** to hide the layers you edited.
   - Click **Show/hide** to return the **Weather** layer to the default view.

Configuring the Public dashboard

This topic outlines the workflow to configure the Public dashboard so that it displays data from your system.

<table>
<thead>
<tr>
<th>Workflow step</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

1. **Saving a copy of the sample graphic**

   1. Open the **Sample dashboard public** graphic.
   2. Select **Plant view** and you are working at the **Root** of the building hierarchy.
   4. Select the options to configure your widget.
   5. When the widget is configured, copy the HTML code in the field at the bottom of the page.
   6. In Graphics Builder, display the **LAYERS** pane and expand the **Weather** layer.
   7. Select the **Ractive** component.

   When using **SAVE AS GRAPHIC**, always choose a unique graphic name. You are not prevented from assigning the same name to multiple graphics.

   The new file name displays in the tab for the graphic.

2. **Changing the location displayed in the Weather layer**

   This procedure replaces the existing HTML code for the **Ractive** component in the **Weather** layer. The default settings for the **Weather** layer are as follows:
   - **Location**: Chicago, United States of America
   - **Number of days**: Four
   - **Temperature unit**: Fahrenheit
   - **Wind speed unit**: mph
   2. Select the options to configure your widget.
   3. When the widget is configured, copy the HTML code in the field at the bottom of the page.
   4. In Graphics Builder, display the **LAYERS** pane and expand the **Weather** layer.
   5. Select the **Ractive** component.
6. In the BASIC PROPERTIES, expand RACTIVE EDITOR and click OPEN EDITOR.

The RACTIVE EDITOR dialog box opens with the TEMPLATE tab displayed.

7. Paste the new HTML code in the TEMPLATE tab.

8. To scale the widget to fit the dashboard frame, change the width and height to 100% instead of px.

3. Adding a data source to the Energy and Water layers

A trended data point must be added to the Energy and Water layers to provide data for the comparison of the building resource consumption to common household devices. Icons for the household devices do not display until a trended data point has been added to the layer.

a. Adding a trend definition for online trended objects

If the trend is already defined, skip to b. Adding a trended data point to the Energy and Water layers.

1. Select > Configure trend definitions > .

2. Navigate through the building hierarchy and select the object(s) to trend.

Only objects that currently do not have a trend definition are displayed.

3. Click Next.

4. Select the desired settings in the Trend data collection settings dialog box.

5. Click Apply to save the trend definition.
For more information on adding a trend definition, see the Trends tools section of the Desigo Control Point Operation Manual (A6V11211557).

b. Adding a trended data point to the Energy and Water layers

1. In the LAYERS pane, click to display the layer to edit. For example, hide the Weather layer and display the Energy layer.

   Displaying the Energy and Water layers for editing [➔ 153]

2. In the EQUIPMENTS pane, navigate to the trended data point that is the source for the graphic.

3. Drag-and-drop the trended data point onto the graphic.

4. When you’re done editing, click to return the Weather layer to the default view.

5. Click and SAVE to save the graphic.

   The “common household devices” now display in the dashboard.

   For additional details, see the Adding information from a trended data point [➔ 163] section.

Overview of the Energy and Water resource consumption graphics

The Energy and Water layers of the Public dashboard display a comparison of the building resource consumption to common household devices. The comparisons were created with a Ractive component. For more information on Ractive, see https://ractive.js.org/.

- The default configuration of the Energy layer is as follows:
  - The number of icons displayed in color represents the average daily consumption as a percentage of the maximum daily consumption over the last four weeks.
  - The icon is a red oven.
  - One electric oven uses 72 kWh over the course of the day.

- The default configuration of the Water layer is as follows:
  - The number of icons displayed in color represents the average daily consumption as a percentage of the maximum daily consumption over the last four weeks.
  - The icon is a royal blue washing machine.
  - Each cycle uses 70 liters of water.

The following figure outlines the elements of the Ractive components that display the resource consumption.
Figure 38: Elements of the Ractive components that display resource consumption.

1. **The Ractive component**

2. **fillColor**
   The color of the icon. You can use any of the 140 valid CSS color strings supported by modern browsers. In this case, it’s red.

3. **numIcons**
   The number of icons displayed. In this case, it’s 10. The number of icons displayed in color represents the average daily consumption as a percentage of the maximum daily consumption over the last four weeks.

4. **icon**
   The icon for the household devices. Options are: washing-machine, oven, fridge, light or lightning-bolt.

5. **descriptionText**
   Free-form text describing the average calculation.

6. **avgValue**
   The average daily consumption over the last four weeks. Note: Do not edit this value. It is overwritten once the graphic displays live data.

7. **oneCycleValue**
   Can be any positive number. In this case, it’s 72.

8. **units**
   Free-form text describing the unit of measure.

9. **cycleText**
   Free-form text describing the common household device used for comparison.

10. **maxValue**
    Maximum daily consumption used in the comparison calculation. Note: Do not edit this value. It is overwritten once the graphic displays live data.

11. **minValue**
    Minimum daily consumption used in the comparison calculation. Note: Do not edit this value. It is overwritten once the graphic displays live data.
Modifying the Energy and Water resource consumption graphics

This procedure modifies the Ractive component that compares the building’s resource consumption to common household devices.

This procedure uses the PROPERTIES and LAYERS panes

1. Open the Sample dashboard public graphic for editing.

2. Click to hide the Weather layer and to display the Energy or Water layer.

3. Select the Ractive component.

4. In the BASIC PROPERTIES, expand RACTIVE EDITOR and click OPEN EDITOR.

   The RACTIVE EDITOR dialog box opens with the TEMPLATE tab displayed.

5. Select the MODEL tab to display the configurable properties.

6. Edit the properties as desired. For more information, see the figure Elements of the Ractive components that display resource consumption at the beginning of this topic.

7. When you’re done editing, click to return the Weather layer to the default view.

8. Click and SAVE to save the graphic.

   The icons and comparison descriptions have been updated.

Adding a new tab to the Public dashboard

Complete the following procedures to add a new tab to the Public dashboard:

- Adding a new layer
- Adding a button to the navigation bar
Adding a new layer

This procedure uses the PROPERTIES, COMPONENTS and LAYERS panes.

1. Open the Sample dashboard public graphic for editing.

2. Click + at the bottom of the LAYERS pane to add a new layer to the pane.

3. Select the new layer and modify the Name field in the BASIC PROPERTIES pane.

4. Select ADVANCED PROPERTIES and click + at the bottom of the pane to add a new tag.

5. Name the new tag mode and click ✅.

6. Select the value for the mode tag (initially named NewValue), change it to the name of the tab and click ✅.

❖ A new layer has been added to the dashboard.
Adding a button to the navigation bar

1. Drag-and-drop a Button from COMPONENTS > HTML COMPONENTS onto the MainLayer in the LAYERS pane.

2. Drag the Button to the desired position in the MainLayer hierarchy. For example, between the Energy and Weather buttons.

3. Do the following in the BASIC PROPERTIES pane to make the new button match the existing dashboard design:
   a. Select an existing button and copy the Classes value.
b. Paste the value into the **Classes** field of the new button.
For more information on using Classes to change the button style, see the J2 Graphics Builder documentation (https://finproducts.atlassian.net/wiki).

c. Change the **POSITION & SIZE** values to match the existing dashboard design.

**BASIC PROPERTIES [➔ 71]**

d. If desired, use the other **BASIC ➔ PROPERTIES** to modify the appearance of the button.

4. Select the new button in the work area and do the following in the **ADVANCED ➔ PROPERTIES** pane:

a. Click + at the bottom of the pane to add a new tag.

b. Click and select **MARKER** to change the tag type.

c. Name the new tag **button** and click .

d. Click + to add another new tag.

e. Name the new tag **mode** and click .

f. Select the value for the **mode** tag (initially named **NewValue**) and enter the name of the dashboard tab that the button points to.

g. Click .

5. When you’re done editing, click to return the **Weather** layer to the default view.

6. Click and **SAVE** to save the graphic.

When selected, the button displays the new dashboard tab.
Adding and editing a text box

Text boxes are added to graphics by using the Label HTML component.

This procedure uses the PROPERTIES, COMPONENTS and LAYERS panes.

1. Open the Sample dashboard public graphic for editing.

2. Click in the LAYERS pane to display the layer to edit. For example, hide the Weather layer and display the Energy layer.

3. Drag-and-drop a Label from COMPONENTS > HTML COMPONENTS onto the work area.

4. Select the Label and do the following in BASIC PROPERTIES:
   - Scroll to the Text field at the bottom of the pane to edit the label text.
   - Expand FONT to modify the text appearance.
   - If desired, use the other BASIC PROPERTIES to modify the appearance of the label.

5. Click to return the Weather layer to the default view.

6. Click and SAVE to save the graphic.

The text box has been added or modified.
6.4.4 Adding or replacing a background image

This procedure adds a new image or replaces the existing background image for a tab. Each tab of the dashboard can have a unique background image.

- This procedure uses the PROPERTIES and LAYERS panes.

1. Open the Sample dashboard public graphic for editing.

2. Click in the LAYERS pane to display the layer to edit. For example, hide the Weather layer and display the Energy layer.

3. Expand the layer you are editing.

4. If you are replacing an existing background image, right-click on the image in the LAYERS pane and select DELETE.

5. Make sure the layer you are editing is still selected.

6. Do one of the following:
   - If the image is already in the database, click VIEW ASSETS, select the image, and click Import.
   - If the image is not already in the database, drag the file from your local computer and drop it onto the work area in Graphics Builder.
     The image is now in the Assets and can be reused in other graphics.

7. To resize the image, select it and drag its corners or specify an image size in the POSITION & SIZE section of BASIC PROPERTIES.

8. Right-click on the image and select ARRANGE > SEND TO BACK to set it as the background.

9. In BASIC PROPERTIES, click to lock the background layer.
10. When you're done editing, click to return the Weather layer to the default view.

11. Click and SAVE to save the graphic.

The new background image now displays in the dashboard.

### 6.4.5 Adding information from a trended data point

Information from a trended data point can be displayed in a summary graphic, such as a pie chart, or in a comparison chart, such as those displayed in the Energy and Water tabs of the Public dashboard.

<table>
<thead>
<tr>
<th><img src="image" alt="NOTICE" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NOTICE</strong></td>
</tr>
</tbody>
</table>

For optimum system performance, do the following when defining trends for data points that are used in dashboards:

- Select the longest possible interval for saving data that is suitable for the application.
- Select the shortest possible time for keeping trend data.
- The following selections are recommended:
  - For the Facility manager dashboard pie chart data, **Save every** 12 hours, and **Delete trend data after** 2 months.
  - For the Public dashboard bar chart data, **Save every** 15 minutes, and **Delete trend data after** 12 months.

This procedure uses the Public dashboard Energy tab as an example.

- This procedure uses the **EQUIPMENTS** and **LAYERS** panes.

1. Open the Sample dashboard public graphic for editing.

2. Click in the **LAYERS** pane to display the layer to edit. For example, hide the Weather layer and display the Energy layer.

3. In the **EQUIPMENTS** pane, navigate to the trended data point that is the source for the graphic.

4. Drag-and-drop the trended data point onto the graphic.

5. When you’re done editing, click to return the Weather layer to the default view.

6. Click and SAVE to save the graphic.

The “common household devices” now display in the Energy tab of the dashboard.
6.4.5.1 Changing the refresh interval for a trended data point

By default, data linked to the Energy and Water layers of the Public dashboard is refreshed every three hours. To use a different refresh interval, edit the Delay property of the Timer control for the layer.

Changing the refresh interval

This procedure uses the PROPERTIES and LAYERS panes.

1. Open the Sample dashboard public graphic for editing.

2. Click in the LAYERS pane to display the layer to edit. For example, hide the Weather layer and display the Energy layer.

3. Expand the layer you are editing and select the Timer.

   The Delay property in the BASIC PROPERTIES displays the number of milliseconds between each refresh of data in the graphic.

4. Change the Delay field to the desired refresh interval.

5. When you’re done editing, click to return the Weather layer to the default view.

6. Click and SAVE to save the graphic.

   The refresh interval for the trend data has been updated.
6.4.6 Adding external media to a dashboard

External media, such as a YouTube video, can be embedded in a dashboard by using an HTML inline frame (<iframe>) and the Ractive component in Graphics Builder. For more information on Ractive, see https://ractive.js.org/.

The example in this section embeds a weather widget provided by meteoblue (https://www.meteoblue.com). The process to use a different widget should be similar to the steps outlined.

1. Get the widget you want to use. Do the following for this example:
   b. From the left menu, select the widget you would like to integrate.

2. Select the options to configure your widget.

3. When the widget is configured, copy the HTML code in the field at the bottom of the page.

4. Drag-and-drop a Ractive component from COMPONENTS onto the work area.

5. Select the Ractive component.
6. In the **BASIC** \(\mathbb{P}R\)OPERTIES, expand **RACTIVE EDITOR** and click **OPEN EDITOR**.

\[\begin{array}{c}
\text{RACTIVE EDITOR}
\end{array}\]

\[\text{TEMPLATE} \rightarrow \text{OPEN EDITOR}\]

\[\text{ TEMPLATE tab displayed.}\]

7. Paste the HTML code in the **TEMPLATE** tab.

8. To scale the widget to fit the dashboard frame, change the **width** and **height** to **100%** instead of **px**.
6.4.7 Working with gauges

A gauge displays the present value of a data point.

The following figure outlines the **BASIC PROPERTIES** that control the appearance of a gauge.

![Gauge BASIC PROPERTIES](image)

**Figure 39: Gauge BASIC PROPERTIES.**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
<th>Property can be modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Gauge color</td>
<td>Background color for the gauge.</td>
<td>Yes</td>
</tr>
<tr>
<td>② Label color</td>
<td>Color of the <strong>Label text</strong>.</td>
<td>Yes</td>
</tr>
<tr>
<td>Label text</td>
<td>Subtitle for the gauge. This is a free text field.</td>
<td>Yes</td>
</tr>
<tr>
<td>③ Maximum</td>
<td>Maximum value for the gauge.</td>
<td>No This value is overwritten when a BACnet object is dropped onto the gauge.</td>
</tr>
<tr>
<td>④ Minimum</td>
<td>Minimum value for the gauge.</td>
<td>No This value is overwritten when a BACnet object is dropped onto the gauge.</td>
</tr>
<tr>
<td>⑤ Precision</td>
<td>The number of decimal places displayed.</td>
<td>Yes</td>
</tr>
<tr>
<td>Value</td>
<td>The present value displayed</td>
<td>No This value is overwritten when a BACnet object is dropped onto the gauge.</td>
</tr>
<tr>
<td>Value color</td>
<td>Color of the <strong>Value</strong> and <strong>Unit</strong>.</td>
<td>Yes</td>
</tr>
<tr>
<td>⑥ Label</td>
<td>Title for the gauge.</td>
<td>No When a BACnet object is dropped onto the gauge, the object name is automatically entered in the <strong>Label</strong> field.</td>
</tr>
<tr>
<td>Title color</td>
<td>Color of the <strong>Label</strong>.</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### Table 72: Gauge BASIC PROPERTIES.

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
<th>Property can be modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit</td>
<td>Unit of measure for the Value. The Value color also applies to this field.</td>
<td>No when a BACnet object is dropped onto the gauge, the unit of measure for the object is automatically entered in the Unit field.</td>
</tr>
<tr>
<td>Gauge fill</td>
<td>The color displayed indicates if the present value is in the minimum range (green), moderate range (yellow-to-orange) or maximum range (red).</td>
<td>No</td>
</tr>
</tbody>
</table>

#### 6.4.7.1 Changing the appearance of a gauge

Use this procedure to change the appearance of a gauge and its labels and to adjust the operating range.

This procedure uses the PROPERTIES and LAYERS panes.

1. Open the graphic for editing and click in the LAYERS pane to display the layer with the gauge.

![Image](image1.png)

2. Select the gauge and use the BASIC PROPERTIES to edit the labels, scale, colors, etc. For more information, see the Figure Gauge BASIC PROPERTIES in the Working with gauges [➙ 167] topic.

3. Click and SAVE to save the graphic.

The gauge appearance has been modified.
6.4.7.2 Adding a gauge

1. Open the graphic for editing and display the COMPONENTS and EQUIPMENTS panes.

2. From the COMPONENTS pane, drag-and-drop a Gauge onto the work area.

3. In the EQUIPMENTS pane, navigate to the Present value data point that is the source for the gauge.

4. Drag-and-drop the Present value point onto the gauge.

5. Click and SAVE to save the graphic.

⇒ The gauge has been added to the graphic.
6.4.7.3 Changing the data source
This procedure modifies the data source for a gauge.

This procedure uses the **EQUIPMENTS** and **LAYERS** panes.

1. Open the graphic for editing and click ![ellipsis](https://example.com/ellipsis.png) in the **LAYERS** pane to display the layer with the gauge.

2. In the **EQUIPMENTS** pane, navigate to the **Present value** data point that is the source for the gauge.

3. Drag-and-drop the **Present value** point onto the gauge.

   **Note:** Do not select the name of the **Equipment**.

4. Click ![folder](https://example.com/folder.png) and **SAVE** to save the graphic.

   The data source for the gauge has been updated.
6.4.8 Editing charts
Charts display historic values from various data points and may contain complex calculations.

6.4.8.1 Working with pie charts
Complete the following steps to add a pie chart.

<table>
<thead>
<tr>
<th>Workflow step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>Adding an AM chart</td>
</tr>
<tr>
<td>②</td>
<td>Adding data points to the chart</td>
</tr>
<tr>
<td>③</td>
<td>Copying the program</td>
</tr>
<tr>
<td>④ (Optional)</td>
<td>Modifying the chart labels</td>
</tr>
</tbody>
</table>

This workflow uses the COMPONENTS, VIRTUAL POINTS and EQUIPMENTS panes.

① Adding an AM chart
1. From COMPONENTS > COMPONENTS, drag-and-drop onto the graphic.
2. Click to add a new string tag .
3. Name the string tag pieChart and click .

② Adding data points to the chart
1. In the EQUIPMENTS pane, press CTRL and click to select all the Present value data points that are the source for the chart.

Note: All the data points must be assigned together. They cannot be added one-by-one.
A star ⭐ displays to indicate that a data point is selected.

2. Drag-and-drop the group of data points onto the chart.
   - A new virtual point is created for each Present value point.
   - The following message displays: Retrieve History From Point(s)?

3. Click No.

③ Copying the program

Pie charts use the Pie Chart Program, which is in the Sample dashboard facility manager graphic. This procedure copies the Pie Chart Program into your graphic.

Note

If you are using the Sample dashboard facility manager graphic, skip to the Step Editing the chart labels.

1. Click + at the bottom of the PROGRAMS pane to add a new program.
   - The PROGRAM EDITOR dialog box opens.

2. Type a name in the PROGRAM NAME field.

3. Type world in the PROGRAM TARGET FILTER field.

4. Click in the upper right corner of the PROGRAM EDITOR dialog box and select VARIABLES.
   - The PROGRAM VARS pane opens.

5. Move your cursor over the row for the this variable and then click 🔄.

6. Set the Invokes the Function? toggle switch to ON.
7. From the SELECT EVENT drop-down list, select CUSTOM EVENT.

8. Type start in the Custom Event Name field and click SAVE.

9. Do the following to copy the program from the Sample dashboard facility manager graphic:
   a. Go to Desigo Control Point and display the Sample dashboard facility manager graphic.
   b. Select > Configure graphics > .
      The Sample dashboard facility manager graphic opens in Graphics Builder.
   c. In the PROGRAMS pane, select for the program you are copying. For example, Pie Chart Program.
   d. Copy the contents of the program.

10. Navigate back to the PROGRAM EDITOR dialog box in your graphic and paste the contents of the program.

11. Click SAVE to save the program in your graphic and close the PROGRAM EDITOR dialog box.
④ (Optional) Modifying the chart labels

By default, the `displayName` string tag for each data point is displayed as the label in the chart. Complete this procedure for each label to be modified.

1. In the VIRTUAL POINTS pane, find the data point for the label to be modified and click to display all of its tags.

2. Scroll down to the `displayName` string tag and select its value. (In the figure, the value is initially named `Present value`.)

3. Change the value to the desired label name and click .

**Hint:** If you want to refer to the device name to create the label name, it is displayed two fields above in the `dis` field.

4. Click and SAVE to save the graphic. 

* The pie chart has been added.
6.4.8.2 Adding a bar or line chart

Use the workflow in this section to add a bar chart.

<table>
<thead>
<tr>
<th>Workflow step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>Adding an AM chart</td>
</tr>
<tr>
<td>②</td>
<td>Adding data points to the chart</td>
</tr>
<tr>
<td>③</td>
<td>Copying the program</td>
</tr>
<tr>
<td>④</td>
<td>Displaying the Daily Max Power line</td>
</tr>
</tbody>
</table>

This workflow uses the COMPONENTS, VIRTUAL POINTS and EQUIPMENTS panes.

① Adding an AM chart
1. From COMPONENTS > COMPONENTS, drag-and-drop onto the graphic.
2. Click to add a new string tag.
3. Name the string tag barChart and click.

② Adding data points to the chart
1. In the EQUIPMENTS pane, press CTRL and click to select one trended data point for energy consumption and one trended data point for energy generation to supply data for the chart.
   
   Note: The data points must be assigned together. They cannot be added one-by-one.
   
   ➔ A star ⭐ displays to indicate that a data point is selected.
2. Drag-and-drop the group of data points onto the chart.
   ➔ Two new virtual points are created for energy consumption and energy generation.
   For more information, see the Adding information from a trended data point [➙ 163] section.

③ Copying the program

Bar and line charts use the Bar Chart Program, which is in the Sample dashboard facility manager graphic. This procedure copies the Bar Chart Program into your graphic.

Note
If you are using the Sample dashboard facility manager graphic, skip to the Step Displaying the Daily Max Power line.

1. Click at the bottom of the PROGRAMS pane to add a new program.
   ➔ The PROGRAM EDITOR dialog box opens.
2. Type a name in the PROGRAM NAME field.
3. Type world in the PROGRAM TARGET FILTER field.
4. Click in the upper right corner of the PROGRAM EDITOR dialog box and select VARIABLES.
   ➔ The PROGRAM VARS pane opens.
5. Move your cursor over the row for the this variable and then click.
6. Set the Invokes the Function? toggle switch to ON.
7. From the SELECT EVENT drop-down list, select CUSTOM EVENT.
8. Type start in the Custom Event Name field and click SAVE.

9. Do the following to copy the program from the Sample dashboard facility manager graphic:
   a. Go to Desigo Control Point and display the Sample dashboard facility manager graphic.
   b. Select \(\text{Configure graphics} \rightarrow \text{Configure graphics} \rightarrow \text{Configure graphics} \). The Sample dashboard facility manager graphic opens in Graphics Builder.
   c. In the PROGRAMS pane, select \(\text{Program} \) for the program you are copying. For example, Pie Chart Program.
   d. Copy the contents of the program.

10. Navigate back to the PROGRAM EDITOR dialog box in your graphic and paste the contents of the program.
11. Click SAVE to save the program in your graphic and close the PROGRAM EDITOR dialog box.
Displaying the Daily Max Power line

This procedure adds a property to the energy consumption data point to display the 15-minute average maximum power demand line on the chart.

1. In the VIRTUAL POINTS pane, click for the energy consumption data point and select ADD PROPERTY.

2. A string tag is added.

3. Scroll down to find the new property, change its name to forMaxPower and click .

4. Click and select BOOLEAN to change the property type.

5. Set the toggle switch to true (ON) and click .

6. Click and SAVE to save the graphic.
7 Advanced functionality

The procedures in this section assume you have the following knowledge:

- Programming
- Javascript
- BACnet

7.1 Modifying the binding option for multiple points

Use this procedure to modify the binding option for multiple points. For example, when you’re using a supersample graphic to create a graphic that uses **Relative by navName** binding.

- The graphic contains the required components and smart labels for your system.

1. Open the graphic for editing in Graphics Builder.

2. Open the **VIRTUAL POINTS** pane, right-click anywhere on the list of points and select **RELATIVIZE**.
   - The **Select Virtual Points** dialog box displays.

3. In the **Top Equip** section, select a location in the building hierarchy where the graphic will be used.
   - The tool uses the **Top Equip** as the root when describing the relative location of the point within the hierarchy.

4. Select one or more points in the **Points to relativize** section.

5. Select a radio button for the type of binding and click **APPLY**.
7.2 Show/Hide a graphic component based on data point status

1. Add a graphic component to the graphic.
2. Drag-and-drop the data point to bind it to the graphic component.
3. Select the graphic component and click 🕒.
4. In the ADD TAGS dialog box, enter a name for the program that will run, for example, `alarmIcon`.
5. Click ✔️.

![Add Tags Dialog Box](image)

6. Open the PROGRAMS 📊 pane and click + to add a new program.
7. In the PROGRAM TARGET FILTER field, enter the name of the tag for the graphic component. (In this case, `alarmIcon`.)
8. Paste the following program code for boolean logic into the PROGRAM EDITOR and click SAVE.
   ```javascript
   if(point.curVal === false) {
       this.style.display = "none";
   } else {
       this.style.display = "";
   }
   ```

Adding a variable to the program

1. Click ☰ in the upper right corner of the PROGRAM EDITOR dialog box and select VARIABLES ☰.
   ✐ The PROGRAM VARS pane opens.
2. Create a new virtual point that is named `point` with a filter tag of `id==$virtualPointRef`.
3. Set the Invokes the Function? toggle switch to ON.
4. From the SELECT EVENT drop-down list, select TAG CHANGE and type `curVal` in the field.
   ✐ The variable looks at the data point that is bound to the graphic component and changes based on `curVal`.
5. Click SAVE to close the PROGRAM EDITOR dialog box.
The following screen capture is an example of the finished program.

![Program Editor](image)

### 7.3 Integrating Web cams

This section provides tips for adding a video component to a graphic.

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimize links to external URLs. Linking to external URLs, such as Favorites, Web cams and external Web services poses a security risk.</td>
</tr>
<tr>
<td>- URLs shall only direct to secure services, such as Web servers hosted by devices in the building automation control network. Using touch panels for applications other than building automation, for example, to display a news Web site, exposes your system to the risk of downloading and executing malicious scripts.</td>
</tr>
<tr>
<td>- The system integrator is responsible for making a risk-benefit decision about providing external URLs and for informing the customer of potential risks.</td>
</tr>
</tbody>
</table>

This procedure uses the **Properties** and **Components** panes.

1. Select > **Configure graphics** and then **Add** a new graphic or **Edit** an existing graphic.

2. From **Components > Components**, drag-and-drop **MJPEG** onto the graphic.
3. In BASIC ─ PROPERTIES, enter your IP/URL video link in the Source field. For example,

4. (Optional) Adjust the Delay (Ms) value to change the refresh rate.

5. When you are finished editing, click ☐.

7.4 Creating custom components

The Animation editor allows you to create your own components using your own images. Once your custom components are created, they are available in the COMPONENTS pane and can be dragged-and-dropped like any of the built-in components.

The Animation editor uses multiple images to create an animated sequence. If you select multiple images for a single state of animation, the images display in sequence. For example, the following image sequence can be used to show a person running when the data point is ON or the data point value is within a certain range.

There are three types of animated images: Numeric, Boolean, and Enum.
- The type of animated image you select is determined by the number of states that are shown.
- The type of data point used and the type of animated image are not related.

Numeric images
Numeric animated images are commonly used to display the status of a damper or coil. The animation displays an image (or image sequence) based on a number range.
For example, the operating range for a damper is 0 to 100%. Image 1 displays from 0 to 30%, Image 2 displays from 30% to 60% and Image 3 displays from 60% to 100%.

Boolean images
Boolean animated images are commonly used to animate a fan or pump. The animation has three states: True, False, and null. A different image (or image sequence) displays for each state.
For example, if a fan is ON, an animated sequence is displayed. If the fan is OFF, a static image of the fan is displayed. If the data point value cannot be determined, an out-of-service symbol is displayed.

Enum images
Enum animated images are commonly used to display a fan or pump that has continuous animation when set to True. The animation displays one image (or image sequence) for each state of the data point.
- When defining an Enum animation, the ordinal position of the image aligns with the data point state.
- The description you enter for each state has no effect on the image that displays.
For example, a data point has the states OFF, LOW and HIGH. The image at position 00 would display for OFF, the image at position 01 would display for LOW and the image at position 02 would display for HIGH.
Guidelines for adding images to the database

- Before adding any images to the database, select View Assets in the command bar and verify the following:
  - The image is not already in the database.
  - Imported images are clearly labeled and the file name makes sense.
- To add images to the database, drag the files from your local computer and drop them on any graphic in Graphics Builder.

<table>
<thead>
<tr>
<th>CAUTION</th>
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<tbody>
<tr>
<td>Do not drag-and-drop the same image multiple times!</td>
</tr>
<tr>
<td>Doing so creates duplicate images in your database. To remove duplicate images from the database, right-click and select Tools &gt; Trash Files.</td>
</tr>
</tbody>
</table>

- To use images from a different database, add the images to a graphic, export the graphic, and then import that graphic to the new controller. The import process adds the images to the database.
- GIF files cannot be used with the Animation editor.

Using the Animation editor

- This procedure uses the Components pane.

1. Select > Configure graphics and then Add a new graphic or Edit an existing graphic.
2. In Graphics Builder, right-click on the graphic background and select Tools > Animation Editor > New.
3. Create a new category for your custom components and click Apply.

   Note: Custom components cannot be added to the standard Components categories.

4. Enter a Category Name and click Apply.

5. In the Image Name field, enter the name to display on the component in the palette.
6. From the **Animation Type** drop-down list, select the type of animated image to create and click **APPLY**.

7. Select **VIEW ASSETS** and choose an image for each state of the animated sequence.

8. Click **APPLY** when an image has been selected for each state.

7.5 **Creating a button to command multiple data points**

- This program is invoked when a button with the property **writeVal** is clicked.
- At runtime, the program variable **this.writeVal** has the value of the **writeVal** property of the button.
- Multiple button instances can define different **writeVal** property values.
- This same program executes with **this.writeVal** equal to 10, 50, or 100 depending on the button clicked.

**Creating a Button with the property **writeVal**

- This procedure uses the **PROPERTIES** and **COMPONENTS** panes.

1. From the **COMPONENTS > HTML COMPONENTS** pane, drag-and-drop onto the work area.

2. Click at the bottom of the ADVANCED **PROPERTIES** pane to add a new string tag.
3. Name the new tag `writeVal` and click ✓.

4. Scroll down to locate the `writeVal` tag in the list.

5. Select the value for the `writeVal` tag (initially named `NewValue`), change it to the value to which the data points will be commanded and click ✓.

Adding a program to the Button

1. Click + at the bottom of the `PROGRAMS` pane to add a new program.

2. In the `PROGRAM TARGET FILTER` field, enter the name of the string tag . (In this case, `writeVal`.)
3. Copy the desired sample lines of program code from the following table and paste them into the first line of the PROGRAM EDITOR.

4. Click \( \mathbb{E} \) in the upper right corner of the PROGRAM EDITOR and select VARIABLES. The PROGRAM VARS pane opens.

5. Move your cursor over the row for the this variable and then click \( \mathbb{E} \).

6. Set the Invokes the Function? toggle switch to ON.

7. From the SELECT EVENT drop-down list, select MOUSE EVENTS and then select CLICK in the flyout menu.

8. Click SAVE to save changes to the this variable.

9. Click SAVE to save the program and close the PROGRAM EDITOR.

10. Click \( \mathbb{E} \) and SAVE to save the graphic.
### Program code for different point commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>Program code to paste into the first line of the PROGRAM EDITOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Command multiple data points</strong>&lt;br&gt;Note This general example does not work for points with a Priority Array and uses a very generic example query. See the collection of other examples to adapt the query and commanding syntax to specific needs.</td>
<td>- <strong>readAll()</strong> searches the entire database and returns all records that match the query parameter. This example queries for any numeric writable data points. Replace this query as desired to find the points to be commanded. Refer to the section on binding for additional information on using tag queries (for example, fixed baUniqeId query or Relative tag query).&lt;br&gt;- <strong>.getSafe(0..n)</strong> selects a number of records from the total number of records returned by <strong>readAll()</strong>.&lt;br&gt;  - In this example, if fewer than three items are found, they are safely enumerated, avoiding any indexing errors.&lt;br&gt;  - If more than ten items are found, the first three found are enumerated. (This selection is random.)&lt;br&gt;- If only one unique point is expected to be found by the query, consider replacing <strong>readAll()</strong> with <strong>read()</strong> using the syntax shown by other examples in this table.&lt;br&gt;- <strong>baPointCommand()</strong> is executed once for each point selected by <strong>getSafe(0..n)</strong>.&lt;br&gt;  - The <strong>x</strong> parameter in <strong>baPointCommand()</strong> is replaced with a selected point.&lt;br&gt;  - The <strong>$1</strong> parameter in <strong>baPointCommand()</strong> is replaced with the value assigned to the writeVal property tag belonging to the specific button that invoked the program.</td>
<td><code>finstack.eval(sprintf(&quot;readAll(shadowPoint and writable and kind==&quot;Number&quot;).getSafe(0..2).map (x=&gt; x-&gt; pointRef.readById).colToList(&quot;id &quot;).each x=&gt; baPointCommand(x,$1&quot;,this.writeVal));</code></td>
</tr>
<tr>
<td><strong>Set a specific point out of service</strong></td>
<td>- <strong>read()</strong> searches the entire database and returns just one record (the first match).&lt;br&gt;  - The parameter to <strong>read()</strong> is a query for exactly one item matching the unique id of the point.</td>
<td><code>finstack.eval('read(baUniqueId == &quot;3847e4de9331bb8e7526e98b4d3cf15be67be87&quot;)- &gt;pointRef.baPointCmdOutOfService(true)');</code></td>
</tr>
<tr>
<td><strong>Command a specific point (without a Priority)</strong></td>
<td>- <strong>read()</strong> searches the entire database and returns just one record (the first match).&lt;br&gt;  - The parameter to <strong>read()</strong> is a query for exactly one item matching the unique id of the point.</td>
<td><code>finstack.eval('read(baUniqueId == &quot;3847e4de9331bb8e7526e98b4d3cf15be67be87&quot;)- &gt;pointRef.baPointCommand(44)');</code></td>
</tr>
<tr>
<td><strong>Put a specific point back into service</strong></td>
<td>- <strong>read()</strong> searches the entire database and returns just one record (the first match).&lt;br&gt;  - The parameter to <strong>read()</strong> is a query for exactly one item matching the unique id of the point.</td>
<td><code>finstack.eval('read(baUniqueId == &quot;3847e4de9331bb8e7526e98b4d3cf15be67be87&quot;)- &gt;pointRef.baPointPutInService()');</code></td>
</tr>
<tr>
<td><strong>Override (Priority 8) one specific point</strong></td>
<td>- <strong>read()</strong> searches the entire database and returns just one record (the first match).&lt;br&gt;  - The parameter to <strong>read()</strong> is a query for exactly one item matching the unique id of the point.</td>
<td><code>finstack.eval('read(baUniqueId == &quot;3847e4de9331bb8e7526e98b4d3cf15be67be87&quot;)- &gt;pointRef.baPointOverride(13)');</code></td>
</tr>
<tr>
<td><strong>Release (Priority 8) one specific point</strong></td>
<td>- <strong>read()</strong> searches the entire database and returns just one record (the first match).&lt;br&gt;  - The parameter to <strong>read()</strong> is a query for exactly one item matching the unique id of the point.</td>
<td><code>finstack.eval('read(baUniqueId == &quot;3847e4de9331bb8e7526e98b4d3cf15be67be87&quot;)- &gt;pointRef.baPointRelease()');</code></td>
</tr>
</tbody>
</table>
### Advanced functionality

**Creating a button to command multiple data points**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>Program code to paste into the first line of the PROGRAM EDITOR</th>
</tr>
</thead>
</table>
| Release ALL dampers | • `readAll()` searches the entire database and returns multiple records.  
  • The parameter to `readAll()` is a tag query that functionally describes some point or set of points. | `finstack.eval('readAll(shadowPoint and damper and cmd).colToList("pointRef").each x=> baPointRelease(x)');` |
| Override any preheater valves found, up to a maximum of 10, to 25%. | • `readAll()` is using a semantic tag query to find any points matching some description (possibly more than one point).  
  • The parameter to `readAll()` is a tag query that functionally describes some point or set of points.  
  • `.getSafe(0..n)` selects a number of records from the total number of records returned by `readAll()`  
  – In this example, if fewer than ten items are found, they are safely enumerated, avoiding any indexing errors.  
  – If more than ten items are found, the first ten found are enumerated. (This selection is random.)  
  • `baPointCommand()` is executed once for each point selected by `.getSafe(0..n)`.  
  • The `$1` parameter is `baPointOverride()` is replaced with a selected point.  
  • The second parameter to `baPointOverride()` is the value to command (in this example, it is hard-coded to 25% using a literal value). | `finstack.eval('readAll(shadowPoint and valve and cmd and equipRef->preheater).getSafe(0..9).colToList("pointRef").each x=> baPointOverride(x,25)');` |
| Override all preheater valves to some value configured on a specific Button | • `readAll()` searches the entire database and returns multiple records.  
  • The parameter to `readAll()` is a tag query that functionally describes some point or set of points, including a description of the parent equipment (`equipRef`).  
  • The `$1` parameter in `baPointCommand()` is replaced with the value assigned to the `writeVal` property tag belonging to the specific button that invoked the program. | `finstack.eval(sprintf('readAll(shadowPoint and valve and cmd and equipRef->preheater).colToList("pointRef") .each x=> baPointOverride(x,$1)',this.writeVal));` |
| Override the preheater valve in whichever target (for example, plant) the graphic is currently viewing to some value configured on a specific Button. **Note**  
This example illustrates how to adapt syntax for a relativized, re-usable graphic. | • `read()` searches the entire database and returns just one record (the first match).  
  • The parameter to `read()` is a query for exactly one item matching the unique id of the point.  
  • The `$1` parameter in `baPointCommand()` is replaced with the value assigned to the `writeVal` property tag belonging to the specific button that invoked the program. | `finstack.eval(sprintf('read(shadowPoint and valve and cmd and equipRef->preheater and equipRef->equipRef==$id)->>pointRef.baPointOverride($1)',this.writeVal));` |

**Table 73: Sample lines of program code.**
Advanced functionality
Creating a button to command multiple data points

Additional hints
Graphics in the Supersample graphics library may contain functionality that you want to use in your own program. In particular, the program `statusIndicatorProg` may be helpful.

Do the following to display the code for any program in a graphic:

1. Select > > Configure graphics > Edit.
2. Select a Supersample graphic and click Edit.
3. In the PROGRAMS pane, move your cursor over the program name and click 🕵

![PROGRAMS pane](image)

📍 The program is displayed in the PROGRAM EDITOR.

Testing the program code
The `console.log()` statement shows how statements are evaluated at runtime. For example, the following code line outputs the variable value to the console:

```javascript
console.log(this.writeVAL);
```

Do the following to display the console output while debugging graphic programs:

1. Open Desigo Control Point in Chrome browser.
2. Display the desired graphic in the Plant view work area.
3. Press F12 to open the Chrome DevTools pane.
4. Click the Console tab.
5. Click the Button on the graphic.

📍 Any `console.log()` statements are output to the Console tab of Chrome DevTools.
8 Tips and tricks

8.1 Updates required after a time zone change

The following updates must be made if the time zone of the Desigo Control Point device is changed:

- You must reboot the device. Otherwise, the calendar in the Scheduler does not display correctly.
- Any online trends must be redefined. Otherwise, an error similar to the following displays.
  - If desired, click Details to display the error message in a text file.
  - Click OK to close the error message and then redefine the online trends.

![Error getting data from the server. Check the details for more information.](image)

8.2 APPLY BATCH TAGS

- **APPLY BATCH TAGS** is a function in the right-click TOOLS menu that may be used when creating custom programs. For example, the Sample dashboard facility manager sample graphic uses batch tags.
- Currently, you can select **Custom Filter** in the **Apply Batch Tags** dialog box and enter an ID or query in the Filter field. However, the Filter button that helps you build a query is currently not active.
8.3 Graphic components within models cannot be modified

When you use a model from the COMPONENTS view, it displays in the LAYERS view as one object. The graphic components in the model cannot be selected and modified. For example, if a model with a fan is selected, you cannot select the states in which the fan should display with animation.

8.4 A graphic with relative binding that includes data points from different branches of the hierarchy cannot be created at the Root level

When a graphic is created, a virtual point is included by default, which represents the root parent node for the graphic. That is, the virtual point identifies the graphic’s context within the building hierarchy.

Currently, when a graphic is created at the Root level of the hierarchy, this contextual virtual point is not created and it cannot be manually added. Therefore, a graphic with relative binding that includes data points from different branches of the hierarchy cannot be created. For example, data points from two sites cannot be displayed in a dashboard that is created at the Root level.

However, a graphic with absolute binding that includes data points from different branches of the hierarchy can be created. To use reuse the graphic at a different site, the binding must be manually updated.
8.5 Relative hyperlinks cannot be added to a graphic at the Root level

When adding a Relative hyperlink to a graphic at the Root level of the hierarchy, the Add hyperlinks dialog box closes when you click OK in the first step of the process.

Specific hyperlinks can be added to a graphic at the Root level of the hierarchy. To reuse the graphic at a different site, the binding must be manually updated.

8.6 Relative hyperlinks in a graphic are broken if the graphic is engineered offline and then imported to another device

Relative hyperlinks in a graphic are broken when using either of the following workflows:
- The graphic is engineered offline, exported, and then imported to another device that is either offline or online.
- The graphic is engineered online, exported, and then imported to another device that was engineered offline.

To fix the hyperlinks, open the graphic for editing after it is imported to the new device. Then use the hyperlink tool to set the correct target.

Relative hyperlinks in a graphic are not broken if all steps of the graphic engineering and export and import process are done online.

8.7 Automatic logout from Desigo Control Point causes Graphics Builder to temporarily stop working

⚠️ CAUTION

When working online in Graphics Builder, if the program appears to stop working, do not close the program! You will lose your work!

Graphics Builder appears to stop working if you are automatically logged out of the Desigo Control Point. Should this happen, navigate to the Plant view window and login to Desigo Control Point again. All Graphics Builder features will then work as expected.

When working online in Graphics Builder, the best practice is to keep Plant view open. However, your Desigo Control Point session is not kept “alive” by the activity in Graphics Builder.

This issue does not occur when working offline.

Optionally, you can configure a separate user account for engineering graphics that does not automatically log out. To configure the user account so that it is never automatically logged out, see the Managing automatic logout section of the Desigo Web Interface User Guide (A6V11938631).
8.8 Detection of network interruptions

Only network interruptions longer than 30 seconds are detected and indicated in the user interface.

8.9 Cancelling a kiosk log out sequence

Note
This error does not occur when displaying kiosk graphics on a PXM… touch panel.

When working on a device using Google Chrome, cancelling a kiosk log out sequence causes the browser bar to display

- The browser bar displays in a kiosk when all of the following occur:
  - The kiosk is displayed on a device using Google Chrome.
  - The user initiates a kiosk log out sequence and then selects Cancel on the log out screen.
  - A hyperlink is selected after the log out sequence is cancelled.
- To return to normal navigation, the user must:
  - Log out.
  - Proceed with the user login.
  - Start the kiosk again.

8.10 Special characters do not display in graphic file names

Complete this procedure if special characters do not display in graphic file names. For example, Graphics Builder may not allow you to save a graphic with the name LüftungWest or @Training Building. In some cases, the graphic may be saved but it cannot be displayed in the Plant view. For example, Graphics Builder allows a file name to contain Cyrillic characters, but the graphic will not display in the Plant view.

Do the following to resolve this issue:

1. Create a graphic that displays the name using special characters. For example, use Microsoft Paint.
2. Save the control point graphic using a file name without special characters.
3. Use the graphic created in Step 1 as the thumbnail image of the control point graphic.

8.11 The color of a graphical component may display incorrectly if the component was copied

Graphic components that change color based on value may display incorrectly if the component is copied and pasted. For example, a pipe is dragged and dropped onto a graphic and then copied and pasted. The color of the copied pipe may display incorrectly when the graphic is viewed on a touch panel.

To fix this problem, drag-and-drop the graphic component from the COMPONENTS pane instead of copying and pasting.
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<tbody>
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<td>SAVE AS GRAPHIC</td>
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