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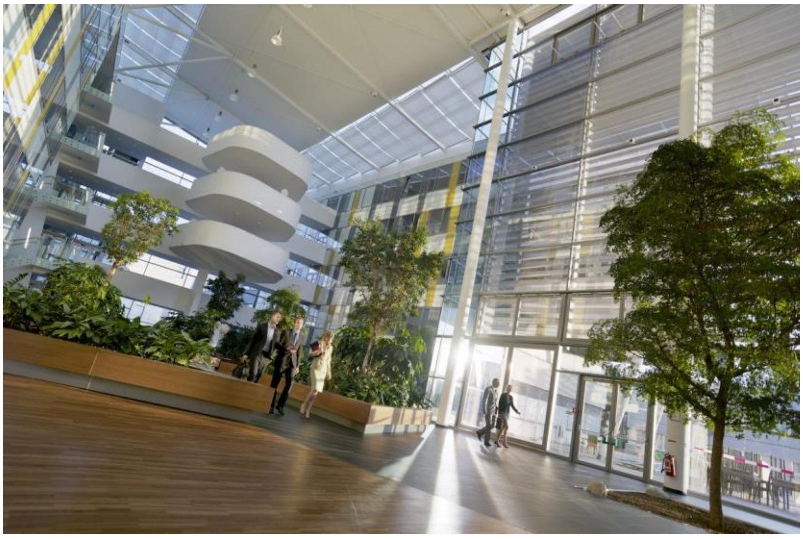

Desigo™

Desigo Control Point

Engineering

A6V11211560_en--_j

2021-04-05

Smart Infrastructure

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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 (PXMx0-1) for use with an HTML5.0 Web Server.
- *Desigo™ Desigo Control Point Basic Documentation* (A6V11170804) provides information on typical topologies and limitations, cable types, compatibility and mounting devices.

1.3 Terms

Term	**Definition**
ABT-SSA	Setup & 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.
automation station	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.
BACnet/IP device	BACnet-certified device used for building automation.
BACnet/IP system	Includes 1…n BACnet devices.
BACnet/IP touch panel	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.
BACnet/IP Web interface	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.
Desigo automation station	PX compact and PX modular controller. For example, PXC100…
Desigo Control Point	A full-featured Web-based solution that provides operating and monitoring functions for building automation and control systems.
Desigo Control Point device	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.
Desigo primary server	Provides common network functionality to the Desigo automation stations, such as Time Master.
Desigo PXM wall mounting kit	PXA.V40, PXA.V50.
Desigo room automation station	Desigo devices to control HVAC, lighting and shading applications. For example, DXR2... or PXC3...
Desigo Touch Panel Client	Touch device for communication using an HTML5.0 web server. For example, Siemens devices PXM30-1, PXM40-1, PXM50-1.
end-user room graphics	Graphics with end user rooms widgets, targeted for end user and not primarily for technical oriented users.
end-user room widgets	Can be added to graphics to enable the user to directly command lighting, blinds and HVAC equipment without opening an additional window.
HTML5.0 Web Server	Enables access from a standard Web browser to a specific system and provides its content in Web pages.
PXM*xx*.E	BACnet/IP touch panels PXM30.E, PXM40.E, PXM50.E
PXM*xx*-1	Touch panel clients PXM30-1, PXM40-1, PXM50-1
PXG3.W*xxx*-1	BACnet/IP Web interface PXG3.W100-1, PXG3.W200-1
Touch panel client	A Web client for communicating with HTML5.0 capable web servers. For example, Siemens devices PXM30-1, PXM40-1, PXM50-1.

1.4 References

- E-learning modules on engineering and commissioning workflows.
  My Learning
  - Desigo Control Point Basics (B_E01DECP)
  - Desigo Control Point Engineering & Commissioning (B_E03DECP)
  - Desigo Control Point Graphics Engineering (B_E05DECP)
- Desigo Control Point documents are available on the Internet:
  Download center
  - *Desigo Setup & Service Assistant User Guide* (A6V10429119) provides information on configuring and commissioning the touch panels and controllers, setting up projects, assigning devices and testing data points, balancing the system, central operation of rooms and primary plants and decentralized operation of primary plants.
  - *Desigo™ Desigo Control Point Basic Documentation* (A6V11170804) 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.

2 Commissioning

!	*NOTICE*
	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.

This section outlines the following procedures for commissioning Desigo Control Point devices:

	Commissioning Step
1	Default connection [→ 13]
2	Initial login [→ 14]
3	Setup wizard [→ 14]
4	Configuring language support [→ 18]
5	Discover and assign devices [→ 19]
6	Enabling Secure HTTP communication [→ 19]
7	Subscribing to the time master [→ 21]
8	Time synchronization of the time master [→ 21]
9	Touch panel settings See the *Desigo Touch Panel Clients Commissioning Manual* (A6V11604303)
10	Operating and monitoring features [→ 23]

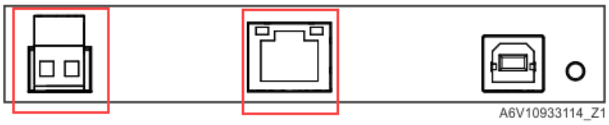
2.1 Default connection

Use the appropriate procedure for your configuration:

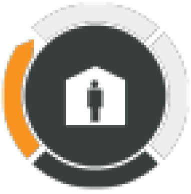
- Connecting through a BACnet/IP touch panel
- Connecting through a BACnet/IP Web interface

ⓐ Connecting through a BACnet/IP touch panel

▷ Power and network cables are connected.



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 Setup wizard is only available if the tool-free workflow has *always* been used with the device. If ABT Site has been used *at any time*, the tool free commissioning wizard is not available.

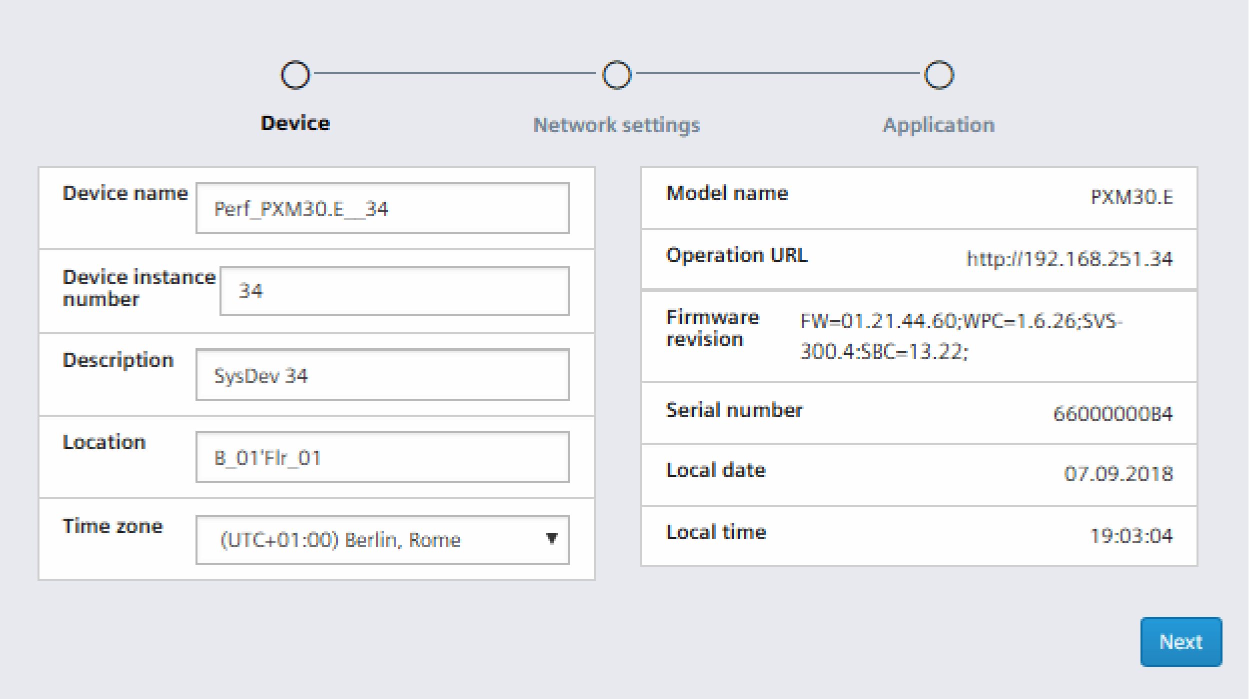
The Desigo Control Point device restarts at the end of this procedure to save your configuration settings in non-volatile memory.

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



Device name Perf_PXM30.E__34

Device instance number 34

Description SysDev 34

Location B_01'Flr_01

Time zone (UTC+01:00) Berlin, Rome ▼

Model name PXM30.E

Operation URL http://192.168.251.34

Firmware revision FW=01.21.44.60;WPC=1.6.26;SVS-300.4:SBC=13.22;

Serial number 66000000B4

Local date 07.09.2018

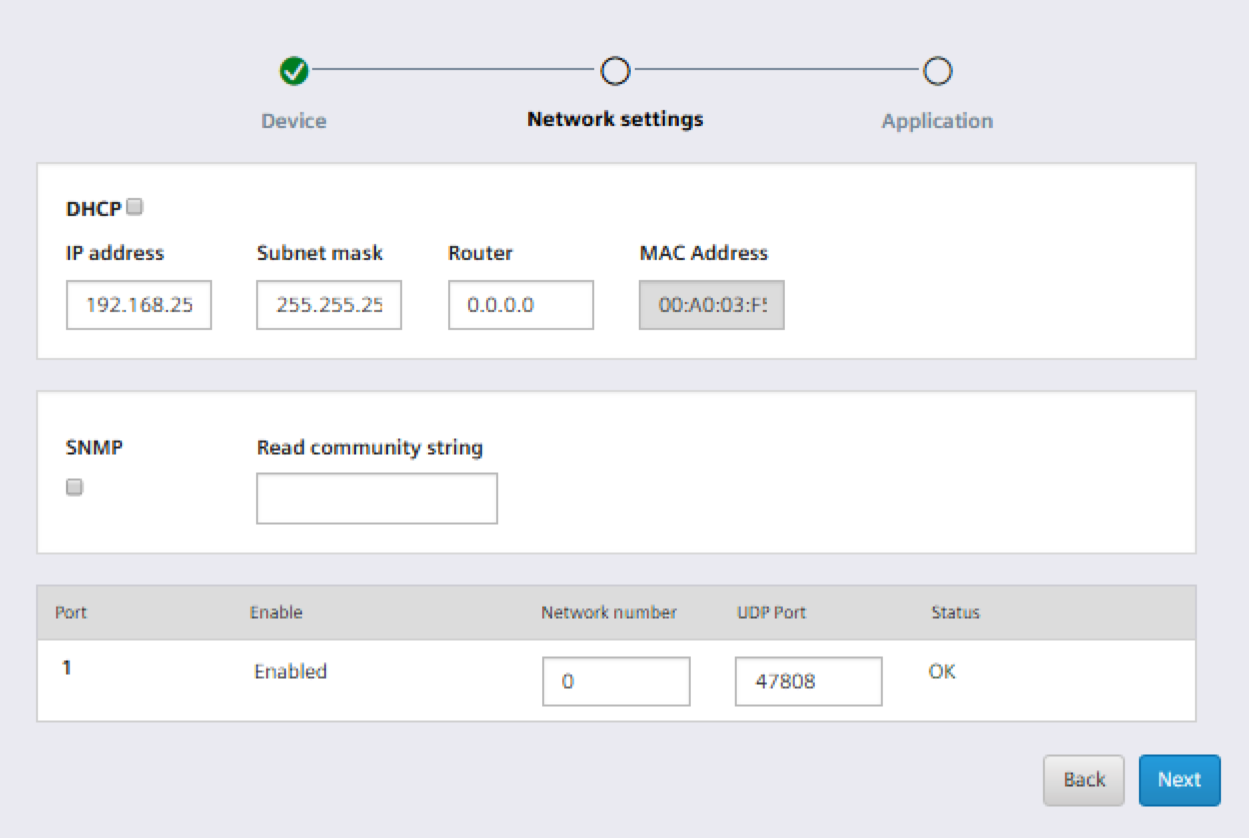
Local time 19:03:04

Fig. 1: Commissioning wizard, Device fields.

Setting	Description
Device name	*(Required)* Name of the Desigo Control Point device. This name displays in the status bar.
Device instance number	*(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.
Description	Text field to describe the device. This description displays in the work area.
Location	Text field to describe the device location.
Time zone	Drop-down list of global time zones.
Model name	*(Information only)* Model number of the Desigo Control Point device.
Operation URL	*(Information only)* IP address of the Desigo Control Point device.
Firmware revision	*(Information only)* Current firmware revision loaded in the device.
Serial number	*(Information only)* Serial number of the Desigo Control Point device.
Local date	*(Information only)* Current date.
Local time	*(Information only)* Current time.

Table 1: Device fields.

Network settings fields



DHCP ☐

IP address: 192.168.25
Subnet mask: 255.255.25
Router: 0.0.0.0
MAC Address: 00:A0:03:F!

SNMP ☐
Read community string:

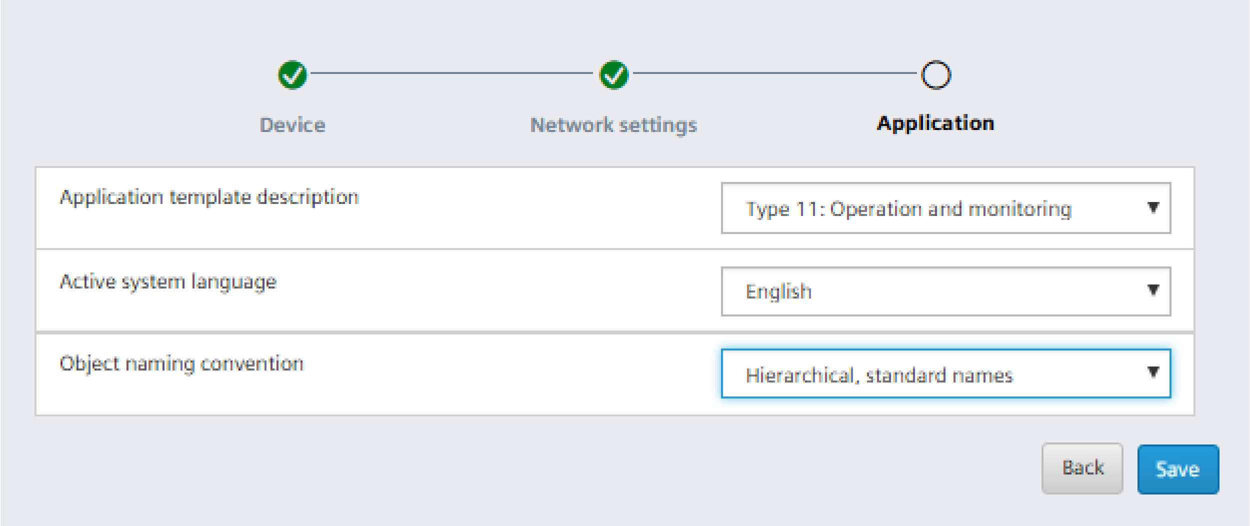
Port	Enable	Network number	UDP Port	Status
1	Enabled	0	47808	OK

Fig. 2: Commissioning wizard, Network settings.

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

Table 2: Network settings fields.

Application fields



Application template description: Type 11: Operation and monitoring

Active system language: English

Object naming convention: Hierarchical, standard names

Fig. 3: Commissioning wizard, Application fields.

Setting	Description
Application template description	If the device contains multiple applications, select the **Application type** from the drop-down list.
Active system language	User interface language for the application. Default: The language selected on the login page.
Object naming convention	Only **Hierarchical, standard names** (default) applies for Desigo Control Point. **Hierarchical, standard names** is a naming format for BACnet objects where names are made up of room, room segment, etc. For example, **%R%'RHvacCoo'TCtlC'SpCCmf**, where **SpCCmf** (cooling setpoint for comfort) is the BACnet object.

Table 3: Application fields.

2.4 Configuring language support

If a Desigo Control Point device is used in combination with Desigo or Apogee controllers, you must configure the Desigo Control Point device for languages that require special symbol tables.

Configuring language support

1. Select ⚙ > **Favorite commissioning** > **[operating and monitoring device]**.
2. Click ▼ to display all properties.
3. Scroll down to select the desired **Supported character set** (**Apogee** or **Desigo**).
4. Select the appropriate character set from the drop-down list and click **OK**.

⇨ The special character set is now supported by Desigo Control Point.

Use	Languages *	Apogee character set	Desigo character set
Desigo Control Point • Desigo room controllers	All	UTF-8 *[Default]*	Western (CP:1252) *[Default]*
Desigo Control Point • Desigo room controllers • Desigo primary controllers	English, German, French, Spanish, Portuguese, Dutch, Danish, Swedish, Norwegian, Icelandic	UTF-8 *[Default]*	Western (CP:1252) *[Default]*
	Polish, Czech, Slovak, Hungarian, Slovene, Bosnian, Croatian, Serbian Latin, Romanian, Albanian		Central Europe (CP: 1250)
	Russian, Bulgarian, Serbian Cyrillic		Cyrillic (CP: 1251)
	Turkish		Turkish (CP: 1254)
	Simplified Chinese		Chinese Simpl. (CP: 936)
	Traditional Chinese		Chinese Trad. (CP: 950)
	Korean		Korean (CP: 949)
Desigo Control Point • Apogee controllers	English, French	UTF-8 *[Default]*	Western (CP:1252) *[Default]*
	German, Spanish, Portuguese, Dutch, Danish, Swedish, Norwegian, Icelandic	Western (CP: 1252)	
	Polish, Czech, Slovak, Hungarian, Slovene, Bosnian, Croatian, Serbian Latin, Romanian, Albanian	Central Europe (CP: 1250)	
	Russian, Bulgarian, Serbian Cyrillic	Cyrillic (CP: 1251)	
	Turkish	Turkish (CP: 1254)	
	Simplified Chinese	Chinese Simpl. (CP: 936)	
	Traditional Chinese	Chinese Trad. (CP: 950)	
	Korean	Korean (CP: 949)	
	Japanese	Japanese (CP: 932)	
Desigo Control Point • Apogee controllers • Desigo room controllers	English, French	UTF-8 *[Default]*	Western (CP:1252) *[Default]*
	Others	Not supported	

Table 4: Setting of supported character sets.

* If supported by the connected products.

2.5 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**.
6. Select **Favorite commissioning > Assigned devices**.
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.

2.6 Enabling Secure HTTP communication

Secure HTTP (HTTPS) communication is recommended for all communication with the Web server embedded in operating and monitoring devices. Using HTTPS prevents communication wiretapping and modification and reassures users that they are connected to the genuine Web server.

Certificates for Desigo Control Point are managed by ABT Site. To enable HTTPS, a certificate must be created and loaded in ABT Site and then downloaded to the operating and monitoring device.

For procedures to create and load certificates, see **Building > Certificates management** in the ABT Site online help.

Certificate types

The following options are available for each device:

1. **Internal certification authority (CA)**

   ABT Site is the CA and each ABT Site project creates its own root certificate. The root certificate is exported from ABT Site and installed on the device used to connect to a Web server.

   For information on using an internal CA, see **Building > Certificates management** in the ABT Site online help.

2. **External certification authority (CA)**

   An externally-signed certificate is provided by an external organization. For example, a CA could be provided by the customer’s IT department or by the system operator. An external CA may be requested by high security projects.

   For information on using an external CA, see *Exporting a certificate signing request* and *Importing a certificate from an external CA* under **Building > Certificates management** in the ABT Site online help.

3. **No certificate**

   If no certificate is used, HTTP communication is used for all communication with the Web server embedded in operating and monitoring devices.

   To use HTTP communication, complete the following procedure.

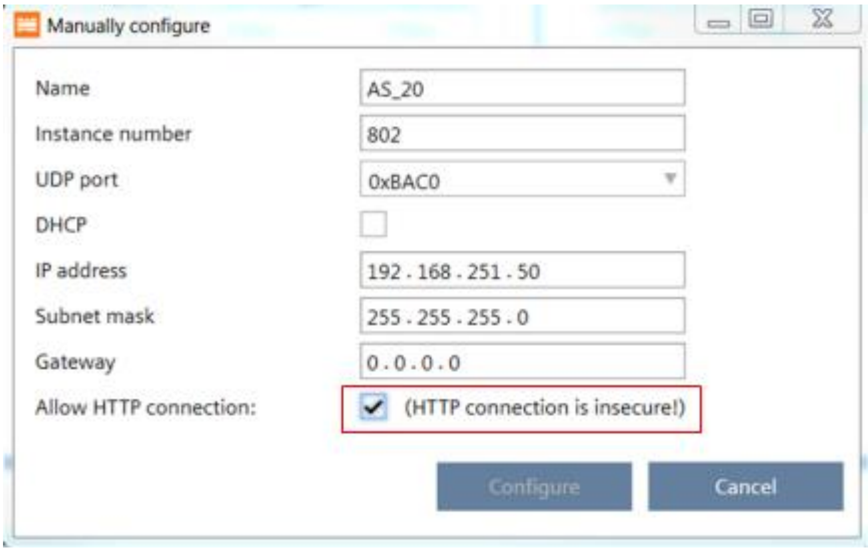
!	*NOTICE*
	Only use an http connection in a secure environment! Unprotected physical network access (HTTP) opens the possibility to interrupt or hijack communication. Unauthorized access to customer sites may result in system malfunctions or automation station failures.

Using HTTP communication

▷ Complete this procedure through **Startup > Configure and download** in ABT Site.

1. In the **Discovered devices** tab, right-click in the row for the operating and monitoring device.
2. Select **Manually configure**.
3. Select the **Allow HTTP connection** check box and click **Configure**.

⇨ The configuration is applied to the device.



Manually configure

Name: AS_20
Instance number: 802
UDP port: 0xBAC0
DHCP: ☐
IP address: 192 . 168 . 251 . 50
Subnet mask: 255 . 255 . 255 . 0
Gateway: 0 . 0 . 0 . 0
Allow HTTP connection: ☑ (HTTP connection is insecure!)

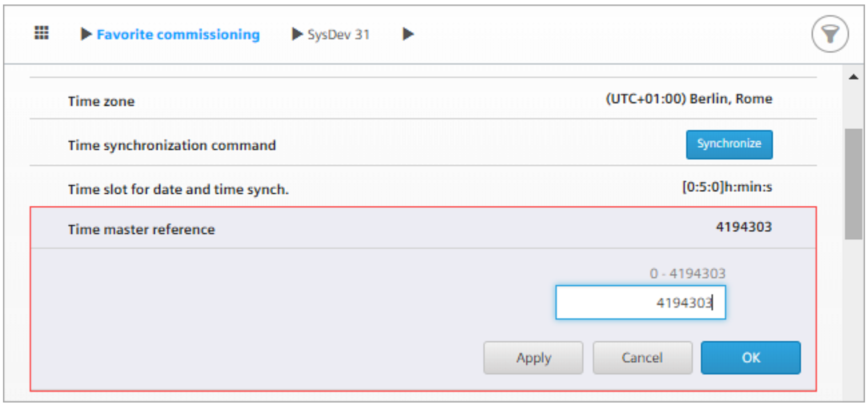
2.7 Subscribing to the time master

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**.



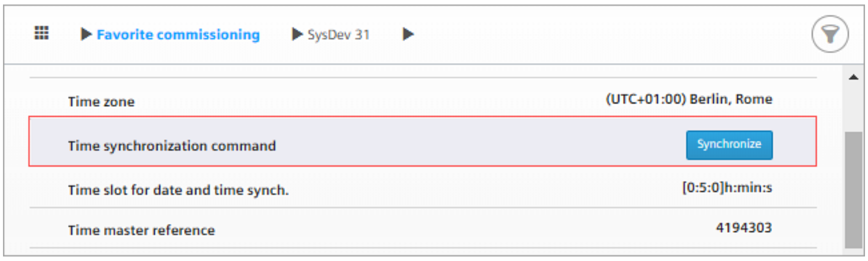
Time zone (UTC+01:00) Berlin, Rome
Time synchronization command
Time slot for date and time synch. [0:5:0]h:min:s
Time master reference 4194303
0 - 4194303
4194303

- ⇨ A time synchronization subscription is issued to the device you identified as the **Time master reference**.
- ⇨ If the operating and monitoring device restarts, the current time is requested from the **Time master reference**.

2.8 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.



Time zone (UTC+01:00) Berlin, Rome
Time synchronization command
Time slot for date and time synch. [0:5:0]h:min:s
Time master reference 4194303

- ⇨ 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.

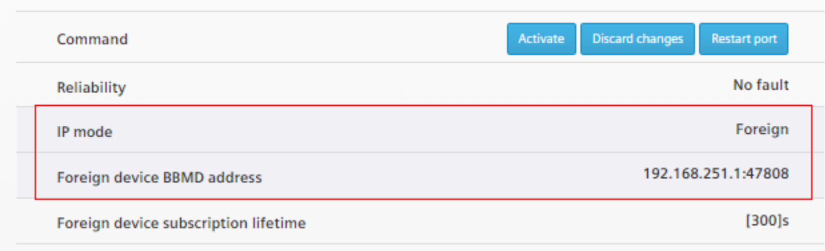
2.9 Registering as a foreign device

This procedure configures a Desigo Control Point device as a foreign device to monitor BACnet devices outside of the IP segment.

1. Do the following in ABT Site to configure the device as a foreign object for Desigo Control Point:
   - Update the device firmware and assign the device type.
   - In the **Engineered devices** pane, right-click on the device and select **Load > Fully load (device may restart)**.

   ➪ The properties are updated to use the device as a foreign device.
2. Connect to device through the Web interface and login as **Administrator**.
3. Select **Device > Infrastructure > Network port for IP**.
4. Set **IP mode** to **Foreign**.
5. Set **Foreign device BBMD address** to the server device that accepts the foreign device registration.
   - Enter the full BBMD address.
   - Use the format **[BBMD IP address]:[port number]** to enter the full BACnet address of the BBMD device. For example, **192.168.251.1:47808**.
6. Click **Activate** to apply your changes.
7. *(Optional)* Upload the foreign device settings to ABT Site to update the offline project data.
   - The BBMD entry is lost if **IP mode** is set to **Normal**.
   - **Foreign device subscription lifetime** determines how long the foreign device registration is valid. Updating this field sends a new registration request to the BBMD address. All Desigo Control Point and PXC4/5 devices automatically re-subscribe after this time expires.

➪ The Desigo Control Point device is now set up as a foreign device.



Reliability No fault
IP mode Foreign
Foreign device BBMD address 192.168.251.1:47808
Foreign device subscription lifetime [300]s

2.10 Touch panel settings

Touch panel settings are documented in the *Desigo Touch Panel Clients Commissioning Manual* (A6V11604303).

2.11 Operating and monitoring features

Use the workflow in this section to set up user accounts, add email recipients, configure network and alarm settings in the application, and upload documents to the Desigo Control Point device.

See the Data point integration [→ 35] section for the procedure to integrate data points and work with integration templates and advanced functions.

	Commissioning Step
1	Setting up user accounts [→ 23]
2	Configuring email recipients [→ 24]
3	Configuring an SMTP server [→ 24]
4	Configuring FTP [→ 25]
5	Modifying the Default Site settings [→ 25]
6	Configuring Alarms settings [→ 26] • Alarm polling • Alarm history • Alarm routing
7	Configuring alarm notifications [→ 27]
8	Data point integration settings [→ 31]
9	Managing Documents [→ 32]

2.11.1 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.

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

Table 5: Manage users fields.

Possible next step: Configuring email recipients [→ 24]

2.11.2 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 [→ 24]

2.11.3 Configuring an SMTP server

This procedure configures an SMTP server to send emails through Desigo Control Point.

!	*NOTICE*
	Corporate network restrictions may prevent you from using the configuration settings outlined in this section. Please clarify the network security policies at each site.

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.

Setting	Description
SMTP server	The name of the SMTP server being used to route emails. For example, **smtp.gmail.com**.
User name	The user name of an account that is allowed to send emails using the SMTP server. For example, **username@gmail.com**. **Note:** For none-authentication, enter **null** (case sensitive).
Password	The password for the specified account that is allowed to send emails. For security, the actual characters do not display in this field. **Note:** For none-authentication, enter **null** (case sensitive).
Sender	The email address from which all Desigo Control Point emails are sent. For example, **server@sample.com**.
Port number	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.
TLS/SSL radio button	Establishes a secure connection. The connection fails if the SMTP server does not support TLS/SSL communication.
STARTTLS radio button	Establishes an unencrypted connection and then upgrades to a secure TLS connection if it is supported by the SMTP server. The connection stays unencrypted if the SMTP server does not support TLS communication.

Table 6: SMTP settings dialog box.

Possible next step: Configuring FTP [→ 25]

2.11.4 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, **ftps://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 7: FTP settings dialog box.

Possible next step: Configuring Alarms settings [→ 26]

2.11.5 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.

ℹ

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.

2.11.6 Configuring Alarms settings

This section configures the following settings for **Alarms**:

Setting	Description
Alarm polling	How often the database is checked for any objects with an active alarm state, an acknowledge-required state, or a reset-required state. • By default, the database is polled every two seconds. • For sites with a very high network load, adjusting the **Alarm polling** settings may help to optimize performance of the device.
Alarm history	Determines when old alarms are purged from the system. By default, alarms in the **History** ⌛ view that are more than one year old are purged every day at 10:00 P.M.
Alarm routing	Configures the number of minutes the application waits before resending an email for an unacknowledged alarm. • The alarm routing function checks the Desigo Control Point database once per minute for alarms that need to be sent. • If there are multiple alarm notices for a recipient, they are sent in a single email. • 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.

!

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

Setting	Description		
	Weekly	Monday Tuesday Wednesday Thursday Friday Saturday Sunday	–
	Monthly	Week 1 (Days 1-7) Week 2 (Days 8-14) Week 3 (Days 15-21) Week 4 (Days 22-28) Week 5 (Days 29-31)	Monday Tuesday Wednesday Thursday Friday Saturday Sunday
Time	Displayed in the format selected by the currently logged in user. The default setting is **22:00** or **10:00 PM**. • Field 1: Hours • Field 2: Minutes		

Table 8: Configure alarm history dialog box.

Alarm routing

▷ 🔔 **Alarms** is selected in the core function pane.

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**.

Setting	Description
Max. number of resend attempts	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**.
Retry interval (minutes)	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**.

Table 9: Configure alarm routing dialog box.

2.11.7 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.
  Configuring email recipients [→ 24]
- Data points from the devices being monitored for alarms are integrated to the Desigo Control Point device.
  Data point integration workflow [→ 49]

▷ 🔔 **Alarms** is selected in the core function pane.

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.

Setting	Description
Name	Name of the alarm routing configuration. Default: **Alarm routing** If a configuration is saved with the default name, subsequent default names are **Alarm routing** *n*.
Email subject	The email subject line for the routed alarm. Default: **Alarm notifications**
Email recipients	Select one or more email addresses from the predefined list. Press **CTRL** and click to select multiple items. Default: No email addresses are selected
Select all contents check box	Select to include all the **Contents** fields in the routed emails. Default: Check box is selected and all fields are included in the email.
Contents	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

Table 10: Configure alarm routing dialog box.

Setting	Description
Time range	**Start** 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.
	End 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.
Days	Route alarms on the selected day(s) during the selected time range. Default: No days are selected
Priority range	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, 255**) only routes alarms or events of these priorities. Default: 1-255
Type	The type of alarm events that the email recipients receive. Options are: • Alarm • Event • Acknowledgement/Reset Default: All event types are selected
State	The alarm state values that the email recipients receive. Options are: • Alarm • Fault • Return to normal Default: All states are selected

Table 11: Alarm filter dialog box.

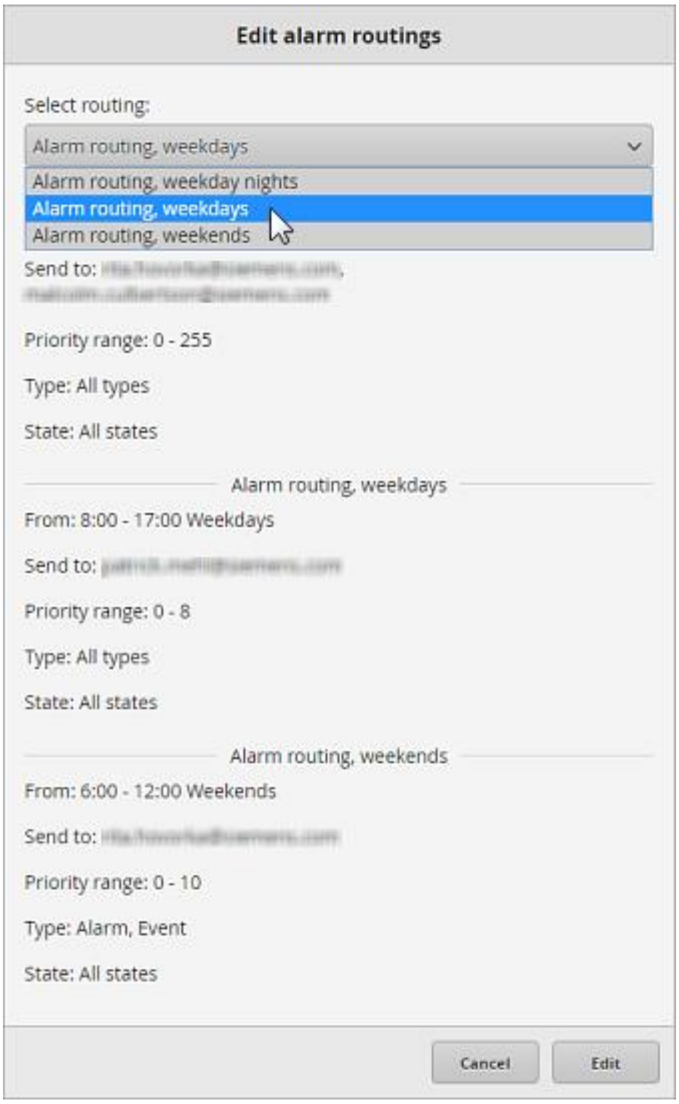
Editing an alarm routing

This procedure modifies an existing alarm routing.

▷ 🔔 **Alarms** is selected in the core function pane.

1. Select ⚒ **>** 🔧 **> Configure alarm routing >** ✎.

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



Edit alarm routings

Select routing:

Alarm routing, weekdays

Alarm routing, weekday nights
Alarm routing, weekdays
Alarm routing, weekends

Send to: [redacted]

Priority range: 0 - 255

Type: All types

State: All states

Alarm routing, weekdays

From: 8:00 - 17:00 Weekdays

Send to: [redacted]

Priority range: 0 - 8

Type: All types

State: All states

Alarm routing, weekends

From: 6:00 - 12:00 Weekends

Send to: [redacted]

Priority range: 0 - 10

Type: Alarm, Event

State: All states

2. Select an alarm routing from the drop-down list and select **Edit**.
3. Make the necessary changes in the **Configure alarm routing** dialog box and select **Next**.
4. Make the necessary changes in the **Alarm filter** dialog box.
5. Select **Apply** to save your changes.

For information on the **Configure alarm routing** and **Alarm filter** dialog boxes, see the procedure Configuring alarm notifications [→ 27].

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.

2.11.8 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**.

Setting	Description
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**.
☑ 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 12: Data point integration dialog box.

2.11.9 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`

2.11.9.1 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 🛠 **>** 🔧 **> Online file management >** ⊞.
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.

2.11.9.2 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 🛠 **>** 🔧 **> Online file management >** ✎.
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.

2.11.9.3 Removing a document

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

Removing a document

1. Select 🛠 **>** 🔧 **> Online file management >** ☒.
   ⇨ 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 Desigo Control Point tagging model

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.

- Semantic tags can be used as a filter in a custom data point integration template.
  Creating custom templates [→ 48]
  Appendix - Tags applied during data point integration [→ 220]
- Graphics Builder interprets the tags to:
  - Automatically generate an appropriate graphic.
  - Compile data from multiple sources, including BACnet devices, to easily make sense of the information from your system.

About Project Haystack

Project Haystack is a trade association that is focused on developing standardized naming conventions for data provided by smart devices. Siemens participated in and funded the formation of the Project Haystack organization. The initiative is specifically focused on building automation and control, energy, lighting and other environmental systems. For more information, see the Project Haystack Web site (http://project-haystack.org/).

Using Haystack to connect to Desigo Control Point

Desigo Control Point currently uses a proprietary authentication method to access the Haystack interface. To retrieve Haystack data from Desigo Control Point, contact Technical Support for a code example that supports the proprietary mechanism.

3.1 Tag mapping tables

Desigo Control Point uses a tag mapping table to automatically apply tags to the most common types of information in a Siemens system. In general, tags describe the function of an object. One object can have multiple tags.

The following table provides examples of how names are mapped from the proprietary **Object name**, **ShortName** and **navName** to normalized tags that describe the function of the object.

Proprietary names ➡ ➡ ➡ Normalized, descriptive tagging			
Object name	**ShortName**	**navName**	**Semantic tags applied by the system**
B'APlt'Ahu10	Ahu10	Air handling unit West Wing	ahu, air, equip, plant
B'APlt'Ahu10'Erc'Dmp	Dmp	Damper	bypass, cmd, damper, modulating, point
B'APlt'Ahu10'Toa	TOa	Outside air temperature	air, outside, point, sensed, sensor, temp
B'APlt'Ahu10'SpC	SpC	Setpoint for cooling	cmd, cooling, point, setpoint

See Appendix - Tags applied during data point integration [→ 220] for a list of semantic tags that are currently applied during data point integration.

4 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.

> Objects with the same **Description** are merged at the highest level of duplication in the building hierarchy during data point integration. See the following table for more information.

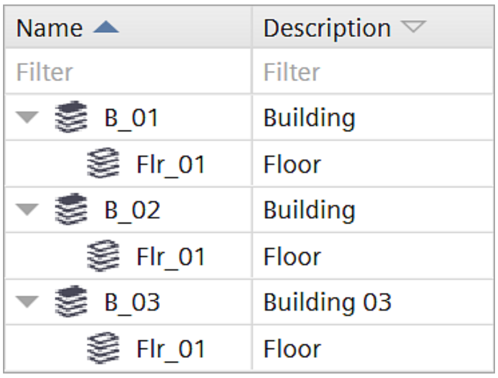
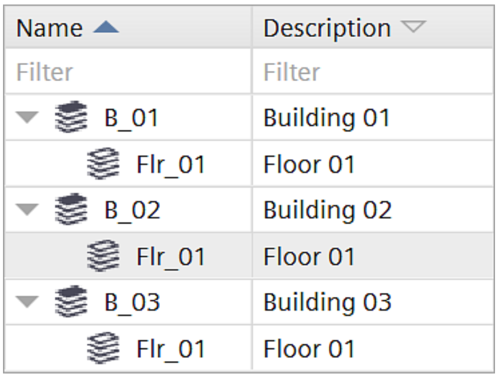
<table>
<tr><th colspan="2">Example of merging during data point integration.</th></tr>
<tr><th>Example building hierarchy</th><th>Data point integration result</th></tr>
<tr><td>**Project 1**

<table>
<tr><th>Name ▲</th><th>Description ▽</th></tr>
<tr><td>Filter</td><td>Filter</td></tr>
<tr><td>▼ B_01</td><td>Building</td></tr>
<tr><td>Flr_01</td><td>Floor</td></tr>
<tr><td>▼ B_02</td><td>Building</td></tr>
<tr><td>Flr_01</td><td>Floor</td></tr>
<tr><td>▼ B_03</td><td>Building 03</td></tr>
<tr><td>Flr_01</td><td>Floor</td></tr>
</table></td>
<td>1. **B_01** and **B_02** merge because the **Description** for both is **Building**.
2. **B_03** does not merge because its **Description** does not match **B_01** or **B_02**. No other comparison is done for **B_03**.
3. The system now looks for a match at the next lower level of the building hierarchy.
4. The floors of **B_01** and **B_02** merge because the **Description** for both is **Floor**.</td></tr>
<tr><td>**Project 2**

<table>
<tr><th>Name ▲</th><th>Description ▽</th></tr>
<tr><td>Filter</td><td>Filter</td></tr>
<tr><td>▼ B_01</td><td>Building 01</td></tr>
<tr><td>Flr_01</td><td>Floor 01</td></tr>
<tr><td>▼ B_02</td><td>Building 02</td></tr>
<tr><td>Flr_01</td><td>Floor 01</td></tr>
<tr><td>▼ B_03</td><td>Building 03</td></tr>
<tr><td>Flr_01</td><td>Floor 01</td></tr>
</table></td>
<td>1. **B_01**, **B_02**, and **B_03** do not merge because the **Description** for each building is unique.
2. Although all floors have the same **Description**, no merging takes place because the higher level of the building hierarchy did not match.</td></tr>
</table>

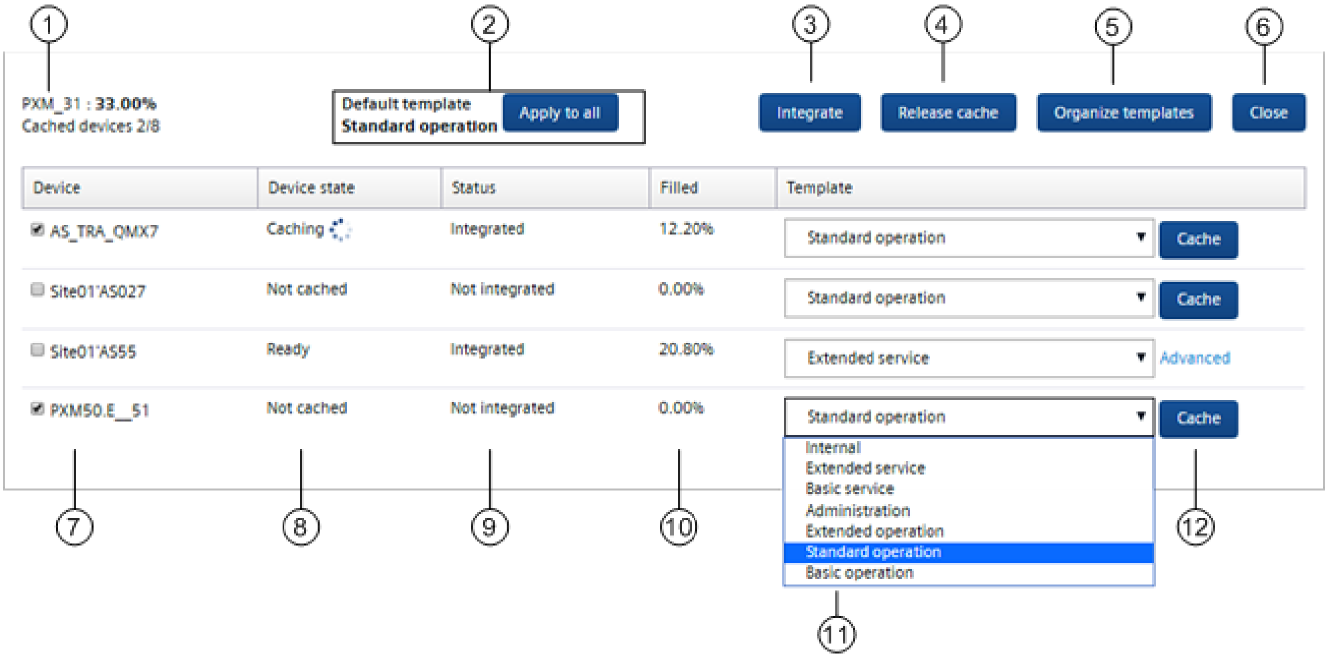
Table 13:

Options to maximize the number of devices being monitored

Desigo Control Point uses templates to control the number of data points that are integrated for monitoring. Use the following options to control the data point integration process and maximize the number of devices being monitored:

- Select a different **Default template** for the integration process through **Organize templates** in the **Data point integration** function.
  Organizing templates [→ 40]
- Select a different template for an individual device by selecting a new value from the **Template** drop-down list in the **Data point integration** function.
  Data point integration user interface [→ 36]
- Manually add or remove individual data points for monitoring.
  Advanced integration functions [→ 41]
- Create a custom template to meet the needs of your site.
  Creating custom templates [→ 48]

4.1 Data point integration user interface



PXM_31 : **33.00%**
Cached devices 2/8

Default template
Standard operation

Device	Device state	Status	Filled	Template
☑ AS_TRA_QMX7	Caching	Integrated	12.20%	Standard operation ▾
☐ Site01'AS027	Not cached	Not integrated	0.00%	Standard operation ▾
☐ Site01'AS55	Ready	Integrated	20.80%	Extended service ▾
☑ PXM50.E__51	Not cached	Not integrated	0.00%	Standard operation ▾

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**
The current default template for data point integration.

- Use the drop-down list in **Organize templates** to modify this selection.
- Click **Apply to all** to set the **Template** field for all devices to your selected default.

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**

- Select the default template (②) for data point integration.
- Import and export templates.
- Delete unused custom templates.

Organizing templates [→ 40]

⑥ **Close button**
Close 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.

⑨ **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.

⑩ **Filled**
Percent of the Desigo Control Point device capacity used by this device.

⑪ **Template**
The template controlling the number of data points that are integrated for each device. Change the template for an individual device by selecting a new value from the drop-down list. For more information on these options, see the *Desigo*™ *Desigo Control Point Basic Documentation* (A6V11170804).
Templates [→ 39]

⑫ **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.
  Device caching [→ 41]
- Select **Advanced** to manually integrate or remove individual data points for a device, create a custom template or modify a custom template.
  Advanced integration functions [→ 41]

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

Table 14: Device state indications.

Status	Description
Integrated	Data points from the device have been successfully integrated.
Integration error	An error occurred while integrating data points from the device. Resolving errors related to data point integration [→ 50]
Integration outdated	Data points from the device were previously integrated, but the current device attributes do not match the Desigo Control Point database.
Not integrated	Data points from the device have not been integrated.
Integrating	Data points from the device are in the process of being integrated.
Capacity exceeded	The number of data points being integrated exceeds device capacity.

Table 15: Status indications.

4.1.1 Tree view for devices being monitored

The data point integration process creates a building-wide tree view of all controllers. The data point integration workflow determines which top-level nodes are created in the application tree view and which controllers display under each node.

The **Default Site** top-level node displays in the tree view by default. This node can be hidden or renamed, if desired. See Modifying the Default Site settings [→ 25] for more information.

The following table outlines where devices display in the tree view.

Data point integration workflow	Device type	Device location in the application tree view
Tool-free (online)	• Automation stations, such as DXR2..., PXC3..., and PXC4/5 • BACnet devices	Displays under **Default Site** in the building hierarchy. (② in the Figure.)
	PX primary controller	Displays under the PX primary controller building hierarchy. (① in the Figure.)
ABT Site **Engineering > Integration** (offline)	• Automation stations, such as DXR2..., PXC3..., and PXC4/5 • PX primary controllers	Displays under **Building** or **Global** in the building hierarchy. • **Building** includes the building hierarchy from ABT Site • **Global** includes the online discovered hierarchy, merged over all assigned devices
	BACnet devices	Data points from BACnet devices cannot be integrated offline.

Table 16: Tree view for devices being monitored.

The following figure shows the tree view for devices that were integrated using the Tool-free (online) workflow.

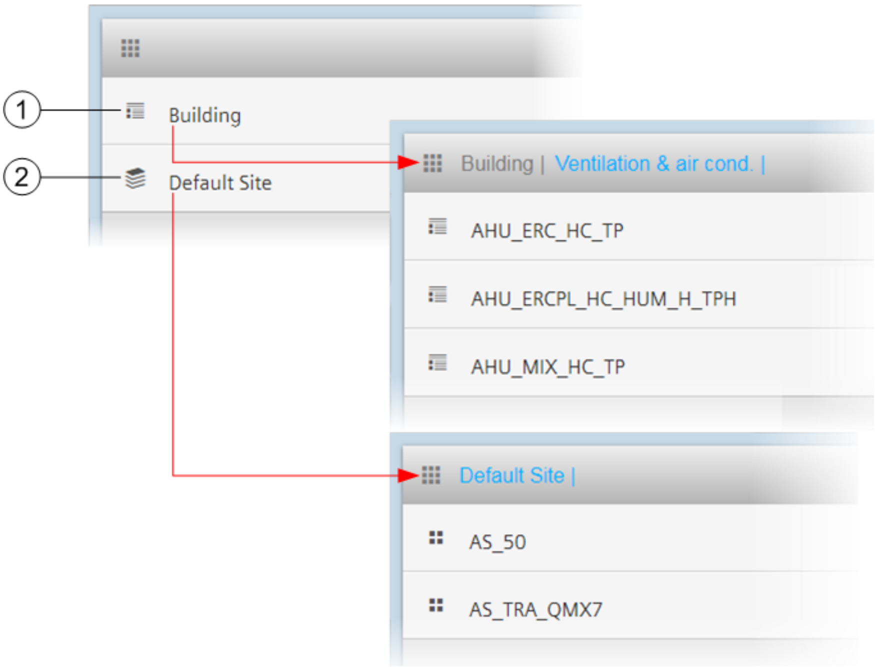


Fig. 4: Tree view for the Tool-free (online) workflow.

①	PX primary controllers display under the PX primary controller building hierarchy.
②	Automation stations, such as DXR2... and PXC3..., and BACnet devices display under **Default Site** in the building hierarchy.

Systems with PX primary controllers

This section outlines different procedures that may be needed for systems with PX primary controllers.

To determine where a device displays in the tree view, the system matches the BACnet description for structural elements, such as sites, plants, and partial plants, with an existing building hierarchy.

!

NOTICE

Systems with PX primary controllers behave as follows if you use the offline workflow and then switch to the online workflow:

- If the BACnet description for a structural element, such as a site, plant or partial plant, cannot be matched with an existing building hierarchy, the structural element displays under **Default Site**.
- If the control program is used to add or remove a data point from an existing building hierarchy, the data point is displayed (or removed from) under that building hierarchy.
- An error occurs if the existing building hierarchy contains duplicate BACnet descriptions. Ensure that the database only contains unique BACnet descriptions.
- If an object property, such as **Object description** or **Object name**, is changed, the changes only display if you reload the control program that contains those changes and repeat the data point integration process. For example, if a BACnet object property is changed through the generic data point list or another BACnet client, the changes are not displayed until the control program is reloaded and the data points are integrated to the Desigo Control Point device. In this case, do the following to display the changes:

  a. In the ABT-SSA **Assigned devices** view, delete the device and then re-add the device.

  b. In Desigo Control Point, integrate the data points from the affected device.

  For more information on deleting and re-adding a device, see the Resolving errors related to data point integration [➙ 50] section.

Integrating data points

You must complete a **Refresh** in ABT Site **Engineering > Device assignment** if changes are made in XWP Engineering after the Desigo Control Point device is commissioned and data points are integrated. Otherwise, changes made in XWP will not be displayed in Desigo Control Point.

4.2 Templates

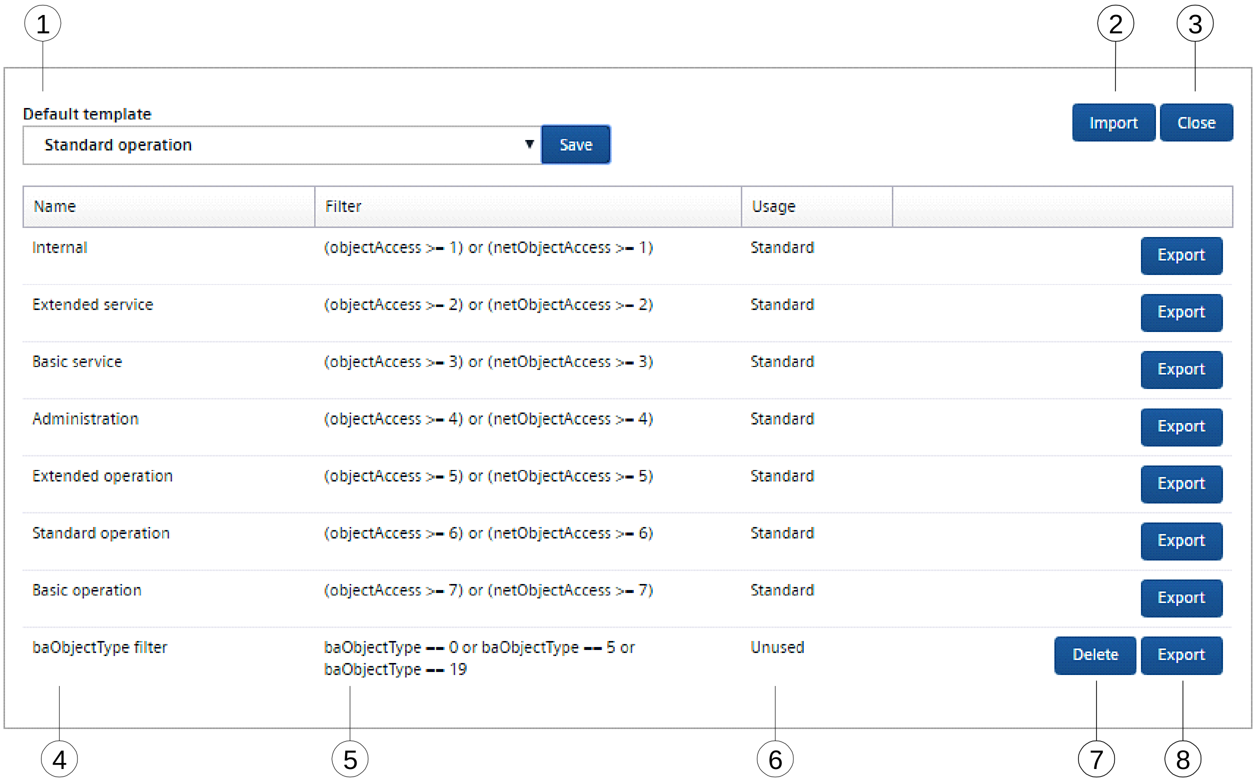
The Desigo Control Point device contains a set of standard, read-only templates that filter data points by **objectAccess** or **netObjectAccess** level.

- Use the **Organize templates** function to select the default template for data point integration and import or export templates for use in another device.
  Organizing templates [➙ 40]
- Use the **Advanced** integration function to create custom templates that include specific BACnet objects, filter data using provided tags and filter data using and custom filters.
  Creating custom templates [➙ 48]

4.2.1 Organizing templates

Use the **Organize templates** function to:

- Select the default template for data point integration (① in the following figure).
- Import and export templates (② and ⑧ in the following figure).
- Delete unused custom templates (⑦ in the following figure).



Default template
Standard operation ▼

Name	Filter	Usage	
Internal	(objectAccess >= 1) or (netObjectAccess >= 1)	Standard	Export
Extended service	(objectAccess >= 2) or (netObjectAccess >= 2)	Standard	Export
Basic service	(objectAccess >= 3) or (netObjectAccess >= 3)	Standard	Export
Administration	(objectAccess >= 4) or (netObjectAccess >= 4)	Standard	Export
Extended operation	(objectAccess >= 5) or (netObjectAccess >= 5)	Standard	Export
Standard operation	(objectAccess >= 6) or (netObjectAccess >= 6)	Standard	Export
Basic operation	(objectAccess >= 7) or (netObjectAccess >= 7)	Standard	Export
baObjectType filter	baObjectType == 0 or baObjectType == 5 or baObjectType == 19	Unused	Delete Export

① **Default template**
Select the default template for data point integration and click **Save**.

② **Import**
Import a ***.json** template file from your computer.

③ **Close**
Close the **Manage templates** function and return to the **Data point integration** function.

④ **Name**
Template name

⑤ **Filter**
The filter criteria for the template.

⑥ **Usage**
Indicates if a template is predefined or custom.
Read-only – A predefined template that controls data point integration by object access level. It cannot be modified or deleted.
In use – A custom template that is currently selected as the default template. It can be modified but not deleted.
Unused – A custom template that can be modified or deleted.

⑦ **Delete**
Delete a custom template from the database. This button is only available if the **Usage** status is **Unused**.

⑧ **Export**
Export the template for use in another device. The file type for exported templates is ***.json**.

4.2.2 Device caching

Devices must be cached to use the **Advanced** integration function, create a custom template or modify a custom template.

Desigo Control Point does not automatically read and cache data points from ABT-SSA **Assigned devices** when the **Data point integration** function is opened. This allows you to control which devices are cached rather than waiting for all devices to be cached.

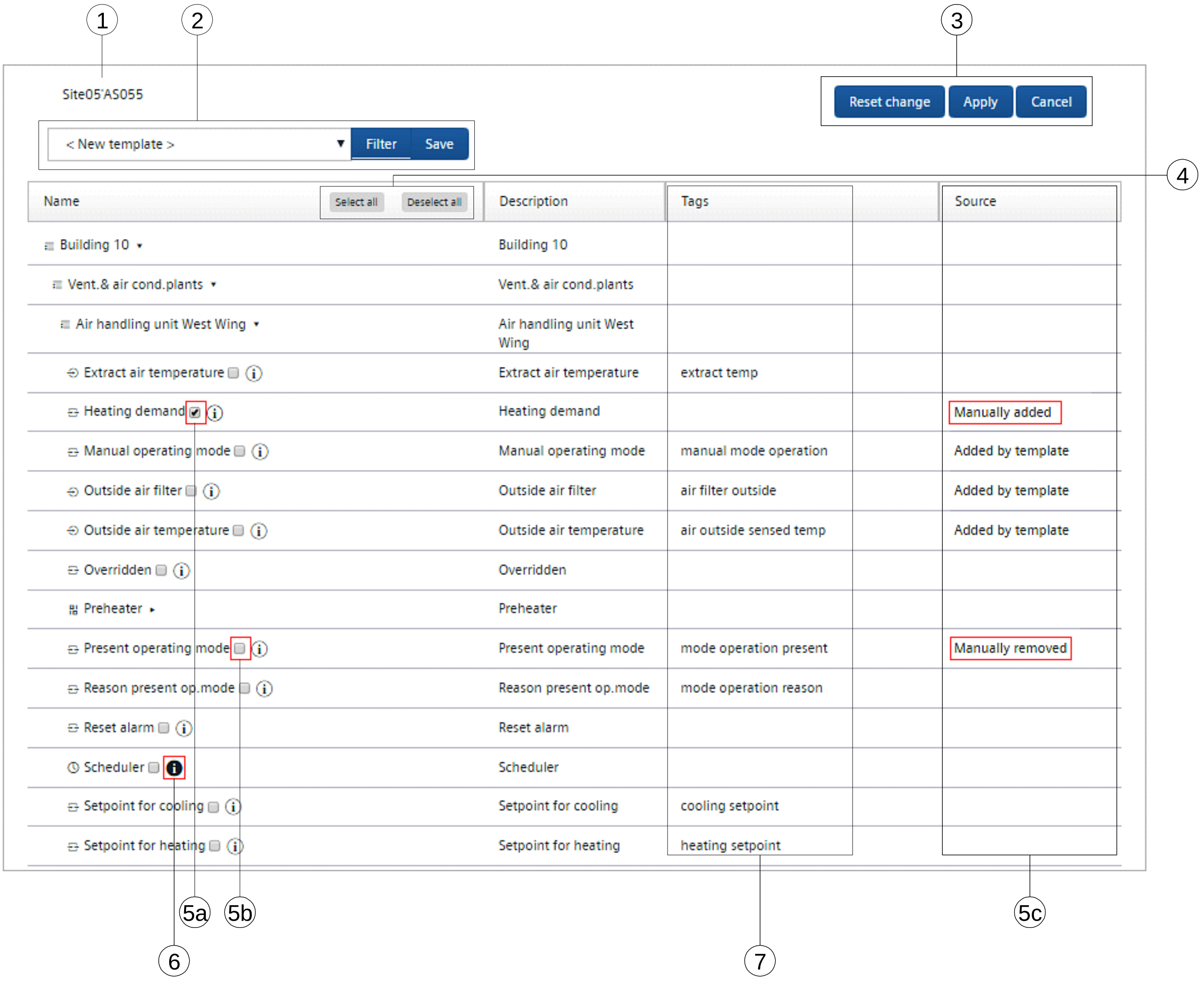
- A maximum of eight devices can be simultaneously cached. This includes devices that are manually cached by selecting the **Cache** button as well as uncached devices that are selected for data point integration.
- Data points can be integrated without manually caching the device. When data point integration is initiated for an uncached device, the system automatically caches the device, increments the number of currently-cached devices and integrates the data points.

4.2.3 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.)
- Modify template filters.
  Modifying an existing template [→ 43]
- Create custom templates.
  Creating custom templates [→ 48]

For example, after the data points for **Basic operation** are integrated, you can manually integrate additional BACnet objects to use for troubleshooting.



Name	Description	Tags	Source
Building 10 ▾	Building 10		
Vent.& air cond.plants ▾	Vent.& air cond.plants		
Air handling unit West Wing ▾	Air handling unit West Wing		
Extract air temperature ☐	Extract air temperature	extract temp	
Heating demand ☑	Heating demand		Manually added
Manual operating mode ☐	Manual operating mode	manual mode operation	Added by template
Outside air filter ☐	Outside air filter	air filter outside	Added by template
Outside air temperature ☐	Outside air temperature	air outside sensed temp	Added by template
Overridden ☐	Overridden		
Preheater ▸	Preheater		
Present operating mode ☐	Present operating mode	mode operation present	Manually removed
Reason present op.mode ☐	Reason present op.mode	mode operation reason	
Reset alarm ☐	Reset alarm		
Scheduler ☐	Scheduler		
Setpoint for cooling ☐	Setpoint for cooling	cooling setpoint	
Setpoint for heating ☐	Setpoint for heating	heating setpoint	

① **Device name**

② **Applied template**
Displays the current template. Use the drop-down list to select a different template or create a new template.

Filter button
Modifies the filters for the currently selected template.
Using provided filter text [→ 47]

Save button
Saves a new or modified template.

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.

- ⓐ Select the check box to manually add a data point for integration.
- ⓑ Clear the check box to manually remove a data point from integration.
- ⓒ The **Source** column indicates if a data point was added by the template, manually added or manually removed for integration.

⑥ **Provided filter text**

Click ⓘ to display and copy filter text for **baDescription**, **baObjectType**, **netObjectAccess**, **objectName** and **shortName**.

Using provided filter text [→ 47]

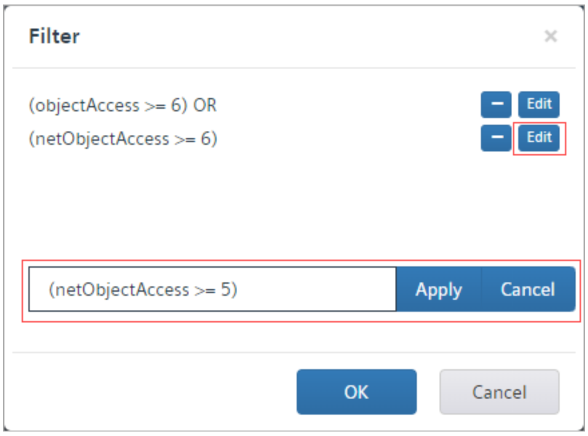
⑦ **Tags column**
Displays semantic tags that are applied during data point integration. These tags can be used as a filter in a custom data point integration template.
Using semantic tags as filter text [→ 48]
Desigo Control Point tagging model [→ 34]

Modifying an existing template

▷ The device that contains the desired BACnet objects is cached.

1. Click **Advanced** to display the tree view for the selected device.
2. Select an existing template from the drop-down list and click **Yes** to overwrite manual changes.
3. Click **Filter** in the page heading.

   ➪ The filters for the selected template are displayed in a dialog box.
4. Click − to remove a filter from the template.
5. Click **Edit** to display the current filter text and modify it.



Filter

(objectAccess >= 6) OR

(netObjectAccess >= 6)

(netObjectAccess >= 5)

6. Click **Apply** to save the filter and then click **OK** to close the dialog box.
   Note: The filter is not modified if you click **OK** before clicking **Apply**.
7. Click **Save** and then do one of the following:
   - Enter a new name in the field and click **Save as** to create a new template based on an existing standard or custom template.
     Note: When modifying an existing custom template, you are not prevented from creating a new template with the same name.
   - Click **Save** to modify an existing custom template.
8. Click **Apply** to close the **Advanced** integration function and return to the work area.

Creating filter strings

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

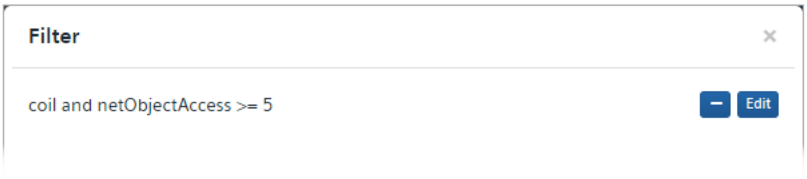
Operator	Description	Example
[tag name]	Matches any record that has the tag, regardless of its value.	`coil` includes any record with the `coil` tag
`==`	Equal to	`navName == "Outside air temperature"`
`!=`	Not equal to	`baObjectType != "0"`
`<`	Less than	`Temp < 75`
`<=`	Less than or equal to	`Temp <= 75`
`>`	Greater than	`Temp > 75`
`>=`	Greater than or equal to	`Temp >= 75`

`or`
`and`
`not`
	Use to combine filters. For example,	`site or equip`
		`equip and netObjectAccess >= 3`
		`equip and not hvacRtu`

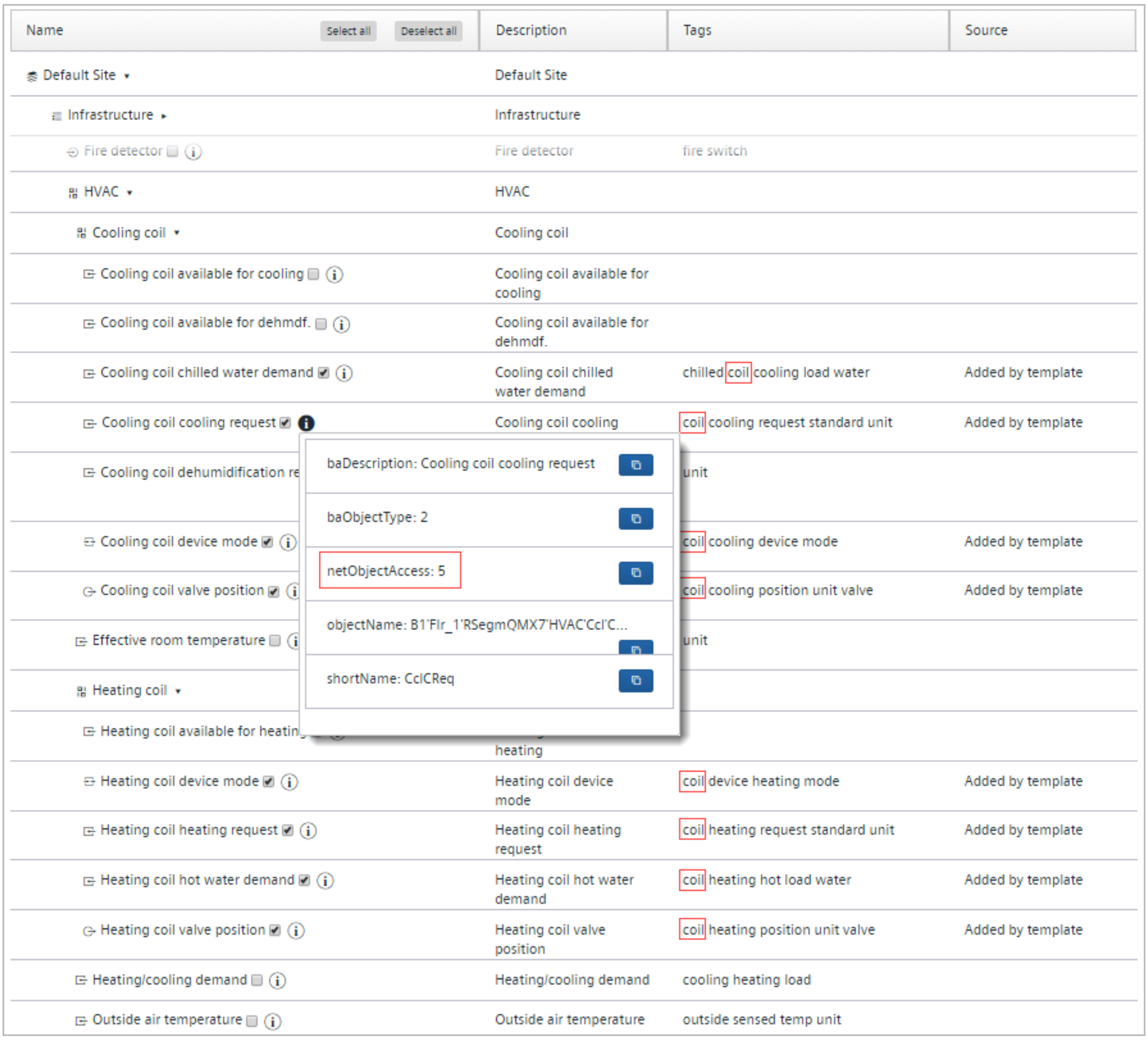
`->`	Dereference operator. Use the dereference operator to dereference a tag that has a **Ref** value. For example, if your **equipRef** has a **siteRef** tag that references the **site**, you can query that **Ref** as follows: `equipRef->navName == "Universal"` **equipRef**, **ahuRef** or **siteRef** are valid entity references.	`equipRef->navName == "Universal"` ● Building – Universal • HVAC • Chiller • Boiler Reading the expression `equipRef->navName == "Universal"` describes an object that meets the following characteristics: ● 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**.



coil and netObjectAccess >= 5



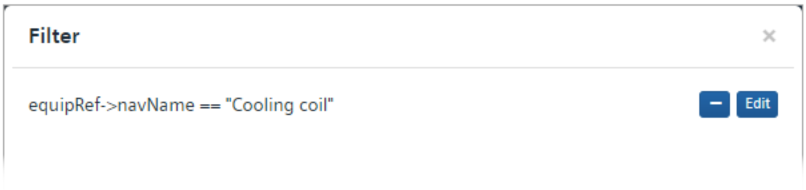
Name	Description	Tags	Source
Default Site ▾	Default Site		
Infrastructure ▸	Infrastructure		
Fire detector ☐	Fire detector	fire switch	
HVAC ▾	HVAC		
Cooling coil ▾	Cooling coil		
Cooling coil available for cooling ☐	Cooling coil available for cooling		
Cooling coil available for dehmdf. ☐	Cooling coil available for dehmdf.		
Cooling coil chilled water demand ☑	Cooling coil chilled water demand	chilled coil cooling load water	Added by template
Cooling coil cooling request ☑	Cooling coil cooling	coil cooling request standard unit	Added by template
Cooling coil dehumidification re		unit	
Cooling coil device mode ☑		coil cooling device mode	Added by template
Cooling coil valve position ☑		coil cooling position unit valve	Added by template
Effective room temperature ☐		unit	
Heating coil ▾			
Heating coil available for heatin	heating		
Heating coil device mode ☑	Heating coil device mode	coil device heating mode	Added by template
Heating coil heating request ☑	Heating coil heating request	coil heating request standard unit	Added by template
Heating coil hot water demand ☑	Heating coil hot water demand	coil heating hot load water	Added by template
Heating coil valve position ☑	Heating coil valve position	coil heating position unit valve	Added by template
Heating/cooling demand ☐	Heating/cooling demand	cooling heating load	
Outside air temperature ☐	Outside air temperature	outside sensed temp unit	

baDescription: Cooling coil cooling request
baObjectType: 2
netObjectAccess: 5
objectName: B1'Flr_1'RSegmQMX7'HVAC'Ccl'C...
shortName: CclCReq

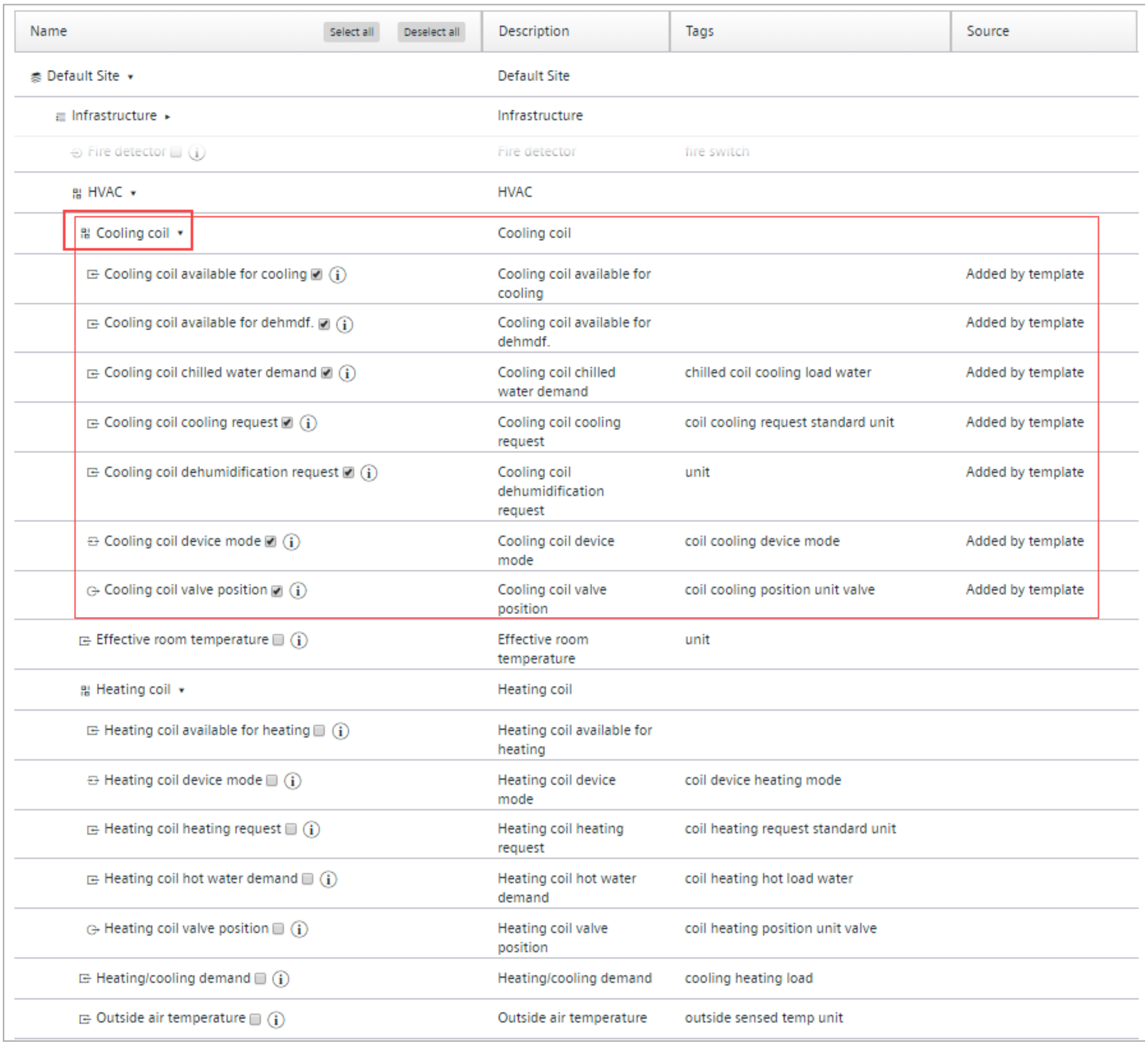
The filter `equipRef->navName == "Cooling coil"` has been applied in the following figure.

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**


Filter

equipRef->navName == "Cooling coil"



Name	Description	Tags	Source
Default Site ▾	Default Site		
Infrastructure ▸	Infrastructure		
Fire detector ☐ ⓘ	Fire detector	fire switch	
HVAC ▾	HVAC		
Cooling coil ▾	Cooling coil		
Cooling coil available for cooling ☑ ⓘ	Cooling coil available for cooling		Added by template
Cooling coil available for dehmdf. ☑ ⓘ	Cooling coil available for dehmdf.		Added by template
Cooling coil chilled water demand ☑ ⓘ	Cooling coil chilled water demand	chilled coil cooling load water	Added by template
Cooling coil cooling request ☑ ⓘ	Cooling coil cooling request	coil cooling request standard unit	Added by template
Cooling coil dehumidification request ☑ ⓘ	Cooling coil dehumidification request	unit	Added by template
Cooling coil device mode ☑ ⓘ	Cooling coil device mode	coil cooling device mode	Added by template
Cooling coil valve position ☑ ⓘ	Cooling coil valve position	coil cooling position unit valve	Added by template
Effective room temperature ☐ ⓘ	Effective room temperature	unit	
Heating coil ▾	Heating coil		
Heating coil available for heating ☐ ⓘ	Heating coil available for heating		
Heating coil device mode ☐ ⓘ	Heating coil device mode	coil device heating mode	
Heating coil heating request ☐ ⓘ	Heating coil heating request	coil heating request standard unit	
Heating coil hot water demand ☐ ⓘ	Heating coil hot water demand	coil heating hot load water	
Heating coil valve position ☐ ⓘ	Heating coil valve position	coil heating position unit valve	
Heating/cooling demand ☐ ⓘ	Heating/cooling demand	cooling heating load	
Outside air temperature ☐ ⓘ	Outside air temperature	outside sensed temp unit	

4.2.4 Using provided filter text

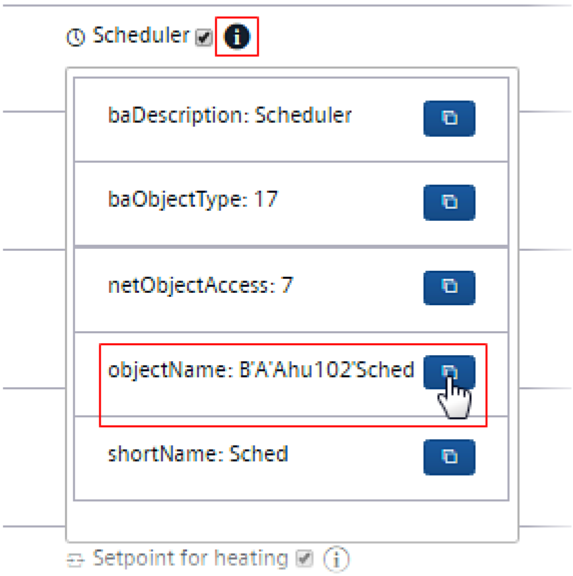
The **Advanced** integration function provides text strings to create custom filters for the following value objects in your building hierarchy:

- baDescription
- baObjectType
- netObjectAccess
- objectName
- shortName

Creating a custom template using provided filter text

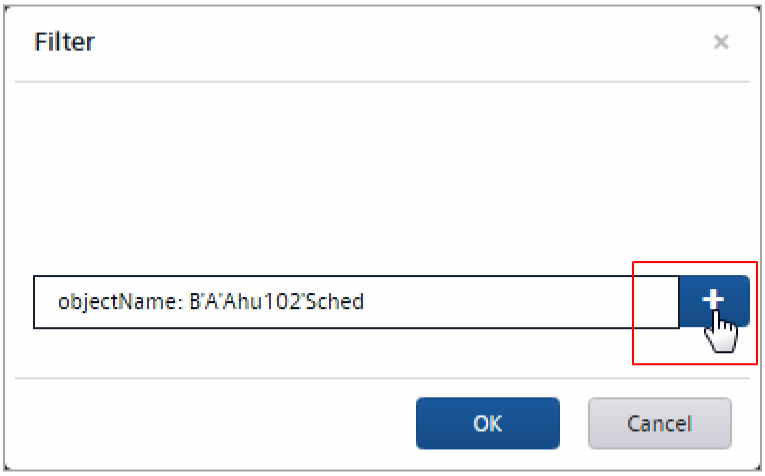
▷ The device that contains the desired BACnet objects is cached.

1. Click **Advanced** to display the tree view for the selected device.
2. Select an existing template or **<New template>** from the drop-down list and click **Yes** to overwrite manual changes.
3. Expand the tree view to display the desired data point and click ⓘ.
   ⇨ The provided text strings are displayed.
4. Click ⧉ to copy the desired filter text to the clipboard.


Scheduler ☑
baDescription: Scheduler
baObjectType: 17
netObjectAccess: 7
objectName: B'A'Ahu102'Sched
shortName: Sched
Setpoint for heating ☑

5. Click **Filter** in the page heading and paste the filter text in the field.
6. Click **+** to add each filter and then click **OK** to close the dialog box.

   Note: The filter is not added if you click **OK** before clicking **+**.


Filter
objectName: B'A'Ahu102'Sched

7. Click **Save** and then do one of the following:
   - Enter a new name in the field and click **Save as** to create a new template based on an existing standard or custom template.
     Note: When modifying an existing custom template, you are not prevented from creating a new template with the same name.
   - Click **Save** to modify an existing custom template.
8. Click **Apply** to close the **Advanced** integration function and return to the work area.

4.2.5 Creating custom templates

The Desigo Control Point device contains a set of standard, read-only templates that filter data points by **objectAccess** or **netObjectAccess** level. These templates can be used as a starting point for a custom template or you can select **<New template>** from the **Advanced** integration function drop-down list to start with a blank filter list.

This section outlines creating custom templates by:

- Adding a filter using **baDescription**, **baObjectType**, **netObjectAccess**, **objectName** or **shortName**.
  Using provided filter text [→ 47]
- Using the semantic tags provided in the **Tags** column of the **Advanced** integration function and Appendix - Tags applied during data point integration [→ 220]. Each semantic tag must be separated with the word **and.** For example, **air and temp and setpoint.**
  Using semantic tags as filter text [→ 48]

Using semantic tags as filter text

The **Tags** column of the **Advanced** integration function displays a group of tags that are intended to uniquely identify a single object in the Graphics Builder. These tags can also be used to filter data points for integration.

For data point integration, it is unlikely that you want to identify a single object. Therefore, select the tags that will identify the desired group of objects. For example, enter **temp and sense and unit** to display all temperature sensors rather than **room and temp and sense and unit**, which is more restrictive.

Note
Semantic tags must always be separated by the word **and**. For example, **air and temp and setpoint**.

▷ The device that contains the desired BACnet objects is cached.

1. Click **Advanced** to display the tree view for the selected device.
2. Select an existing template or **<New template>** from the drop-down list and click **Yes** to overwrite manual changes.
3. Click **Filter** in the page heading and enter the filter text in the field. Examples are shown in the following table.
4. Click + to add each filter and then click **OK** to close the dialog box.

   Note: The filter is not added if you click **OK** before clicking +.
5. Click **Save** and then do one of the following:
   - Enter a new name in the field and click **Save as** to create a new template based on an existing standard or custom template.
     Note: When modifying an existing custom template, you are not prevented from creating a new template with the same name.
   - Click **Save** to modify an existing custom template.
6. Click **Apply** to close the **Advanced** integration function and return to the work area.

Objects to display	Filter text to enter
All setpoints	**sp or setpoint**
Supply air temperature	**air and supply and temp**
All valves	**valve and position**
All physical hardware points	**baObjectType == 0 or baObjectType ==1 or baObjectType == 2 or baObjectType == 3 or baObjectType == 13 or baObjectType == 14 or baObjectType == 54 or baObjectType == 258 or baObjectType == 259 or baObjectType == 260 or baObjectType == 261 or baObjectType == 262**

Table 17: Example filters for data point integration.

For a complete list of ID numbers for supported BACnet object types, see the *Desigo™ Desigo Control Point Basic Documentation* (A6V11170804) .

4.3 Data point integration workflow

This workflow integrates data points by using an existing template to filter points. See the Creating custom templates [→ 48] section to create a new template for filtering points.

Prerequisite

Monitored devices have been added to **Assigned devices** in ABT-SSA. For information, see the *Desigo Touch Panel Clients Commissioning Manual* (A6V11604303).

	Workflow Step
1	Integrating data points to the Desigo Control Point device
2	*(Optional)* Manually adding or removing individual data points from monitoring

Integrating data points to the Desigo Control Point device

1. Select 🛠 **>** 🔧 **> Data point integration.**
2. Select the check box for each device with data points to be integrated.
3. *(Optional)* Do one of the following to change the integration level:
   - Change the template for an individual device by selecting a new value from the **Template** drop-down list. Click **Yes** to apply the template.
   - Click **Apply to all** in the page heading to use the default template for all devices in the list.
4. Click **Integrate**.
   ⇨ The **Status** column displays **Integrated** when the process is finished.
5. Click **Close** to return to the work area.

(Optional) Manually adding or removing individual data points from monitoring

1. Click **Advanced** for the device that contains the desired BACnet objects.
   ⇨ The **Advanced** page displays the tree view for the selected device.
2. Navigate through the building hierarchy to locate the desired BACnet objects.
   ⇨ If a check box is selected, the BACnet object is already being monitored either because it was included in the selected template, or it was previously manually selected.
3. Select the check box for any BACnet objects to be integrated.
4. Clear the check box for any BACnet objects to be removed from monitoring.

5. Click **Apply** to save your changes.
   - ➪ The **Data point integration** list is displayed.
6. Select the check box(es) for the device(s) that were updated and click **Integrate** to update the data points that are being monitored.

➪ The **Filled** column displays the updated percent of the Desigo Control Point device capacity used by this device.

4.4 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**.

5 Graphic features

5.1 Plant view Tools

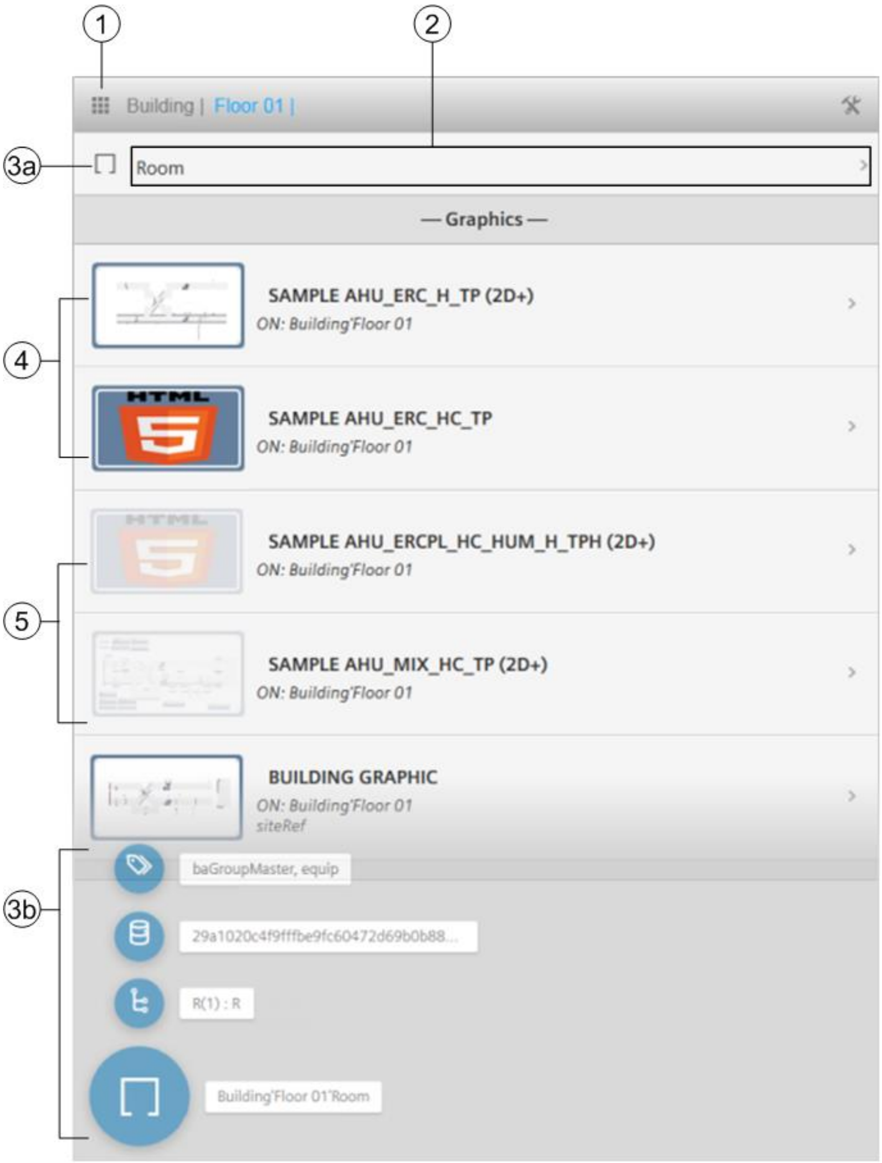
The **Plant view** core function provides custom graphical views of the current control within your facility.

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 [→ 74] section.

This section outlines the following **Plant view >** 🛠 **>** 🔧 **Tools** topics:

- Adding a graphic [→ 53]
- Editing a graphic [→ 54]
- Removing a graphic [→ 54]
- Displaying the URL of a graphic [→ 55]
- Exporting graphics [→ 55]
- Importing graphics [→ 56]
- Enable / disable graphics and kiosks [→ 56]
- Defining graphics as a startup page [→ 57]

User interface



Building | Floor 01 |

Room

— Graphics —

SAMPLE AHU_ERC_H_TP (2D+)
ON: Building'Floor 01

SAMPLE AHU_ERC_HC_TP
ON: Building'Floor 01

SAMPLE AHU_ERCPL_HC_HUM_H_TPH (2D+)
ON: Building'Floor 01

SAMPLE AHU_MIX_HC_TP (2D+)
ON: Building'Floor 01

BUILDING GRAPHIC
ON: Building'Floor 01
siteRef

baGroupMaster, equip

29a1020c4f9fffbe9fc60472d69b0b88...

R(1) : R

Building'Floor 01'Room

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 ☐, 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 **Enabled graphics and kiosks**
Graphics and kiosks with an active thumbnail image or an active generic logo can be viewed by room users. A generic logo displays if a graphic does not have a thumbnail image.

Click the thumbnail image, the graphic name or › to display a graphic or kiosk.

Thumbnails [→ 165]

⑤ **Disabled graphics and kiosks**
Graphics and kiosks with a dimmed thumbnail image or dimmed generic logo are not assigned to the Desigo Control Point device and cannot be viewed by room users.
Enable / disable graphics and kiosks [→ 56]

5.1.1 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 [→ 79]

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 [→ 74]
  - 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 [→ 165]
Enable / disable graphics and kiosks [→ 56]

5.1.2 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 [→ 161].

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.

5.1.3 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.

5.1.4 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.

5.1.5 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:

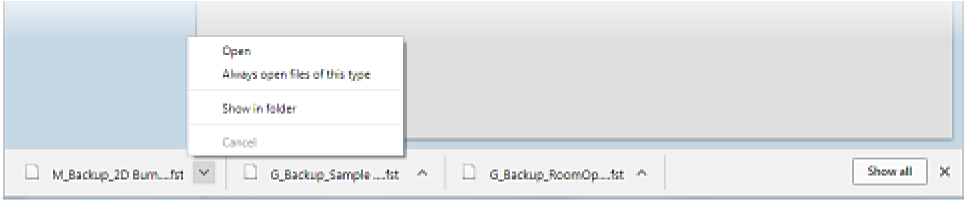
1. At the top right corner of the window, select ⋮ > **Settings**.
2. Scroll to the bottom of the page and expand the **Advanced** section.
3. In the **Privacy and security** section, expand **Content settings**.
4. Select **Pop-ups** and set the **Blocked/Allowed** switch to **Allowed**.
5. Close the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



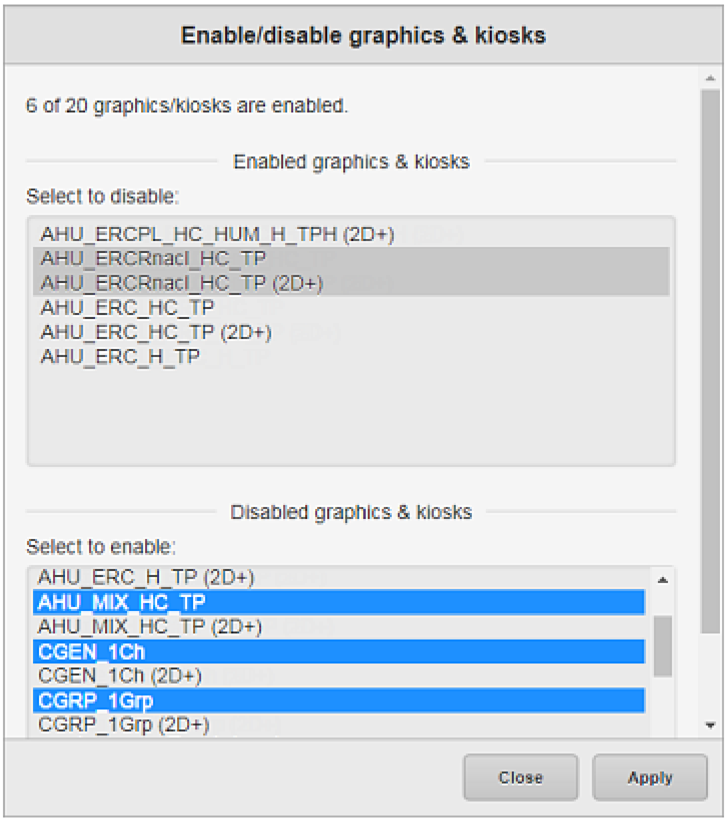
5.1.6 Importing graphics

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.

5.1.7 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.


Enable/disable graphics & kiosks
Enabled graphics & kiosks
Select to disable:
Disabled graphics & kiosks
Select to enable:
Close
Apply

6 of 20 graphics/kiosks are enabled.

Enabled graphics & kiosks — Select to disable:

AHU_ERCPL_HC_HUM_H_TPH (2D+)
AHU_ERCRnacl_HC_TP
AHU_ERCRnacl_HC_TP (2D+)
AHU_ERC_HC_TP
AHU_ERC_HC_TP (2D+)
AHU_ERC_H_TP

Disabled graphics & kiosks — Select to enable:

AHU_ERC_H_TP (2D+)
AHU_MIX_HC_TP
AHU_MIX_HC_TP (2D+)
CGEN_1Ch
CGEN_1Ch (2D+)
CGRP_1Grp
CGRP_1Grp (2D+)

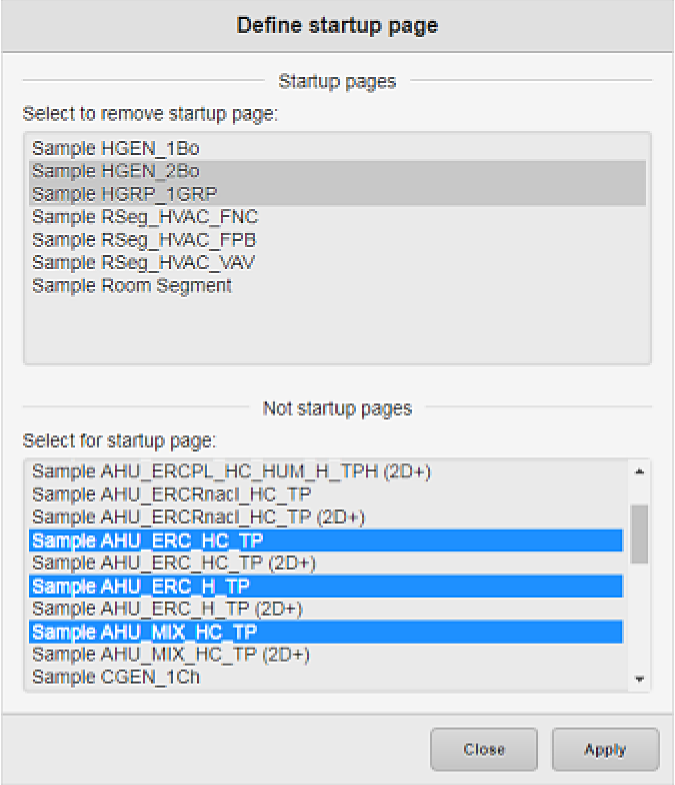
2. Select the graphic(s) or kiosk(s) to be enabled for viewing in the **Disabled graphics & kiosks** section.
3. Select any graphic(s) or kiosk(s) to be disabled for viewing in the **Enabled graphics & kiosks** section.
4. Click **Apply** to enable or disable the selected items and click **Close** to close the dialog box.

➩ The enabled graphics and kiosks are now available for viewing in the building hierarchy location where they reside.

5.1.8 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

Startup pages

Select to remove startup page:

Sample HGEN_1Bo
Sample HGEN_2Bo
Sample HGRP_1GRP
Sample RSeg_HVAC_FNC
Sample RSeg_HVAC_FPB
Sample RSeg_HVAC_VAV
Sample Room Segment

Not startup pages

Select for startup page:

Sample AHU_ERCPL_HC_HUM_H_TPH (2D+)
Sample AHU_ERCRnacl_HC_TP
Sample AHU_ERCRnacl_HC_TP (2D+)
Sample AHU_ERC_HC_TP
Sample AHU_ERC_HC_TP (2D+)
Sample AHU_ERC_H_TP
Sample AHU_ERC_H_TP (2D+)
Sample AHU_MIX_HC_TP
Sample AHU_MIX_HC_TP (2D+)
Sample CGEN_1Ch

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.

5.2 Kiosk graphics

A PXM... 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 [→ 61]
- 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 [→ 62]

!

NOTICE

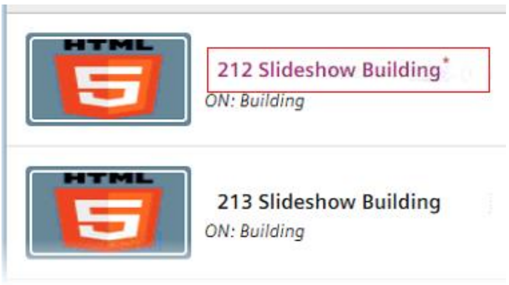
Do not delete graphics that are currently displayed in a kiosk.

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:

- Use ABT Site to re-load the Desigo Control Point device.
- Login through a browser using the Administrator account. Recreate a kiosk graphic with the same name.

Out-of-date kiosk graphics

When a kiosk is out-of-date, the color of the kiosk title is no longer black and an asterisk is appended to the end of the file name in the **Plant view**.



212 Slideshow Building*
ON: Building

213 Slideshow Building
ON: Building

Fig. 5: Out-of-date kiosk graphic.

- Out-of-date kiosk graphics must be recreated. See the following procedures for more information:
  - Configuring interactive graphics [→ 61]
    Configuring a slideshow of graphics [→ 62]
- First remove the existing file if you want to use the same kiosk name. See Removing a kiosk [→ 67] for more information.

5.2.1 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).

5.2.2 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.

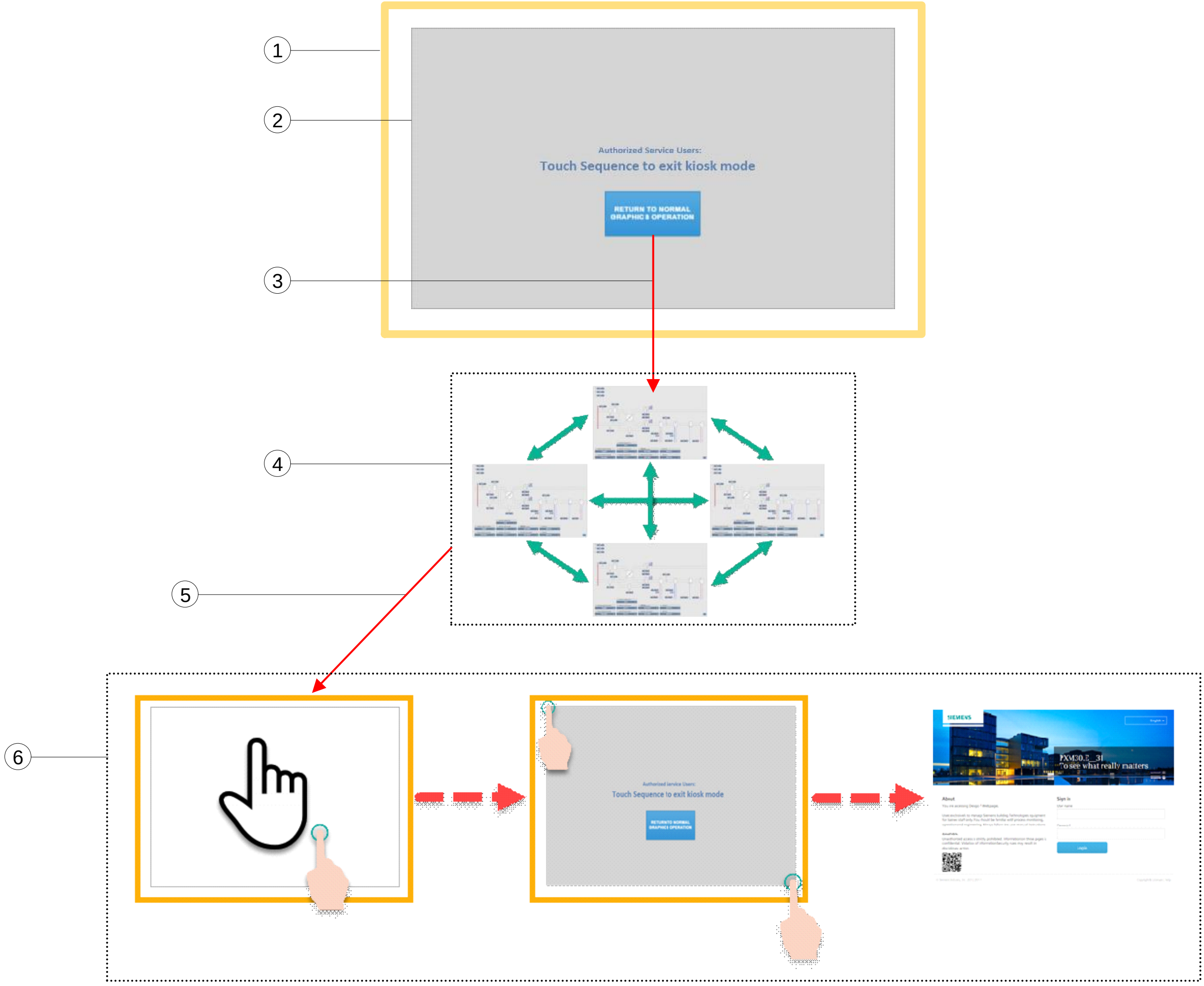
For example, the **Sample Room** graphic is assigned to a kiosk and contains a hyperlink to the **Sample room segment** graphic. The kiosk is activated by touching the ☝ icon and full-screen mode is enabled. If the kiosk operator selects the hyperlink to navigate to the **Sample room segment** graphic, 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.


1
2
3
4
5
6
Authorized Service Users:
Touch Sequence to exit kiosk mode
RETURN TO NORMAL GRAPHICS OPERATION
Authorized Service Users:
Touch Sequence to exit kiosk mode

① **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.

② **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.

③ **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.

④ **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.

⑤ **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.

⑥ **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.

5.2.3 Workflow for configuring a kiosk presentation

	Workflow step
1	Configuring a user account for the kiosk operator [→ 61]
2	Configuring interactive graphics [→ 61] or Configuring a slideshow of graphics [→ 62]
3	Activating a kiosk presentation [→ 63]

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* (A6V11938631).

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 🛠 **>** 🔧 **> 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 [→ 74]
   – 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 [→ 56]

1. Select 🛠 > 🔧 > **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.
   Data point binding [→ 74]
   - 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 [→ 56]

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

⚠ CAUTION

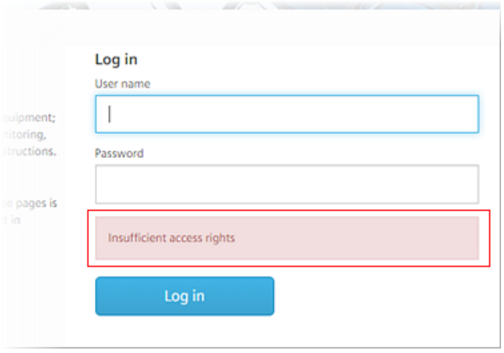
Always activate the kiosk while logged in with the kiosk user account.

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.

! *NOTICE*

User accounts with limited access cannot log in if the previous user logged out from the ABT Setup & Service Assistant (SSA).

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.



Insufficient access rights

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.

5.2.4 Editing an interactive graphic

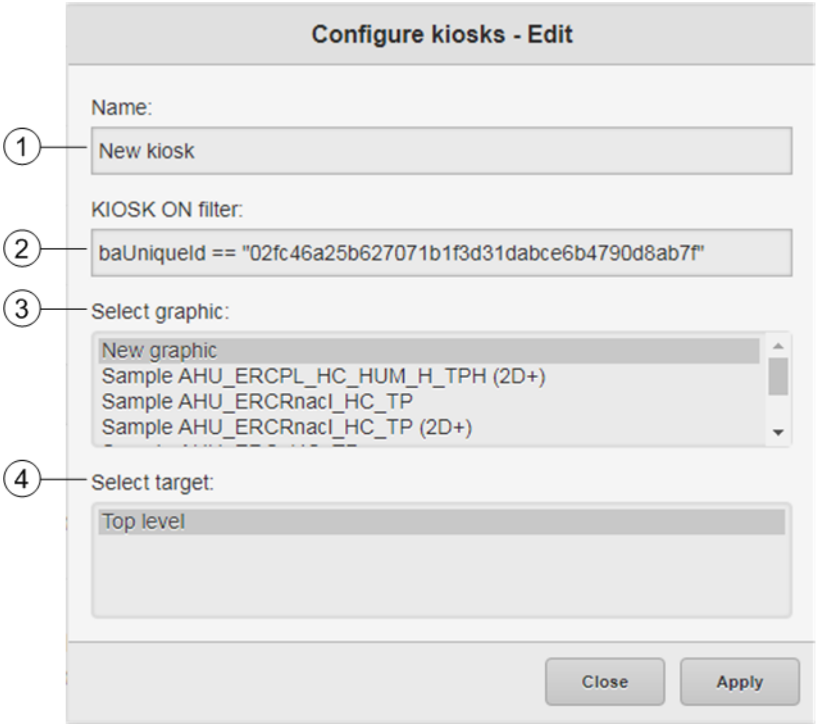
The following options are available for editing an interactive graphic:

- 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 [→ 56]

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.



Name:
New kiosk

KIOSK ON filter:
baUniqueId == "02fc46a25b627071b1f3d31dabce6b4790d8ab7f"

Select graphic:
New graphic
Sample AHU_ERCPL_HC_HUM_H_TPH (2D+)
Sample AHU_ERCRnacl_HC_TP
Sample AHU_ERCRnacl_HC_TP (2D+)

Select target:
Top level

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.

- A single graphic with relative binding may be viewed on multiple, similar targets.
- A graphic with absolute binding can only be viewed on the one, specific target for which it was engineered.

5.2.5 Editing a slideshow kiosk

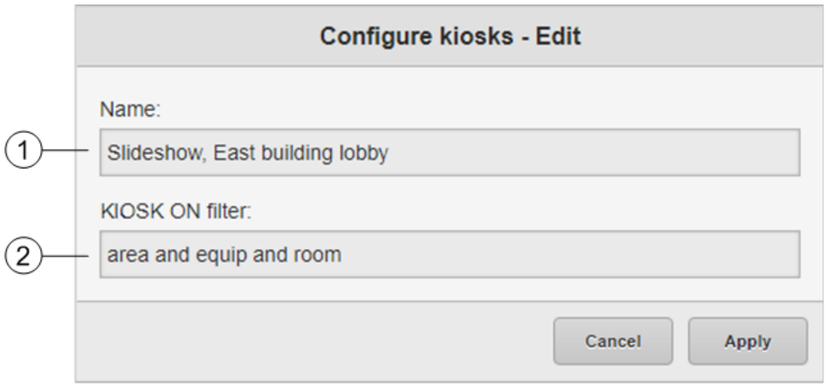
The following options are available for editing a slideshow of graphics:

- 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 [→ 56]

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.

Editing kiosk properties



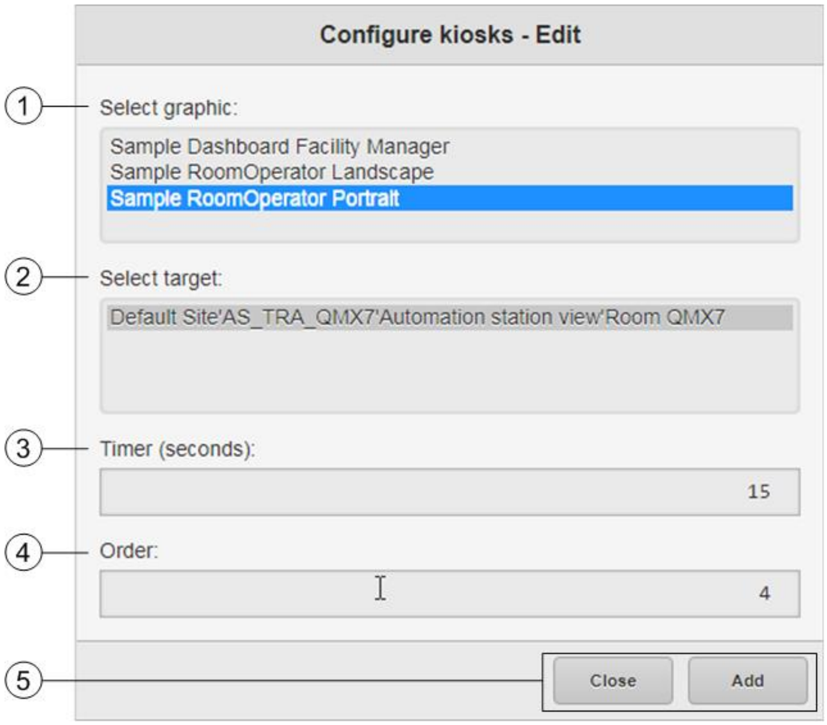
Name: Slideshow, East building lobby

KIOSK ON filter: area and equip and room

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.

Adding slides



Select graphic:
Sample Dashboard Facility Manager
Sample RoomOperator Landscape
Sample RoomOperator Portrait

Select target: Default Site'AS_TRA_QMX7'Automation station view'Room QMX7

Timer (seconds): 15

Order: 4

① Select the graphic to display in the slideshow.

② The **equip** or **site** where the components bind to display values and states.

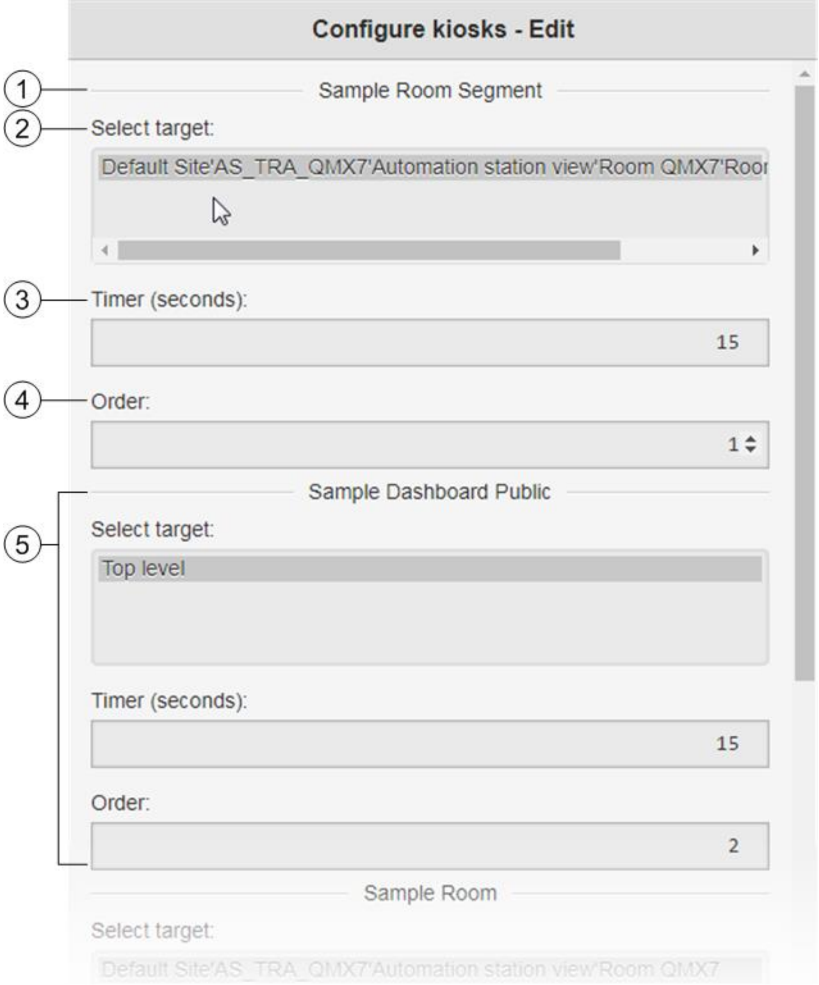
- A single graphic with relative binding may be viewed on multiple, similar targets.
- A graphic with absolute binding can only be viewed on the one, specific target for which it was engineered.

③ The number of seconds each slide displays.

④ The position of the current graphic in the slideshow sequence.

⑤ Click **Add** to add another graphic to the slideshow.
Click **Close** when you are finished adding slides.

Editing slides



Sample Room Segment

Select target: Default Site'AS_TRA_QMX7'Automation station view'Room QMX7'Roor

Timer (seconds): 15

Order: 1

Sample Dashboard Public

Select target: Top level

Timer (seconds): 15

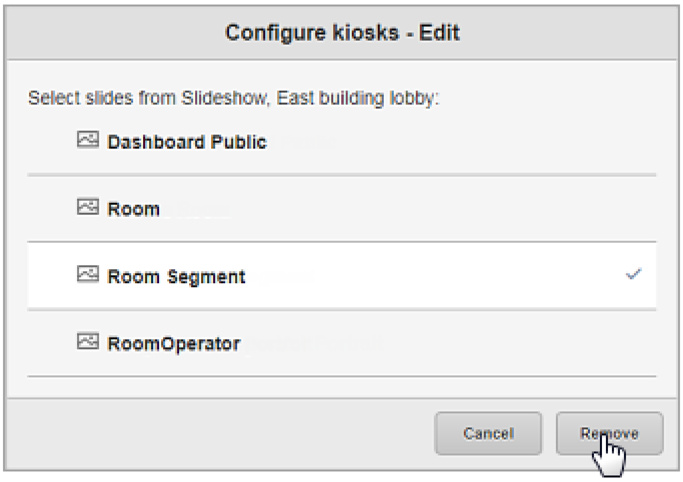
Order: 2

Sample Room

Select target: Default Site'AS_TRA_QMX7'Automation station view'Room QMX7

①	The graphic name.
②	The **equip** or **site** where the components bind to display values and states. • A single graphic with relative binding may be viewed on multiple, similar targets. • A graphic with absolute binding can only be viewed on the one, specific target for which it was engineered.
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



Select slides from Slideshow, East building lobby:

- Dashboard Public
- Room
- Room Segment ✓
- RoomOperator

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

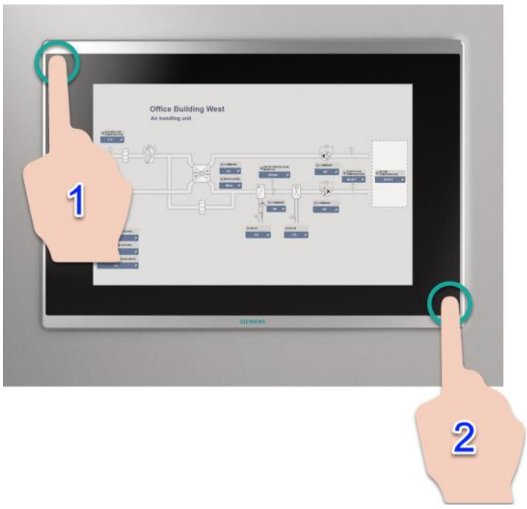
5.2.6 Removing a kiosk

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.

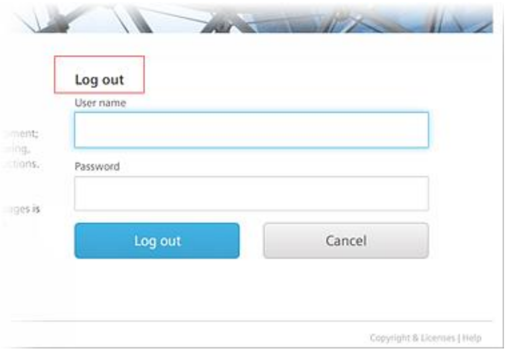
5.2.7 Logging out of a kiosk

> 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.

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.

!	*NOTICE*
	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.

5.3 Engineering notations

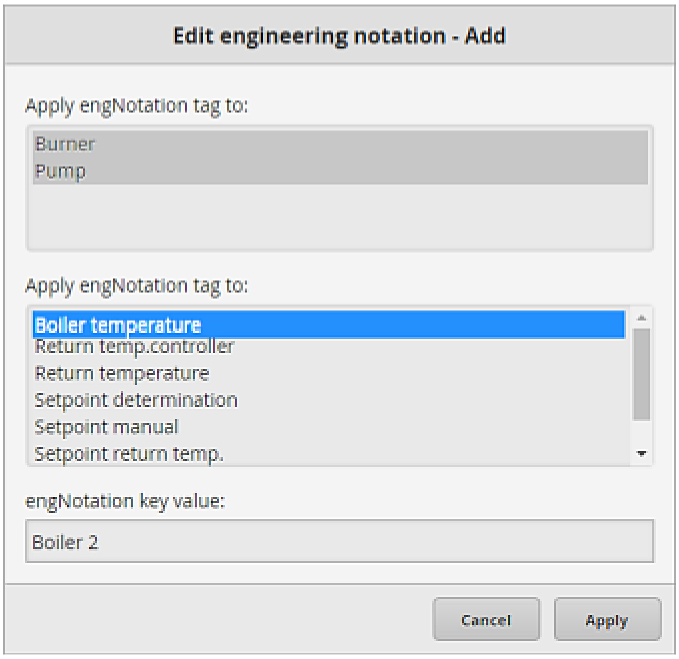
An *engineering notation* is an additional tag that can be added to equipment or data points to help you quickly distinguish between objects with similar names. Engineering notations are displayed in the “magic bubbles” for an object.

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.
Data point integration [→ 35]

Adding an engineering notation

▷ **List view** is selected in the core function pane.

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.



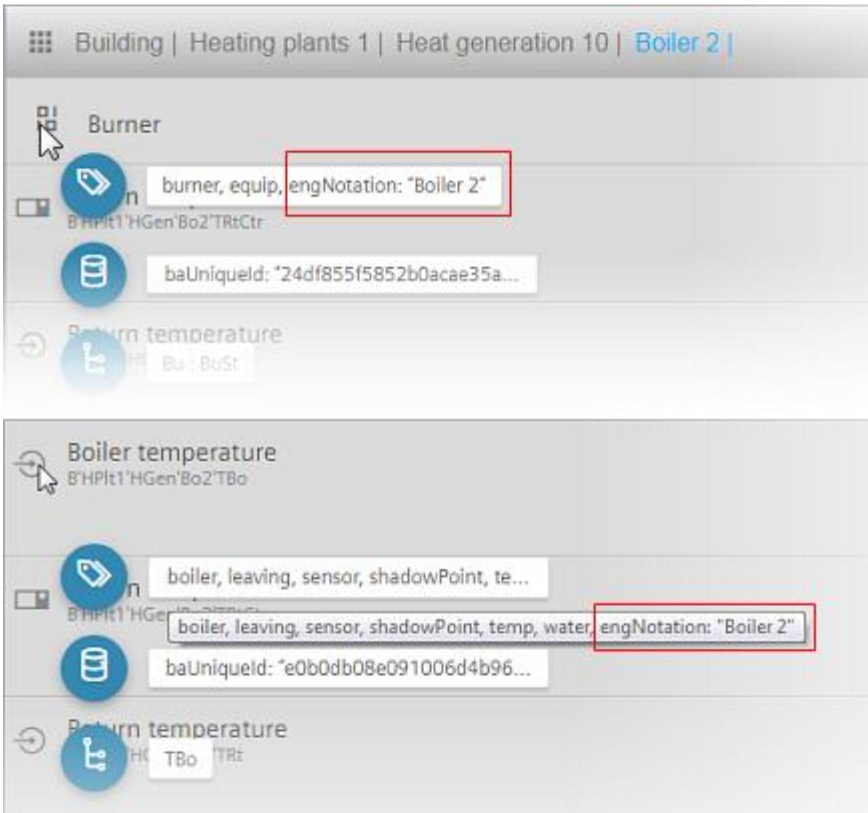
Edit engineering notation - Add

Apply engNotation tag to:
Burner
Pump

Apply engNotation tag to:
Boiler temperature
Return temp.controller
Return temperature
Setpoint determination
Setpoint manual
Setpoint return temp.

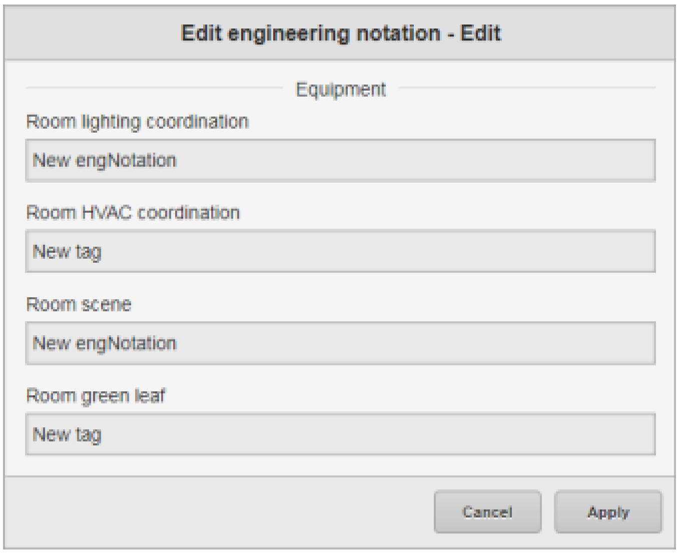
engNotation key value:
Boiler 2

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*]**”**


Building | Heating plants 1 | Heat generation 10 | Boiler 2 |
Burner
burner, equip, engNotation: "Boiler 2"
B'HPlt1'HGen'Bo2'TRtCtr
baUniqueId: "24df855f5852b0acae35a...
Return temperature
Bu : BuSt
Boiler temperature
B'HPlt1'HGen'Bo2'TBo
boiler, leaving, sensor, shadowPoint, te...
boiler, leaving, sensor, shadowPoint, temp, water, engNotation: "Boiler 2"
baUniqueId: "e0b0db08e091006d4b96...
Return temperature
TBo
TRt

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**.



Edit engineering notation - Edit

Equipment

Room lighting coordination
New engNotation

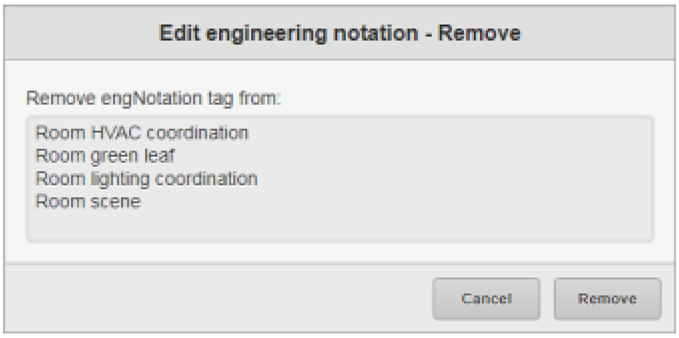
Room HVAC coordination
New tag

Room scene
New engNotation

Room green leaf
New tag

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.



Edit engineering notation - Remove

Remove engNotation tag from:

Room HVAC coordination
Room green leaf
Room lighting coordination
Room scene

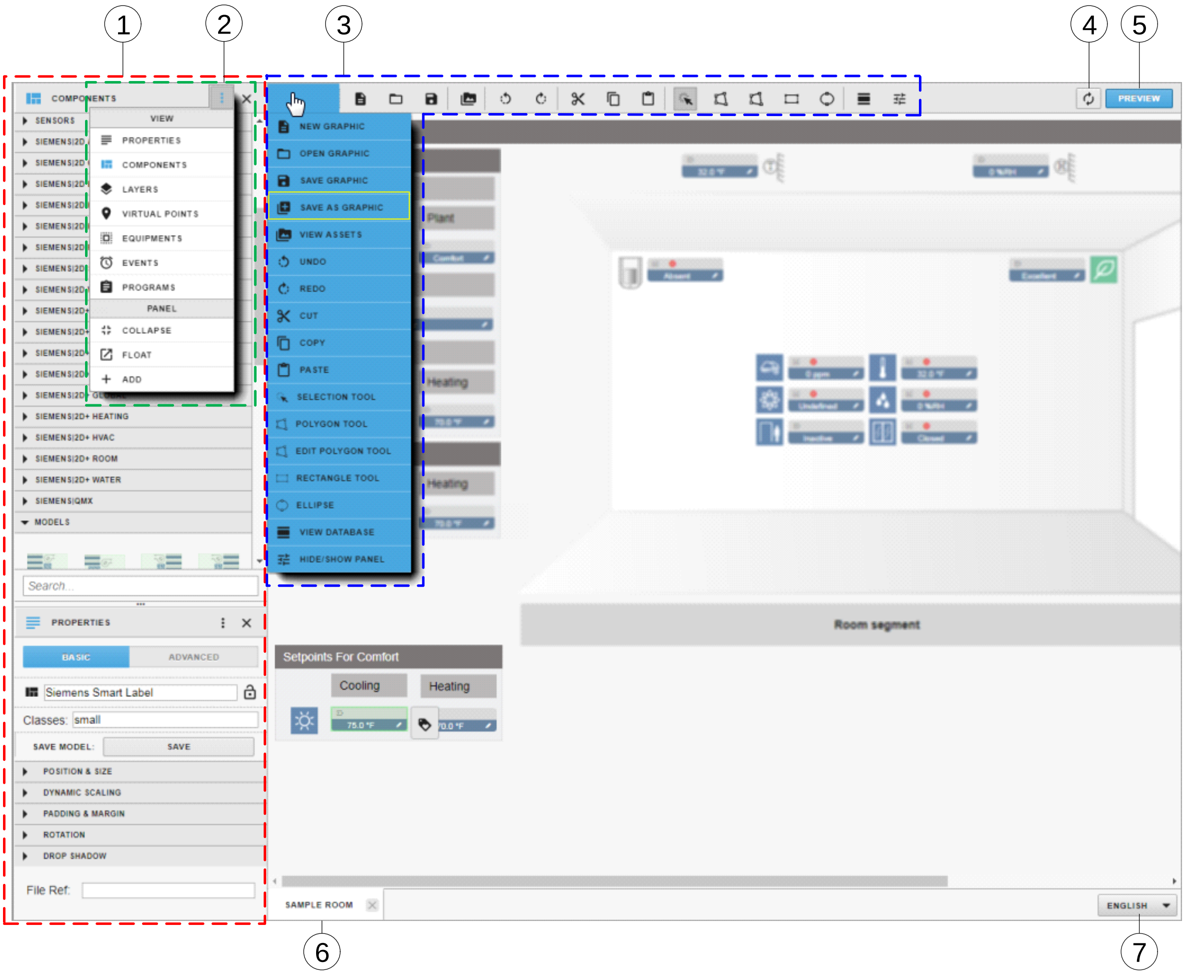
6 Graphics Builder

Graphics Builder is the graphic design tool for Desigo Control Point.

6.1 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.
Pane tools [→ 86]

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.

③ **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 [→ 73]

④ Currently not used.

⑤ **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.

⑥ **Graphic tabs**

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

⑦ **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:

Indicator	Name	Description
≡	PROPERTIES	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. PROPERTIES [→ 86]
▙	COMPONENTS	Contains the graphic components provided in the graphic library as well as any models or animations that you have saved in the Graphics Builder. COMPONENTS [→ 90]
◆	LAYERS	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. LAYERS [→ 147]
📍	VIRTUAL POINTS	Allows you to work with the binding and tagging properties of the data points used in a graphic. VIRTUAL POINTS [→ 148]
▣	EQUIPMENTS	Displays the database tree architecture and allows you to drag-and-drop sites, floors, equips and data points into the graphic. EQUIPMENTS [→ 153]
⏰	EVENTS	Displays all of the events available within the graphic. For information on working with the **EVENTS** pane, see the J2 Graphics Builder documentation (https://finproducts.atlassian.net/wiki).
📋	PROGRAMS	Displays all programs within the current graphic. For information on working with the **PROGRAMS** pane, see the J2 Graphics Builder documentation (https://finproducts.atlassian.net/wiki).

Table 18: 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.

Indicator	Name	Key combination	Description
🗎	NEW GRAPHIC	–	Opens an empty graphic page.
🗀	OPEN GRAPHIC	–	Opens graphics from the current project.
💾	SAVE GRAPHIC	CTRL+S	Saves and publishes the current graphic.
⊞	SAVE AS GRAPHIC		Only available in the **MENU** flyout. Saves a copy of the current graphic with a different name. **Note:** 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.
🖼	VIEW ASSETS	–	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.
↶	UNDO	CTRL+Z	Undoes the last action or change. This only applies to actions done in the graphical "work space". This does not affect changes done on the left or right menu.
↷	REDO	SHIFT+CTRL+Z	Redoes the last action or change that was undone. This does not affect changes done on the left or right menu.
✂	CUT	CTRL+X	Cuts an object out of the graphic work space.
⧉	COPY	CTRL+C	Copies the selected object in the work area to the clipboard.
📋	PASTE	CTRL+V	Pastes an object from the clipboard into the work area.
↖	SELECTION TOOL	–	The standard mouse cursor to click and select objects.
⬠	POLYGON TOOL	–	Draw a free-form polygon which is saved as an SVG. Commonly used for creating zones on a floor plan or a building image.
⬠	EDIT POLYGON TOOL	–	Edits an existing polygon SVG image.
▭	RECTANGLE TOOL	–	Automatically draws a four-sided polygon.
◯	ELLIPSE	–	Automatically draws a round shape.
☰	VIEW DATABASE	–	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.
🎚	HIDE/SHOW PANEL	–	Toggle button to display or hide the Builder panes on the left side of the screen.

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

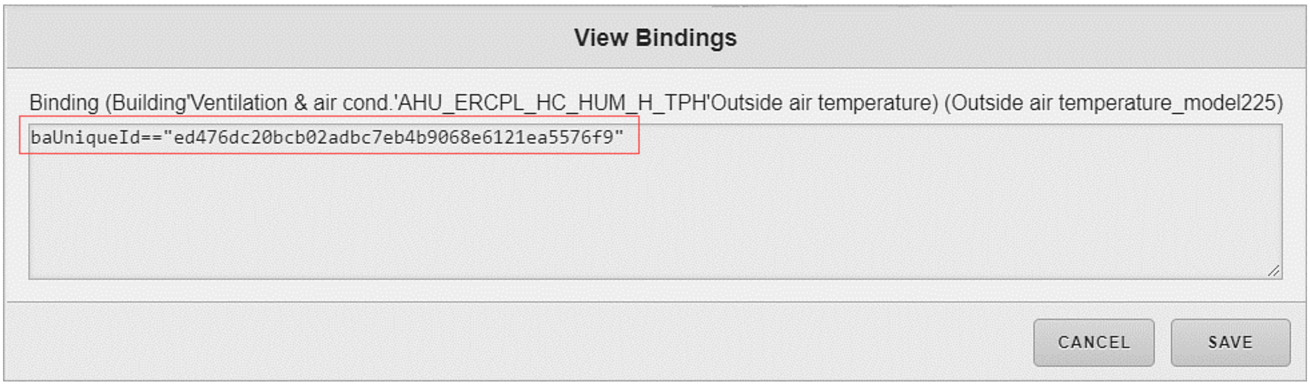
This section outlines the characteristics of the following data point binding options:

- Absolute by Point id
- Relative by Tags
- Relative by shortName/nodeSubType
- 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"
```



Binding (Building'Ventilation & air cond.'AHU_ERCPL_HC_HUM_H_TPH'Outside air temperature) (Outside air temperature_model225)

```
baUniqueId=="ed476dc20bcb02adbc7eb4b9068e6121ea5576f9"
```

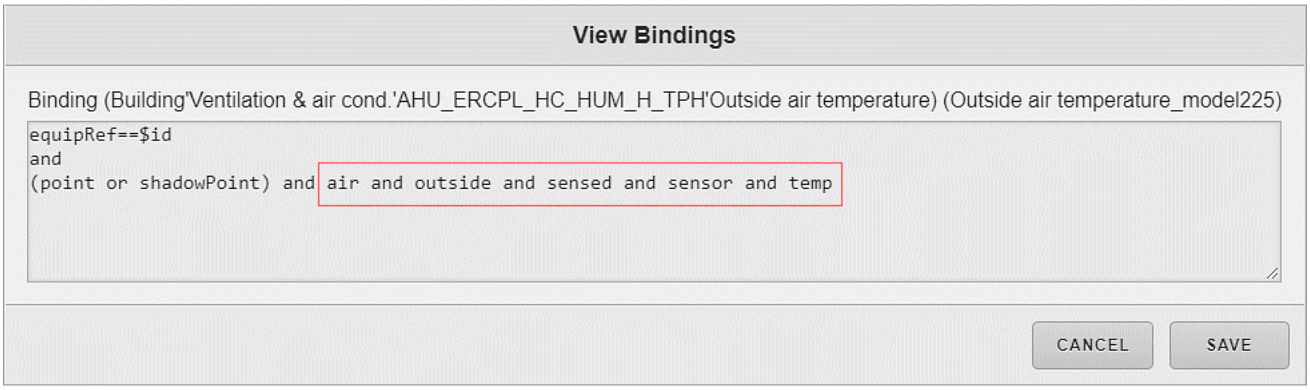
Fig. 6: Example of baUniqueId in a binding query.

- 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 Tags binding

Relative by Tags binding has a query that contains an **equipRef** and multiple semantic tags. For example:

```
equipRef==$id
and
(point or shadowPoint) and air and outside and sensed and sensor and
temp
```



Binding (Building'Ventilation & air cond.'AHU_ERCPL_HC_HUM_H_TPH'Outside air temperature) (Outside air temperature_model225)

```
equipRef==$id
and
(point or shadowPoint) and air and outside and sensed and sensor and temp
```

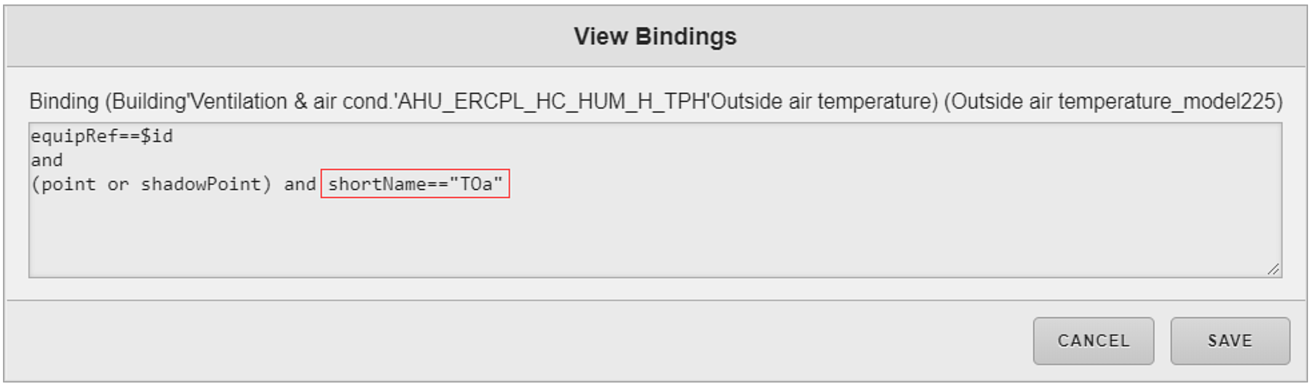
Fig. 7: Example of semantic tags in a binding query.

- Provides the greatest flexibility for graphic reuse.
- Requires the least amount of commissioning when a Siemens application is used.
- If the graphic is loaded on other equipment, the binding query looks for a data point with the same tags, and loads the information for the data point it identifies. The binding query works on any equipment that has similar data points based on the tags.
- **Recommended use:** Siemens devices with supported standard applications.

Relative by shortName/nodeSubType binding

Relative by shortName/nodeSubType binding has a query that contains an **equipRef** and a **shortName**. For example:

```
equipRef==$id
and
(point or shadowPoint) and shortName=="TOa"
```



Binding (Building'Ventilation & air cond.'AHU_ERCPL_HC_HUM_H_TPH'Outside air temperature) (Outside air temperature_model225)

```
equipRef==$id
and
(point or shadowPoint) and shortName=="TOa"
```

Fig. 8: Example of shortName in a binding query.

- The binding query works on any equipment where the structure of the building hierarchy and the **shortName** 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 **shortName**, and loads the information for the data point it dynamically identifies.
- **Recommended use:** Siemens devices with non-standard applications

Mapping to Desigo Control Point shortName and nodeSubType

The following table maps information from Desigo Room Automation to Desigo Control Point.

Desigo Room Automation	Desigo Control Point
subordinateAnnotation	shortName
nodeSubType	nodeSubType

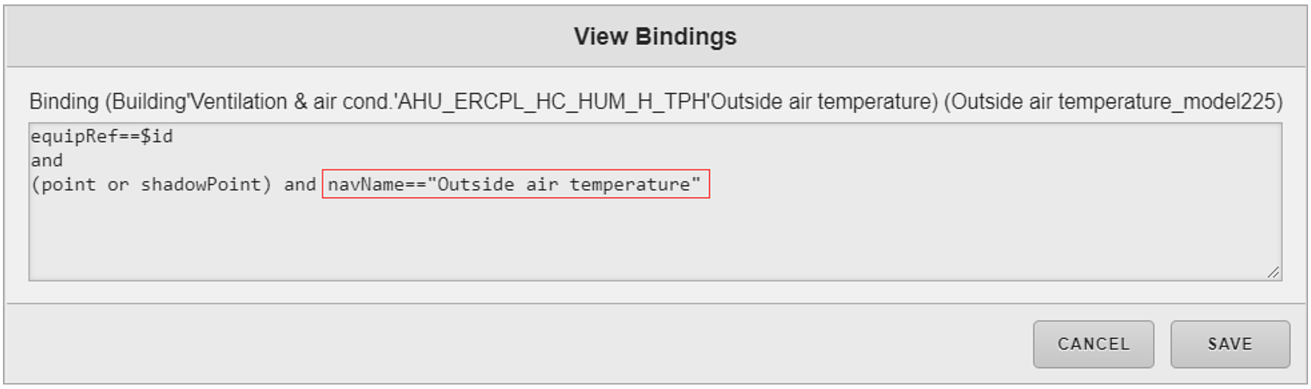
The following table maps information from PX primary controllers to Desigo Control Point.

PX primary controller	Desigo Control Point
shortName	shortName
functionName	nodeSubType

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"
```



Binding (Building'Ventilation & air cond.'AHU_ERCPL_HC_HUM_H_TPH'Outside air temperature) (Outside air temperature_model225)

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

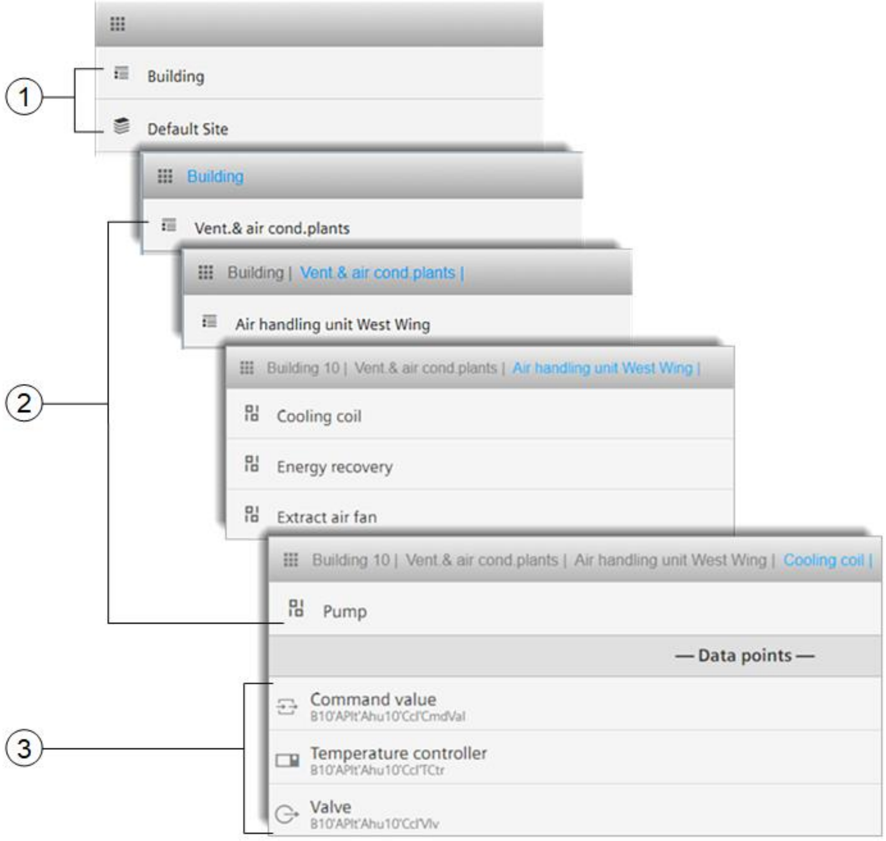
Fig. 9: Example of navName in a binding query.

- 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.

For more information on **Relative by navName** binding, see the *BACnet/IP systems Desigo Control Point Engineering Manual* (A6V11604297).

How semantic tags create structure in the system

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
Building
Default Site
Building
Vent.& air cond.plants
Building | Vent.& air cond.plants |
Air handling unit West Wing
2
Building 10 | Vent.& air cond.plants | Air handling unit West Wing |
Cooling coil
Energy recovery
Extract air fan
Building 10 | Vent.& air cond.plants | Air handling unit West Wing | Cooling coil |
Pump
— Data points —
3
Command value
B10'APlt'Ahu10'Ccl'CmdVal
Temperature controller
B10'APlt'Ahu10'Ccl'TCtr
Valve
B10'APlt'Ahu10'Ccl'Vlv

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:

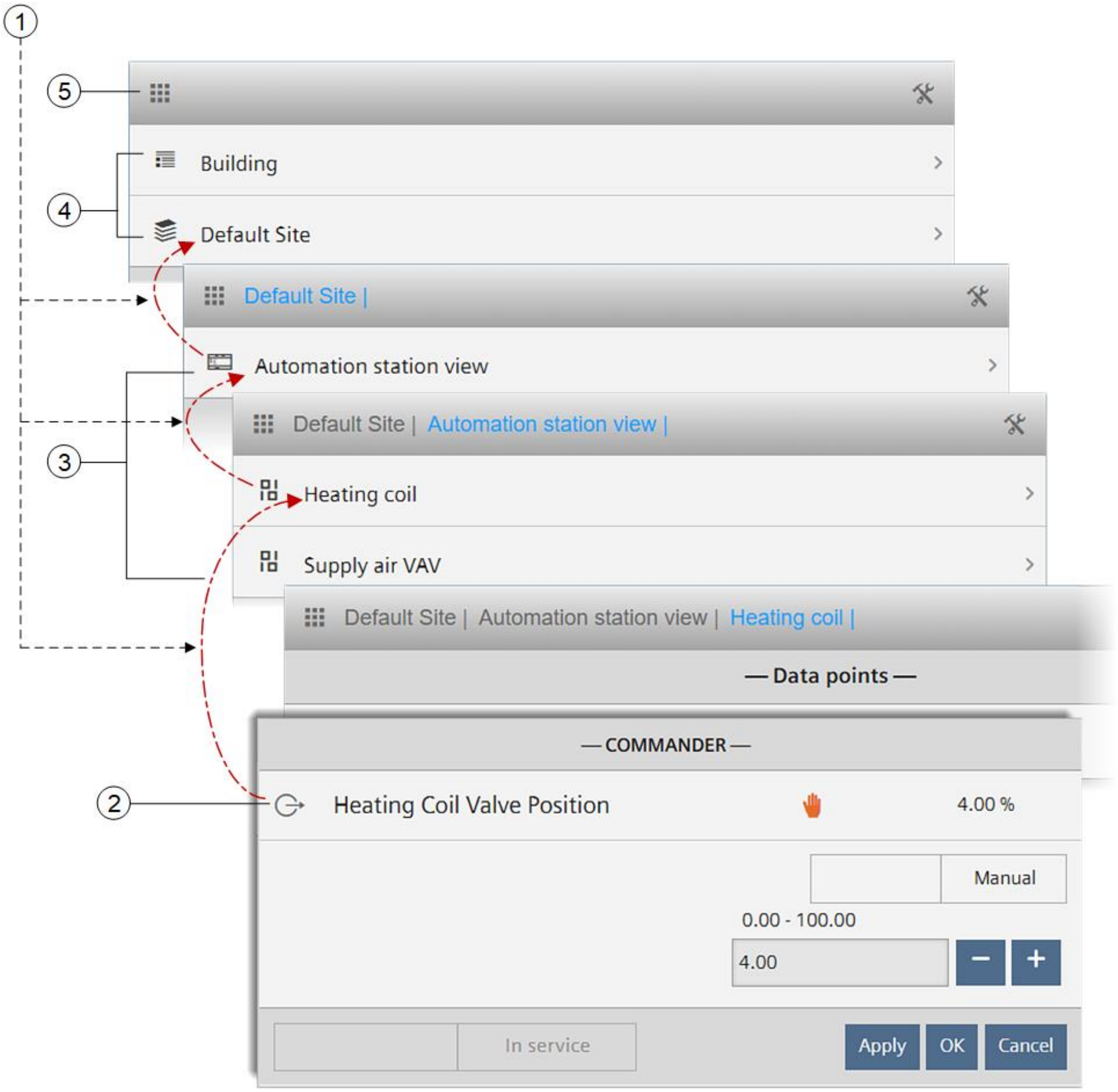
- **cmd**, which classifies a data point as an output, AO/BO, command, or actuator.
- **sensor**, which classifies a data point as an input, AI/BI, or sensor.
- **sp**, which classifies a data point as a setpoint, soft point or process control variable.

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**) ③, which is linked to the **Automation station view** (**equip**) ④ and then linked to the **Default site** (**site**) ⑤.

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 example, the **Heating coil** also has the **cascade**, **coil**, **equip**, **heating**, **hot** and **water** tags.
  For more information, see *Additional object properties* in the Plant view Tools [→ 51] 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 [→ 79].

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 [→ 80] section.
  - When saving a graphic, consider where it should be available within the building hierarchy. For example, the query string **area and equip and roomSegment** makes a graphic available for all room segments 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.
semantic tags	Can be reused with similar applications and other system devices.	Query can be used across systems and is extensible by individual libraries.
shortName	Can be reused with similar applications and other system devices.	Query is proprietary to a system.
navName	Fixed for a specific application on a specific system device.	Query can be engineered to be reused.

Table 19: 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.
  Engineering notations [→ 68]

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.

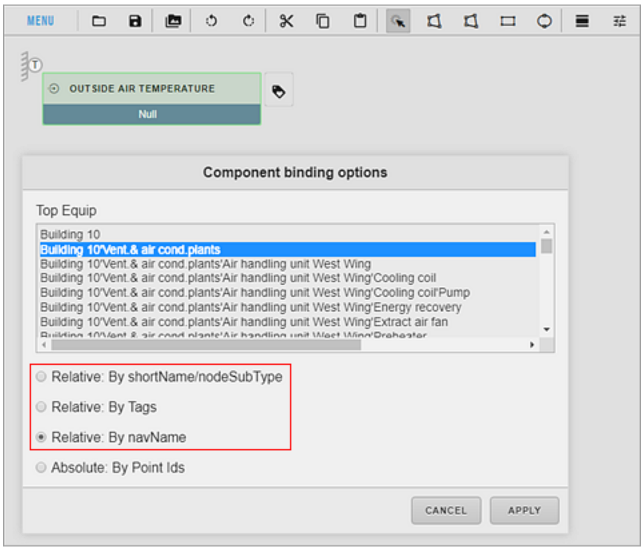
This procedure creates a graphic that displays data for an entire facility.

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 [→ 77]

2. 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.

   Component binding options

   Top Equip

   Building 10
   Building 10'Vent.& air cond.plants
   Building 10'Vent.& air cond.plants'Air handling unit West Wing
   Building 10'Vent.& air cond.plants'Air handling unit West Wing'Cooling coil
   Building 10'Vent.& air cond.plants'Air handling unit West Wing'Cooling coil'Pump
   Building 10'Vent.& air cond.plants'Air handling unit West Wing'Energy recovery
   Building 10'Vent.& air cond.plants'Air handling unit West Wing'Extract air fan
   Building 10'Vent.& air cond.plants'Air handling unit West Wing'Preheater

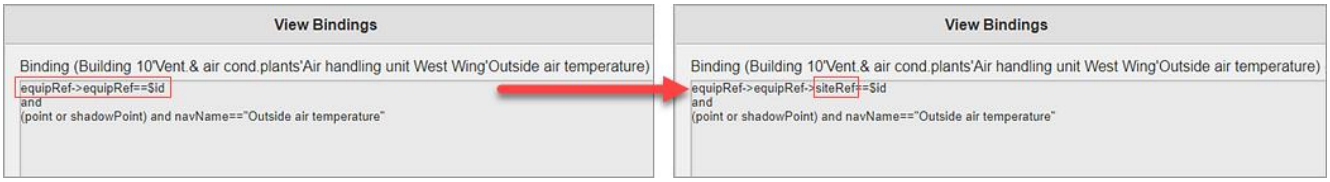
   ○ Relative: By shortName/nodeSubType
   ○ Relative: By Tags
   ● Relative: By navName
   ○ Absolute: By Point Ids

   CANCEL APPLY

   – In the **Top Equip** section, select the **equip** that is located immediately below the desired **site**.
   – Select a radio button for relative binding 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.



Binding (Building 10'Vent.& air cond.plants'Air handling unit West Wing'Outside air temperature)

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

Binding (Building 10'Vent.& air cond.plants'Air handling unit West Wing'Outside air temperature)

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

⇨ The binding query has been modified for the component.

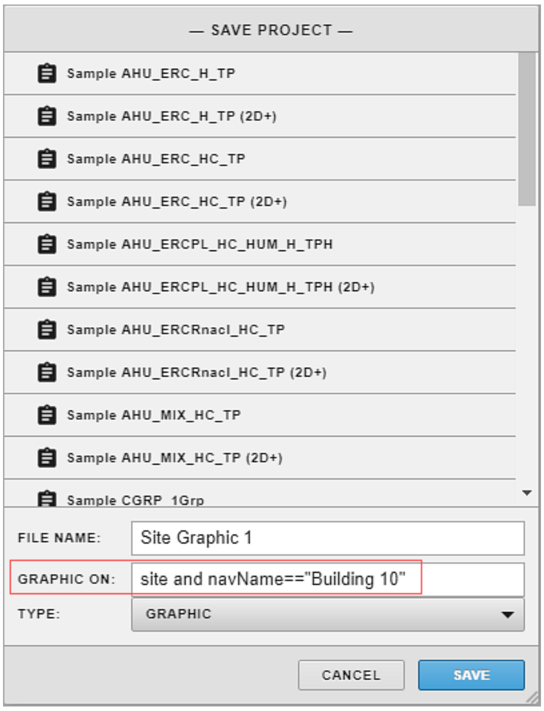
4. Click 🖫 and modify the **GRAPHIC ON** such that the graphic can be opened on the appropriate **site** or **sites**.

   See the following figure and the GRAPHIC ON binding query [→ 79] section for more information.

⇨ The adjusted bindings work for any **site** that has the same or similar structures in the building hierarchy.

GRAPHIC ON	Result
`site`	This graphic can be opened for viewing on any **site**.
`site and navName==`"your site name 1" `or navName==`"your site name 2"	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.

Table 20: 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_ERCPL_HC_HUM_H_TPH
Sample AHU_ERCPL_HC_HUM_H_TPH (2D+)
Sample AHU_ERCRnacl_HC_TP
Sample AHU_ERCRnacl_HC_TP (2D+)
Sample AHU_MIX_HC_TP
Sample AHU_MIX_HC_TP (2D+)
Sample CGRP_1Grp
CANCEL
SAVE

FILE NAME: Site Graphic 1

GRAPHIC ON: site and navName=="Building 10"

TYPE: GRAPHIC

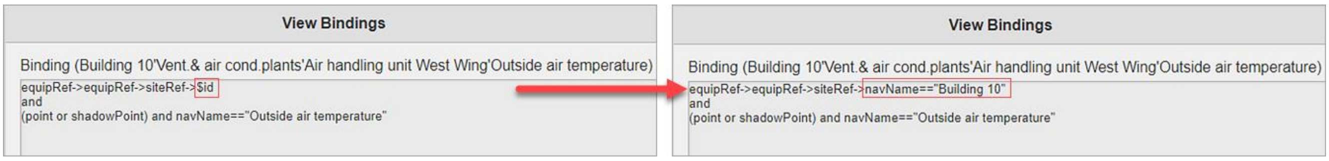
Fig. 10: Modifying the GRAPHIC ON.

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.



View Bindings

Binding (Building 10'Vent.& air cond.plants'Air handling unit West Wing'Outside air temperature)

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

View Bindings

Binding (Building 10'Vent.& air cond.plants'Air handling unit West Wing'Outside air temperature)

```
equipRef->equipRef->siteRef->navName=="Building 10"
and
(point or shadowPoint) and navName=="Outside air temperature"
```

Binding query	Result

`equipRef->siteRef==$id`
`and`
…
	When this graphic is opened for viewing on a **site**, the **$id** variable assumes the value of that specific **site**, and the binding searches for an **equip** or **point** below that **site**.

`equipRef->siteRef->navName=="your site 01"`
`and`
…
	Regardless of where this graphic is opened for viewing, this binding always connects to the described **equip** or **point** instance below the site with **navName** **"**your site 01**"**.

Table 21: Modifying the binding query.

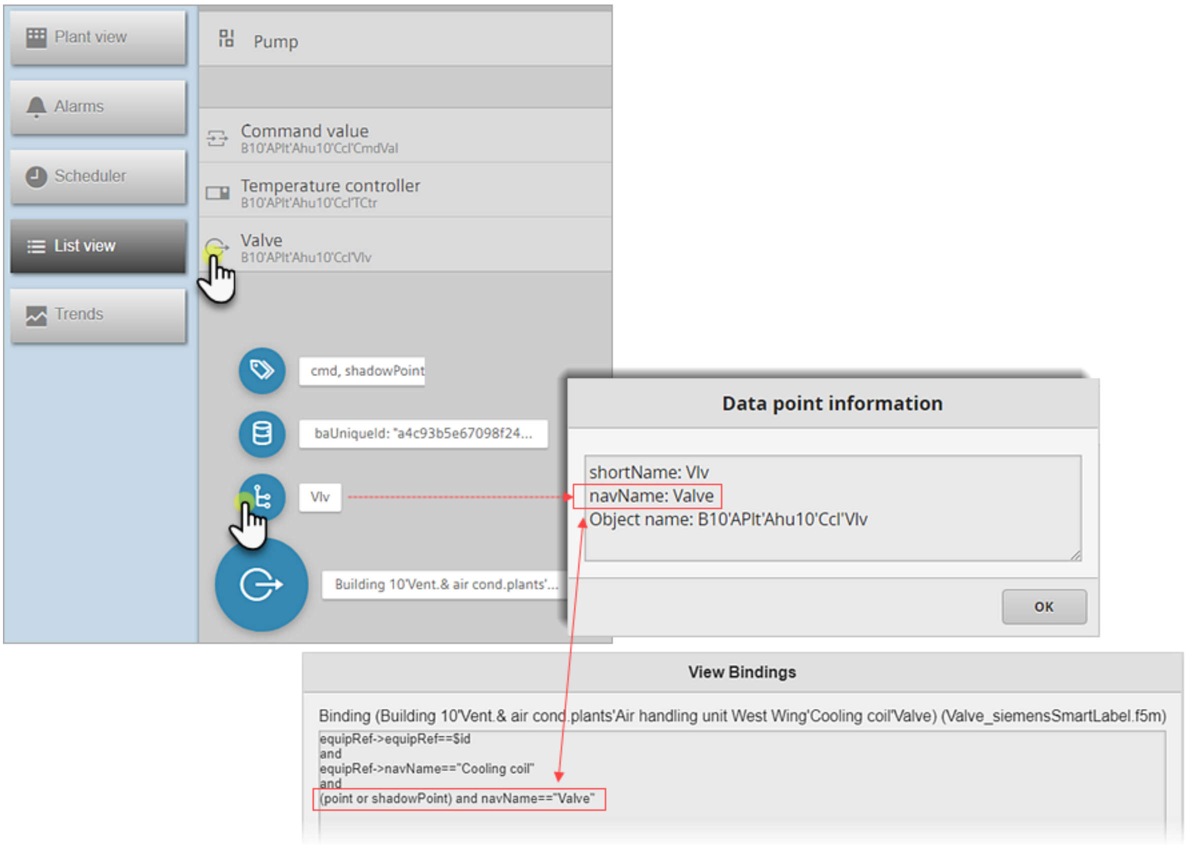
GRAPHIC ON	Result
`topLevel`	This graphic can be opened for viewing at the **Root** level in any system device with the same structure.

Table 22: 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**.



shortName: Vlv
navName: Valve
Object name: B10'APlt'Ahu10'Ccl'Vlv

Binding (Building 10'Vent.& air cond.plants'Air handling unit West Wing'Cooling coil'Valve) (Valve_siemensSmartLabel.f5m)

```
equipRef->equipRef==$id
and
equipRef->navName=="Cooling coil"
and
(point or shadowPoint) and navName=="Valve"
```

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 [→ 74]
- 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 [→ 155]

Reusing graphics on devices with non-standard applications

Semantic tags are not automatically applied to Desigo devices with non-standard applications or to BACnet devices.

- **Relative by shortName/nodeSubType** binding is recommended for Desigo devices with non-standard applications.
- **Relative by navName** binding is recommended for BACnet devices.

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.

   - 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 [→ 204].

Offline support vs. online support

Availability of some functions is affected by the following:

- The user role of the currently logged in user.
- The model of Desigo Control Point device.
- Working offline in ABT Site.

Core function	Limitations		
	Based on the user role of the currently logged in user	**Based on the model of Desigo Control Point device**	**Additional limitations when working offline in ABT Site**
Plant view ▦	Only displays graphic components and data points to which the user account has at least Read access.		No live data. Values display as failed or may not display at all.
Dashboard graphical elements. For example, AM charts.		The model of Desigo Control Point device determines availability.	
Data point commanding (Edit ✎)	Only displays for the data points the user account is authorized to command.		Does not display.
Graphics Builder		Not supported on PXM… devices. However, Graphics Builder is supported if you connect to a PXM… device from a browser on a computer.	If offline engineering is complete and data points have been integrated, data is in the database. Therefore: • Graphics can be created without equipment connected. • Point bindings can be created; however, data won’t display correctly. • Real values are not displayed in **Preview** mode.

Core function	Limitations		
	Based on the user role of the currently logged in user	Based on the model of Desigo Control Point device	Additional limitations when working offline in ABT Site
Enable/disable graphics & kiosks		The model of Desigo Control Point device determines the total number of graphics and kiosks that can be enabled.	
Scheduler 🕘			The **Scheduler** core function does not display.
List view ☰			
Data point commanding (Edit ✎)	Only displays for the data points the user account is authorized to command.		Does not display.
Data point integration		The model of Desigo Control Point device determines the total number of BACnet objects that can be integrated.	
Trends 📈			
Configure trend definitions		The model of Desigo Control Point device determines the maximum number of trend definitions allowed.	
Trend export ⤓		The model of Desigo Control Point device determines availability. Not supported on PXM… devices. However, trend data can be exported if you connect to a PXM… device from a browser on a computer.	
Reports 📊	Only displays objects to which the user account has at least Read access.	The model of Desigo Control Point device determines availability of the **Reports** core function.	The **Reports** core function does not display.
Download menu		Downloading reports is not supported on PXM… devices.	
User management			User management menu command button ˅ does not display in the status bar.

6.2 Pane tools

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

- PROPERTIES [→ 86]
  Used to view, edit, add or remove any object, or modify the properties of a graphic component.
- COMPONENTS [→ 90]
  Provides components for dashboard graphics and HTML elements and images for physical components.
- LAYERS [→ 147]
  Displays a hierarchical structure for all the components in a graphic.
- VIRTUAL POINTS [→ 148]
  Displays the data points that belong to the graphic.
- EQUIPMENTS [→ 153]
  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 [→ 154]
  Allows you to create custom programs.

6.2.1 PROPERTIES

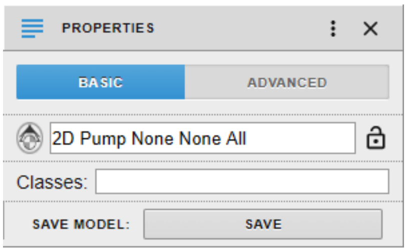
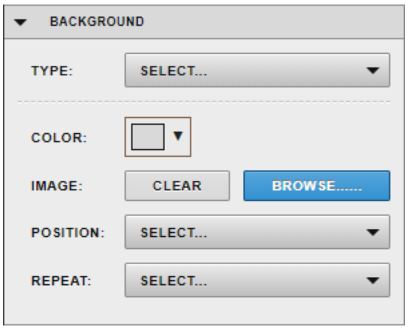
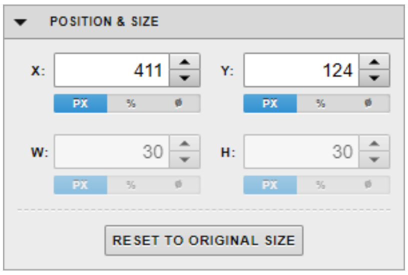
Use ≣ **PROPERTIES** to view, edit, add or remove any object, or modify the properties of a graphic component, including the background of the graphic itself.

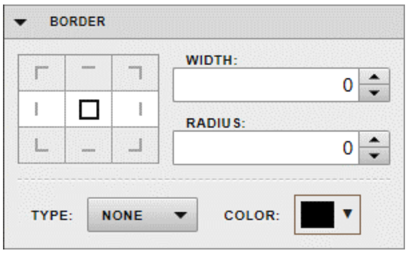
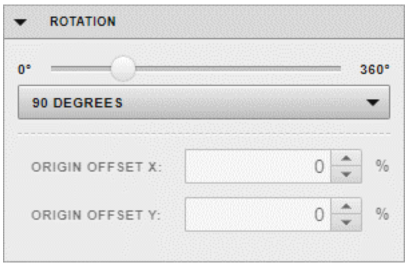
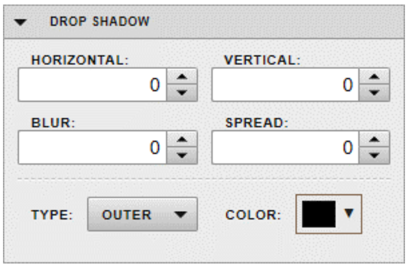
The ≣ **PROPERTIES** pane has two sections: **BASIC** and **ADVANCED**. The properties available for each component depend on the component type.

BASIC PROPERTIES

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

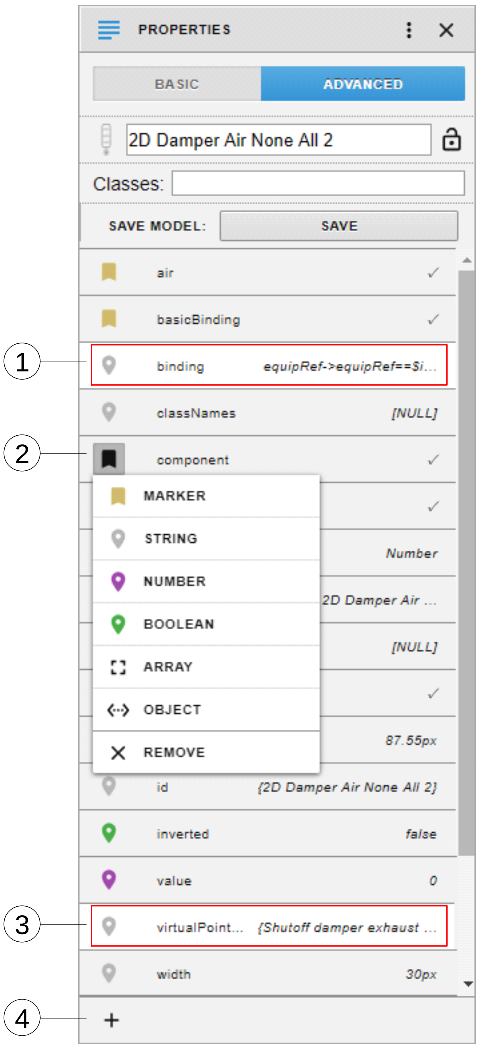
This section outlines the properties that are common to all components. See the COMPONENTS tools [→ 90] and HTML COMPONENTS [→ 117] sections for information on specific components.

 PROPERTIES BASIC ADVANCED Classes: SAVE MODEL: SAVE 2D Pump None None All	**General properties** - **Component icon and Name field (not labeled)** The name of the currently-selected graphic component. 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**. **Note:** **SAVE AS GRAPHIC** will not rename the current graphic. This command saves a copy of the current graphic with a different name. - 🔓 (Unlock / Lock) Locks the current properties for the selected component. **Lock** 🔒 a component to prevent it from being selected and moved while you are editing the graphic. - **Classes field** 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 (https://finproducts.atlassian.net/wiki). - **SAVE MODEL** Saves the currently-selected component to the **COMPONENTS> MODELS** pane so that it can be reused.
 BACKGROUND TYPE: SELECT... COLOR: IMAGE: CLEAR BROWSE...... POSITION: SELECT... REPEAT: SELECT...	**BACKGROUND** Select a color or image to use as a background. - Click the **COLOR** field to open the palette. Select a color and click the **COLOR** field again to save your selection. - 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.
 X: 411 Y: 124 W: 30 H: 30	**POSITION & SIZE** Adjust the position, width and height of the selected component. - **Position** Adjust the **X** and **Y** settings to change the position of a component. - **Size** 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.

 WIDTH: 0 RADIUS: 0 TYPE: NONE COLOR:	**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.
 90 DEGREES ORIGIN OFFSET X: 0 % ORIGIN OFFSET Y: 0 %	**ROTATION** Use the slider or select an option from the drop-down menu to rotate the selected component.
 HORIZONTAL: 0 VERTICAL: 0 BLUR: 0 SPREAD: 0 TYPE: OUTER COLOR:	**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 [→ 74]

- For components with **absolute** binding, the **ID** for a specific data point in the database is displayed. For example, **id == @20a3572b-28b7e002**.
- For components with **relative** binding, a query string is displayed. For example, **equipRef==$id and (point or shadowPoint) and cmd and position and vavDischarge**.

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, **engNotation=="WestBoiler"** contains the tag **engNotation**, and its string value is **"WestBoiler"**.
- **NUMBER** , for example, **stage==2**.
- **BOOLEAN** , for example, **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 **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.

6.2.2 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 tools [→ 90]
- Components to add HTML elements.
  HTML COMPONENTS [→ 117]
- Components that simplify the configuration of bar, circle, half-circle, and icon gauges.
  SVG GAUGES [→ 133]
- A container to group multiple components, act as a label, or display the **curVal** of a virtual point.
  TITLES AND CONTAINERS [→ 146]
- Images for physical components, such as central plant components, coils, dampers, ducts and fans.
  Graphics components [→ 159]
- 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.
  Graphics models [→ 159]
  Creating custom components [→ 207]

COMPONENTS tools

Indicator	Name	Description
📊	AM|CHART [→ 91]	Displays historical data (**his**) from a query or the current value (**curVal**) of a virtual point. For example, column, bar, line, area, pie, funnel, XY, and bubble charts. • The ▦ **COMPONENTS > AM CHARTS** category provides a series of dialog boxes that simplify the configuration of area, column, line, and pie charts. • The 📊 component in the ▦ **COMPONENTS > COMPONENTS** pane is typically used in combination with a 📋 **PROGRAM** and a ⬚ **GROUP**. For more information, see the *Demos* section of www.amcharts.com and the J2 *GB AM Charts* documentation (https://finproducts.atlassian.net/wiki/spaces/FINFramework/pages/770708970/GB+AM+Charts). **Availability** Only available on devices that support the dashboard feature. **Example** Used in the **Sample Dashboard Facility Manager** graphic.
▤	DATA GRID [→ 101]	Displays data in a spreadsheet-like view.
◔	GAUGE [→ 104]	Displays the current value (**curVal**) of a virtual point in a gauge format. **Example** Used in the **Sample Dashboard Facility Manager** graphic.
◔	AM|GAUGE [→ 105]	Displays the current value (**curVal**) of a virtual point in a gauge format. Can display multiple axes, multiple arrows and color bands on the axis. Typically used to display data which is shown using gauges in real life, such as speed, volume equalizer or a clock. For more information, see the *Demos > Gauges* section of www.amcharts.com and the J2 *GB Components, AM|Gauge* documentation (https://finproducts.atlassian.net/wiki/spaces/FINFramework/pages/770708403/GB+Components#GBComponents-AM|Gauge). **Availability** Only available on devices that support the dashboard feature.
▣	GRAPHIC INCLUDE [→ 106]	Creates a frame that embeds a graphic in another graphic. This is similar to an **iframe** element. **Example** Used in the **Sample Room Segment** graphic, which includes the default HVAC graphic.
⬚	GROUP [→ 108]	Holds components together for making models.

Indicator	Name	Description
?	BASIC IMAGE [→ 109]	Displays an image.
▮	ITEM RENDERER	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**.)
(o)	KIOSK	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 [→ 58]
📹	MJPEG [→ 110]	Displays a motion jpeg (MJPEG) image stream. Only MJPEG-encoded CCTV videos are supported.
▦	MODEL LOADER [→ 112]	Creates a custom model that can be reused.
R	RACTIVE [→ 113]	Makes custom interfaces using the RactiveJS library. For more information, see https://ractive.js.org/. **Example** Used in the **Sample Room** graphic. (The navigator model for the room segment is a Ractive control.) Additional examples can be found at: https://finproducts.atlassian.net/wiki/spaces/FINStack/pages/91603570/GB+Ractive
SVG	SVG	Renders a *scalable vector graphic* (svg) image from the graphics database.
🕓	TIMER [→ 115]	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.

Table 23: COMPONENTS tools.

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.

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.

	Workflow step	More information
1	Create trend(s) for **Historical** (**his**) charts.	See *Trends tools* in the *Desigo Control Point Operation Manual* (A6V11211557).
2	Create the dashboard component. • Drag-and-drop a chart from ▦ **COMPONENTS** > **AM CHARTS** onto the work area. • *(Optional)* Drag-and-drop 🕓 from the ▦ **COMPONENTS** > **COMPONENTS** pane onto the work area to set a refresh interval for the chart data.	See TIMER [→ 115] to set a refresh interval.
3	Right click on the chart and select **TOOLS** > **CONFIGURE DASHBOARD COMPONENT**.	Use the appropriate table in the Configure Dashboard Component [→ 92] section.
4	Specify the time range and how data should be summarized in **Historical** (**his**) charts.	See Configure Dashboard Component History [→ 100].
5	Select the data points to display, and *(optional)* select a color to represent each data point in the chart.	See Configure Dashboard Component Points [→ 101].

Table 24: Basic workflow for AM CHARTS.

Configure Dashboard Component

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

Indicator	Name	Number of points	Type of data
▃	Area chart [→ 93]	10 maximum	his
📊	Column chart [→ 94]	10 maximum	his or curVal
📊	Column layered chart [→ 95]	exactly 2	his
📊	Column line chart [→ 96]	exactly 2	his
📊	Column stacked chart [→ 97]	10 maximum	his
📉	Line chart [→ 98]	10 maximum	his
◕	Pie chart [→ 99]	10 maximum	curVal

Table 25: AM CHARTS properties.

Area chart

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

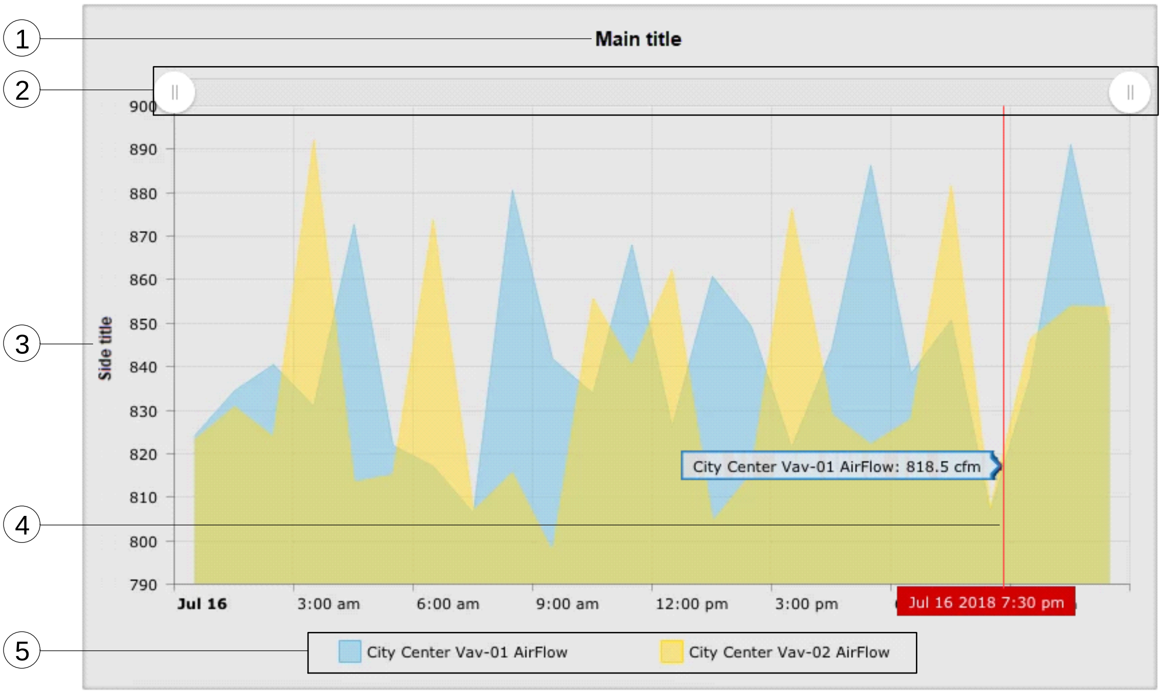


Fig. 11: Area chart example.

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

Setting	Description
Chart type	**Historical** 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.
☑ Chart Cursor	Select to display the cursor and data point value when scrolling over the chart.
☑ Chart Scrollbar	Select to display a scrollbar at the top. Resize the scrollbar to zoom.
Main Title	*(Optional)* Enter a title to display at the top of the chart.
Side Title	*(Optional)* Enter a title to display at the side of the chart.
☑ Show Background	Select to make the background opaque and display a frame around the chart.

Table 26: 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.

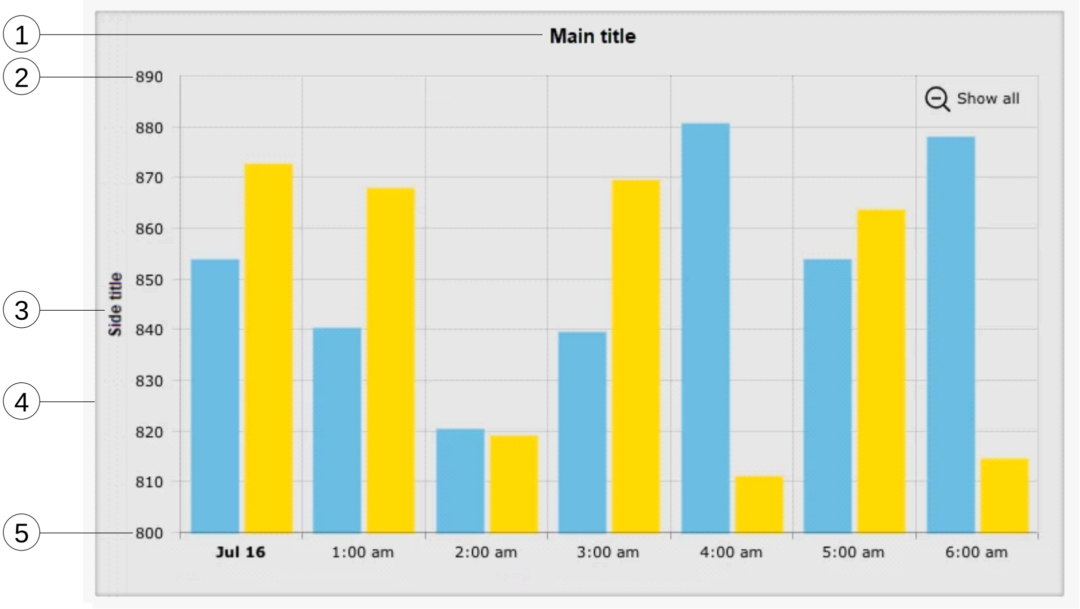


Fig. 12: Column chart example.

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

Field	Description
Chart type	Select **Current Val** or **Historical**.
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.
Main Title (①)	*(Optional)* Enter a title to display at the top of the chart.
Side Title (2)	*(Optional)* Enter a title to display at the side of the chart.
☑ Rotate	Select to display the columns horizontally.
☑ Show Background	Select to make the background opaque and display a frame around the chart.
☑ Y Set Min Max	Select to specify minimum and maximum values for the Y axis.
Y Axis Min	Enter a Y axis minimum value if **Y Set Min Max** is selected.
Y Axis Max	Enter a Y axis maximum value if **Y Set Min Max** is selected.

Table 27: 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.

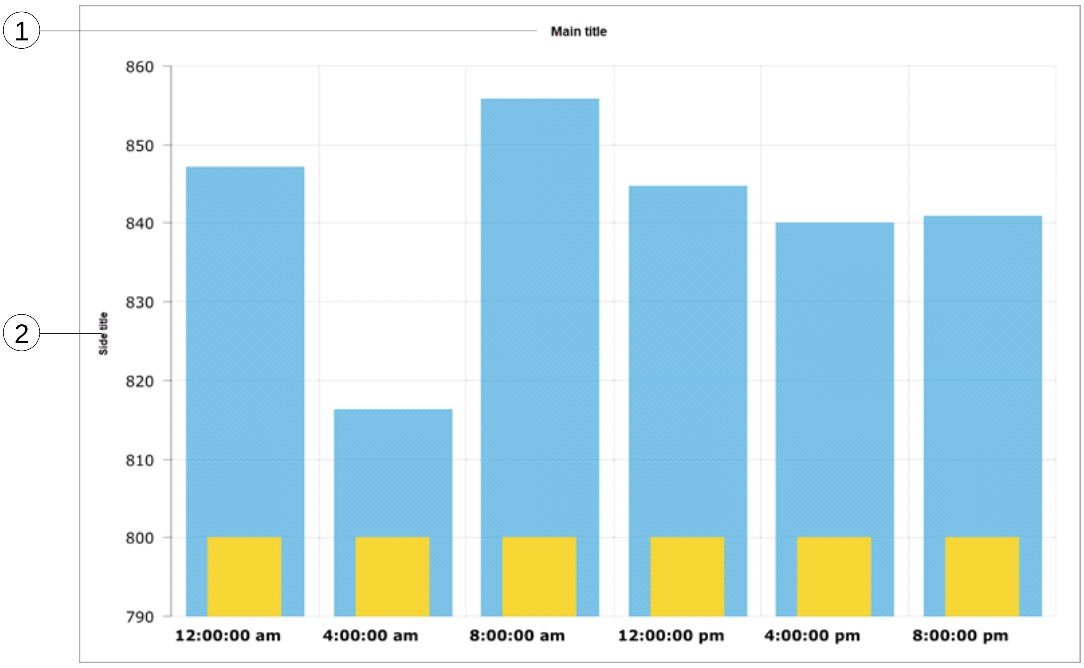


Fig. 13: Column layered example.

①	Main Title
②	Side Title

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

Table 28: 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.

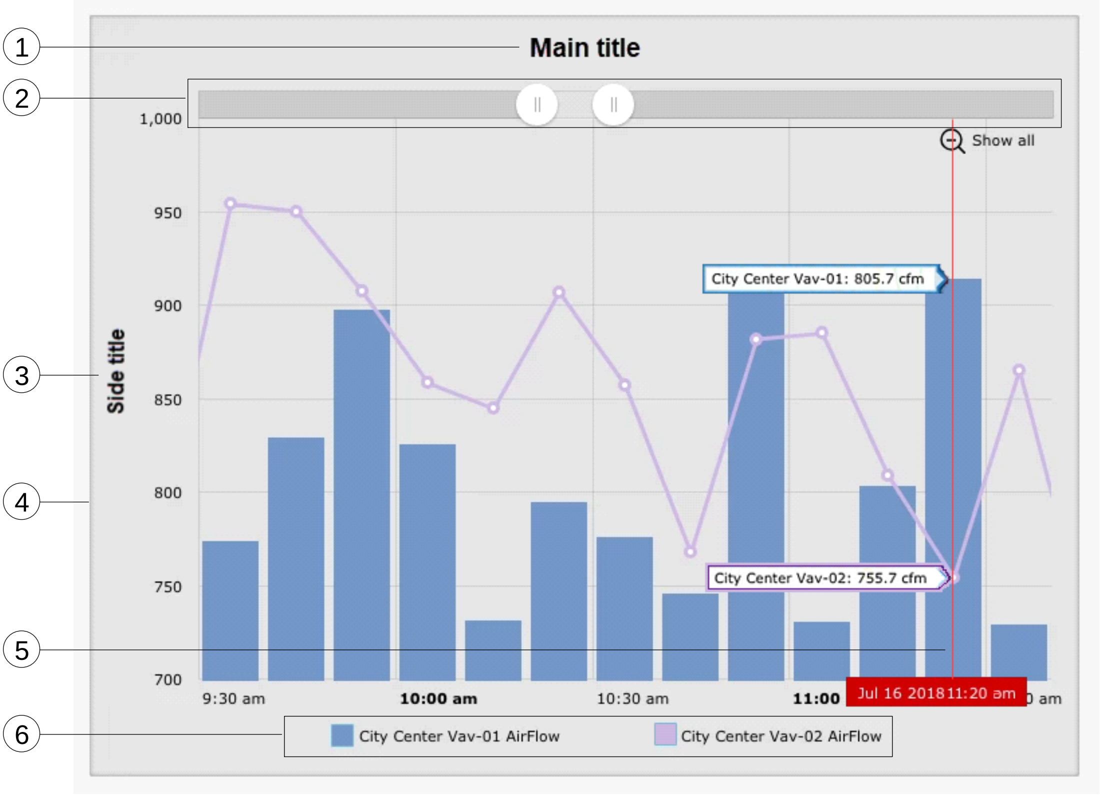

1
2
3
4
5
6
Main title
Side title
1,000
950
900
850
800
750
700
Show all
City Center Vav-01: 805.7 cfm
City Center Vav-02: 755.7 cfm
9:30 am
10:00 am
10:30 am
11:00
Jul 16 2018 11:20 am
am
City Center Vav-01 AirFlow
City Center Vav-02 AirFlow

Fig. 14: Column line example.

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

Setting	Description
Chart type	**Historical** 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.
☑ Chart Cursor	Select to display the cursor and data point value when scrolling over the chart.
☑ Legend	Select to display a legend below the chart.
☑ Chart Scrollbar	Select to display a scrollbar at the top. Resize the scrollbar to zoom.
Main Title	*(Optional)* Enter a title to display at the top of the chart.
Side Title	*(Optional)* Enter a title to display at the side of the chart.
☑ Show Background	Select to make the background opaque and display a frame around the chart.

Table 29: Column Line dialog box.

Column stacked chart

Displays historical data (**his**) for up to ten points. Values are displayed in vertical bars.

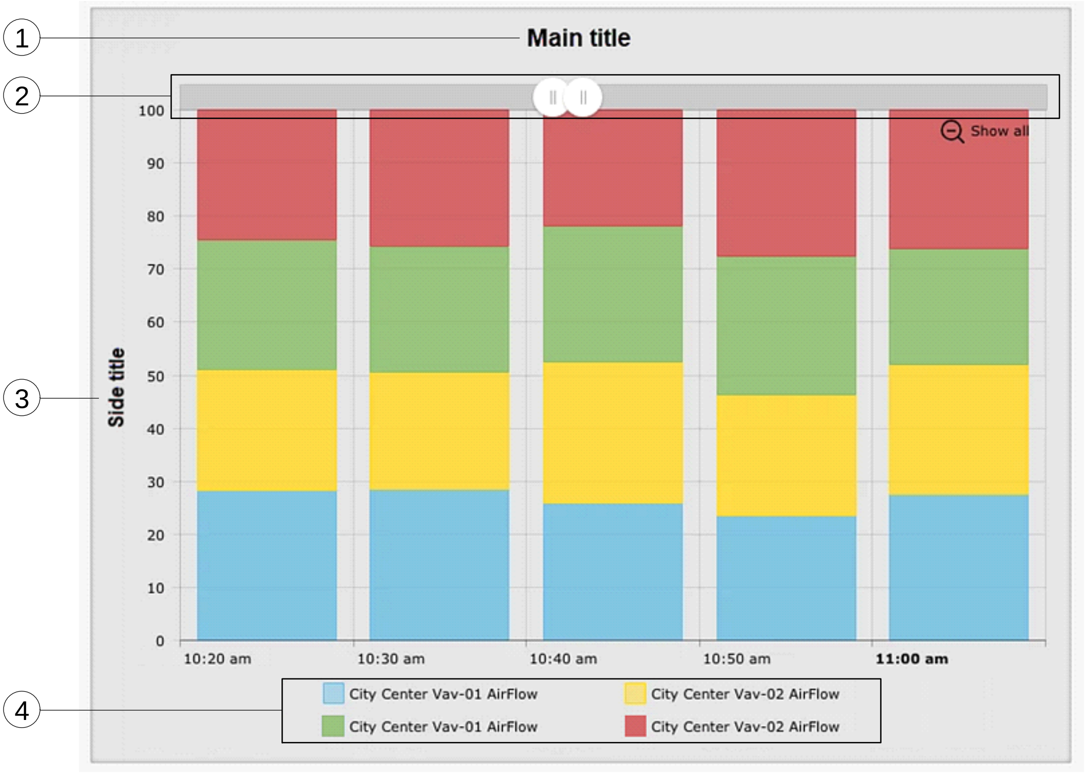


Fig. 15: Column stacked example.

①	Main Title
②	Chart Scrollbar
③	Side Title
④	Legend

Setting	Description
Chart type	**Historical** 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.
☑ Chart Cursor	Select to display the cursor and data point value when scrolling over the chart.
☑ Chart Scrollbar	Select to display a scrollbar at the top. Resize the scrollbar to zoom.
Main Title	*(Optional)* Enter a title to display at the top of the chart.
Side Title	*(Optional)* Enter a title to display at the side of the chart.
Stacked	**Regular** – 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.*
☑ Dimension 3	Select to display a three-dimension chart.
☑ Show Background	Select to make the background opaque and display a frame around the chart.

Table 30: Column Stacked dialog box.

Line chart

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

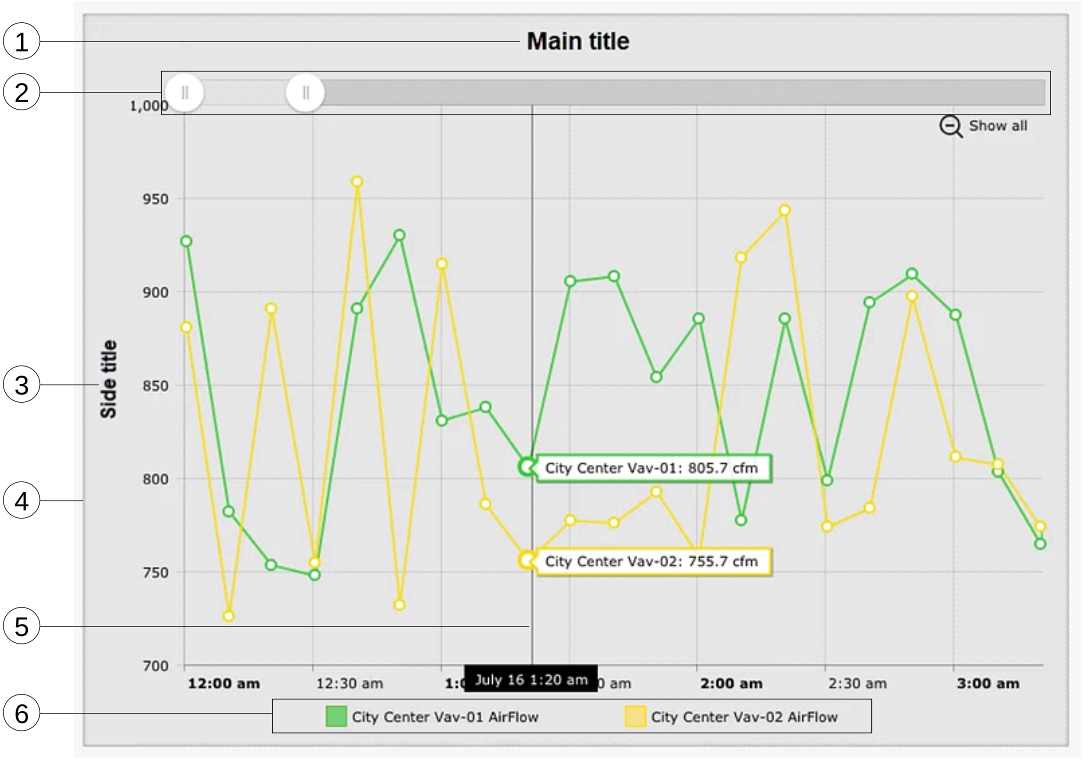


Fig. 16: Line chart example.

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

Setting	Description
Chart type	**Historical** 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.
☑ Chart Cursor	Select to display the cursor and data point value when scrolling over the chart.
☑ Chart Scrollbar	Select to display a scrollbar at the top. Resize the scrollbar to zoom.
Main Title	*(Optional)* Enter a title to display at the top of the chart.
Side Title	*(Optional)* Enter a title to display at the side of the chart.
☑ Show Background	Select to make the background opaque and display a frame around the chart.

Table 31: Line chart dialog box.

Pie chart

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

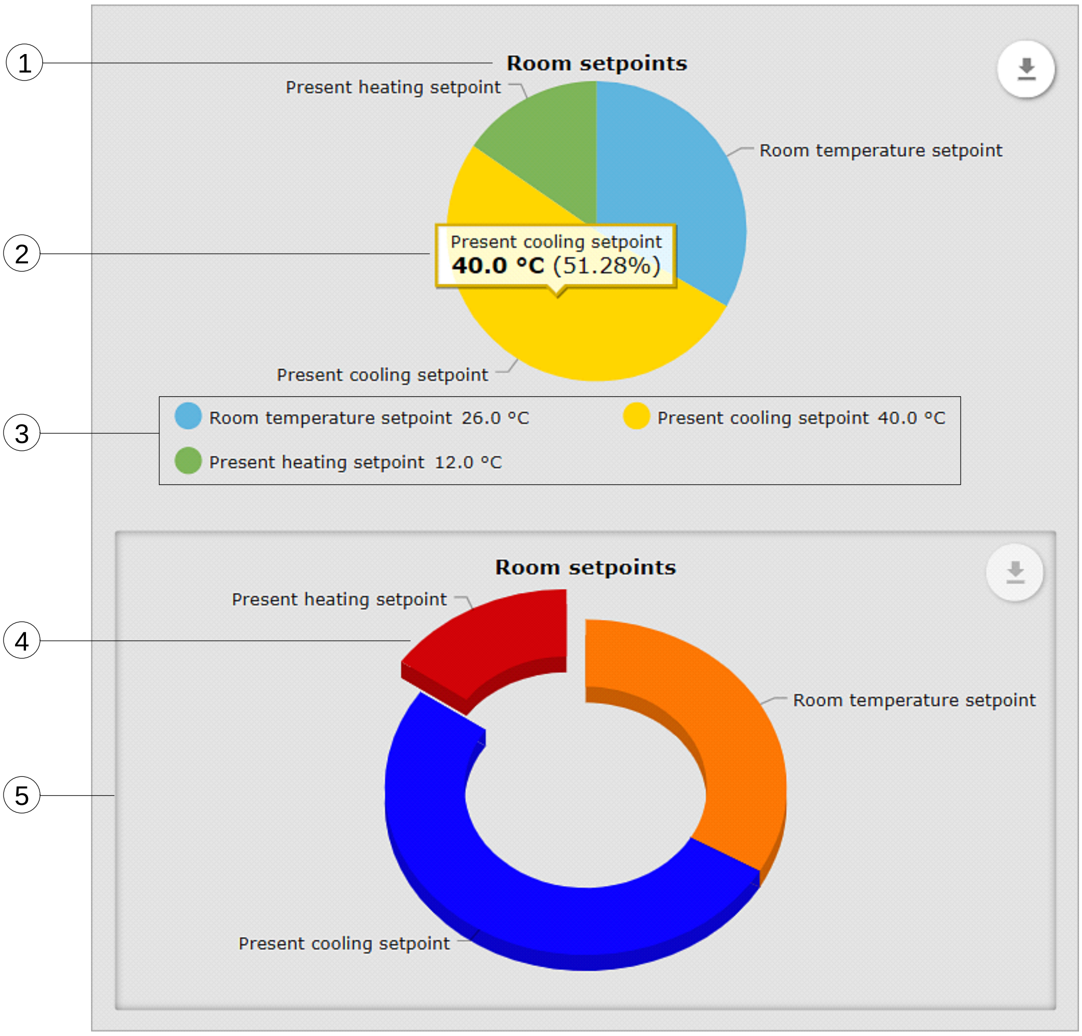


Fig. 17: Pie and Donut chart examples.

① Main Title

② Chart Cursor

③ Legend

④ Animate Slice

⑤ Show Background

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**.
☑ Chart Cursor	Select to display the data point value when scrolling over the chart.

Field	Description
☑ Animate Slice	Select to pull out an individual slice of the pie chart when it is clicked.
Main Title	Title shown at top of chart, if left blank it does not display a title.
☑ Show Background	Select to make the background opaque and display a frame around the chart.

Table 32: Pie chart 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.

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

Table 33: Configure dashboard component history dialog box.

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.

Setting	Description
Point number prompt	Select a point to display in the chart.
(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 34: Configure dashboard component points dialog box.

DATA GRID

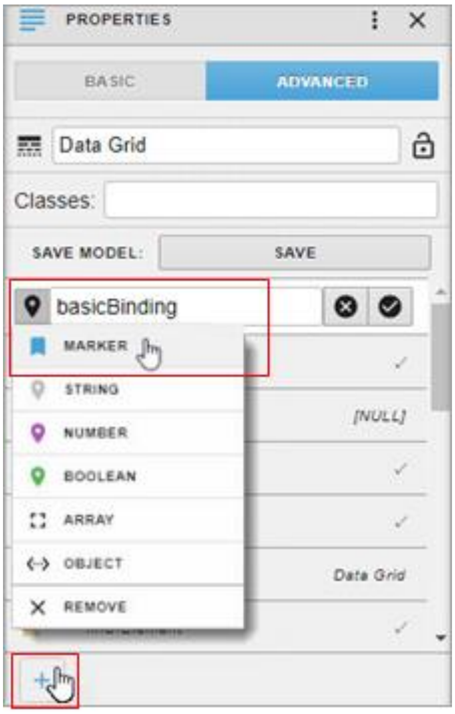
A **DATA GRID** displays data in a spreadsheet-like view.

Configuring a DATA GRID

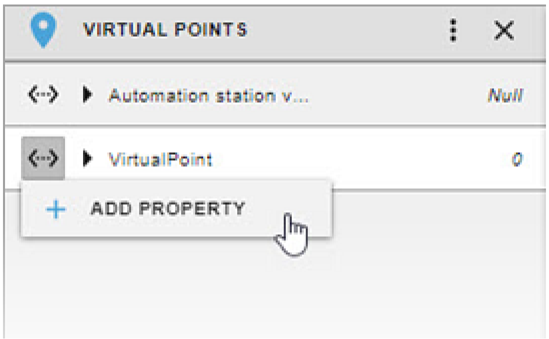
▷ This procedure uses the **PROPERTIES**, **COMPONENTS** and **VIRTUAL POINTS** panes.

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 ✓.

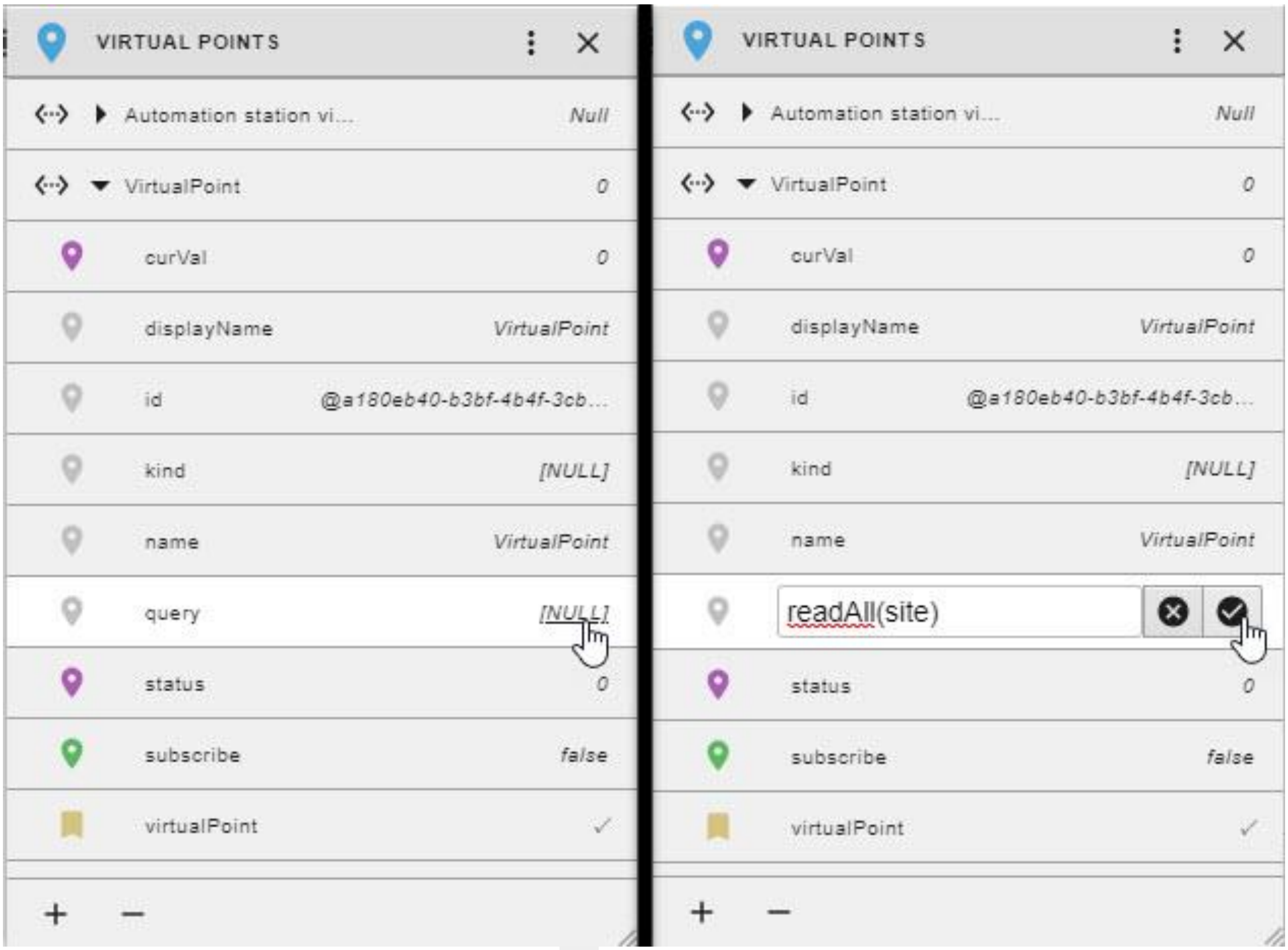


5. Click + at the bottom of the 📍 **VIRTUAL POINTS** pane to add a new virtual point.
6. Name the virtual point (if desired) and click ✔.
7. Click <··> for the new virtual point and select **ADD PROPERTY**.



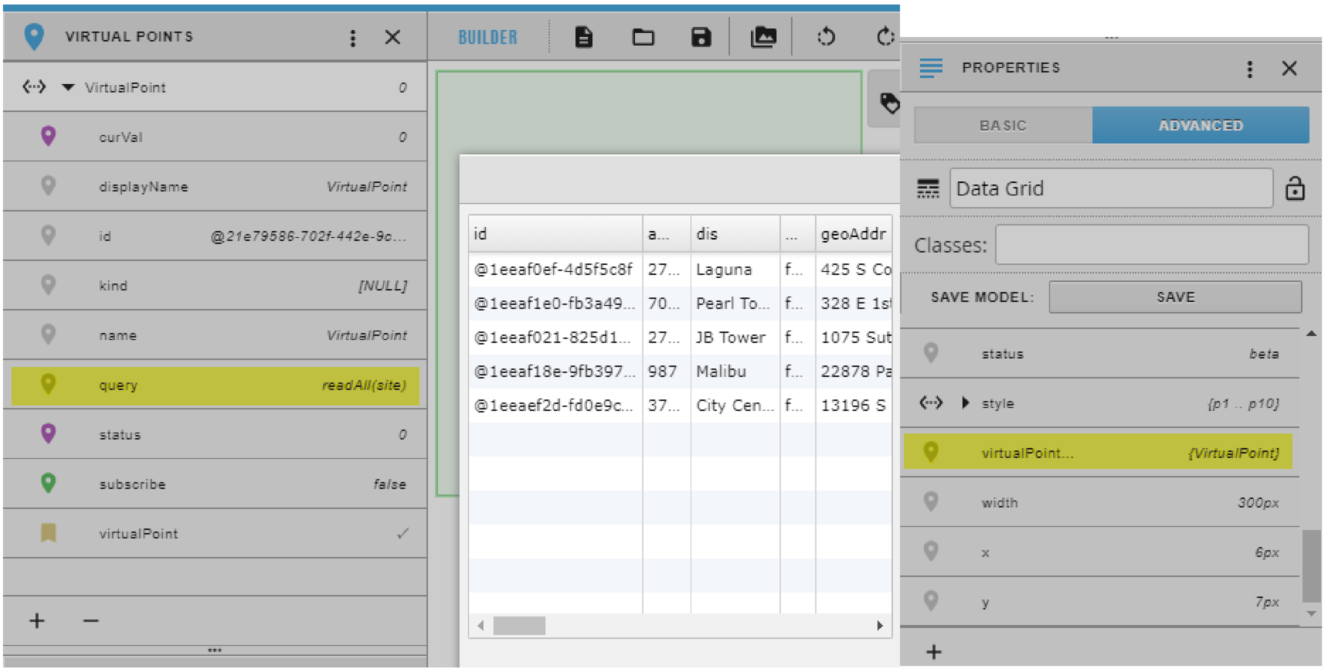
⇨ A 📍 string tag is added.

8. 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.



id	a...	dis	...	geoAddr
@1eeaf0ef-4d5f5c8f	27...	Laguna	f...	425 S Co
@1eeaf1e0-fb3a49...	70...	Pearl To...	f...	328 E 1s
@1eeaf021-825d1...	27...	JB Tower	f...	1075 Sut
@1eeaf18e-9fb397...	987	Malibu	f...	22878 Pa
@1eeaef2d-fd0e9c...	37...	City Cen...	f...	13196 S

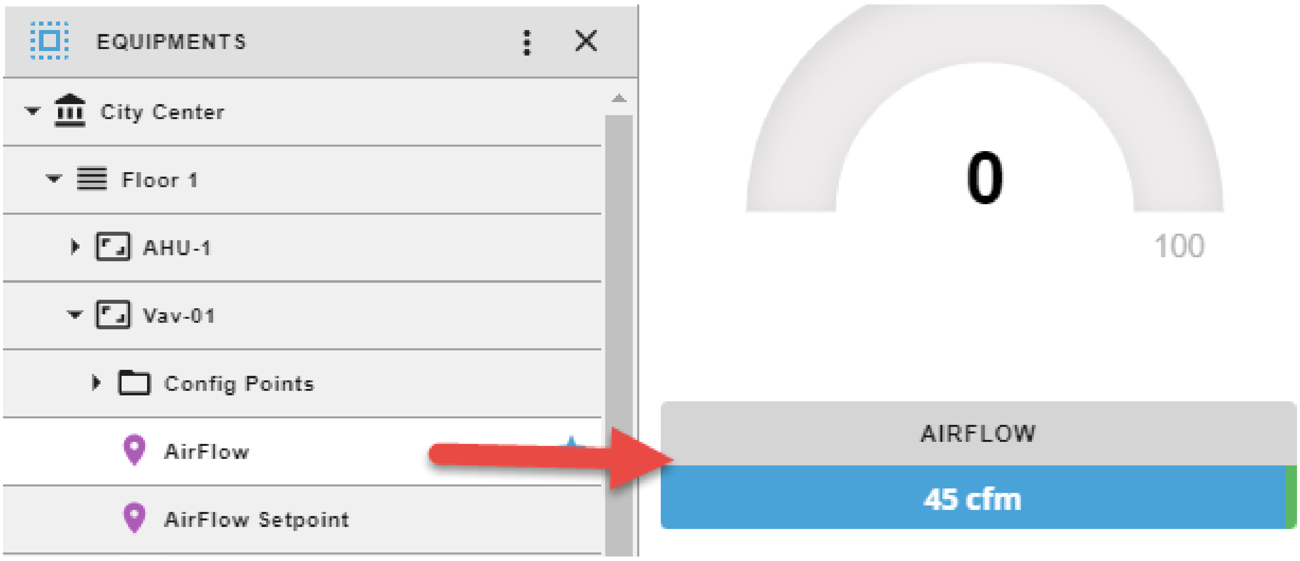
GAUGE

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

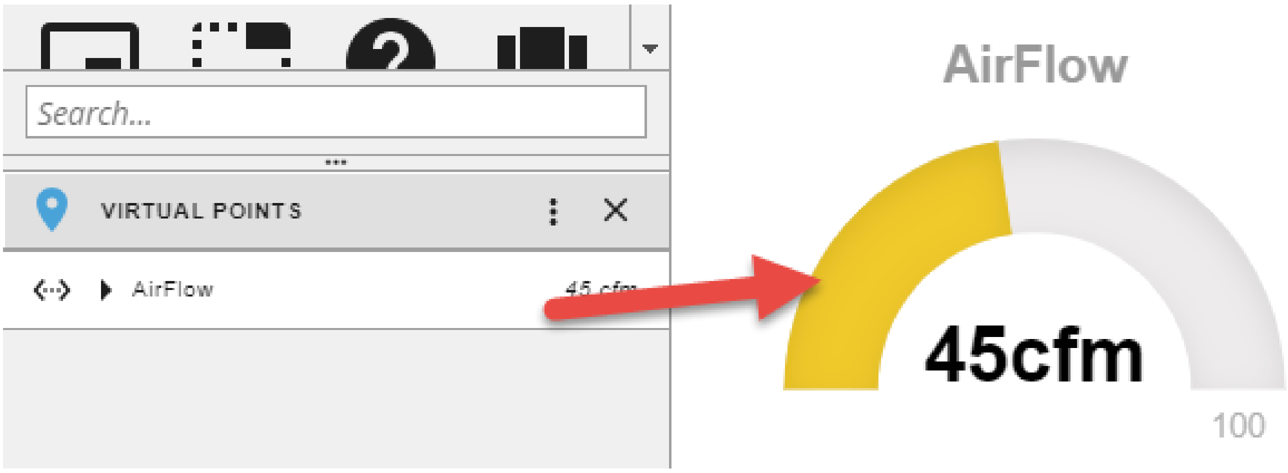
Configuring a GAUGE

▷ This procedure uses the **PROPERTIES**, **COMPONENTS**, **VIRTUAL POINTS** and **EQUIPMENTS** panes.

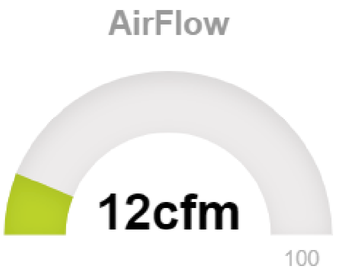
1. From the **COMPONENTS > COMPONENTS** pane, drag-and-drop **GAUGE** onto the work area.
2. *(Optional)* Select the new **GAUGE** and use the BASIC **PROPERTIES** to modify the appearance of the gauge.
   Working with gauges [→ 184]
3. From the **EQUIPMENTS** pane, drag-and-drop a numeric point onto 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.

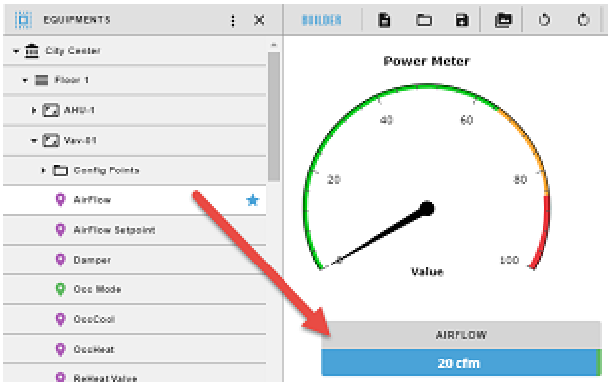


AM|GAUGE

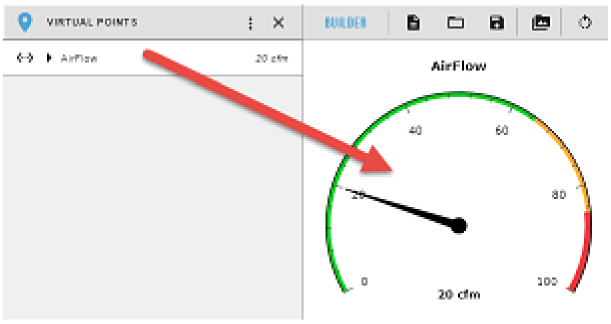
An **AM|GAUGE** displays the current value (**curVal**) of a virtual point in a gauge format. This component is typically used in combination with a **PROGRAM** and a **GROUP**.

Configuring an AM|GAUGE

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.



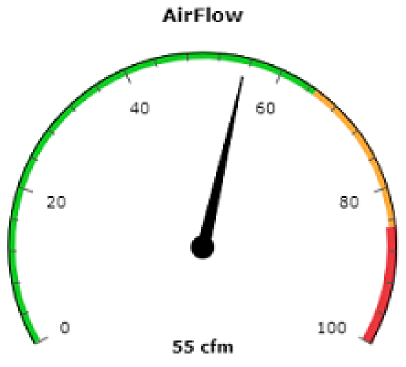
3. In the **VIRTUAL POINTS** pane, locate the virtual point associated with the numeric point that was used to create the smart label.
4. Drag-and-drop the virtual point onto the gauge to bind it to the component.

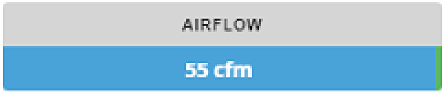


5. *(Optional)* Select the gauge and use the **BASIC** **PROPERTIES** to modify the **End value**, **Start value** or **Title** .

   BASIC PROPERTIES [→ 87]

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

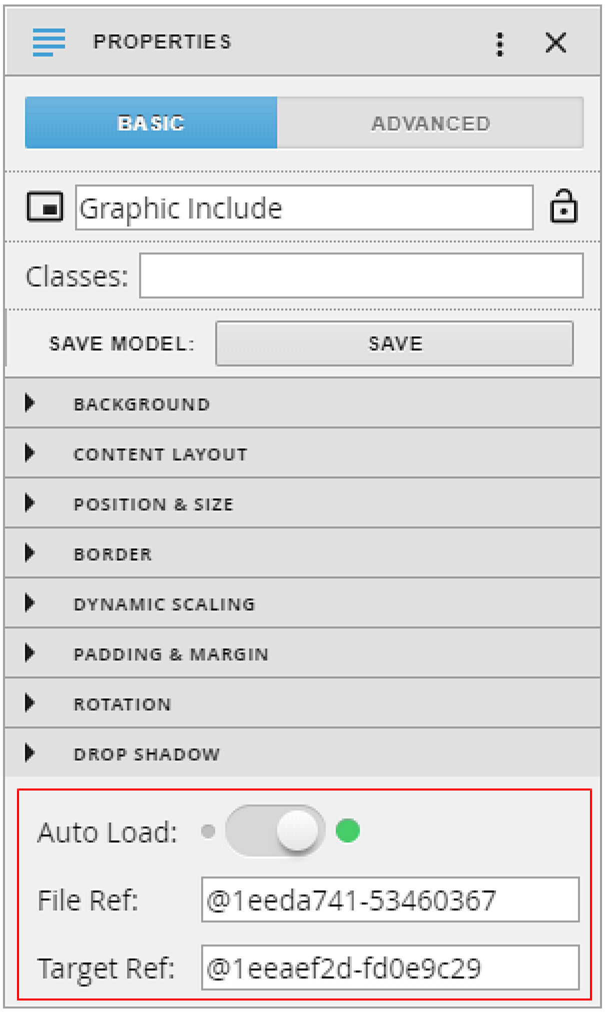
▷ This procedure uses the **PROPERTIES** and **COMPONENTS** panes.

▷ 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.



Graphic Include

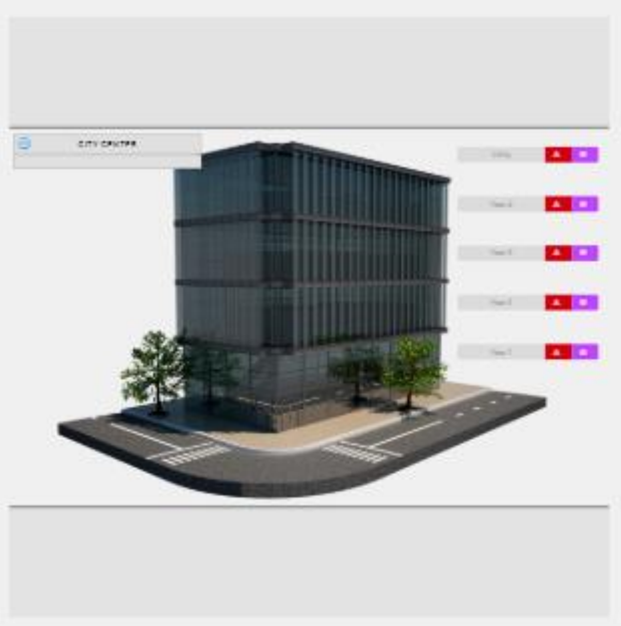
Classes:

Auto Load: ●

File Ref: @1eeda741-53460367

Target Ref: @1eeaef2d-fd0e9c29

3. Click **PREVIEW** in the upper right corner to display the ▣ **GRAPHIC INCLUDE**.



GROUP

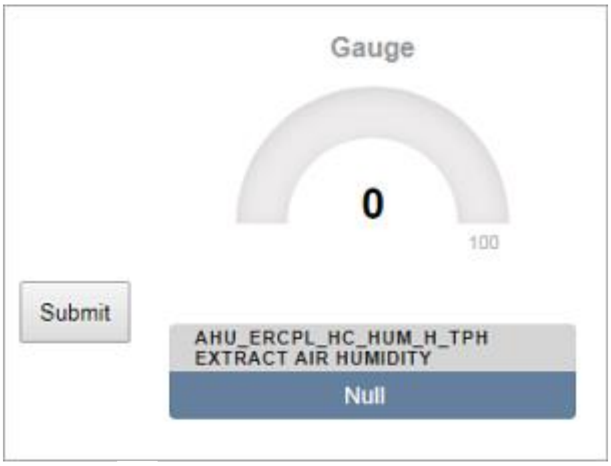
Groups are typically used to hold components together for making models. Graphics Builder provides two options for holding components together:

- Using **GROUP** in the **COMPONENTS > COMPONENTS** pane.
- Selecting **CREATE GROUP** from the right-click menu.

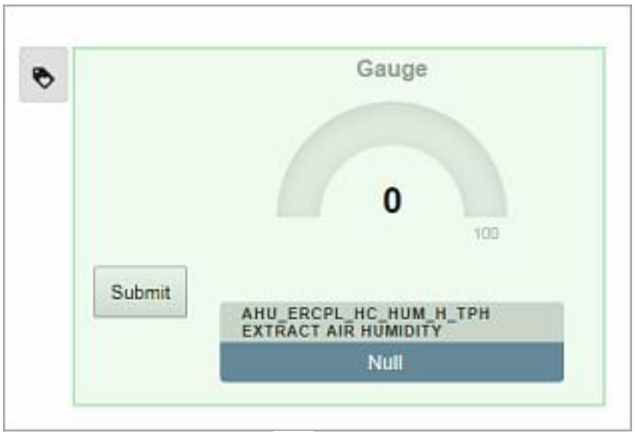
Creating a group with the GROUP component

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

1. Drag the desired components onto the work area.

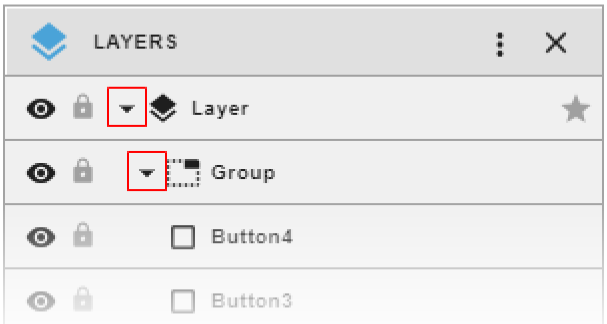


2. From the **COMPONENTS > COMPONENTS** pane, drag-and-drop onto the work area and resize it so that it fits over the components.



3. Do the following in the **LAYERS** pane:

   a. Expand the **Layer** and the **Group**.



   b. Press **CTRL** and click to select all the components to be grouped together.

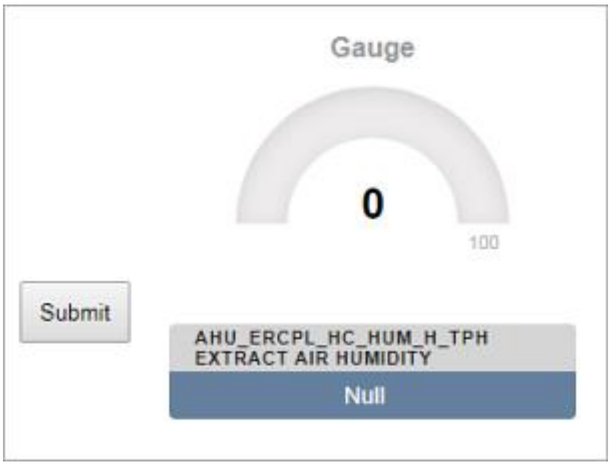
   c. Drag the selected components onto the **Group** component.

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

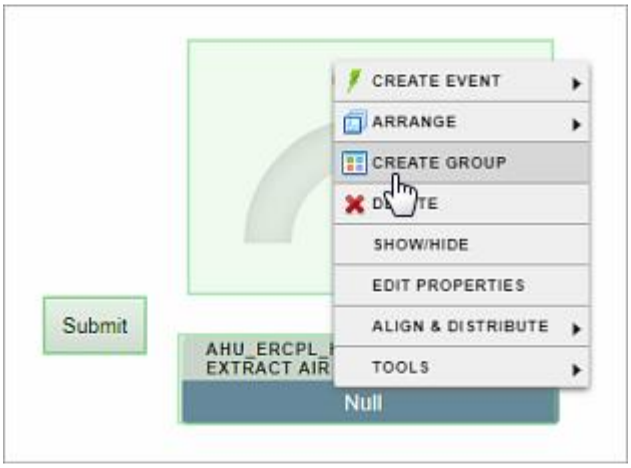
Creating a group through the right-click menu

▷ This procedure uses the **COMPONENTS** pane.

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



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



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

BASIC IMAGE

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

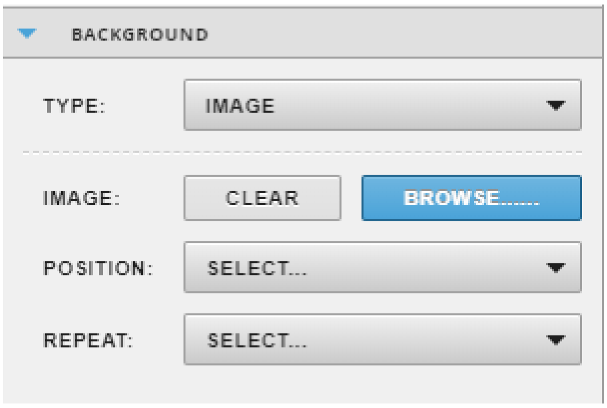
Configuring a BASIC IMAGE

▷ 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 BASIC **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 [→ 208] topic.



BACKGROUND

TYPE: IMAGE

IMAGE:

POSITION: SELECT...

REPEAT: SELECT...

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 [→ 58] section for more information as well as a standard workflow for creating kiosks with robust functionality. Workflow for configuring a kiosk presentation [→ 61]

MJPEG

MJPEG displays a motion jpeg (MJPEG) image stream.

- Only MJPEG-encoded CCTV videos are supported.
- The refresh rate may be affected by the network configuration or the use of multiple connections.

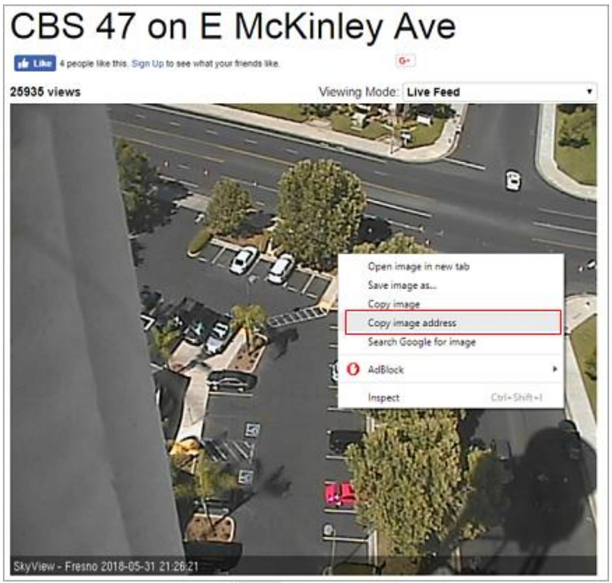
JPEG encoding is generally much slower than the image stream.

If your camera produces an RTSP stream, try pasting the URL of this stream in the **Source** field of the **BASIC** **PROPERTIES** pane.

Configuring an MJPEG image stream

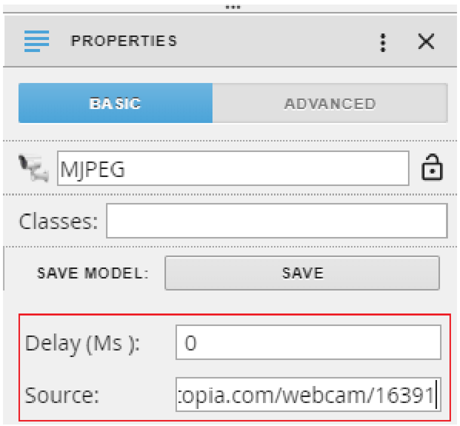
▷ This procedure uses the **PROPERTIES** and **COMPONENTS** panes.

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 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.

   The greater the **Delay (Ms)** value, the slower the video updates. A **Delay (Ms)** value of **0** will stream as fast as the camera, network, and computer can handle.



MJPEG
Classes:
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.

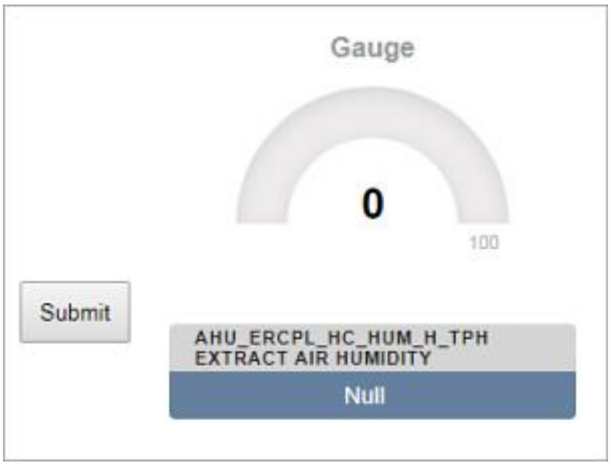
MODEL LOADER

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

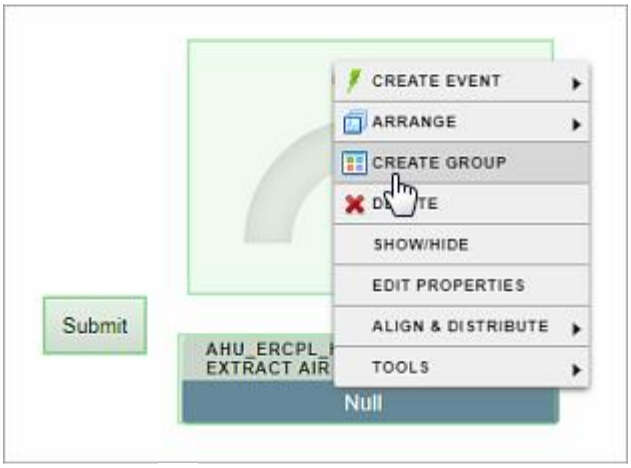
Configuring a MODEL LOADER

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

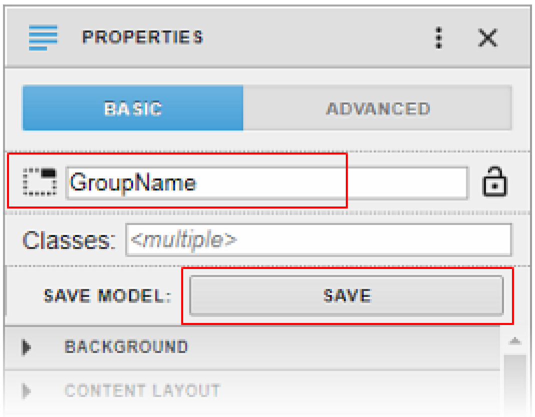
1. Do the following to create a group of components:
   a. Drag the desired components onto the work area.



   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**.

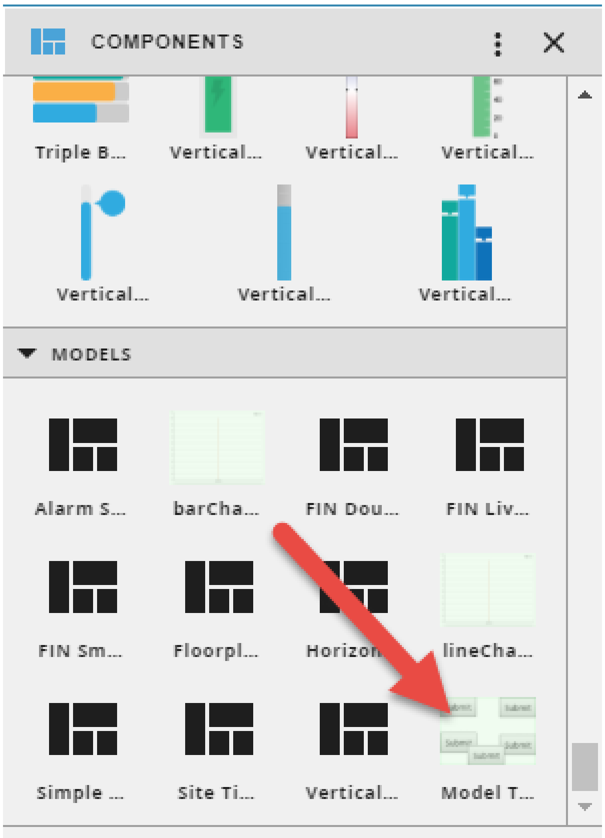


GroupName

Classes: <multiple>

SAVE MODEL:

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).

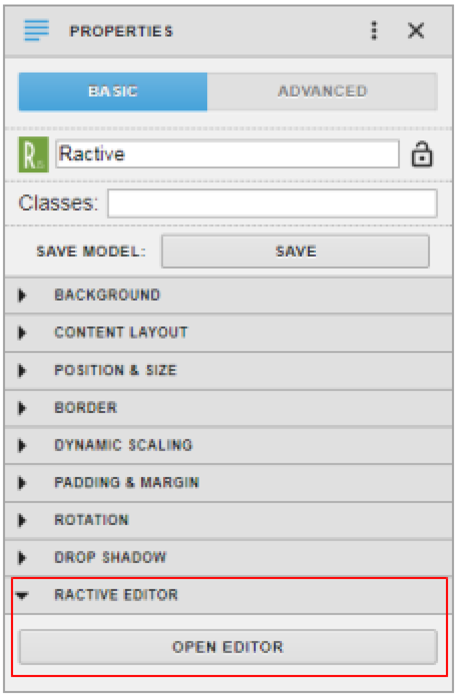
Example

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

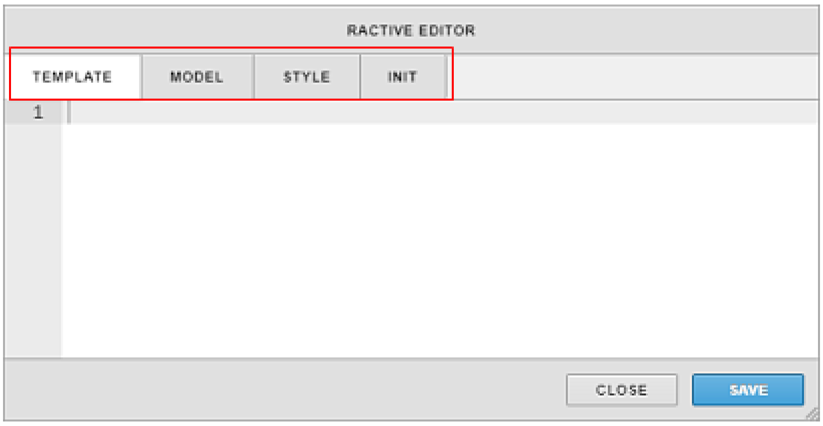
▷ This procedure uses the **PROPERTIES**, **COMPONENTS** and **PROGRAMS** panes.

1. From the **COMPONENTS > COMPONENTS** pane, drag-and-drop R onto the work area.
2. In the BASIC **PROPERTIES** pane, expand **RACTIVE EDITOR** and click **OPEN EDITOR**.



⇨ The **RACTIVE EDITOR** dialog box displays.

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.

⇨ The **PROGRAM EDITOR** dialog box opens.

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.

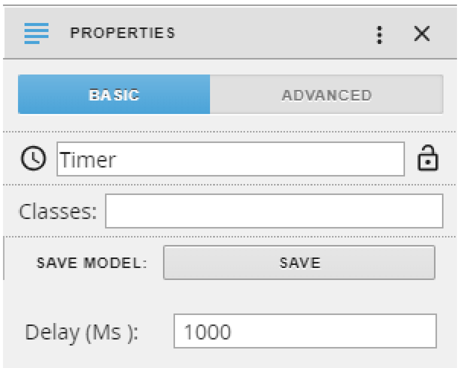
TIMER

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.

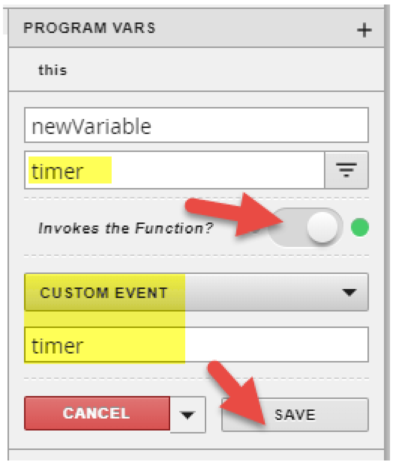


Timer

Classes:

Delay (Ms): 1000

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.
   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**.

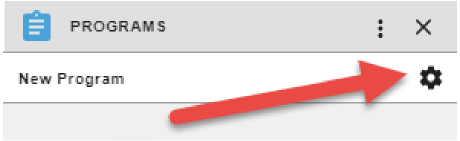


7. Click **SAVE** to save the program and close the **PROGRAM EDITOR**.

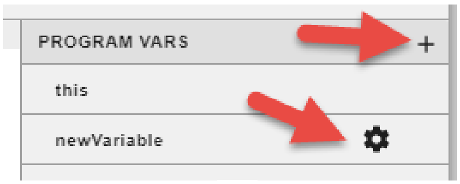
➩ The program runs or refreshes at the specified interval.

To use a Timer on a Program

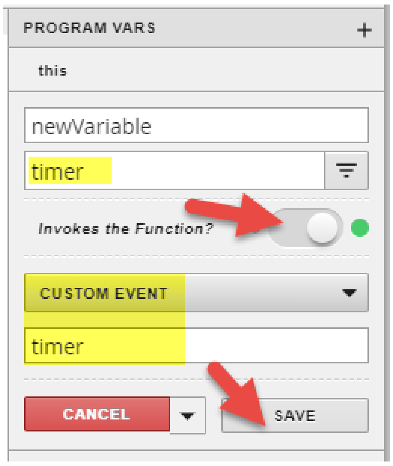
1. Click ⚙ in the **PROGRAMS** 📋 pane to edit the program.



2. Click ⋮ in the upper right corner of the **PROGRAM EDITOR** dialog box.
3. Click + at the top of the **PROGRAMS VARS** pane.



4. Click **Settings** ⚙ 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, Web cams 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.

Indicator	Name	Description
🔗	ANCHOR [→ 118]	Creates a link to a URL. This is the HTML **hyperlink** element (**<a>**). In Graphics Builder, the **ADD HYPERLINKS** feature in the right-click **TOOLS** menu uses a wizard to add hyperlinks.
☐	BUTTON [→ 120]	Typically used to start an action within a graphic. This is the HTML **button** element (**<button>**).
—	H-RULE [→ 122]	A separating line used to define a thematic break in the graphic.
🖼	IMAGE [→ 122]	Renders an image from a URL or the graphics database.
▤	INCLUDE [→ 124]	Adds an HTML element to a graphic. This is an **iframe** element. Use the **Include** component to embed a Web page in a graphic. For more information, see the J2 Graphics builder documentation for **Web include** https://finproducts.atlassian.net/wiki/spaces/FINBuilder/pages/5964024/Web+Include
⊞	INPUT [→ 126]	An HTML input field, which is compatible with the standard HTML input field types. This is used as input for programs.
◼	LABEL [→ 128]	A text box on the graphic.
▼	METER [→ 129]	A meter component that shows progress linearly.
◢	PROGRESS BAR [→ 129]	A progress bar component that indicates either a loading animation or a view of the current progress percentage.
⏷	SELECT [→ 129]	An HTML combobox that provides a list of choices.
◯	SPAN [→ 131]	Span element that is specific to graphics components. This is similar in behavior to an HTML **span** element.
≡	TEXT AREA [→ 132]	An HTML text box that accepts user input for a program.
📹	VIDEO [→ 133]	A component to view videos from the graphics database.

Table 35: 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.

Attribute	**Description**
Coords	**Coordinates** Used with the **Shape** attribute to specify the size, shape and placement of a link within an object or image. Not supported in HTML5. Default: Field is blank.
Download	**Filename** 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. Default: Field is blank.
Href	**URL of the linked page** This attribute is required. Default: Field is blank
Hreflang	**Language code** The language of the linked document. Default: Field is blank
Media	**Media query** Used with the **href** attribute to specify what media/device the linked document is optimized for. Default: Field is blank
Name	**Name of the anchor component** Not supported in HTML5. Default: The name entered in the BASIC **PROPERTIES**.
Rel	**Relationship** Specifies the relationship between the current document and the linked document. Options are: • alternate (Default) • author • bookmark • external • help • license • next • nofollow • noreferrer • noopener • prev • search • tag
Rev	**Relationship** Specifies the relationship between the current document and the linked document. Not supported in HTML5. Default: Field is blank
Shape	**Shape of the link** Used with the **Coords** attribute to specify the shape of a link. Not supported in HTML5. Options are: • default (Default) • rect • circle • poly

Target	**Where to open the linked document** Options are: • _blank (Default) • _parent • _self • _top • Framename **Note:** Select **_top** for PXM… devices.
Text	**Text displayed in the graphic** Default: **Link Text**
Type	**Media_type** Used with the **href** attribute to specify the media type of the linked document. Default: Field is blank

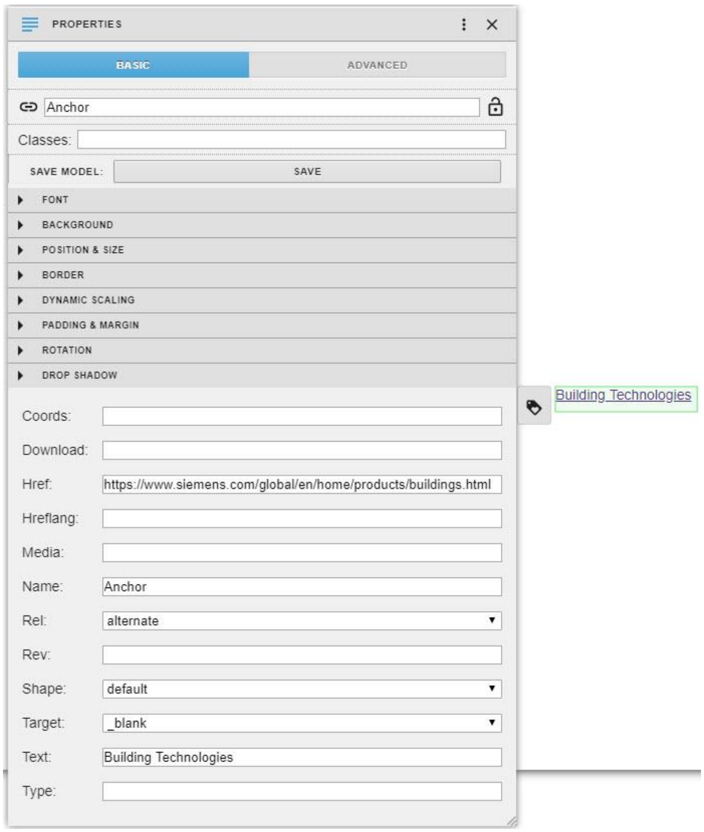
Table 36: ANCHOR attributes.

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 a Web site address in the **Href** field. For this example, use https://www.siemens.com/global/en/home/products/buildings.html
   – Enter **Building Technologies** in the **Text** field.
3. Click **PREVIEW** in the upper right corner and click the 🔗 **ANCHOR** component to test it.



Anchor
Classes:
Coords:
Download:
Href: https://www.siemens.com/global/en/home/products/buildings.html
Hreflang:
Media:
Name: Anchor
Rel: alternate
Rev:
Shape: default
Target: _blank
Text: Building Technologies
Type:

BUTTON

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.

Attribute	**Description**
Disabled	**Disable the component** Switch **OFF** to enable the component. Switch **ON** to disable the component. Default: **OFF**
Form	**Form ID** The **ID** attribute of a **<form>** element in the same document. Default: Field is blank
Formaction	**URL for sending form data** Only valid when the **Type** attribute is set to **submit**. Specifies a URL for sending the form data when a form is submitted. Default: Field is blank
Formenctype	**Form data encoding** Only valid when the **Type** attribute is set to **submit**. Specifies how form-data should be encoded before sending it to a server. Options are: • application/x-www-form-urlencoded (Default) • multipart/form-data • text/plain
Formmethod	**HTTP method for sending form data** Only valid when the **Type** attribute is set to **submit**. Specifies how to send the form-data. Options are: • get (Default) • post
Formnovalidate	**Validate form data on submission** Only valid when the **Type** attribute is set to **submit**. Switch **OFF** if the form data should not be validated. Switch **ON** if form data should be validated. Default: **OFF**
Formtarget	**Form target** Only valid when the **Type** attribute is set to **submit**. Specifies where to display the response after submitting the form. Options are: • _blank (Default) • _self • _parent • _top • framename

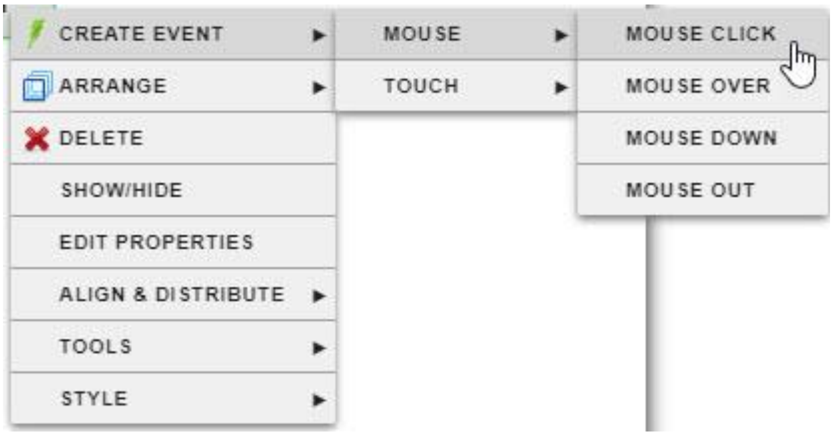
Name	**Name of the BUTTON component** Not supported in HTML5. Default: **Button**
Label	**Text displayed on the BUTTON component** Default: **Submit**
Type	**Button type** Specifies the type of button. Options are: • **button**, a clickable button • **reset**, resets the form data to initial values • **submit**, submits form data Default: No selection
Value	**Initial value** Specifies an initial value for the button in a form. Default: Field is blank

Table 37: BUTTON attributes.

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

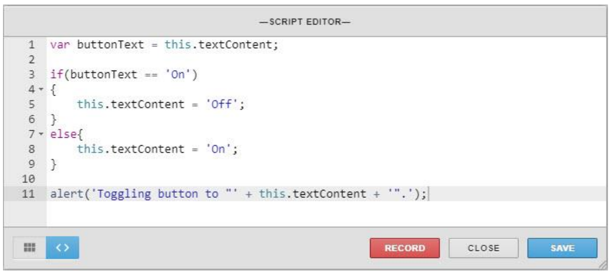
▷ This procedure uses the **PROPERTIES** and **COMPONENTS** panes.

1. From the **COMPONENTS > HTML COMPONENTS** pane, drag-and-drop ☐ onto the work area and then select it.
2. Enter **On** in the **Label** attribute field of the BASIC **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**.

```
var buttonText = this.textContent;
if(buttonText == 'On')
{
this.textContent = 'Off';
}
else{
this.textContent = 'On';
}
alert('Toggling button to "' + this.textContent + '".');
```



```
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.

Attributes	Description
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 38: 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.

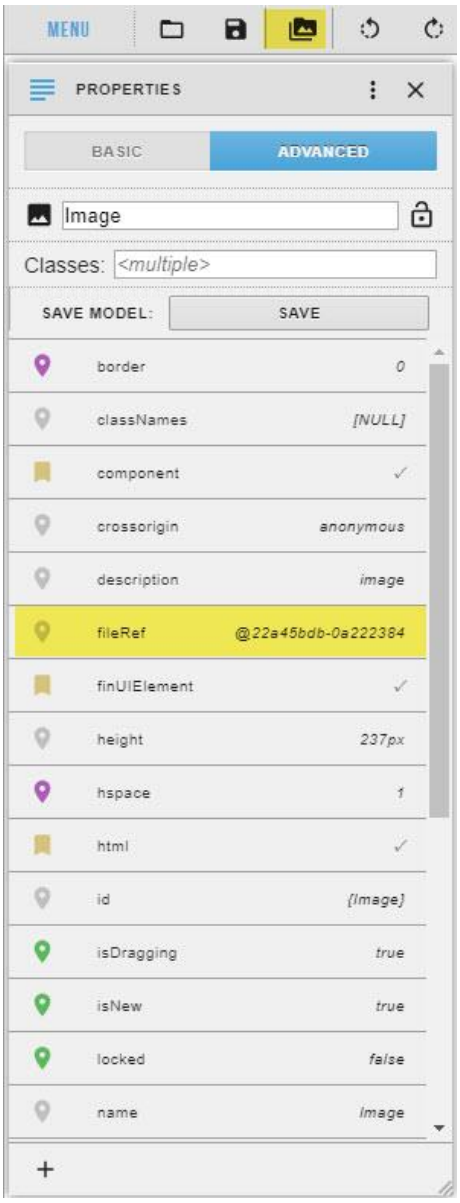
Attribute	**Description**
alt	**Alternate text** Alternate text that will display if the image cannot be displayed. Default: Field is blank.
border	**Image border** Width of the border (in pixels) around an image. Not supported in HTML5. Default: **0**
Crossorigin	**Allow cross-origin access** Allow 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**
ismap	**Image map** 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. Default: **OFF**
longdesc	**Long description** A URL to a detailed description of an image. Default: Field is blank.
src	**Source** The URL of an image. Default: Field is blank.
usemap	**Use map** Specifies an image as a client-side image-map. Default: Field is blank.
vspace	**Vertical space** Width of the white space (in pixels) on the top and bottom of an image. Not supported in HTML5. Default: **1**

Table 39: 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.



Image

Classes: *<multiple>*

SAVE MODEL: SAVE

border	*0*
classNames	*[NULL]*
component	✓
crossorigin	*anonymous*
description	*image*
fileRef	*@22a45bdb-0a222384*
finUIElement	✓
height	*237px*
hspace	*1*
html	✓
id	*{Image}*
isDragging	*true*
isNew	*true*
locked	*false*
name	*Image*

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.

Attribute	Description
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>**.

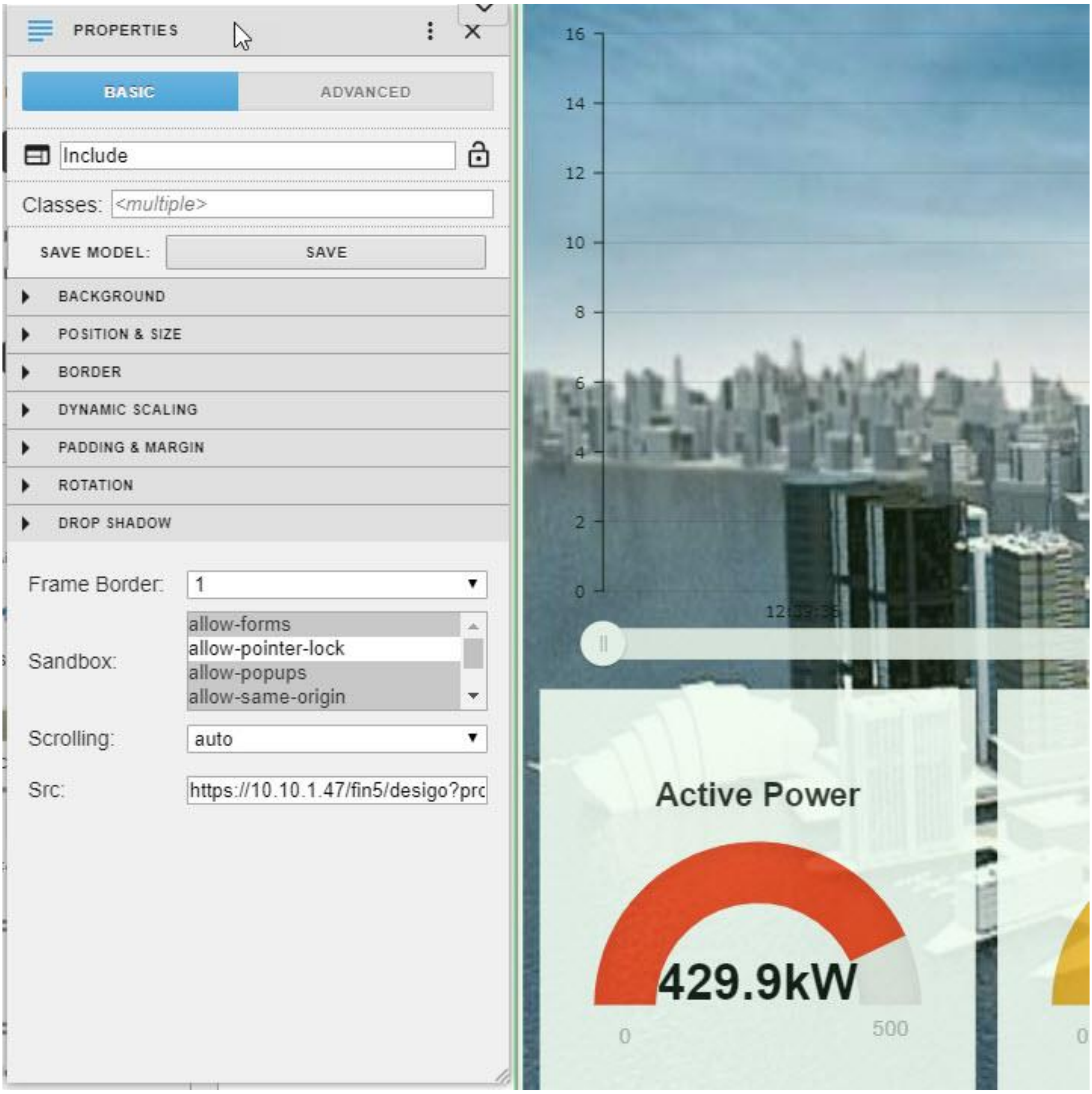
Table 40: INCLUDE attributes.

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.



Include

Classes: <multiple>

Frame Border: 1

Sandbox: allow-forms, allow-pointer-lock, allow-popups, allow-same-origin

Scrolling: auto

Src: https://10.10.1.47/fin5/desigo?prc

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>**).

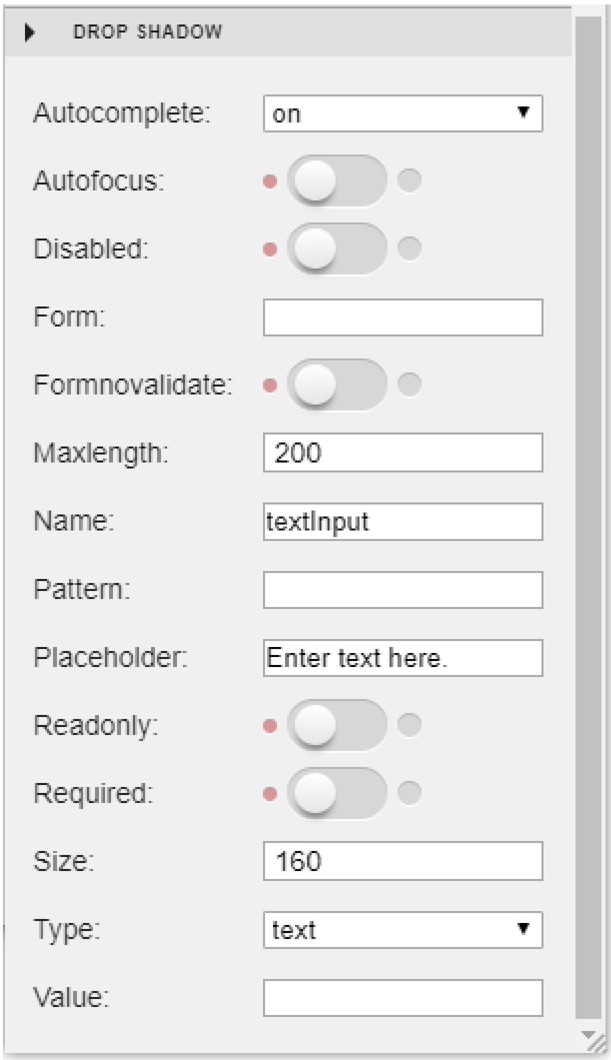
The following table outlines attributes of the **INPUT** component that can be modified in the BASIC **PROPERTIES** pane. For more information on this element or its attributes, visit https://www.w3schools.com/tags/tag_input.asp.

Attribute	**Description**
autocomplete	**Enable autocomplete** Enables autocomplete for the **<input>** element. Options are: • On • Off
autofocus	**Autofocus switch** On = Autofocus is enabled for the **<input>** element when the page loads.
disabled	**Disabledswitch** On = the **<input>** element is disabled.
form	**Form field** Specifies one or more forms the <input> element belongs to. Enter the **form_id** for each form.
formnovalidate	**Formnovalidate switch** Defines that form elements should not be validated when submitted.
maxlength	The maximum number of characters allowed in an **<input>** element.
name	Text field for the name of an **<input>** element.
pattern	Regular expression (**regexp**) that an **<input>** element's value is checked against.
placeholder	A short description for the expected value of an **<input>** element.
readonly	**Readonlyswitch** On = The input field is read-only.
required	**Required switch** On = an input field must be completed before submitting the form.
size	**Element size** The width, in characters, of an **<input>** element.
type	**Type of <input> element** Options are: • button • checkbox • color • date • datetime-local • email • file • hidden • image • month • number • password • radio • range • reset • search • submit • tel • text • time • url • week
value	**Value text field** The value of an **<input>** element.

Table 41: 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 ⊞ onto the work area and then select it.
2. In the BASIC ≡ **PROPERTIES** pane for the ⊞ **INPUT** component, set the **placeholder** attribute to **Enter text here**.



Autocomplete: on
Autofocus:
Disabled:
Form:
Formnovalidate:
Maxlength: 200
Name: textInput
Pattern:
Placeholder: Enter text here.
Readonly:
Required:
Size: 160
Type: text
Value:

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.

Attribute	Description
Form	Specifies one or more forms the label belongs to. Value: **form_id**
Text	The text displayed in the label.

Table 42: LABEL attributes.

METER

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.

Attribute	Description
High	Number range that is considered to be a high value.
Low	Number range that is considered to be a low value
Max	Maximum value of the range.
Min	Minimum value of the range.
Optimum	Optimal value for the gauge.
Value	Current value of the gauge. This field is required.

Table 43: 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 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.

Attribute	Description
Max	Specifies how much work the task requires in total.
Label	
Value	Specifies how much of the task has been completed.

Table 44: PROGRESS attributes.

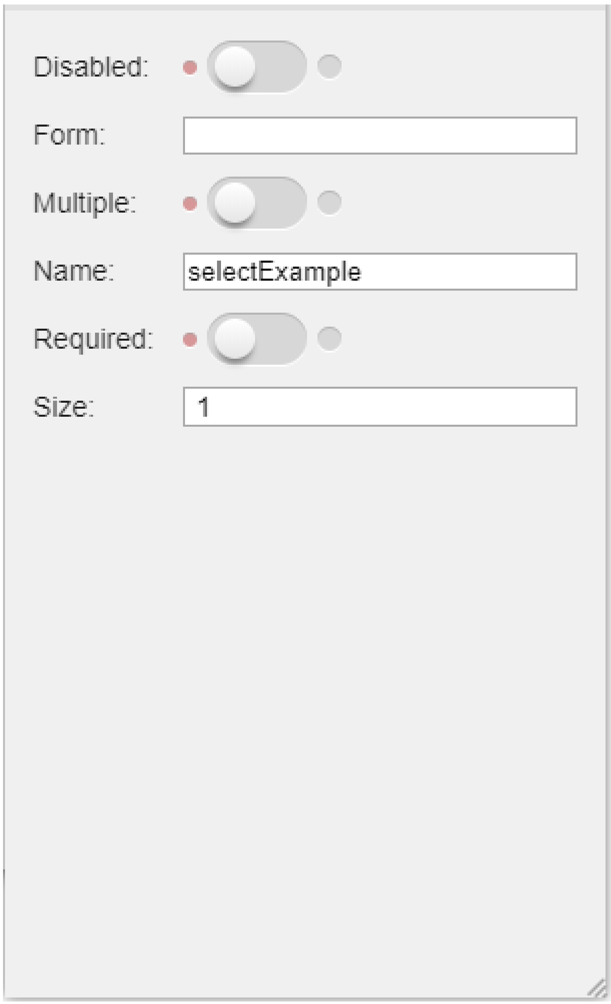
SELECT

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.

Attribute	Description
Disabled	Specifies that a drop-down list should be disabled. Value: Disabled
Form	Defines one or more forms the select field belongs to Value: form_id
Multiple	Specifies that multiple options can be selected at once Value: multiple
Name	Defines a name for the drop-down list Value: name
Required	Specifies that the user is required to select a value before submitting the form Value: required
Size	Defines the number of visible options in a drop-down list Value: number

Table 45: SELECT attributes.



Disabled: ○

Form:

Multiple: ○

Name: selectExample

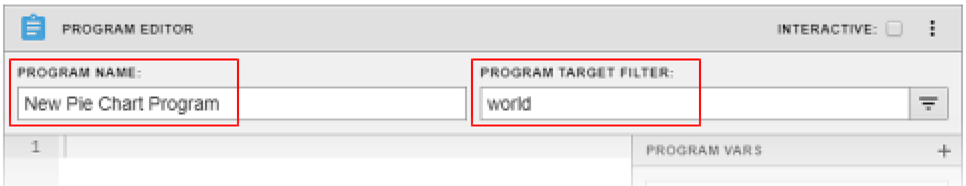
Required: ○

Size: 1

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.

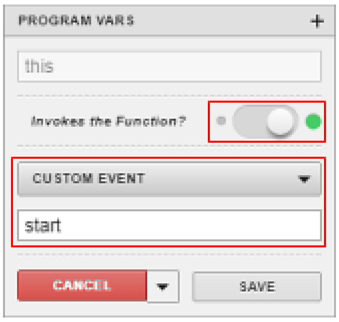
4. Type **world** in the **PROGRAM TARGET FILTER** field.



PROGRAM NAME: New Pie Chart Program

PROGRAM TARGET FILTER: world

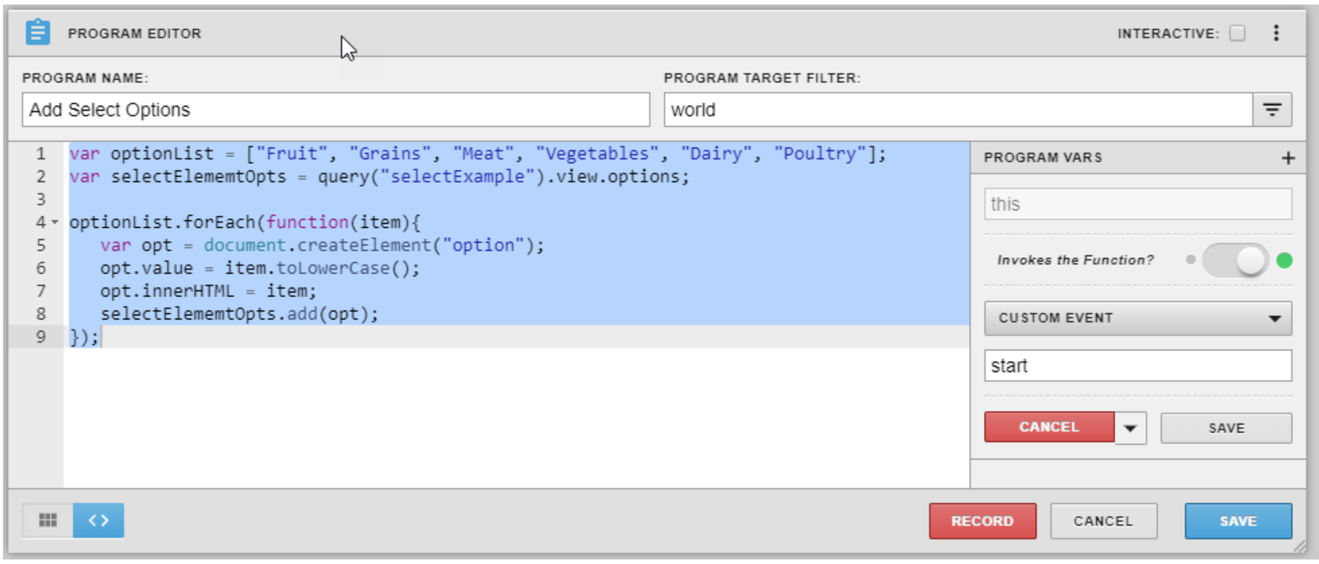
5. Click in the upper right corner of the **PROGRAM EDITOR** dialog box and select **VARIABLES** .
   ➪ The **PROGRAM VARS** pane opens.
6. Move your cursor over the row for the **this** variable and then click .
7. Set the **Invokes the Function?** toggle switch to **ON**.
8. From the **SELECT EVENT**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



CUSTOM EVENT

start

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.



PROGRAM NAME: Add Select Options

PROGRAM TARGET FILTER: world

```
var optionList = ["Fruit", "Grains", "Meat", "Vegetables", "Dairy", "Poultry"];
var selectElememtOpts = query("selectExample").view.options;

optionList.forEach(function(item){
    var opt = document.createElement("option");
    opt.value = item.toLowerCase();
    opt.innerHTML = item;
    selectElememtOpts.add(opt);
});
```

CUSTOM EVENT

start

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.

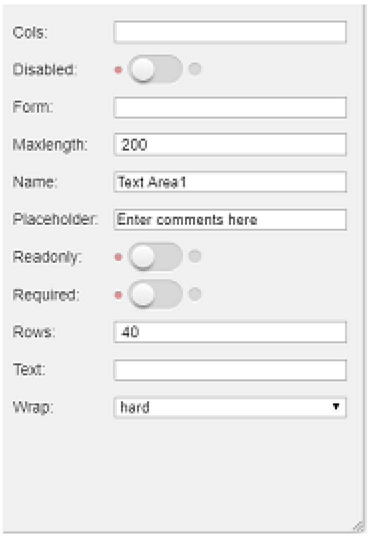
TEXT AREA

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>**).

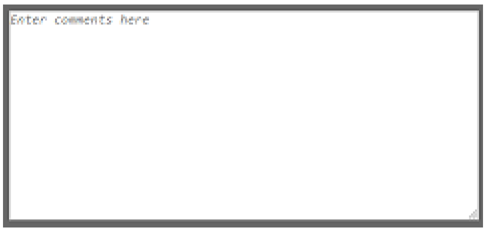
The following table outlines attributes of the ≡ **TEXT AREA** component that can be modified in the BASIC ≡ **PROPERTIES** pane. For more information on this element or its attributes, visit https://www.w3schools.com/tags/tag_textarea.asp.

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

Table 46: TEXT AREA attributes.



Cols:
Disabled:
Form:
Maxlength: 200
Name: Text Area1
Placeholder: Enter comments here
Readonly:
Required:
Rows: 40
Text:
Wrap: hard



Enter comments here

VIDEO

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.

Attribute	**Description**
Controls	Specifies that video controls should be displayed (such as a play/pause button etc).
Loop	Specifies that the video will start over again, every time it is finished.
Muted	Specifies that the audio output of the video should be muted.
Poster	Specifies an image to be shown while the video is downloading, or until the user hits the play button.
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 47: VIDEO attributes.

6.2.2.1 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.

The following figure outlines the SVG GAUGE types.

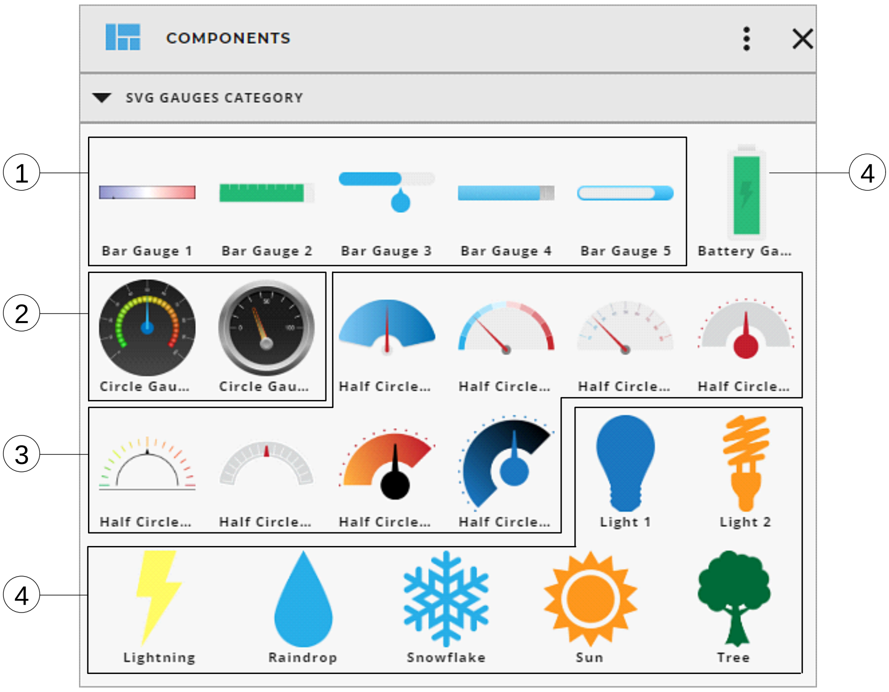


Fig. 18: SVG GAUGES category.

① Bar Gauges [→ 135]

② Circle Gauges [→ 138]

③ Half-circle Gauges [→ 139]

④ Icon Gauges [→ 145]

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 [→ 101] and https://htmlcolorcodes.com/color-names/.

Bar Gauges

Bar Gauge 1

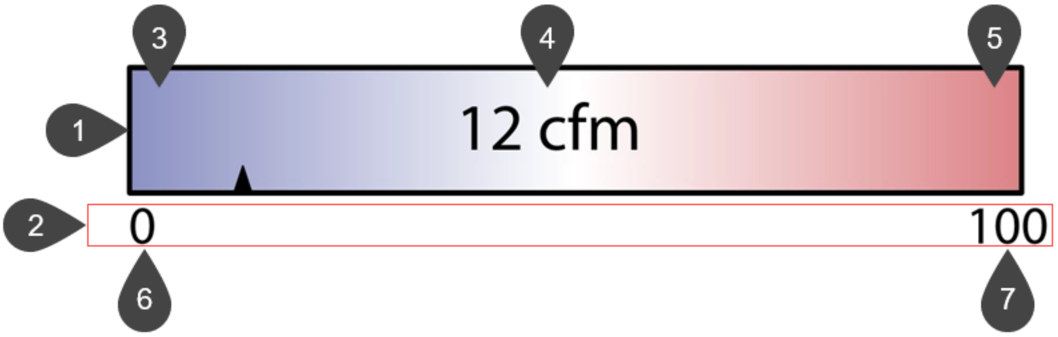


Fig. 19: Bar gauge 1 example in default configuration.

	Property	Value
	Rotate	Horizontal or vertical bar.
①	Border Color	Color of the border around the gauge. Default: **#000000**.
②	Text Color	Color of the value. Default: **#000**.
③	Number Color	Color of **Min Value** and **Max Value**.Default: **#000**.
④	Gradient Color 1	Gradient color on the left (top for vertical). Default: **#8B90C7**
⑤	Gradient Color 2	Gradient color in the middle. Default: **#FFFFFF**
⑥	Gradient Color 3	Gradient color on the right (bottom for vertical). Default: **#E97D84**
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**.
	☑ Show Background	Select to make the background opaque and display a frame around the gauge.

Table 48: Bar Gauge 1 dialog box.

Bar Gauge 2

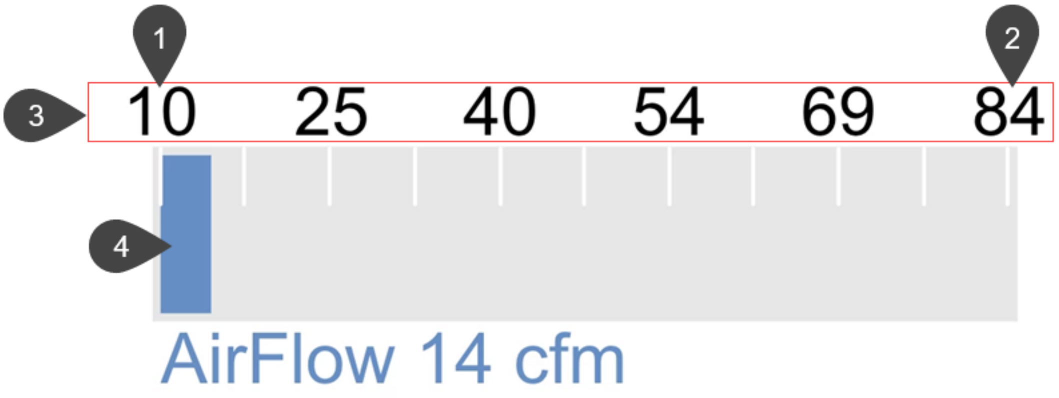


Fig. 20: Bar Gauge 2 example in default colors.

	Property	Value
	Rotate	Horizontal or vertical bar.
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**.
	High Range Color	Color of the bar when the value is greater than the specified **Mid Range**.
	Mid Range	Range in which the bar changes colors. Enter the lower value first.
	☑ Show Background	Select to make the background opaque and display a frame around the gauge.

Table 49: Bar Gauge 2 dialog box.

Bar Gauge 3

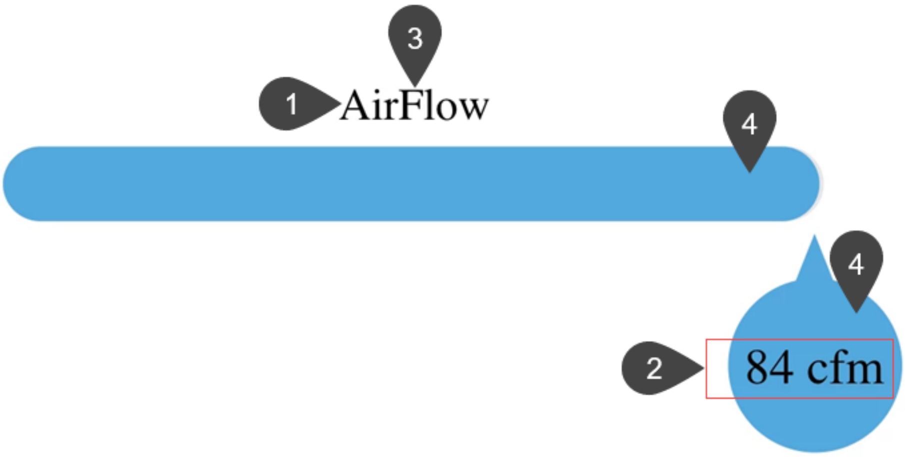


Fig. 21: Bar Gauge 3 example in default colors.

	Property	Value
	Rotate	Horizontal or vertical bar.
①	Short Name	Name displayed with the gauge. If **shortName** is if blank, **navName** of the virtual point is displayed.
②	Number Color	Color of the value.
③	Text Color	Color of the **shortName** / **navName**.
④	Color	Color of the bar and circle.
	Min Value	Lowest value displayed on the gauge. Default: **minVal** of the virtual point if one exists. Otherwise, the default is **0**.
	Max Value	Highest value displayed on the gauge. Default: **maxVal** of the virtual point if one exists. Otherwise, the default is **100**.
	☑ Show Background	Select to make the background opaque and display a frame around the gauge.

Table 50: Bar Gauge 3 dialog box.

Bar Gauge 4

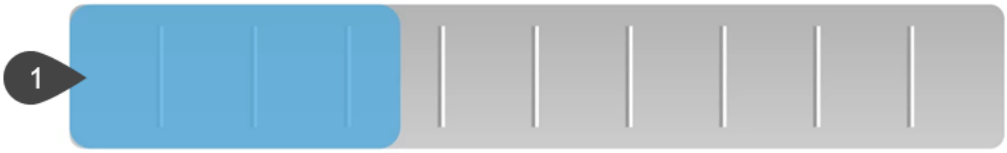


Fig. 22: Bar Gauge 4 example in default colors.

	Property	Value
	Rotate	Horizontal or vertical bar.
①	Color	Color of the bar. Default **#29ABE2**.
	Min Value	Lowest value displayed on the gauge. Default: **minVal** of the virtual point if one exists. Otherwise, the default is **0**.
	Max Value	Highest value displayed on the gauge. Default: **maxVal** of the virtual point if one exists. Otherwise, the default is **100**.
	☑ Show Background	Select to make the background opaque and display a frame around the gauge.

Table 51: Bar Gauge 4 dialog box.

Bar Gauge 5

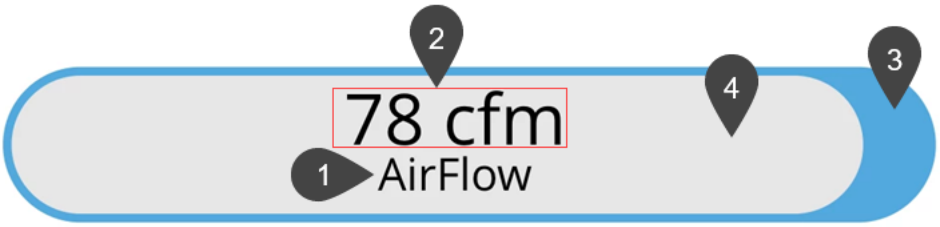


Fig. 23: Bar Gauge 5 example in default colors.

	Property	Value
	Rotate	Horizontal or vertical bar.
①	Short Name	Name displayed with the gauge. If **shortName** is if blank, **navName** of the virtual point is displayed.
②	Text Color	Color of the text. Default: **#000**
③	Background Color	Color of the whole gauge. Default: **#29abe2**
④	Fill Color	Color of the gauge fill. Default: **#e6e6e6**
	Min Value	Lowest value displayed on the gauge. Default: **minVal** of the virtual point if one exists. Otherwise, the default is **0**.
	Max Value	Highest value displayed on the gauge. Default: **maxVal** of the virtual point if one exists. Otherwise, the default is **100**.
	☑ Show Background	Select to make the background opaque and display a frame around the gauge.

Table 52: Bar Gauge 5 dialog box.

Circle Gauges

Circle Gauge 1

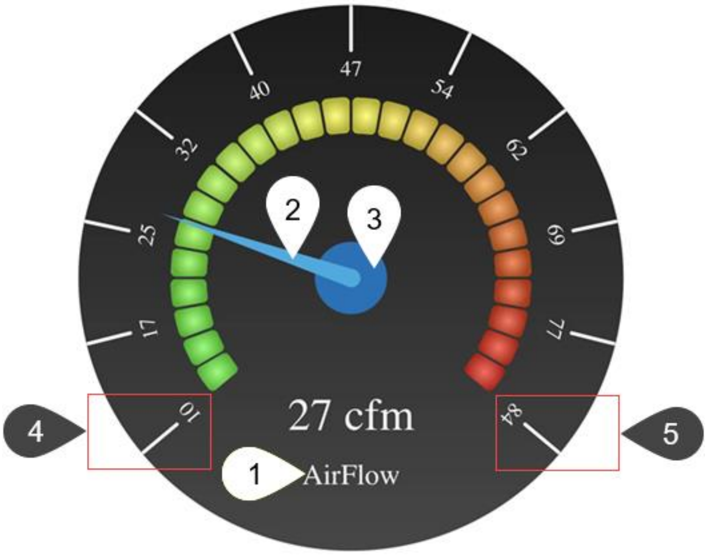


Fig. 24: Circle Gauge 1 example in default colors.

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

Table 53: Circle Gauge 1 dialog box.

Circle Gauge 2

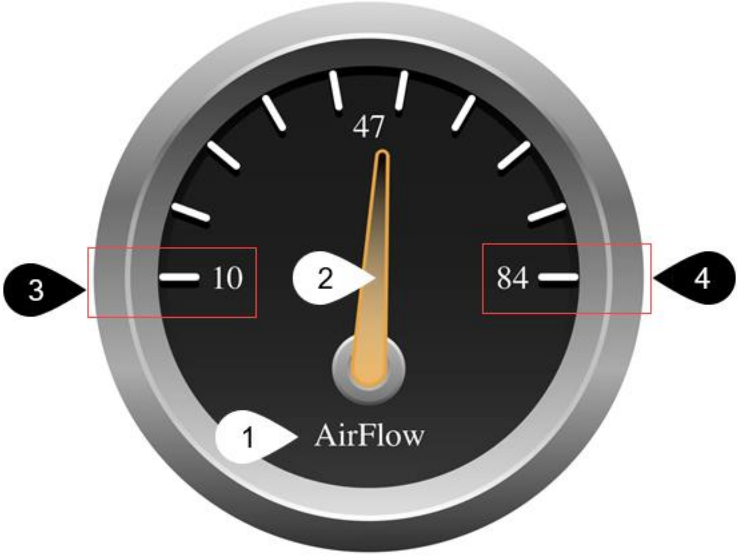


Fig. 25: Circle Gauge 2 example in default colors.

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

Table 54: Circle Gauge 2 dialog box.

Half-circle Gauges

Half-circle Gauge 1

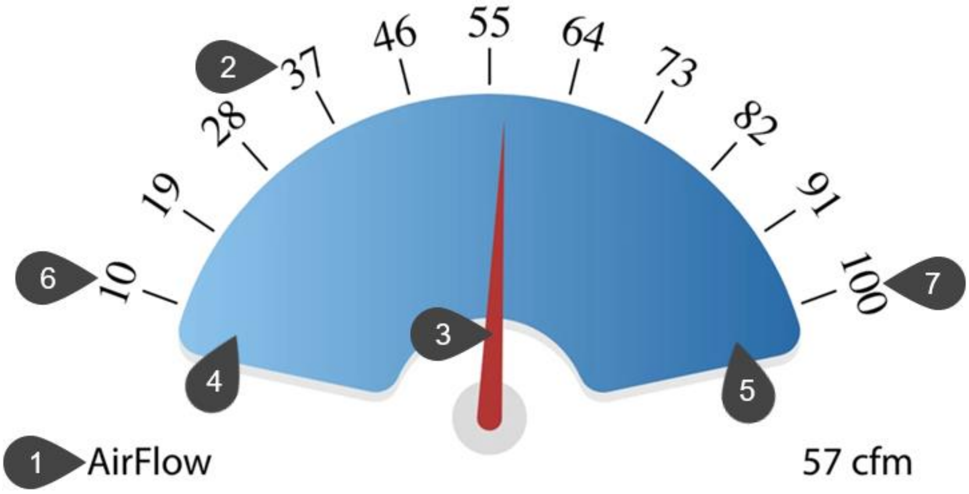


Fig. 26: Half-circle Gauge 1 example in default colors.

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

Table 55: Half-circle Gauge dialog box.

Half-circle Gauge 2

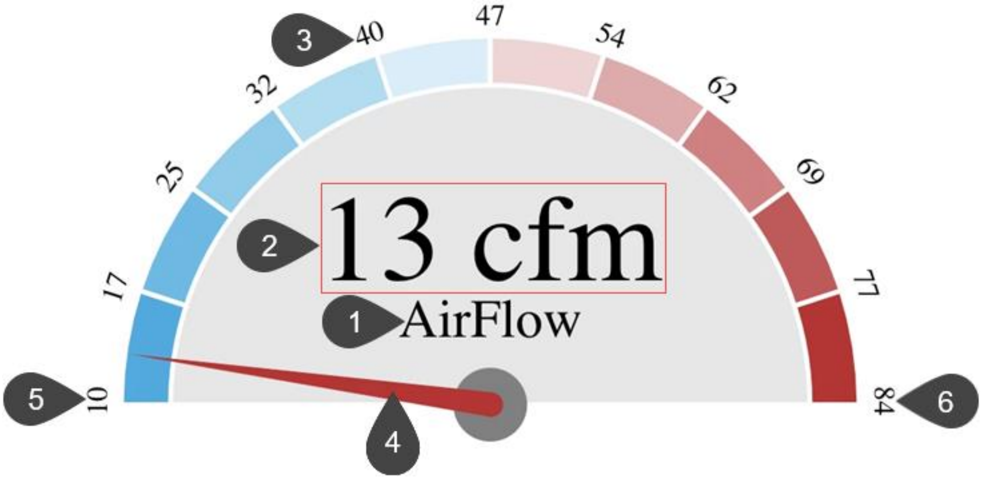


Fig. 27: Half-circle Gauge 2 example in default colors.

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

Table 56: Half-circle Gauge 2 dialog box.

Half-circle Gauge 3

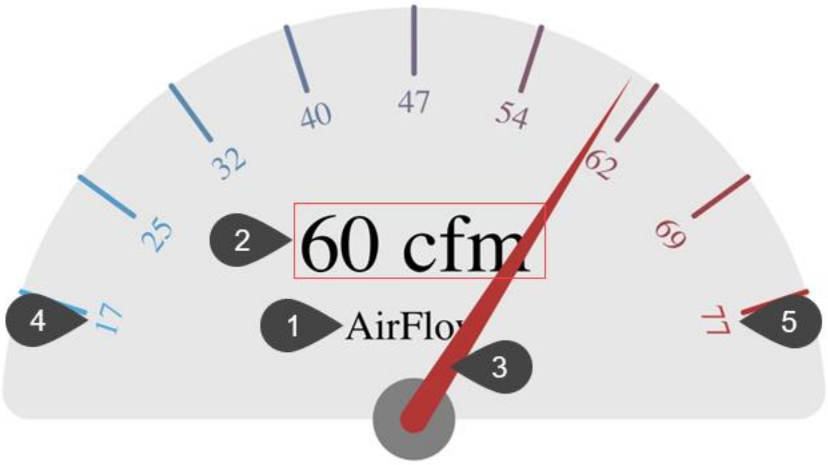


Fig. 28: Half-circle Gauge 3 example in default colors.

	Property	Value
①	Short Name	Name displayed with the gauge. If **shortName** is if blank, **navName** of the virtual point is displayed.
②	Text Color	Color of the text displaying the value.
③	Needle Color	Color of the needle.
④	Min Value	Lowest value displayed on the gauge. Default: **minVal** of the virtual point if one exists. Otherwise, the default is **0**.
⑤	Max Value	Highest value displayed on the gauge. Default: **maxVal** of the virtual point if one exists. Otherwise, the default is **100**.
	☑ Show Background	Select to make the background opaque and display a frame around the gauge.

Table 57: Half-circle Gauge 3 dialog box.

Half-circle Gauge 4

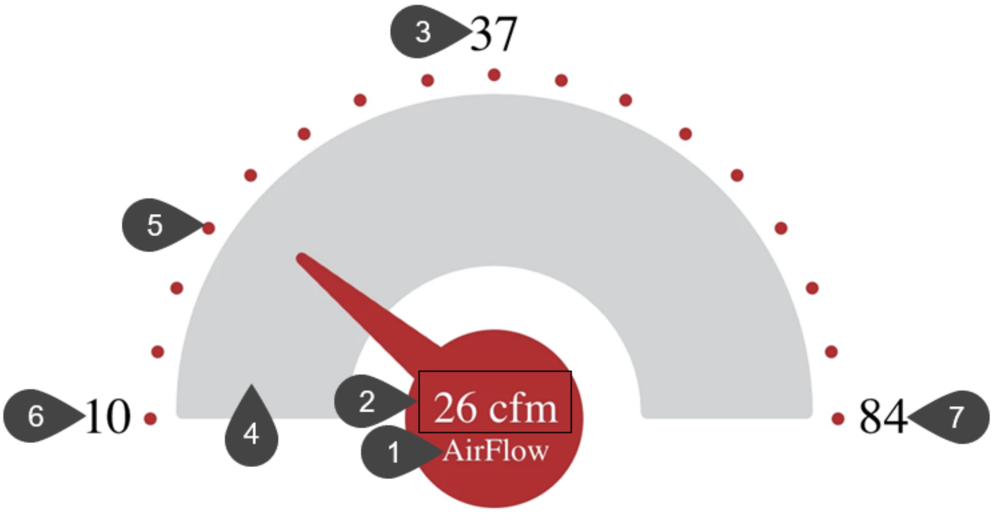


Fig. 29: Half-circle Gauge 4 example in default colors.

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

Table 58: Half-circle Gauge 4 dialog box.

Half-circle Gauge 5

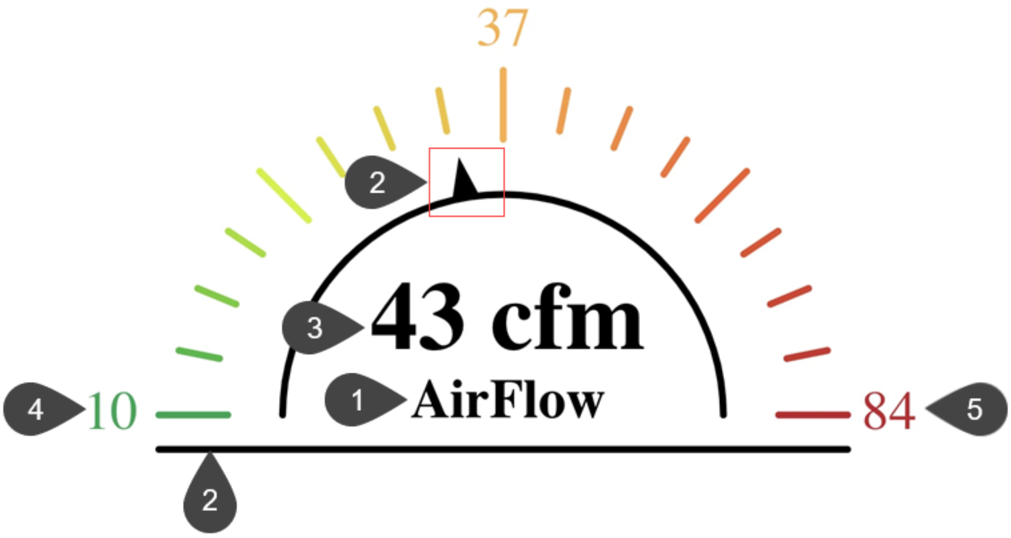


Fig. 30: Half-circle Gauge 5 example in default colors.

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

Table 59: Half-circle Gauge 5 dialog box.

Half-circle Gauge 6

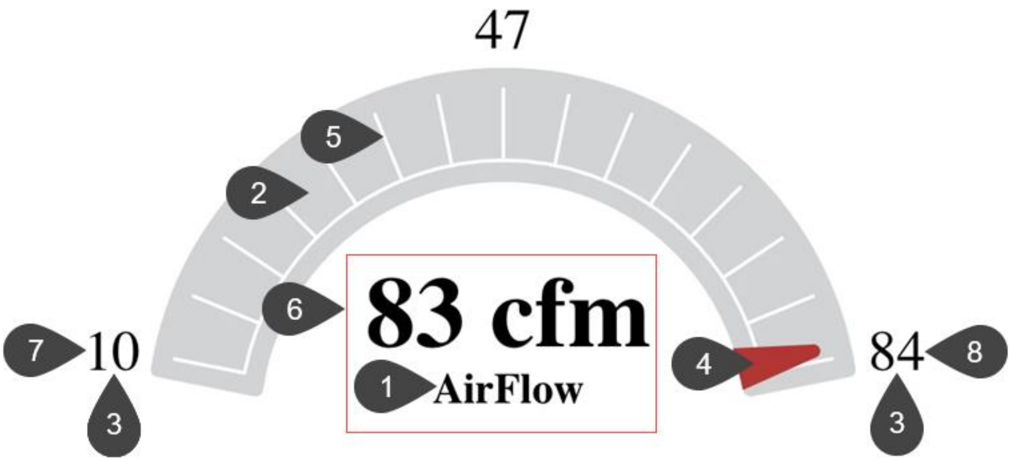


Fig. 31: Half-circle Gauge 6 example in default colors.

	Property	Value
①	Short Name	Name displayed with the gauge. If **shortName** is if blank, **navName** of the virtual point is displayed.
②	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**.
	☑ Show Background	Select to make the background opaque and display a frame around the gauge.

Table 60: Half-circle Gauge 6 dialog box.

Half-circle Gauge 7

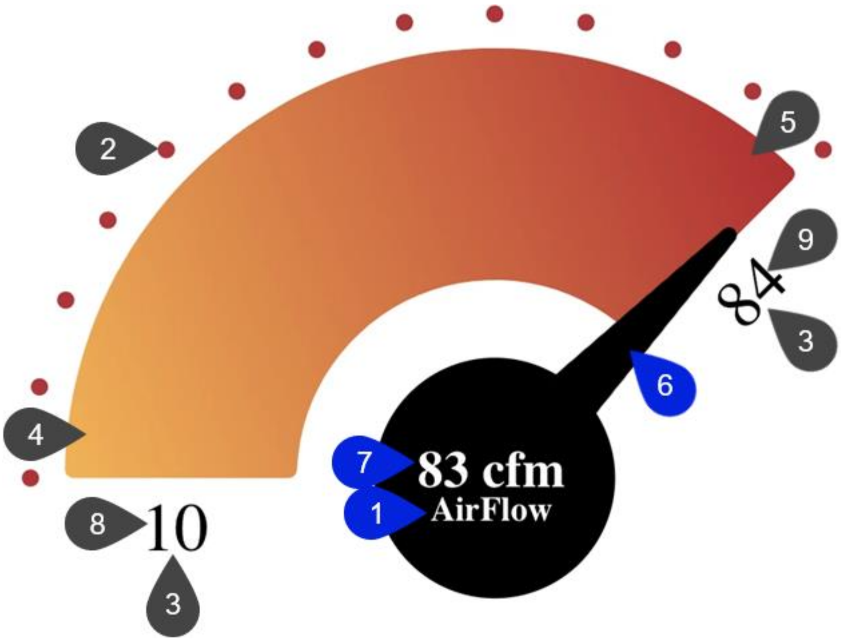


Fig. 32: Half-circle Gauge 7 example in default colors.

	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**

	Property	Value
⑦	Text Color	Color of the **curVal** inside the needle.
⑧	Min Value	Lowest value displayed on the gauge. Default: **minVal** of the virtual point if one exists. Otherwise, the default is **0**.
⑨	Max Value	Highest value displayed on the gauge. Default: **maxVal** of the virtual point if one exists. Otherwise, the default is **100**.
	☑ Show Background	Select to make the background opaque and display a frame around the gauge.

Table 61: Half-circle Gauge 7 dialog box.

Half-circle Gauge 8

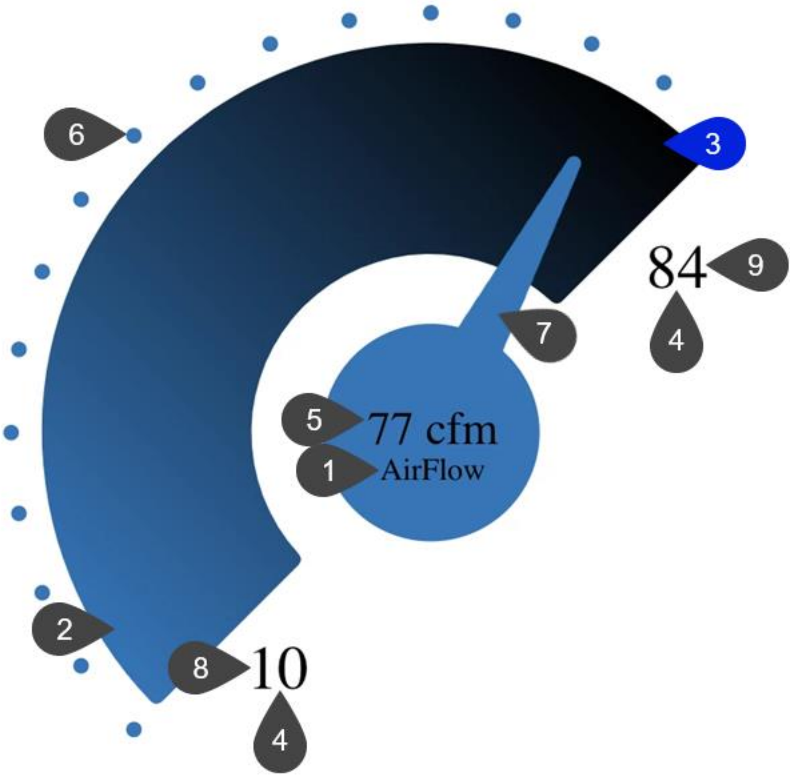


Fig. 33: Half-circle Gauge 8 example.

	Property	Value
①	Short Name	Name displayed with the gauge. If **shortName** is if blank, **navName** of the virtual point is displayed.
②	Gradient Color 1	Color of the left side gradient. Default: **#1b75bc**
③	Gradient Color 2	Color of the right side gradient. Default **#000**
④	Number Color	Color of **Min Value** and **Max Value**.
⑤	Text Color	Color of the **curVal** inside the needle.
⑥	Dot Color	Color for the dots. Default: **#1b75bc**

	Property	Value
⑦	Needle Color	Color for the needle. Default **#1b75bc**
⑧	Min Value	Lowest value displayed on the gauge. Default: **minVal** of the virtual point if one exists. Otherwise, the default is **0**.
⑨	Max Value	Highest value displayed on the gauge. Default: **maxVal** of the virtual point if one exists. Otherwise, the default is **100**.
	☑ Show Background	Select to make the background opaque and display a frame around the gauge.

Table 62: Half-circle Gauge 8 dialog box.

Icon Gauges

Battery Gauge

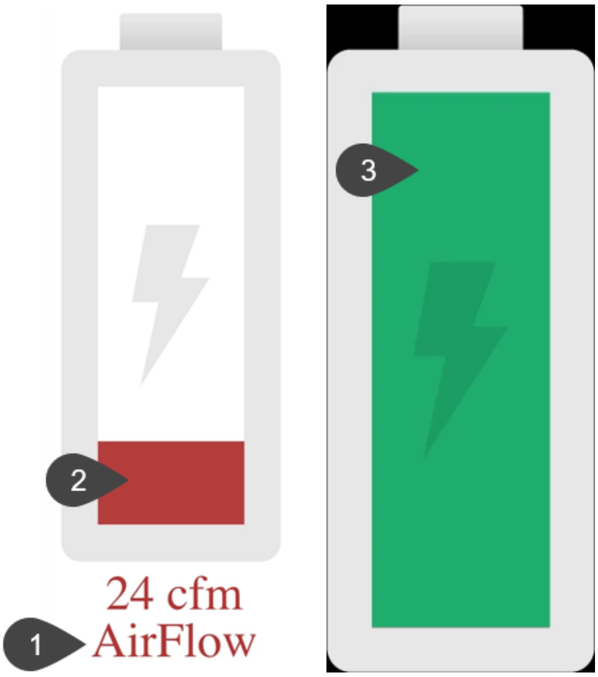


Fig. 34: Battery Gauge examples.

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

Table 63: Battery Gauge dialog box.

Other Icon Gauges

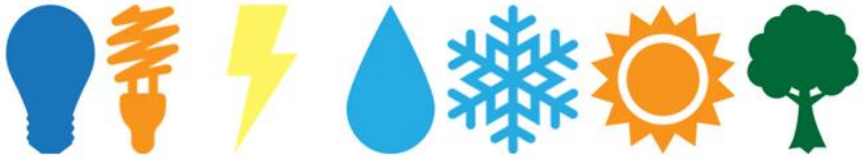


Fig. 35: Other Icon Gauge examples.

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

Table 64: Other Icon Gauges dialog box.

6.2.2.2 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**.

Property	Value
Short Name	Name displayed with the gauge. If **shortName** is if blank, **navName** of the virtual point is displayed.
Text Size	Font size of the text.
Text Color	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 [→ 101] and https://htmlcolorcodes.com/color-names/.
Text Alignment	Horizontal text alignment: **Center** (default), **Left**, or **Right**.
Position Text	Vertical text alignment: **Top** (default), **Center**, or **Bottom**.
☑ Hide Background	Select to make the Label Container background transparent.

Table 65: Label Container dialog box.

6.2.3 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.

Indicator	Name	Description
👁	Show/Hide	Shows or hides components on the graphic.
🔒	Lock	Prevents a component from being selected and moved while you are editing the graphic.
+	Add	Adds a new layer to the pane.
−	Delete	Deletes the selected component or layer and its components.

Table 66: LAYERS pane icons.

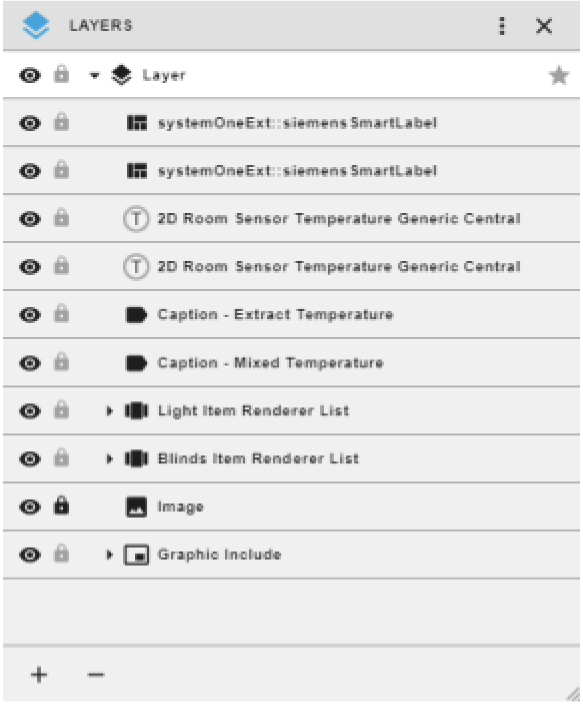

LAYERS
Layer
systemOneExt::siemensSmartLabel
systemOneExt::siemensSmartLabel
2D Room Sensor Temperature Generic Central
2D Room Sensor Temperature Generic Central
Caption - Extract Temperature
Caption - Mixed Temperature
Light Item Renderer List
Blinds Item Renderer List
Image
Graphic Include
+
−

Fig. 36: Hierarchical structure of the LAYERS pane.

Displaying layers for editing

The following graphics in the Supersample graphics library contain multiple layers and use a navigation bar to make one layer visible while hiding all other layers:

- **Sample dashboard public**
- **Sample RoomOperator Landscape** end user room graphic
- **Sample RoomOperator Portrait** end user room graphic

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.

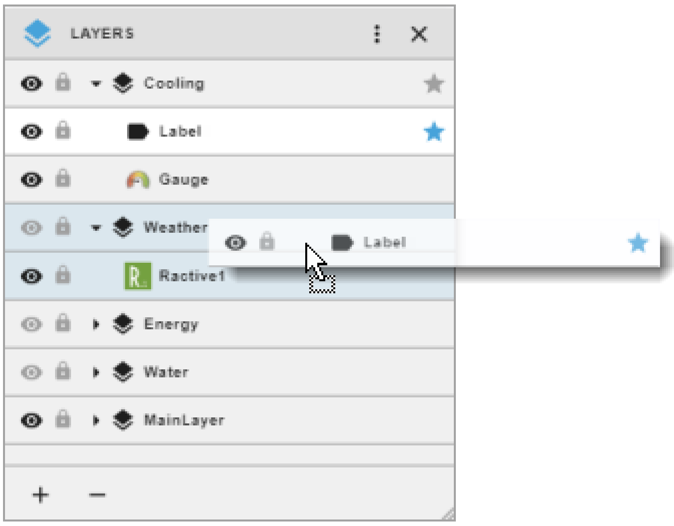


Fig. 37: Moving an element to a different layer.

6.2.4 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 [→ 149].
- Bind data points to a graphic component [→ 150].
- Rename a virtual point [→ 150].
- Add a new tag or property tag to a data point [→ 153].

Indicator	Name	Description
<··>	Object	Adds a property tag to the virtual point.
+	Add	Adds a new virtual point.
−	Delete	Deletes the selected virtual point.

Table 67: VIRTUAL POINTS pane icons.

Creating a smart label

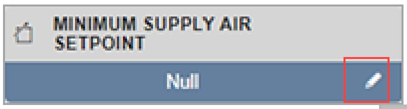
A *smart label* displays information about a data point and allows users with the appropriate access to command objects. If desired, command access for a smart label can be changed to read-only.

Creating a smart label and modifying the command status

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

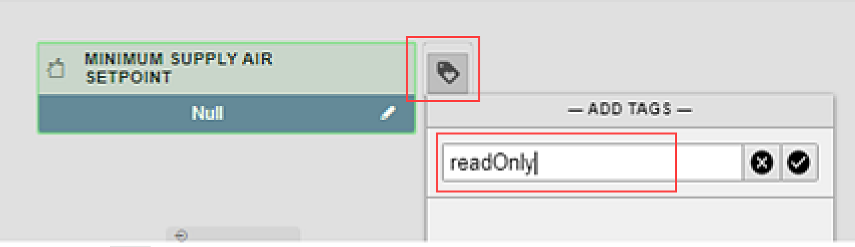
1. Drag-and-drop data points onto the work area. Press **CTRL** and click to select multiple data points.
   - For absolute binding, select numeric point(s) from the **EQUIPMENTS** pane.
   - For relative binding, select virtual point(s) from the **VIRTUAL POINTS** pane.

   ➪ A smart label is created for each data point. smart labels include command access for point types that can be commanded.



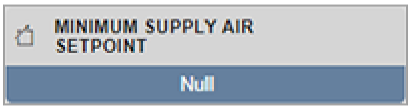
2. Select the smart label, click and type **readOnly** in the **ADD TAGS** field.

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



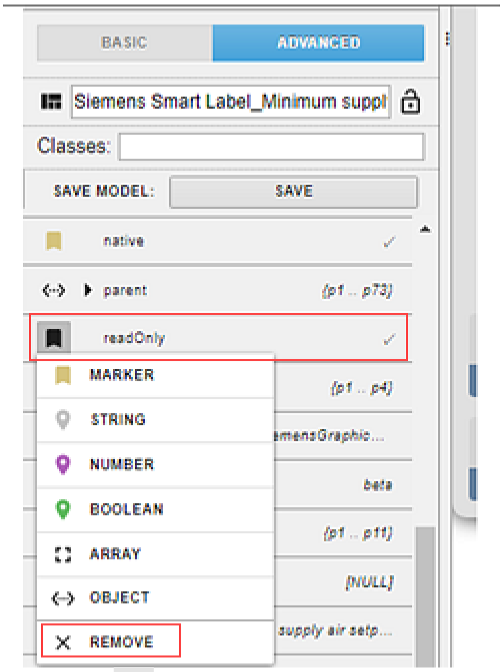
3. Click ✓ and then to display the updated smart label.

   ➪ The smart label is now read-only.



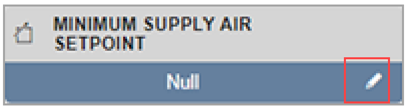
Removing read-only status from a smart label

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.

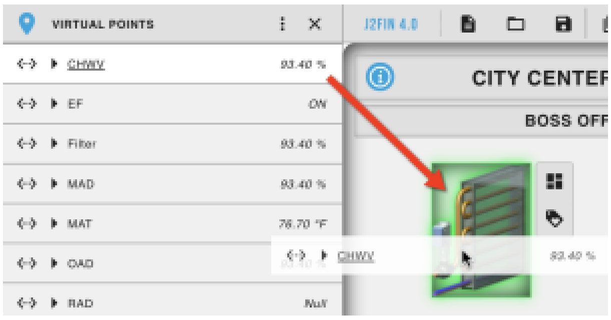
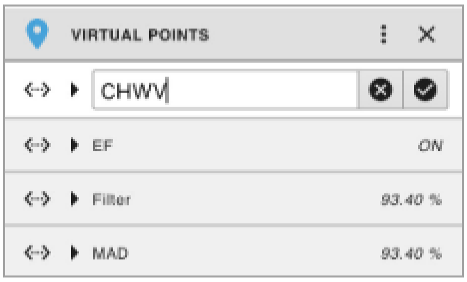


Fig. 38: Binding a data point to a graphic component.

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.



Working with data points that have the same name

NOTICE

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 > REFORMAT NAME** each time a data point is added.

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.

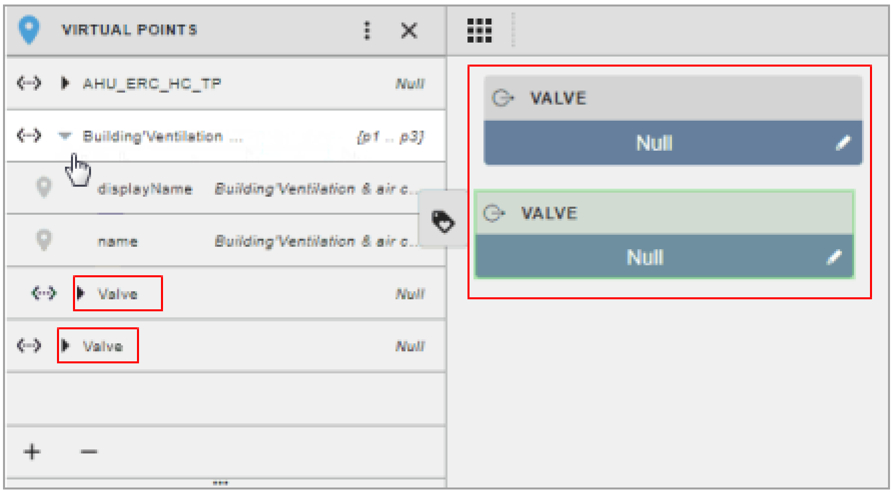


Fig. 39: Nested structure in the VIRTUAL POINTS pane.

Using REFORMAT NAME

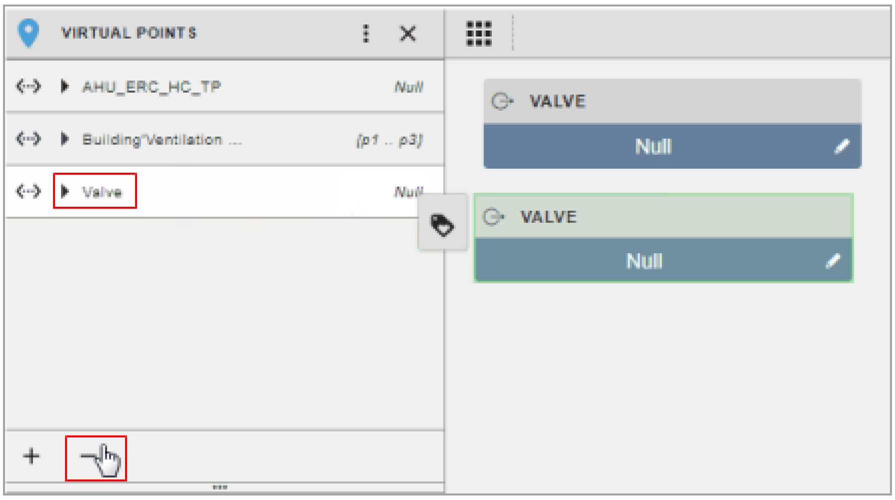
1. From the **EQUIPMENTS** pane, drag-and-drop a data point onto the graphic.
   ➪ A virtual point is automatically created.
2. In the **VIRTUAL POINTS** pane, right-click on the new data point and select **TOOLS > REFORMAT NAME.**

➪ The virtual point is automatically renamed based on its location in the application hierarchy.

Deleting a nested structure

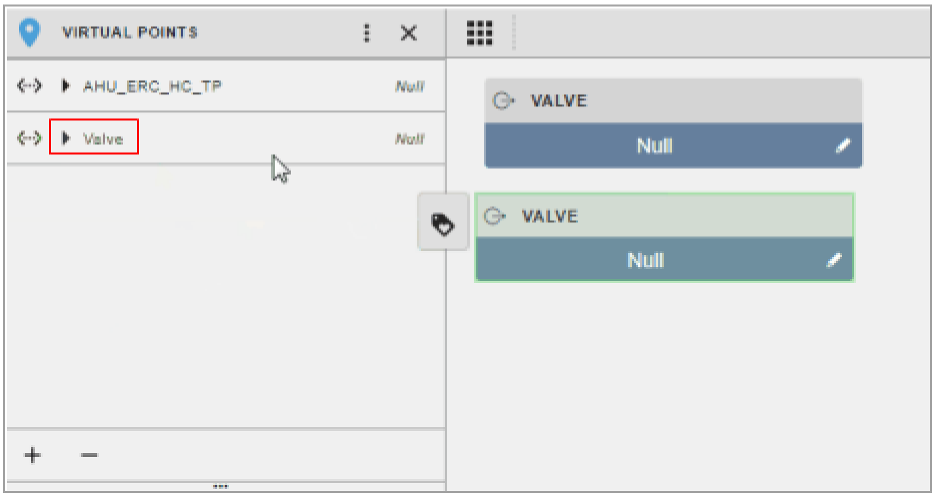
If you accidentally create a nested structure in the **VIRTUAL POINTS** pane, do the following to delete it:

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.

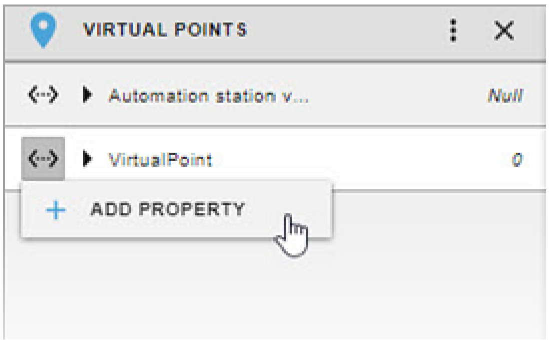


⇨ The nested structure is deleted.

4. Re-add the data points and select **TOOLS > REFORMAT NAME** after adding each data point.

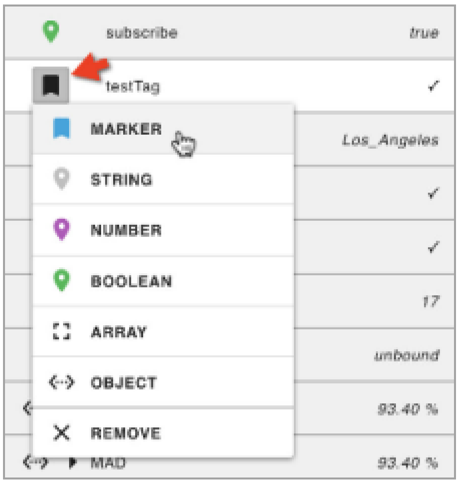
Adding a new tag or property tag

1. Click <···> for the data point and select **ADD PROPERTY**.



2. If necessary, change the property type.

   ADVANCED PROPERTIES [→ 89]



3. Name the tag.

6.2.5 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 [→ 74]

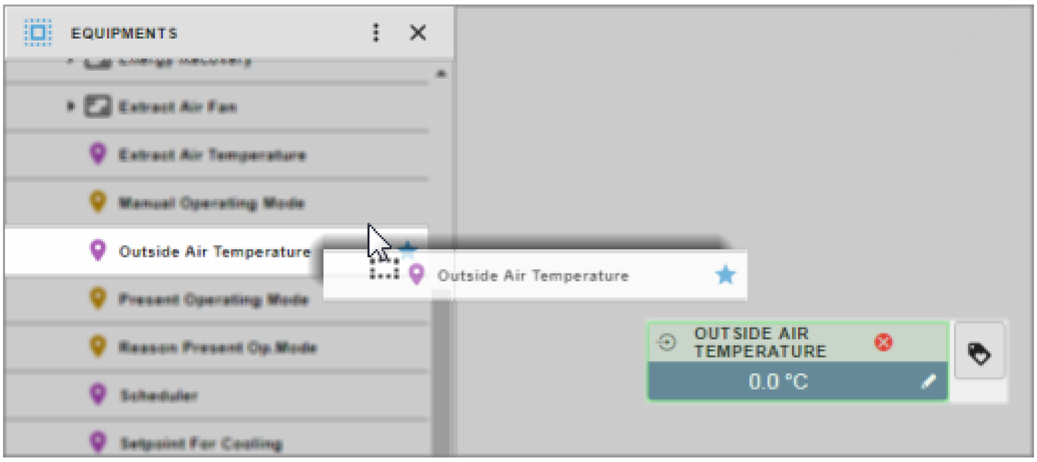


Fig. 40: EQUIPMENTS pane.

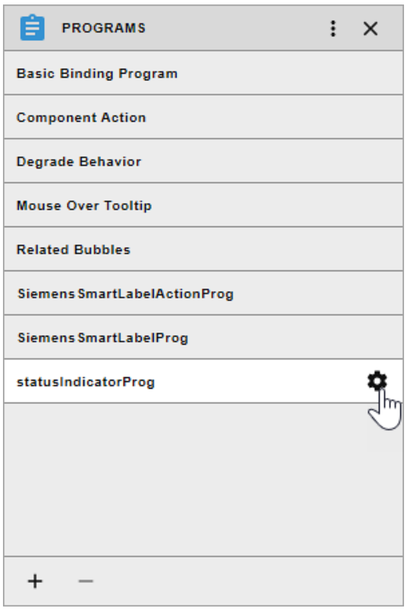
6.2.6 PROGRAMS

The 📋 **PROGRAMS** pane allows advanced users to create custom programs.

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

Basic Binding Program
Component Action
Degrade Behavior
Mouse Over Tooltip
Related Bubbles
Siemens SmartLabelActionProg
Siemens SmartLabelProg
statusIndicatorProg

⇨ The program is displayed in the **PROGRAM EDITOR**.

Indicator	Name	Description
+	Add	Adds a new program and opens the PROGRAM EDITOR.
−	Delete	Deletes the selected program.

Table 68: PROGRAMS pane icons.

See the *Advanced functionality* section for example programs as well as options for variations. Advanced functionality [→ 204]

6.3 Graphics libraries

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

- Supersample graphics [→ 155]
- Graphics models [→ 159]
- Graphics components [→ 159]

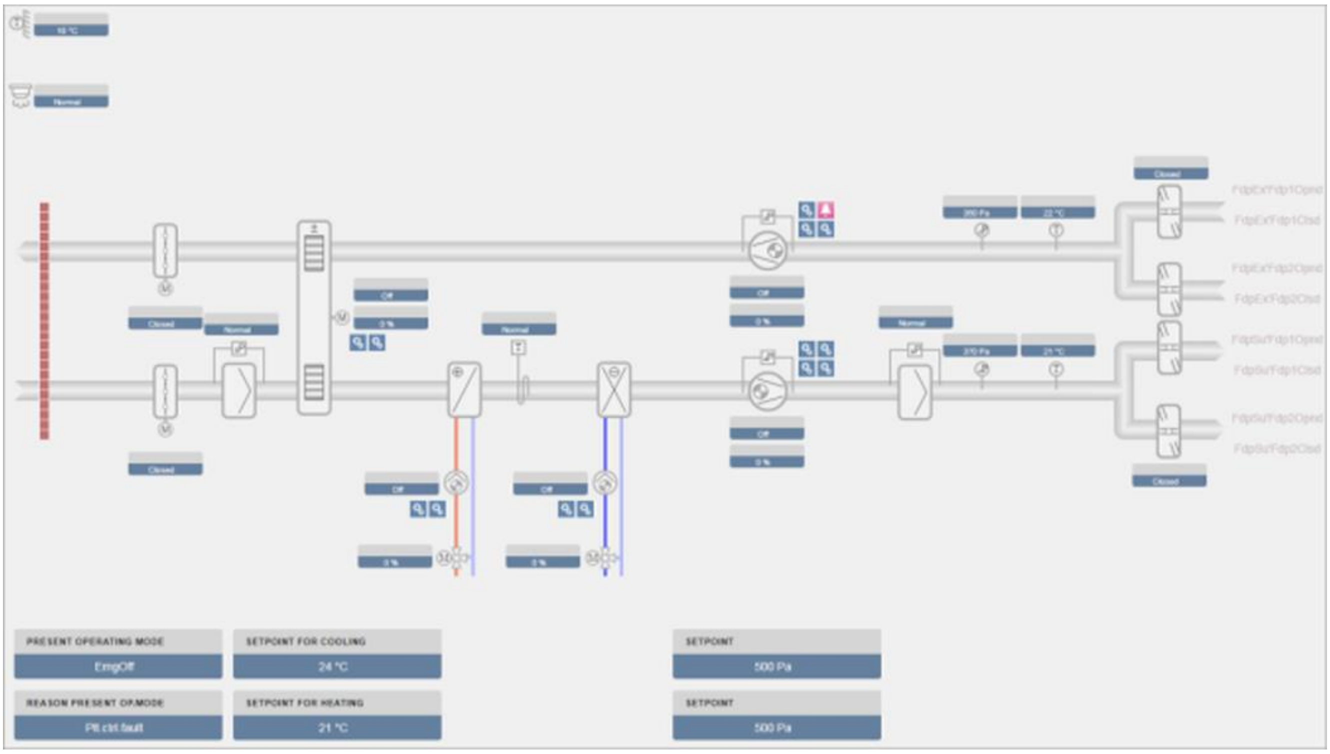
Updating the graphics library

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.

6.3.1 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.
- Any components that are not used in your system are automatically hidden each time the graphic is viewed. To optimize the graphic rendering time, see Optimizing supersample graphics [→ 161].
- Supersample graphics are available in the **Graphics** list if the **GRAPHIC ON** query for the graphic aligns with the semantic tags that were applied to the objects in your database during data point integration.



PRESENT OPERATING MODE: EmgOff
REASON PRESENT OP.MODE: Plt ctrl fault
SETPOINT FOR COOLING: 24 °C
SETPOINT FOR HEATING: 21 °C
SETPOINT: 500 Pa
SETPOINT: 500 Pa

Fig. 41: Example of a supersample AHU graphic.

6.3.1.1 Pre-loaded supersample graphics library

This section outlines the graphics that are pre-loaded in Desigo Control Point devices and PXC4/PXC5 automation stations.

Graphic type	Characteristics
Primary supersample	• **Relativized plant graphic compatible with Desigo primary controllers, engineered with XWP and using the CAS application library.** – Relativization done by **tags based on the CAS library**. – Tags are automatically applied when integrating datapoints to the Desigo Control Point device. – Including a superset of components and points. – Components and points will automatically be hidden or shown according the real application program during graphic loading. – Graphic loading time can be reduced by deleting unused components and points. See Optimizing supersample graphics [→ 161] and the E-Learning for more information. • Reuse with PXC4/5 controllers: – Datapoint binding must be redone. – Relativization to be done by **shortName**. • Reuse with BACnet standard devices: – Datapoint binding must be redone. – Relativization to be done by **navName**. See *Using Relative by navName binding* in the *BACnet/IP systems Desigo Control Point Engineering Manual* (A6V11604297).
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.
Room supersample	• **Relativized room graphic compatible with Desigo room controllers, engineered with ABT Site.** – Relativization done by **tags**. – Tags are automatically applied when integrating datapoints to the Desigo Control Point device. – Including a superset of components and points. – Components and points will automatically be hidden or shown according the real application program. – Graphic loading time can be reduced by deleting of unused components and points (see E-Learning for further details).
Dashboard template	**Template graphic compatible with Desigo primary controllers, engineered with XWP.** Additional engineering effort per project required to create energy dashboard graphic.

Table 69: Properties of pre-loaded graphics.

Supersample graphic name	Corresponding Desigo CAS Library application	Style	Description
Sample AHU_ERCPL_HC_HUM_H_TPH	Ahu30 Ahu31 Ahu32 Ahu33 Ahu34 Ahu35 Ahu40 Ahu80	2D+ / 2D*	AHU; ERC (plate); heating and cooling; humidifier; humidity, temperature and pressure control
Sample AHU_ERCRnacl_HC_TP	Ahu10 Ahu20	2D+ / 2D*	AHU; ERC (run around coil); heating and cooling; temperature and pressure control
Sample AHU_ERC_HC_TP	Ahu10 Ahu20	2D+ / 2D*	AHU; ERC (rotary); heating and cooling; temperature and pressure control
Sample AHU_ERC_H_TP	Ahu10 Ahu20	2D+ / 2D*	AHU; ERC (rotary); heating only; temperature and pressure control
Sample AHU_MIX_HC_TP	Ahu70	2D+ / 2D*	AHU; ERC (mixing circuit); heating and cooling; temperature and pressure control
Sample CGEN_1Ch	CGen10	2D+ / 2D*	Cooling generation: one chiller

Supersample graphic name	**Corresponding Desigo CAS Library application**	**Style**	**Description**
Sample CGRP_1Grp	CGrp10 CGrp65 CGrp66 CGrp70 CGrp71	2D+ / 2D*	Cooling group: one group
Sample CGrp_1Grp_Pu	CGrp60	2D+ / 2D*	Cooling group: one group with mixing circuit
Sample Dhw_DhwHyd	DhwHyd10	2D+ / 2D*	Domestic hot water: with hydraulic charge
Sample HGEN_1Bo	HGen11	2D+ / 2D*	Heat generation: one boiler
Sample HGEN_2Bo	HGen30 HGenCas10 HGenExt20	2D+ / 2D*	Heat generation: two boilers
Sample HCR_1GRP	Hcr10 Hcr11 Hcr12 Hcr15 Hcr20 Hcr65 Hcr70	2D+ / 2D*	Heat generation: one group
Sample HCR_1GrpPu	Hcr60	2D+ / 2D*	Heat generation: one group with mixing circuit
Sample Heating Curve	–	–	Calculates the flow temperature setpoint based on outside air temperature, room setpoint and other factors, such as wind and solar.

Table 70: 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.

Example graphic name	**Corresponding Desigo CAS Library application**	**Style**	**Description**
Sample NG AHU_ERC_HC_TP	Ahu21	2D+ / 2D	AHU; ERC (rotary); speed-controlled fans; chilled water cooling coil; hot water heating coil; shutoff dampers.
Sample NG DHW_DhwHyd	Dhw21	2D+ / 2D	Domestic hot water: with demand-controlled heating and controller storage tank charging.
Sample NG HGEN_2Bo	HGen21	2D+ / 2D	Heat generation: two boilers; modulating burner; single-stage burner.
Sample NG HCR	HCr21 HCr22	2D+ / 2D	Heating circuit: radiators; weather-dependent flow temperature control.

Table 71: Application example graphics.

Supersample graphic name	**Corresponding Desigo CAS Library application**	**Style**	**Description**
Sample RSeg_HVAC_FNC	Hvac11	2D	Room segment overview sample (HVAC: FNC; present values; setpoints; status)
Sample-RSeg-HVAC-FPB	Hvac13	2D	Room segment overview sample (HVAC: FPB; present values; setpoints; status)
Sample RSeg_HVAC_VAV	Hvac12	2D	Room segment overview sample (HVAC: VAV; present values; setpoints; status)

Supersample graphic name	Corresponding Desigo CAS Library application	Style	Description
Sample Room	–	2D	Room overview sample (lights & blinds; present values; setpoints; status)
Sample Room Segment	–	2D	Room segment overview sample (lights & blinds; present values; setpoints; status)
Sample RoomOperator Landscape	–	QMX7	End user room operation (landscape)
Sample RoomOperator Portrait	–	QMX7	End user room operation (portrait)

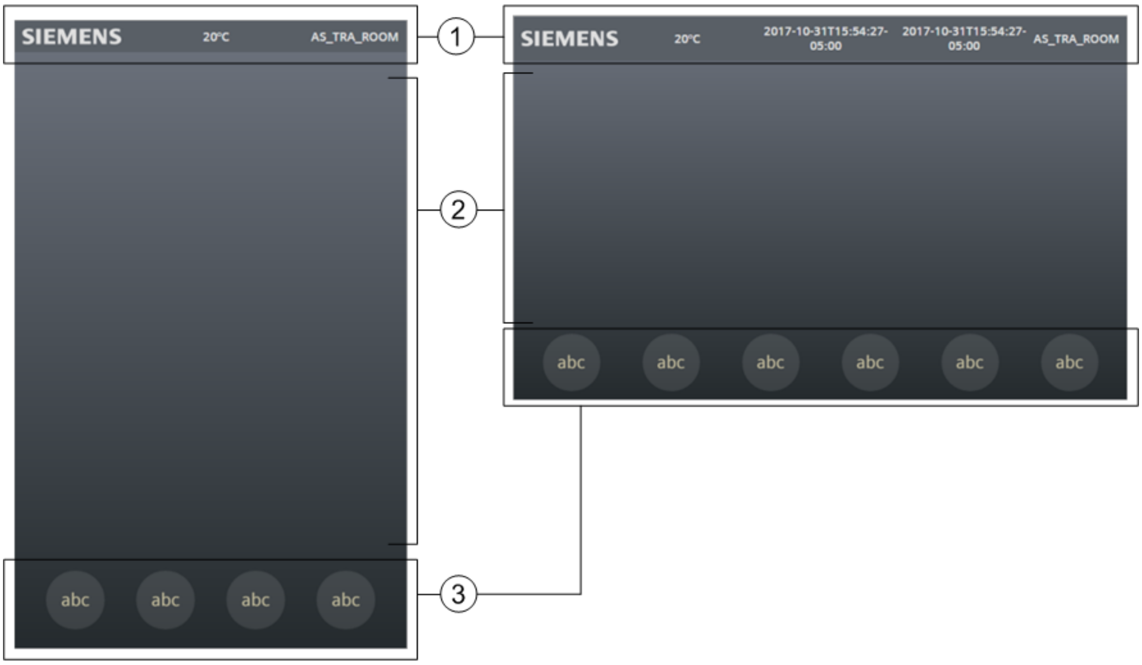
Table 72: Room and Room segment supersample graphics.

Template name	Description
Sample dashboard public	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 [→ 170]
Sample dashboard facility manager	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 [→ 166]

Table 73: Dashboard templates.

End user room graphic templates

The following figures show examples of the **Sample RoomOperator Landscape** and **Sample RoomOperator Portrait** templates for end user room devices.



① **Top navigation bar**
Contains the Siemens logo, the **roomNameDisplay** object and the **tempDisplay** object.

② **Control display**

Select widgets from the **COMPONENTS > SIEMENS QMX** pane to create an end user room graphic on a touch panel.

③ **Bottom navigation bar**
Contains navigation buttons for scrolling through pages of the display.

Creating end user room graphics [→ 195]

6.3.2 Graphics models

The graphics models library contains pre-built groups of components.

- The models for a **Light**, **SmartLabel** and **StatusIndicator** model the behavior of a single data point. They are bound to a command point.
- Most of the other models are *compounds* that model the behavior of an **equip**; for example, an exhaust fan.

  They may contain several data points or nested sub-structures. These models are bound to an **equip** in the **EQUIPMENTS** pane.

Data point binding [→ 74]

Adding the Light, SmartLabel and StatusIndicator models to a graphic

1. Drag-and-drop the **Light**, **SmartLabel** or **StatusIndicator** model onto the work area.
2. Drag-and-drop the corresponding **command point** from the **EQUIPMENTS** pane onto the model.
3. *(Optional)* Select the model, right-click and select **TOOLS > RELATIVIZE**.
   Select the binding options to create a relative reference and click **APPLY**.
4. Click and **SAVE** to confirm the file name and location.
5. Display the graphic in the **Plant view** and verify that the model is operating correctly.

Adding a compound model to a graphic

1. Drag-and-drop a compound model into the graphic. For example, **2D Fan air west**.
2. Drag-and-drop the corresponding **equip** from the **EQUIPMENTS** pane onto the model.
3. *(Optional)* Select the model, right-click and select **TOOLS > RELATIVIZE**.
   Select the binding options to create a relative reference and click **APPLY**.
4. Click and **SAVE** to confirm the file name and location.
5. Display the graphic in the **Plant view** and verify that the model is operating correctly.

6.3.3 Graphics components

The graphics components library provides the following:

- Standard 2D and 2D+ images for physical components, which are similar to Desigo CC components.
- 3D components, which are different than Desigo CC 3D 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 [→ 90]

The following tables outline the categories of available components.

Category	Description
Components • AM charts • SVG gauges	Dashboard components and wizards for creating graphs, charts, and gauges.
HTML components	HTML components for an interactive display.
Central plant 2D	Valves, chillers, pumps, boilers, cooling towers and pipes.
Central plant sensors, 2D	Flow, pressure and temperature sensors and a generic VFD.
Coils, 3D	Cooling and heating coils, including brand-specific images.

Category	Description
Dampers, 2D+ and 3D	Barometric, bypass, circular and cone dampers and brand-specific vertical dampers.
Ducts, 2D+	Various duct components.
Fans, 2D+and 3D	Centrifugal, duct, mushroom, propeller, and squirrel cage fans and brand-specific VFD images.
Filters, 2D+	Various types of filters.
Misc, 2D+	AC unit, baseboard valve, compressor, controller, fume hood and brand-specific actuators.
Round ducts, 2D+	Various round duct components.
Sensors, 2D+ and 3D	Airflow, averaging, CO2, halo, humidity, low limit, smoke detector, temperature and brand-specific inside and outside sensors.

Table 74: Standard components.

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

Table 75: Siemens-specific components.

7 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 [→ 155]

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.

7.1 Optimizing supersample graphics

This section outlines how to optimize the rendering time for a supersample graphic. Supersample graphics may be used without modification to view the status of systems using Siemens applications. However, each time a graphic is viewed, the application needs to determine which components are not used and then hide them from the display.

	Workflow Step
1	Deleting unused components and smart labels
2	*(Optional)* Adding graphic components
3	*(Optional)* Adding smart labels
4	Verifying the object binding

Prerequisite

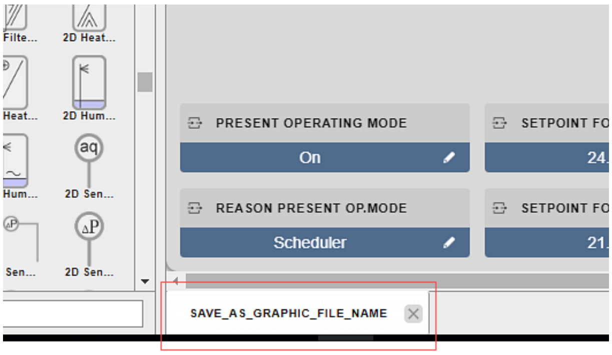
- Determine which supersample graphic most closely matches your system.
  Supersample graphics [→ 155]
- If a graphic is currently displayed, click or an item in the breadcrumb list to close it.

Deleting unused components and smart labels

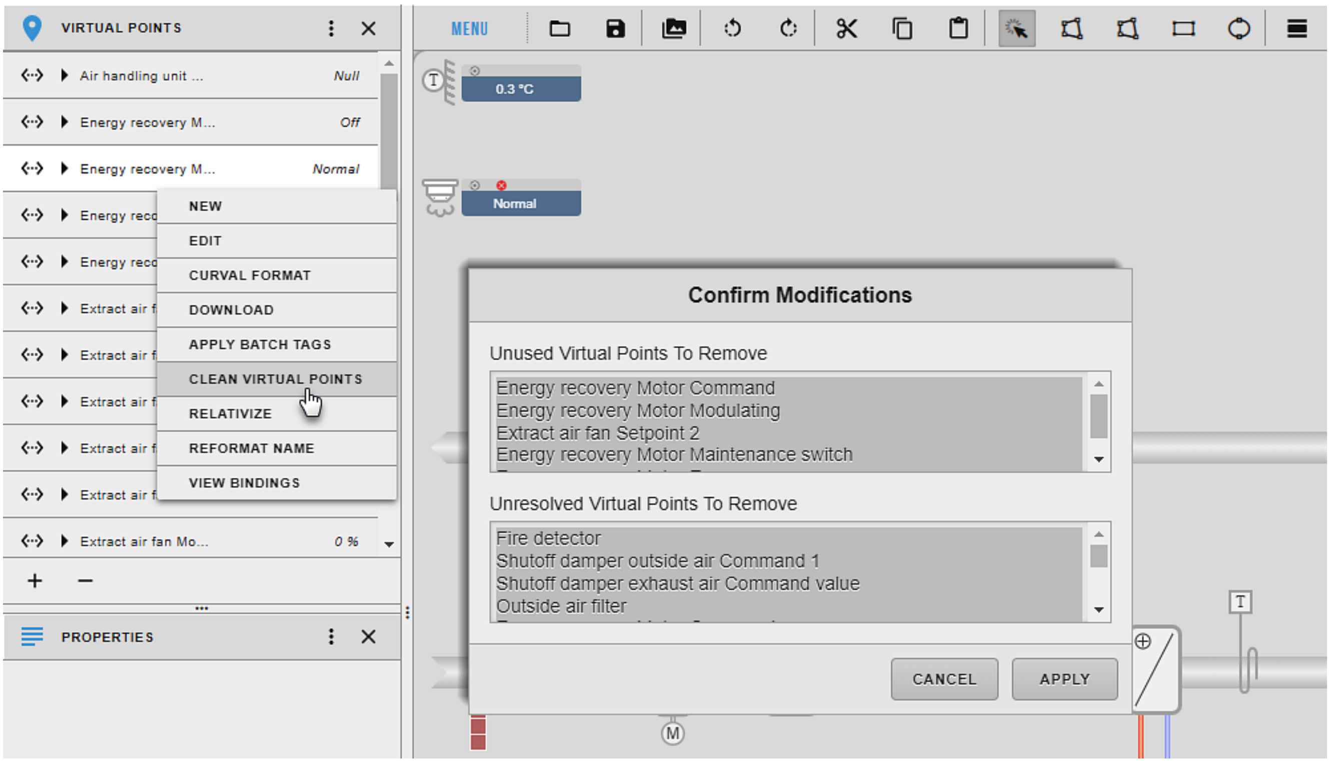
1. Select > > **Configure graphics** > .
   ⇨ The **Configure graphics** – **Edit** dialog box displays all graphics in the application.
2. Select the supersample graphic that most closely matches your system and click **Edit**.
   ⇨ Graphics Builder opens the selected graphic in a new tab.
3. Select **MENU** > **SAVE AS GRAPHIC** , enter a unique file name and click **SAVE**.

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.



4. Delete the components and smart labels that do not apply to your system.
5. Do the following to remove virtual points that were only used for objects that have been deleted:
    a. Open the **VIRTUAL POINTS** pane.
    b. Right-click on the list of virtual points and select **CLEAN VIRTUAL POINTS**.
    c. Click **APPLY** to remove the unused virtual points.



Confirm Modifications

Unused Virtual Points To Remove

Energy recovery Motor Command
Energy recovery Motor Modulating
Extract air fan Setpoint 2
Energy recovery Motor Maintenance switch

Unresolved Virtual Points To Remove

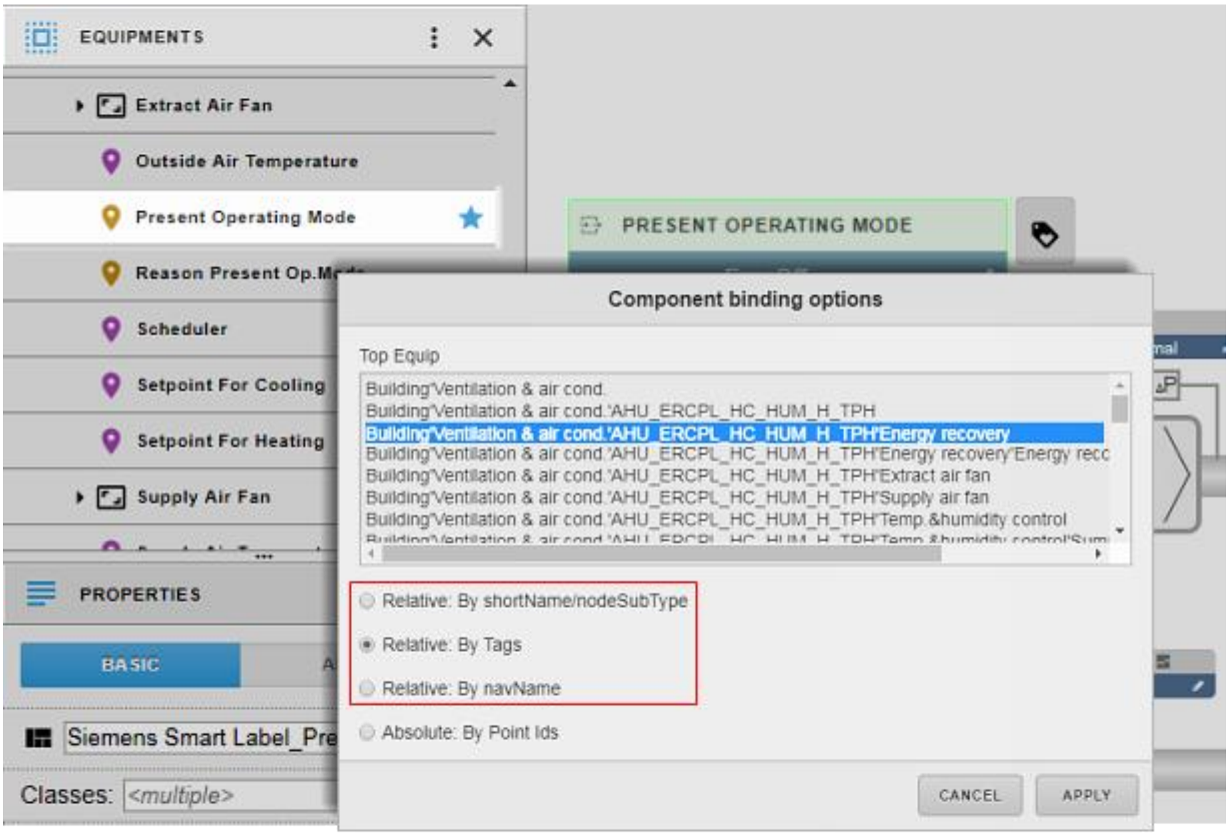
Fire detector
Shutoff damper outside air Command 1
Shutoff damper exhaust air Command value
Outside air filter

(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**.



Component binding options

Top Equip

Building'Ventilation & air cond.
Building'Ventilation & air cond.'AHU_ERCPL_HC_HUM_H_TPH
Building'Ventilation & air cond.'AHU_ERCPL_HC_HUM_H_TPH'Energy recovery
Building'Ventilation & air cond.'AHU_ERCPL_HC_HUM_H_TPH'Energy recovery'Energy recc
Building'Ventilation & air cond.'AHU_ERCPL_HC_HUM_H_TPH'Extract air fan
Building'Ventilation & air cond.'AHU_ERCPL_HC_HUM_H_TPH'Supply air fan
Building'Ventilation & air cond.'AHU_ERCPL_HC_HUM_H_TPH'Temp.&humidity control

○ Relative: By shortName/nodeSubType
● Relative: By Tags
○ Relative: By navName
○ Absolute: By Point Ids

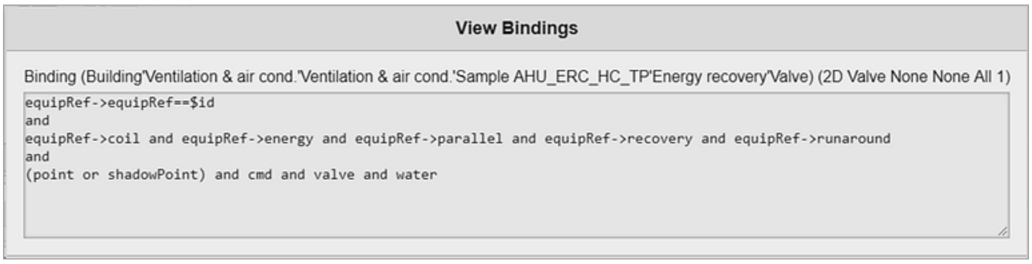
Verifying the object binding

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 [→ 74]
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.



View Bindings

Binding (Building'Ventilation & air cond.'Ventilation & air cond.'Sample AHU_ERC_HC_TP'Energy recovery'Valve) (2D Valve None None All 1)

```
equipRef->equipRef==$id
and
equipRef->coil and equipRef->energy and equipRef->parallel and equipRef->recovery and equipRef->runaround
and
(point or shadowPoint) and cmd and valve and water
```

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

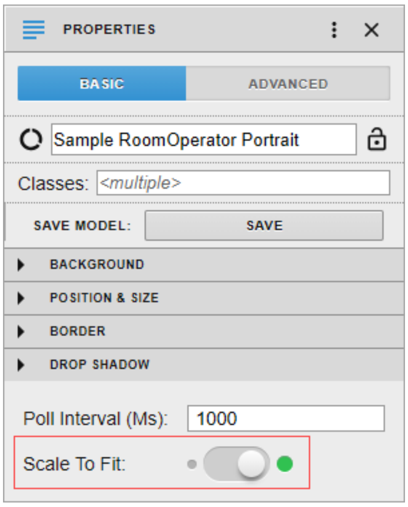
Continue with creating a thumbnail image and assigning the graphic to the Desigo Control Point device so that it can be viewed.
Thumbnails [→ 165]
Enable / disable graphics and kiosks [→ 56]

7.2 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 [→ 86]



Sample RoomOperator Portrait

Classes: <multiple>

Poll Interval (Ms): 1000

Scale To Fit: ●

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

Table 76: 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.

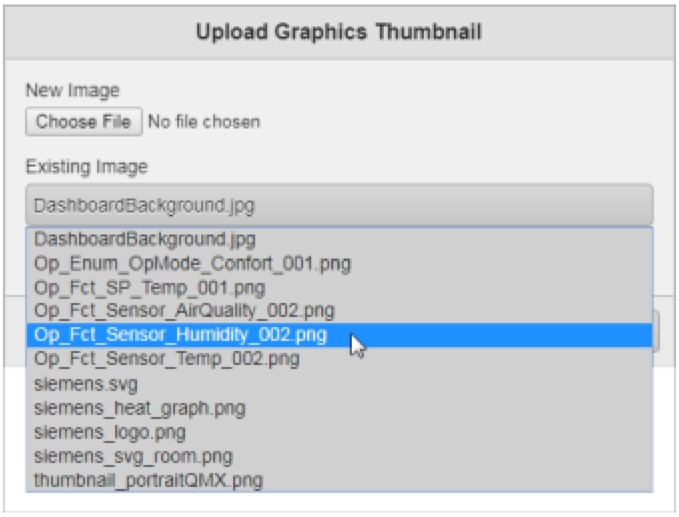
The recommended setting for **Scale to Fit** is **OFF** for graphics displayed on PXM touch panels.

PXM touch panel	Kiosk graphics	Regular graphics
PXM30.E / PXM30-1	1024 × 600	814 × 494
PXM40.E / PXM40-1	1280 × 800	1070 × 694
PXM50.E / PXM50-1	1368 × 768	1158 × 662

Table 77: Recommended graphic resolutions.

7.3 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.



Upload Graphics Thumbnail

New Image

Choose File No file chosen

Existing Image

DashboardBackground.jpg

DashboardBackground.jpg
Op_Enum_OpMode_Confort_001.png
Op_Fct_SP_Temp_001.png
Op_Fct_Sensor_AirQuality_002.png
Op_Fct_Sensor_Humidity_002.png
Op_Fct_Sensor_Temp_002.png
siemens.svg
siemens_heat_graph.png
siemens_logo.png
siemens_svg_room.png
thumbnail_portraitQMX.png

4. Click **Apply**.
5. Click **SAVE** and close the graphic.

7.4 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
  Facility manager dashboard [→ 166]
- **Sample dashboard public**, which is designed for use in public spaces to share information about a building.
  Public dashboard [→ 170]

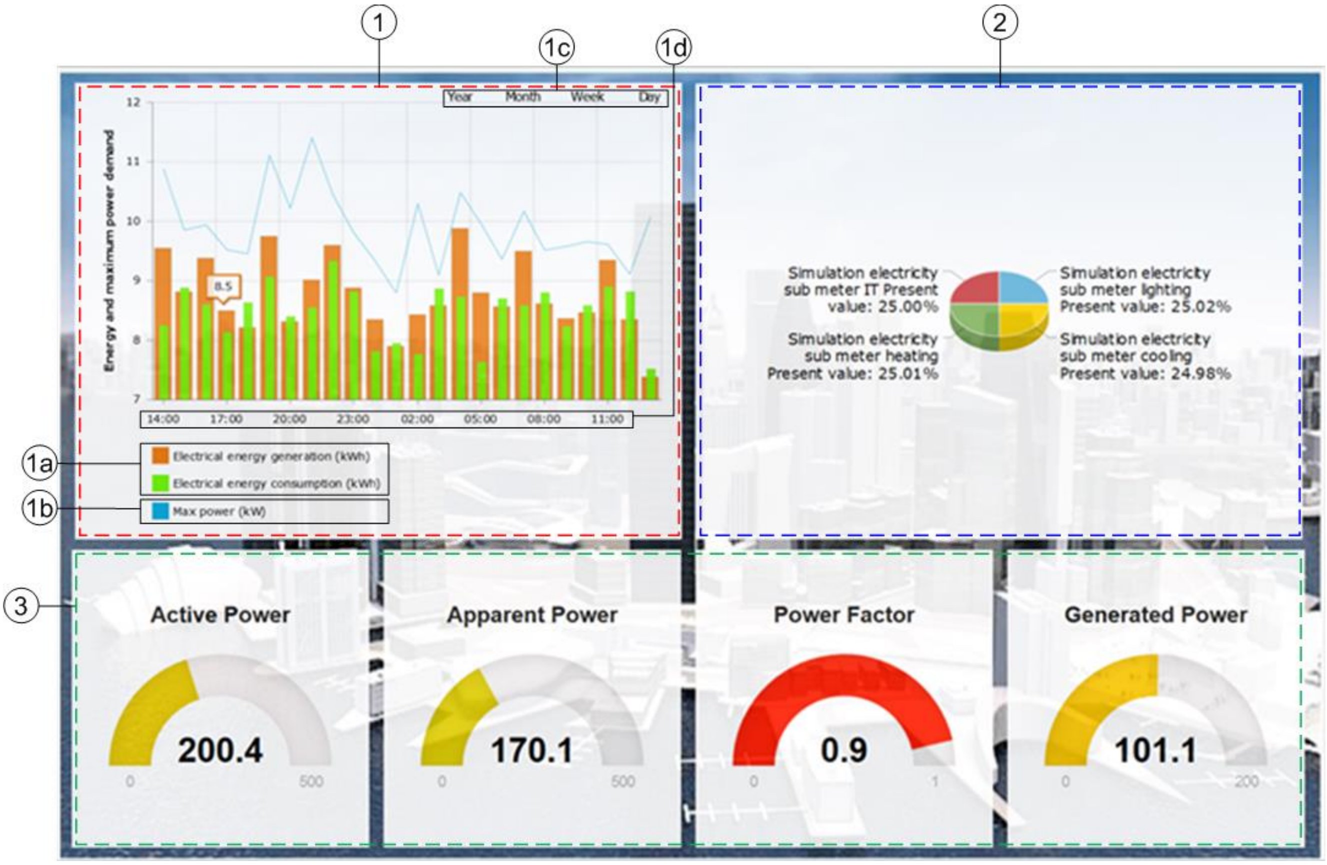
The sample dashboard graphics have been designed to require minimal set-up. Most users only need to add trend definitions for the data to be displayed and add the data sources to the graphic.
Configuring the Facility manager dashboard [→ 167]
Configuring the Public dashboard [→ 171]

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 [→ 56]
- Exporting graphics [→ 55]
- Editing a graphic [→ 54]
- Adding a graphic [→ 53]

7.4.1 Facility manager dashboard

The **Sample dashboard facility manager** graphic provides a facility manager with detailed information regarding the energy consumption of a building. .


1
1c
1d
2
1a
1b
3
Year
Month
Week
Day
Energy and maximum power demand
12
11
10
9
8
7
8.5
14:00
17:00
20:00
23:00
02:00
05:00
08:00
11:00
Electrical energy generation (kWh)
Electrical energy consumption (kWh)
Max power (kW)
Simulation electricity sub meter IT Present value: 25.00%
Simulation electricity sub meter lighting Present value: 25.02%
Simulation electricity sub meter heating Present value: 25.01%
Simulation electricity sub meter cooling Present value: 24.98%
Active Power
200.4
0
500
Apparent Power
170.1
0
500
Power Factor
0.9
0
1
Generated Power
101.1
0
200

① **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, Day, Hour).

② **Energy consumption of selected subsystems** (pie chart)

Created with the **AM chart** component.

③ **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).

	Workflow step
1	Saving a copy of the sample graphic
2	Setting up energy and maximum power demand (bar and line chart)
3	Setting up energy consumption of selected subsystems (pie chart)
4	Setting up present values of selected objects (gauges)

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**.

ℹ 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. 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*.

To add a trend definition for offline trended objects, you must use the commissioning program for the device, such as ABT Pro or XWP, and then download the objects to the automation station.

▷ **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.
   ➪ 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).
BT Download Center

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.

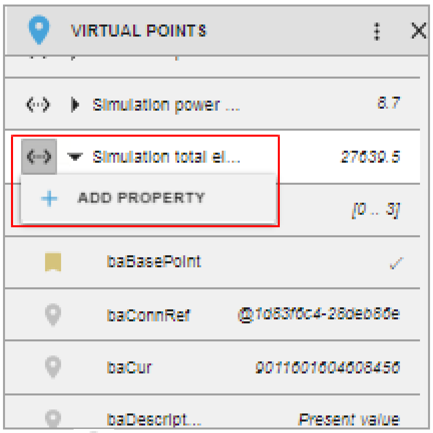
   ➪ A star ★ displays to indicate that a data point is selected.
2. Drag-and-drop the group of data points onto the chart.
   ➪ Two new virtual points are created for energy consumption and energy generation.

For more information, see the Adding information from a trended data point [→ 181] 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.

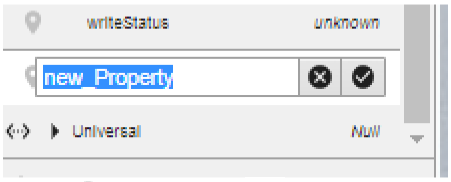
1. In the **VIRTUAL POINTS** pane, click ‹··› for the *energy consumption* data point and select **ADD PROPERTY**.



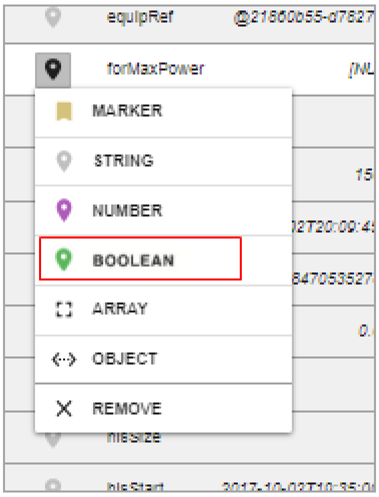
Simulation power ... 8.7
Simulation total el... 27639.5
[0 .. 3]
baBasePoint ✓
baConnRef @1d63f6c4-26deb66e
baCur 901160160460845б
baDescript... Present value

➪ A string tag is added.

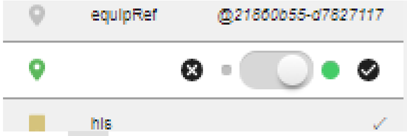
2. Scroll down to find the new property, change its name to **forMaxPower** and click ✓.



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



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



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:

   a. In the **VIRTUAL POINTS** pane, click to expand the point and scroll down to the **displayName** string tag .

   b. 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 [→ 188] section.

4. Setting up current values of selected objects (gauges)

Complete this procedure for each gauge in the Facility manager dashboard.

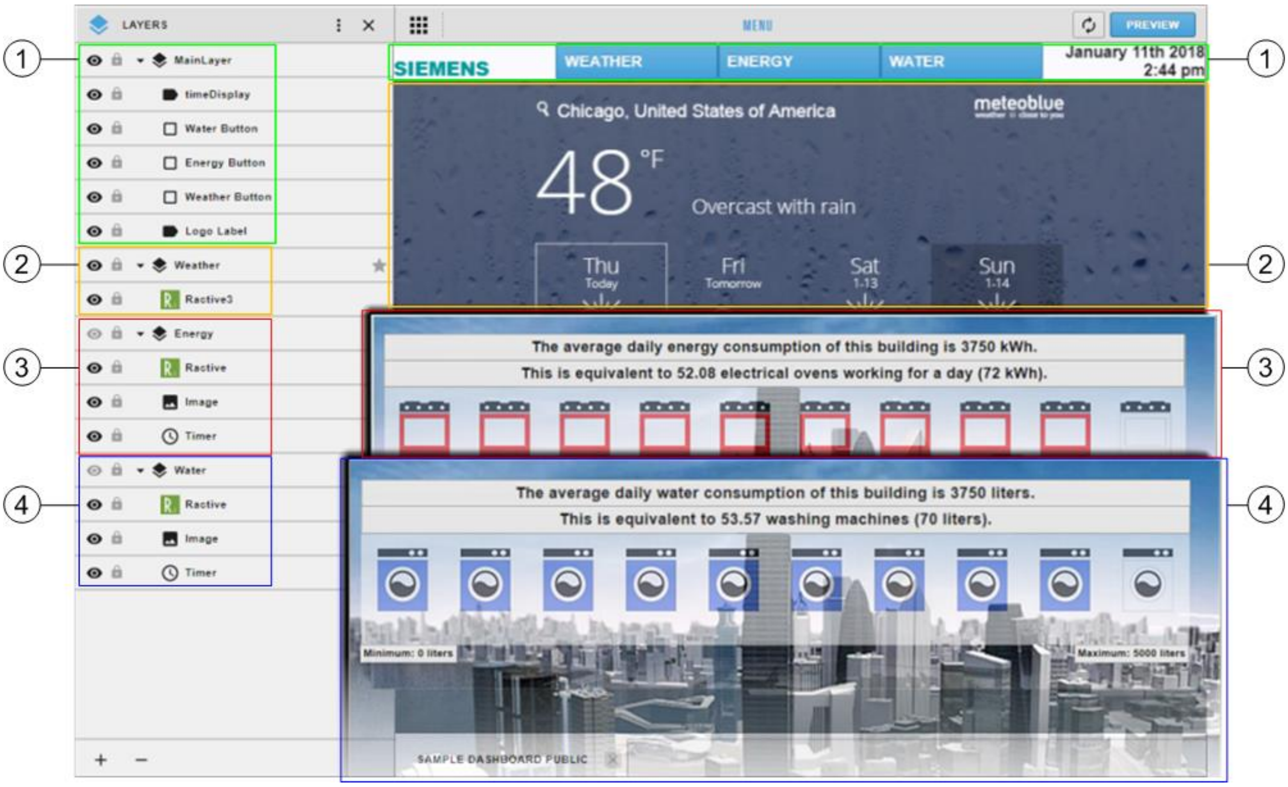
1. In the **EQUIPMENTS** pane, select the data point that is the source for the gauge.
2. Drag-and-drop the data point onto the gauge.
3. *(Optional)* Delete any unused gauges.
4. Click and **SAVE** to save the graphic.

⇨ The Facility manager dashboard configuration is now complete.

7.4.2 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.



The average daily energy consumption of this building is 3750 kWh.
This is equivalent to 52.08 electrical ovens working for a day (72 kWh).

The average daily water consumption of this building is 3750 liters.
This is equivalent to 53.57 washing machines (70 liters).

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 ③ and Water ④ 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 [→ 173]
- Each layer contains a background image, which can be modified.
  Adding or replacing a background image [→ 179]
- 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 [→ 182]

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 👁 to hide the **Weather** layer and display a different layer for editing.
2. When you're done editing:
   - Click 👁 to hide the layers you edited.
   - Click 👁 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.

	Workflow step
1	Saving a copy of the sample graphic
2	Changing the location displayed in the Weather layer
3	Adding a data source to the Energy and Water layers

1. Saving a copy of the sample graphic

▷ ▦ **Plant view** is selected and you are working at the ▦ **Root** of the building hierarchy.

1. Open the **Sample dashboard public** graphic.
2. Select 🛠 > 🔧 > **Configure graphics** > ✎.
   ⇨ Graphics Builder opens the Public dashboard graphic in a new tab.
3. In Graphics Builder, select **MENU** > ⊞ **SAVE AS GRAPHIC**, enter a unique file name and click **SAVE**.

> ℹ 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.

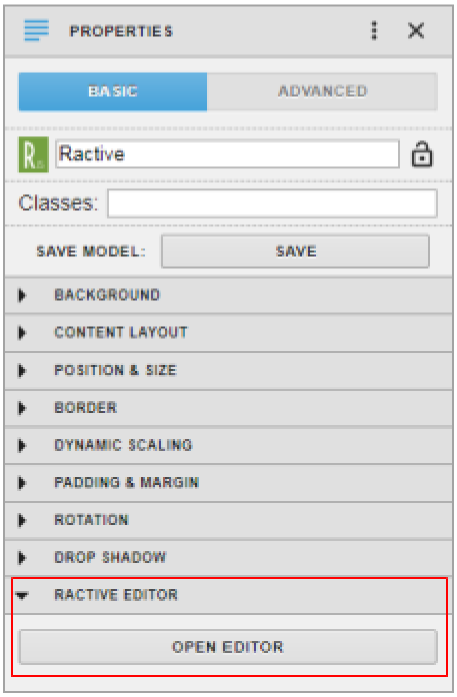
2. Changing the location displayed in the Weather layer

This procedure replaces the existing HTML code for the R **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

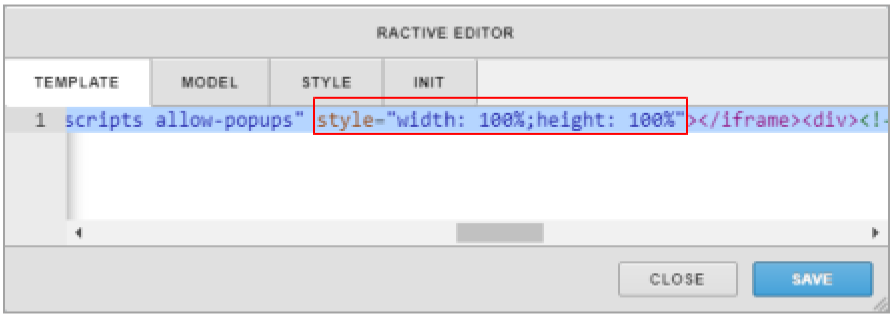
1. Go to https://www.meteoblue.com/en/weather. From the left menu, select the widget you would like to integrate.
2. Select the options to configure your widget.
3. When the widget is configured, copy the HTML code in the field at the bottom of the page.

4. 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**.



```
scripts allow-popups" style="width: 100%;height: 100%"></iframe><div><!-
```

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*.

To add a trend definition for offline trended objects, you must use the commissioning program for the device, such as ABT Pro or XWP, and then download the objects to the automation station.

▷ 📈 **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.
   ➪ 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).
BT Download Center

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 [→ 171]
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.

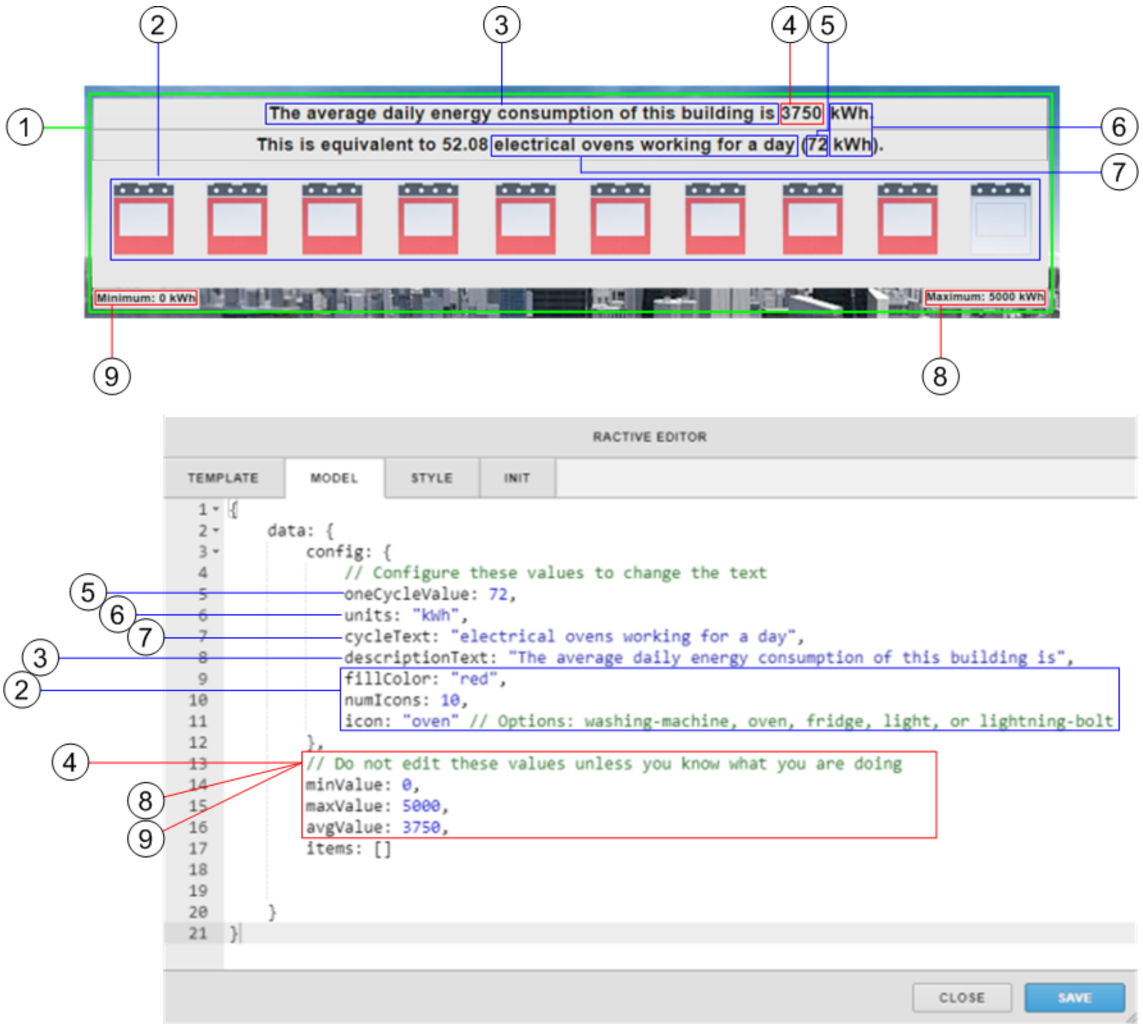
For additional details, see the Adding information from a trended data point [→ 181] section.

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.



The average daily energy consumption of this building is 3750 kWh.

This is equivalent to 52.08 electrical ovens working for a day (72 kWh).

```
{
    data: {
        config: {
            // Configure these values to change the text
            oneCycleValue: 72,
            units: "kWh",
            cycleText: "electrical ovens working for a day",
            descriptionText: "The average daily energy consumption of this building is",
            fillColor: "red",
            numIcons: 10,
            icon: "oven" // Options: washing-machine, oven, fridge, light, or lightning-bolt
        },
        // Do not edit these values unless you know what you are doing
        minValue: 0,
        maxValue: 5000,
        avgValue: 3750,
        items: []


    }
}
```

Fig. 42: 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**.

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.

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

③ **descriptionText**
Free-form text describing the average calculation.

④ **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.

⑤ **oneCycleValue**
Can be any positive number. In this case, it’s **72**.

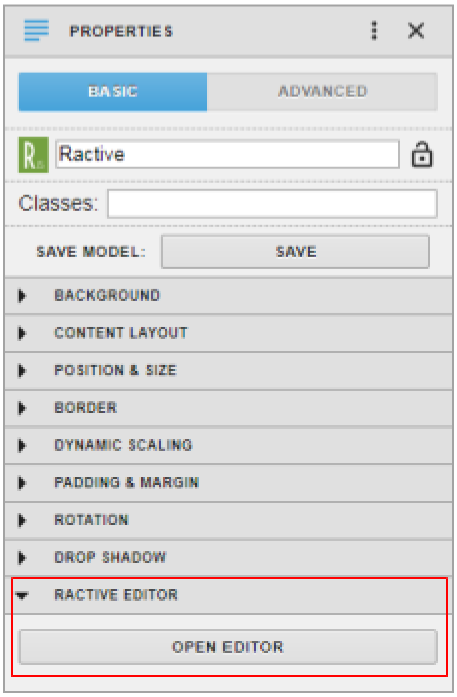
⑥	**units** Free-form text describing the unit of measure.
⑦	**cycleText** Free-form text describing the common household device used for comparison.
⑧	**maxValue** Maximum daily consumption used in the comparison calculation. **Note:** Do not edit this value. It is overwritten once the graphic displays live data.
⑨	**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

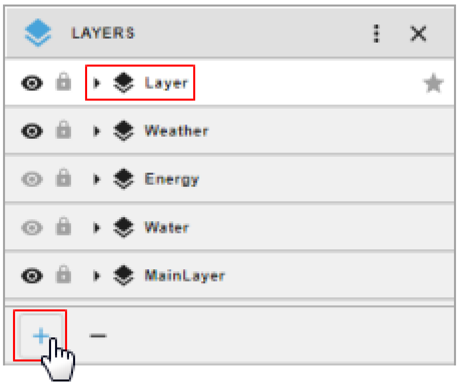
Complete the following procedures to add a new tab to the Public dashboard:

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

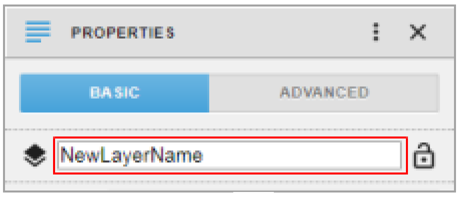
Adding a new layer

▷ 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.

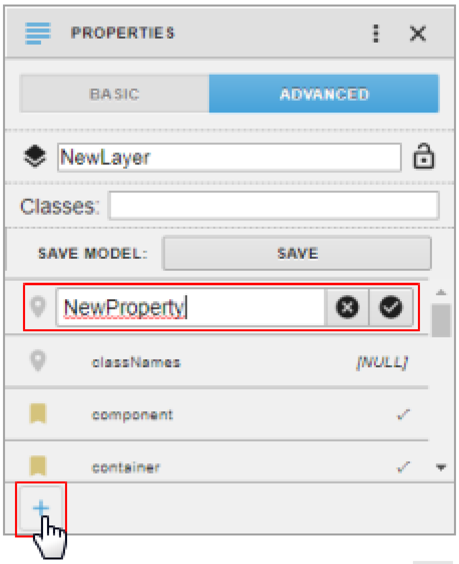


3. Select the new layer and modify the **Name** field in the **BASIC** ☰ **PROPERTIES** pane.



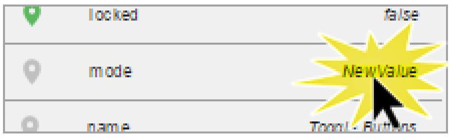
NewLayerName

4. Select **ADVANCED** ☰ **PROPERTIES** and click + at the bottom of the pane to add a new tag.



NewLayer
Classes:
NewProperty
classNames [NULL]
component ✓
container ✓

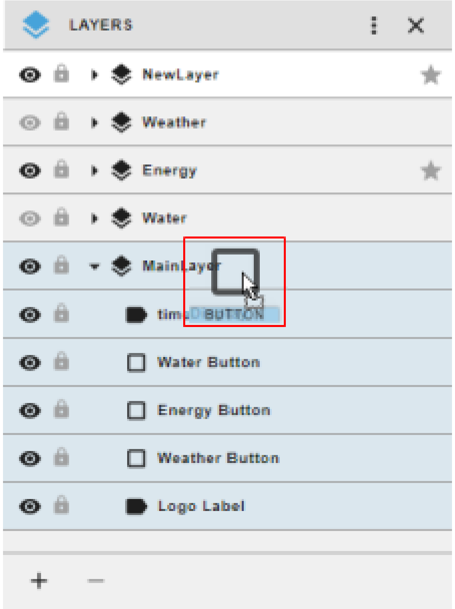
5. Name the new tag **mode** and click ✓.
6. Select the value for the **mode** tag (initially named **NewValue**), change it to the name of the tab and click ✓.


locked false
mode NewValue
name Tool! - Buttons

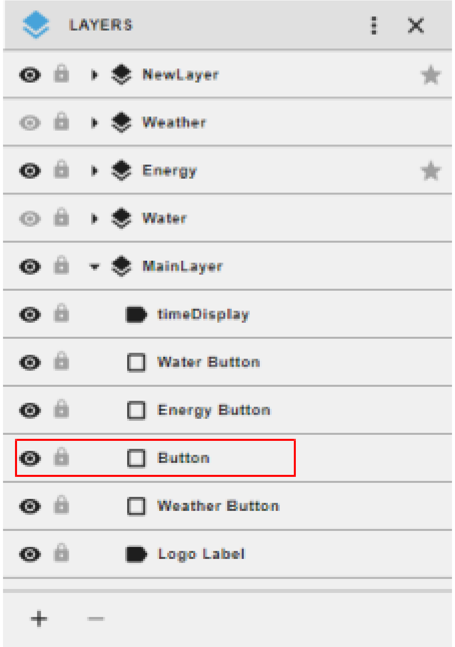
➪ A new layer has been added to the dashboard.

Adding a button to the navigation bar

1. Drag-and-drop a ☐ **Button** from **COMPONENTS > HTML COMPONENTS** onto the **MainLayer** in the **LAYERS** pane.

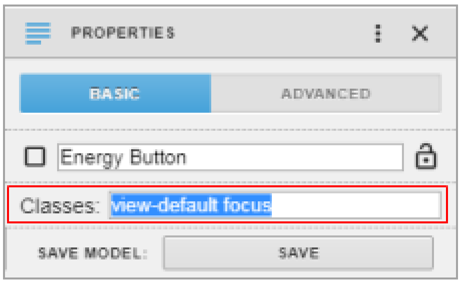


2. Drag the ☐ **Button** to the desired position in the **MainLayer** hierarchy. For example, between the **Energy** and **Weather** buttons.



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.



Energy Button

Classes: view-default focus

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 [➙ 87]

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:

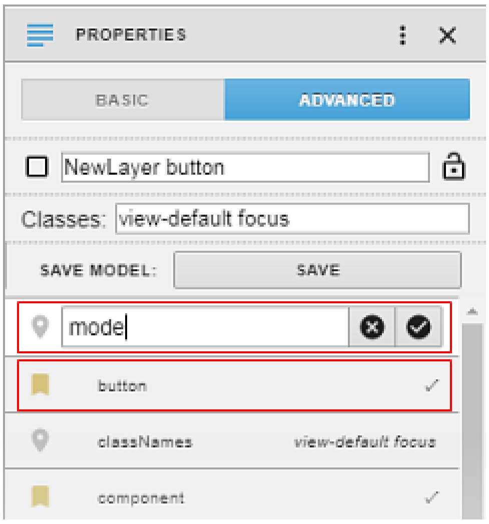
a. Click + at the bottom of the pane to add a new tag.

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 ✔.



☐ NewLayer button

Classes: view-default focus

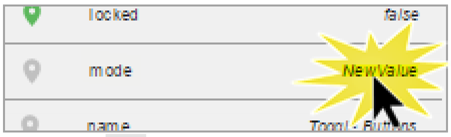
mode

button ✓

classNames view-default focus

component ✓

f. Select the value for the **mode** tag (initially named **NewValue**) and enter the name of the dashboard tab that the button points to.



locked false

mode NewValue

name Tool - Buttons

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.

7.4.3 Adding and editing a text box

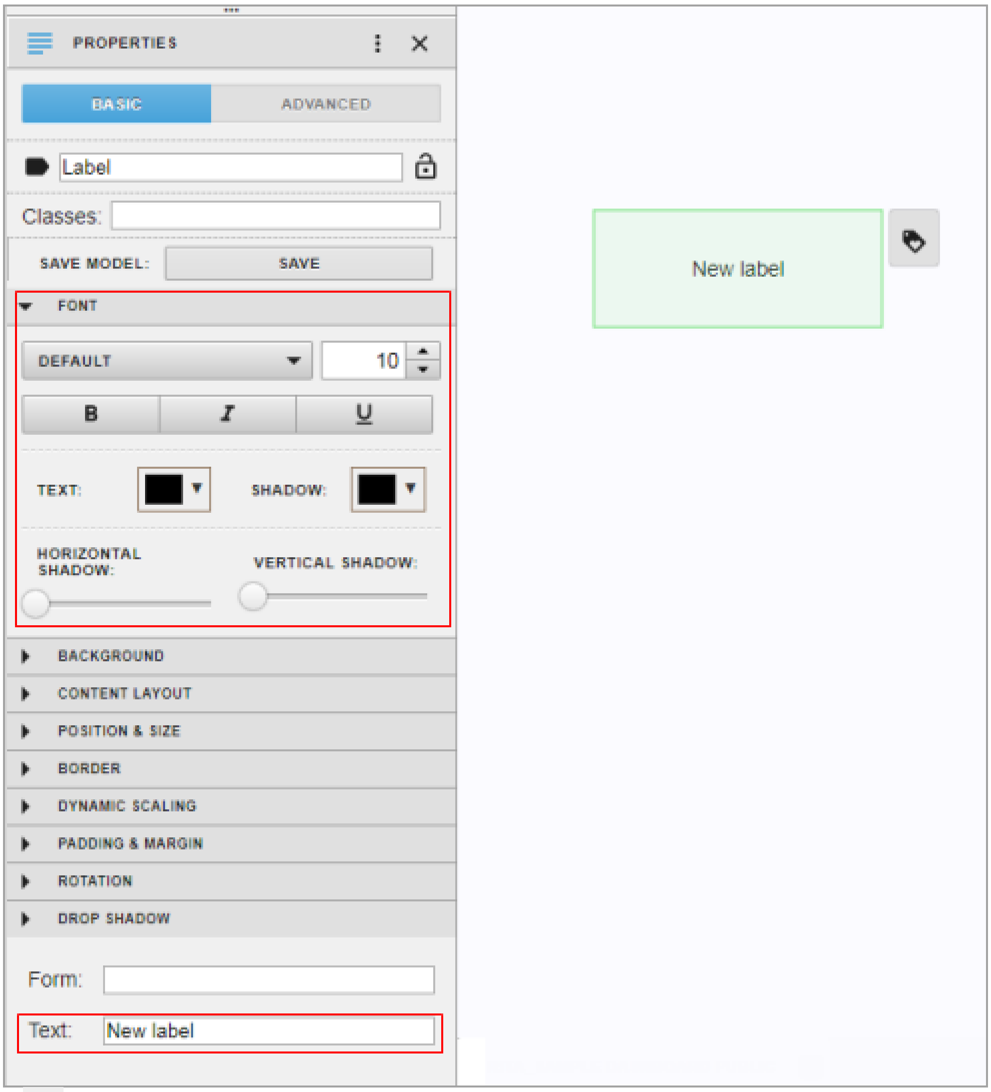
Text boxes are added to graphics by using the ⬛ **Label** HTML component.

▷ 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. PROPERTIES [→ 86]



Label
Classes:
DEFAULT 10
Form:
Text: New 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.

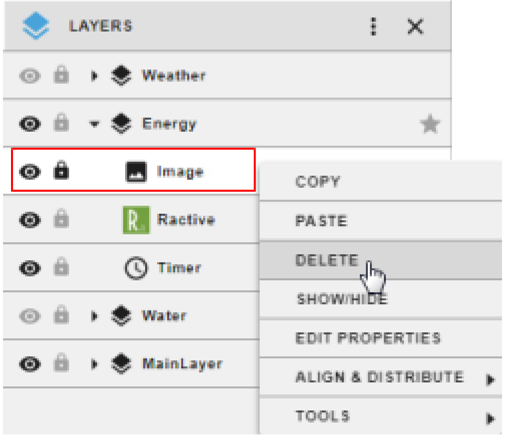
7.4.4 Adding or replacing a background image

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.

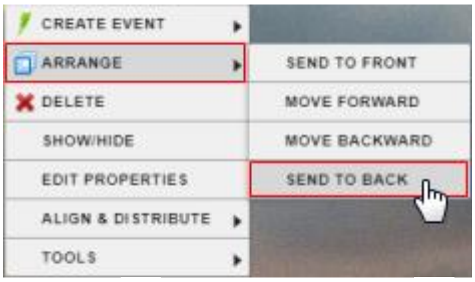
▷ This procedure uses the **PROPERTIES** and **LAYERS** panes.

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.

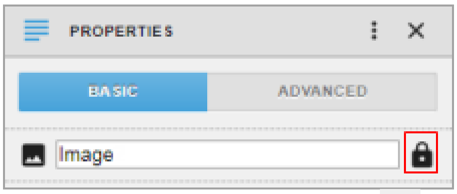
3. Expand the layer you are editing.
4. If you are replacing an existing background image, right-click on the image in the **LAYERS** pane and select **DELETE**.



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**.
   BASIC PROPERTIES [→ 87]
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.

7.4.5 Adding information from a trended data point

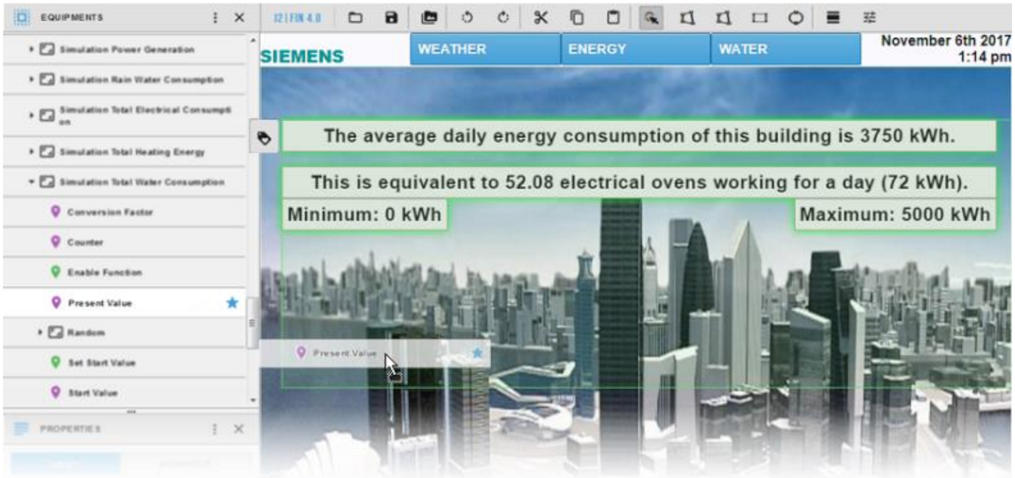
Information from a trended data point can be displayed in a summary graphic, such as a pie chart, or in a comparison chart, such as those displayed in the **Energy** and **Water** tabs of the Public dashboard.

!	*NOTICE*
	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.



The average daily energy consumption of this building is 3750 kWh.

This is equivalent to 52.08 electrical ovens working for a day (72 kWh).

Minimum: 0 kWh

Maximum: 5000 kWh

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.

7.4.5.1 Changing the refresh interval for a trended data point

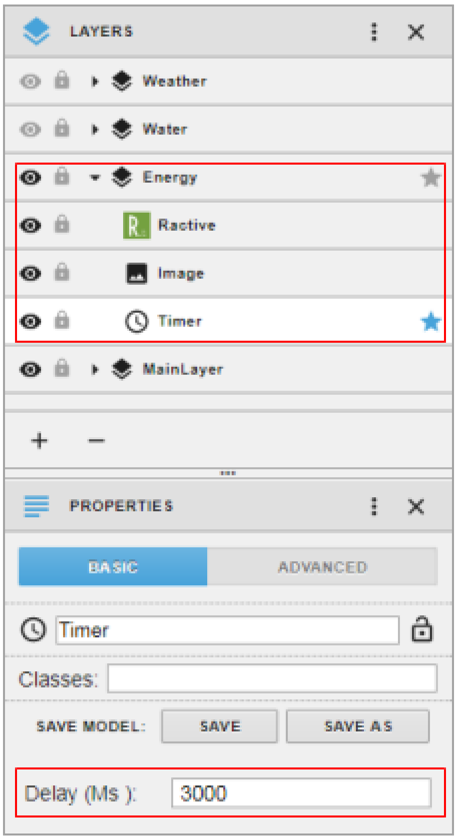
By default, data linked to the **Energy** and **Water** layers of the Public dashboard is refreshed every three hours. To use a different refresh interval, edit the **Delay** property of the 🕓 **Timer** control for the layer.

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.



Timer

Delay (Ms): 3000

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.

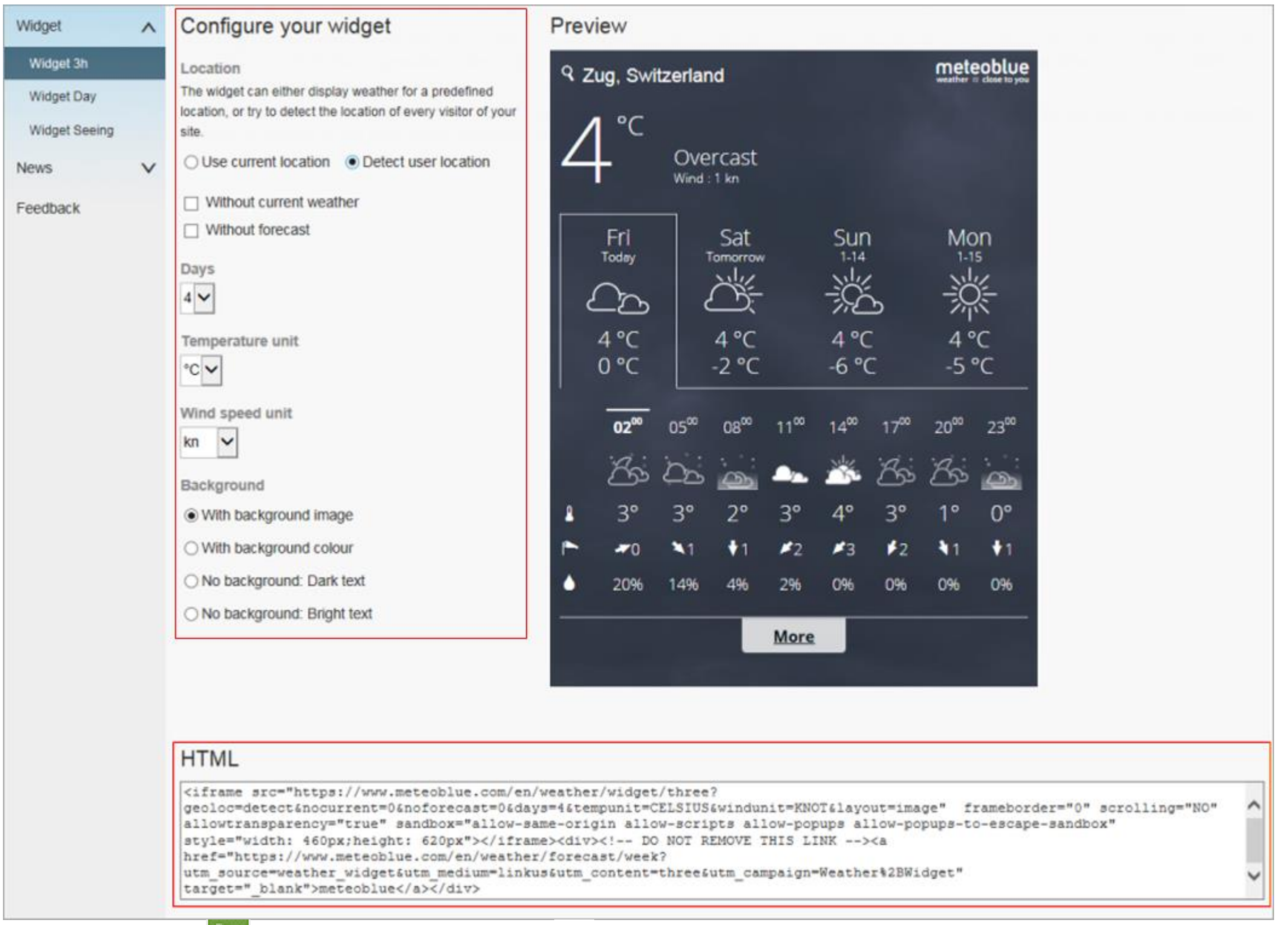
➪ The refresh interval for the trend data has been updated.

7.4.6 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:
   - a. Go to https://www.meteoblue.com/en/weather.
   - 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.



Configure your widget

Location

The widget can either display weather for a predefined location, or try to detect the location of every visitor of your site.

○ Use current location ● Detect user location

☐ Without current weather
☐ Without forecast

Days: 4

Temperature unit: °C

Wind speed unit: kn

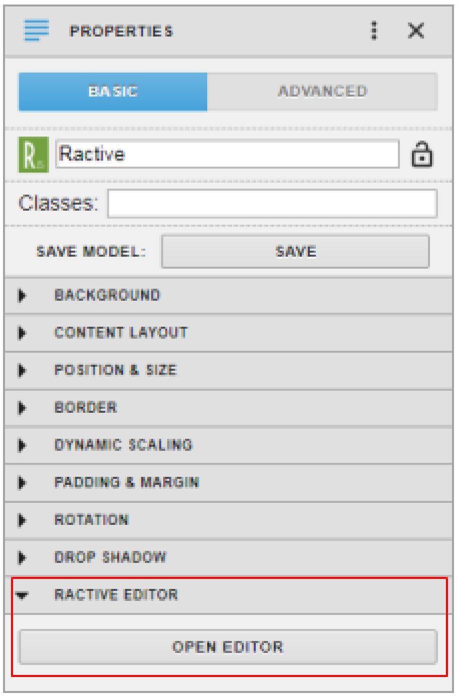
Background
● With background image
○ With background colour
○ No background: Dark text
○ No background: Bright text

HTML

```
<iframe src="https://www.meteoblue.com/en/weather/widget/three?
geoloc=detect&nocurrent=0&noforecast=0&days=4&tempunit=CELSIUS&windunit=KNOT&layout=image"  frameborder="0" scrolling="NO"
allowtransparency="true" sandbox="allow-same-origin allow-scripts allow-popups allow-popups-to-escape-sandbox"
style="width: 460px;height: 620px"></iframe><div><!-- DO NOT REMOVE THIS LINK --><a
href="https://www.meteoblue.com/en/weather/forecast/week?
utm_source=weather_widget&utm_medium=linkus&utm_content=three&utm_campaign=Weather%2BWidget"
target="_blank">meteoblue</a></div>
```

4. Drag-and-drop a **Ractive** component from **COMPONENTS** onto the work area.
5. Select the **Ractive** component.

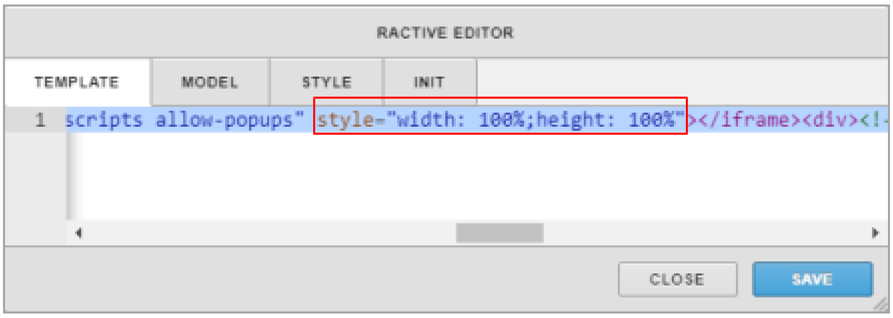
6. In the **BASIC** ☰ **PROPERTIES**, expand **RACTIVE EDITOR** and click **OPEN EDITOR**.



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

7. Paste the 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**.

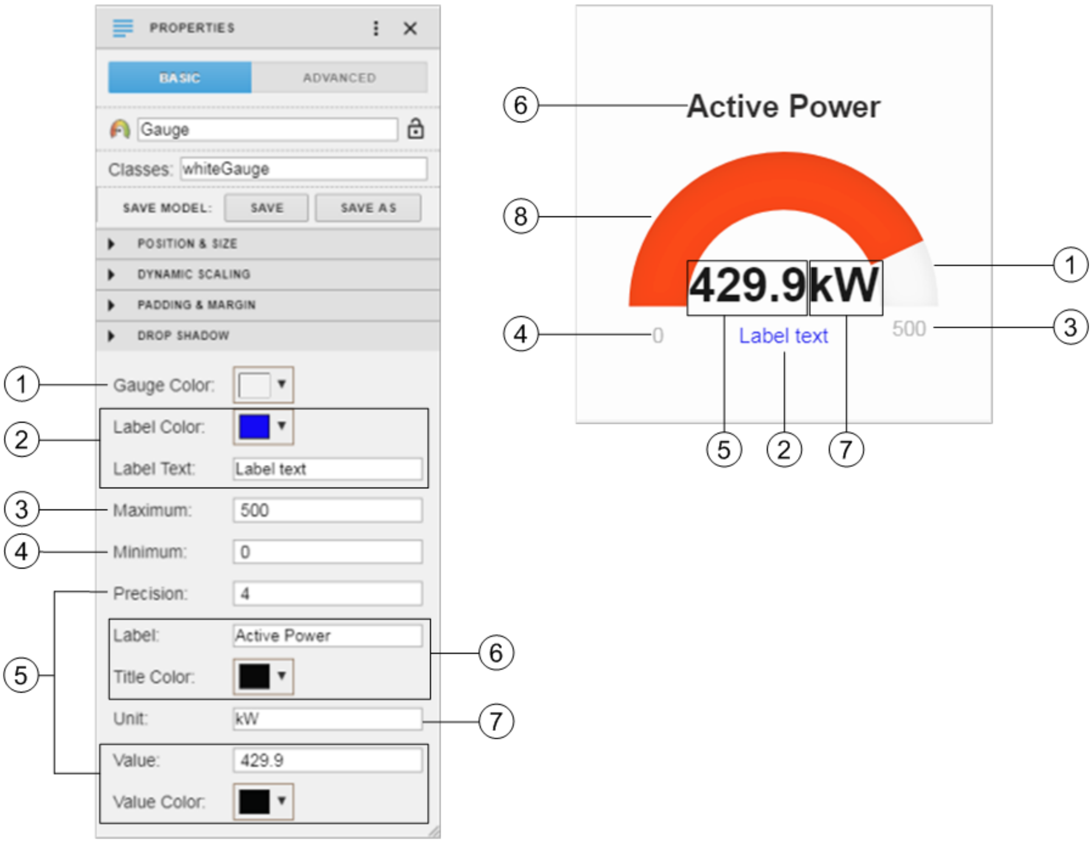


```
scripts allow-popups" style="width: 100%;height: 100%"></iframe><div><!-
```

7.4.7 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
Classes: whiteGauge
Gauge Color:
Label Color:
Label Text: Label text
Maximum: 500
Minimum: 0
Precision: 4
Label: Active Power
Title Color:
Unit: kW
Value: 429.9
Value Color:

Fig. 43: Gauge BASIC PROPERTIES.

	Property	Description	Property can be modified
①	Gauge color	Background color for the gauge.	Yes
②	Label color	Color of the **Label text.**	Yes
	Label text	Subtitle for the gauge. This is a free text field.	Yes
③	Maximum	Maximum value for the gauge.	No This value is overwritten when a BACnet object is dropped onto the gauge.
④	Minimum	Minimum value for the gauge.	No This value is overwritten when a BACnet object is dropped onto the gauge.
⑤	Precision	The number of decimal places displayed.	Yes
	Value	The present value displayed	No This value is overwritten when a BACnet object is dropped onto the gauge.
	Value color	Color of the **Value** and **Unit**.	Yes
⑥	Label	Title for the gauge.	No When a BACnet object is dropped onto the gauge, the object name is automatically entered in the **Label** field.
	Title color	Color of the **Label**.	Yes
⑦	Unit	Unit of measure for the **Value**. The **Value color** also applies to this field.	No When a BACnet object is dropped onto the gauge, the unit of measure for the object is automatically entered in the **Unit** field.
⑧	Gauge fill	The color displayed indicates if the present value is in the minimum range (green), moderate range (yellow-to-orange) or maximum range (red).	No

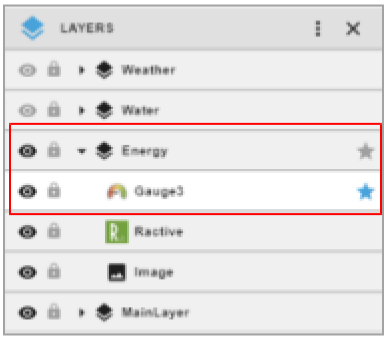
Table 78: Gauge BASIC PROPERTIES.

7.4.7.1 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.

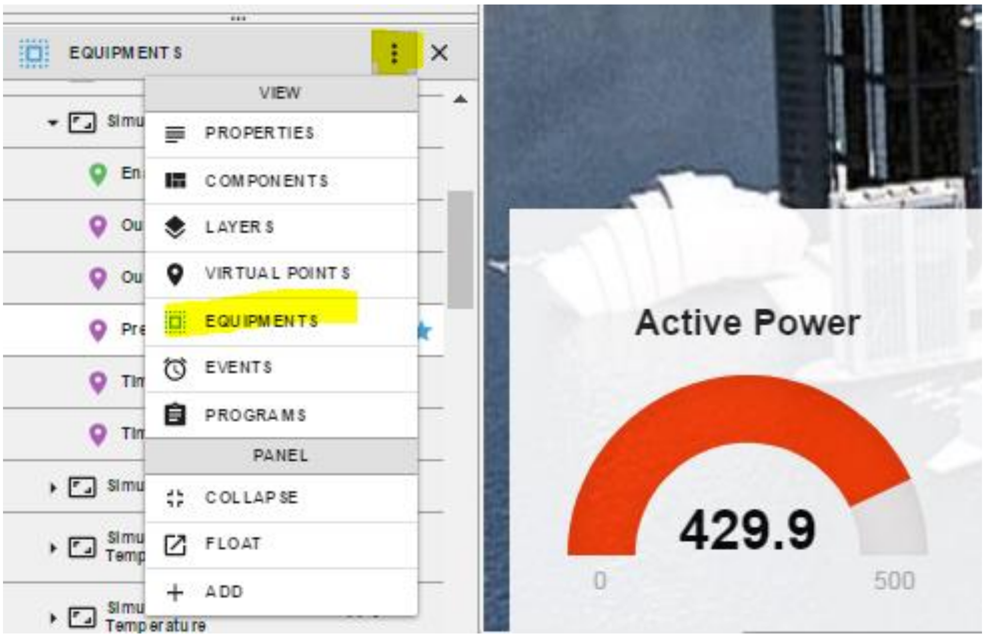


2. Select the gauge and use the **BASIC** **PROPERTIES** to edit the labels, scale, colors, etc. For more information, see the Figure *Gauge BASIC PROPERTIES* in the Working with gauges [→ 184] topic.
3. Click 💾 and **SAVE** to save the graphic.

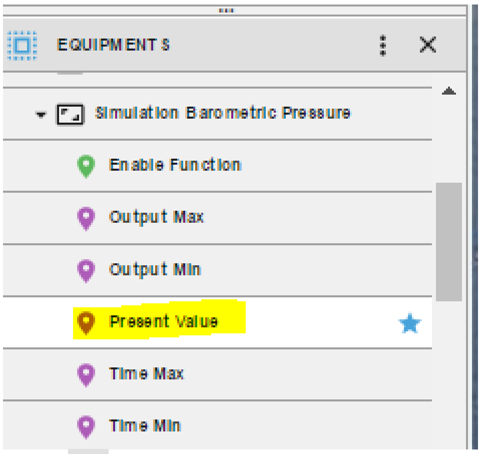
➪ The gauge appearance has been modified.

7.4.7.2 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.

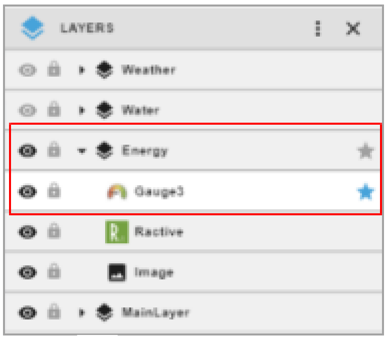
➪ The gauge has been added to the graphic.

7.4.7.3 Changing the data source

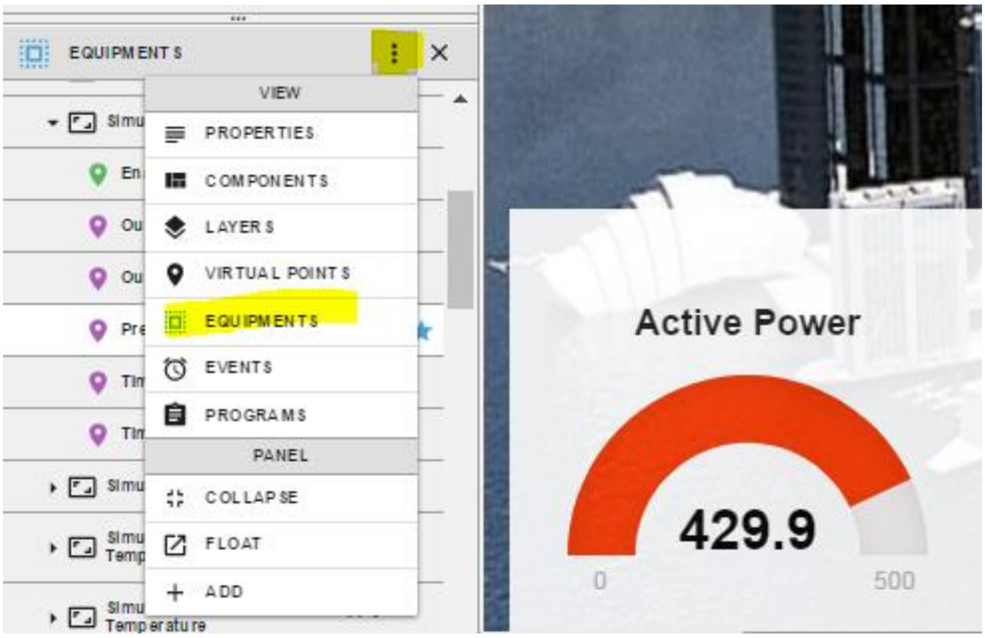
This procedure modifies the data source for a gauge.

▷ This procedure uses the **EQUIPMENTS** and **LAYERS** panes.

1. Open the graphic for editing and click in the **LAYERS** pane to display the layer with the gauge.

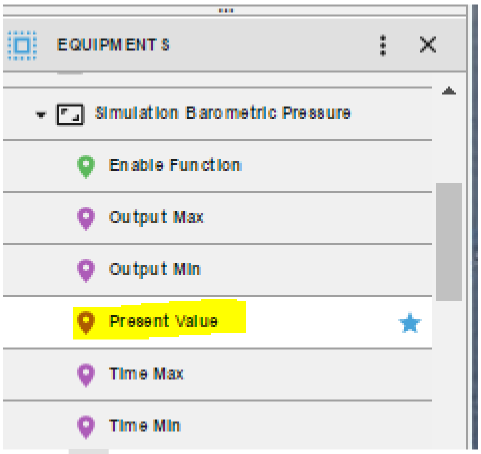


2. In the **EQUIPMENTS** pane, navigate to the **Present value** data point that is the source for the gauge.



3. Drag-and-drop the **Present value** point onto the gauge.

   Note: Do not select the name of the **Equipment**.



4. Click and **SAVE** to save the graphic.

➪ The data source for the gauge has been updated.

7.4.8 Editing charts

Charts display historic values from various data points and may contain complex calculations.

7.4.8.1 Working with pie charts

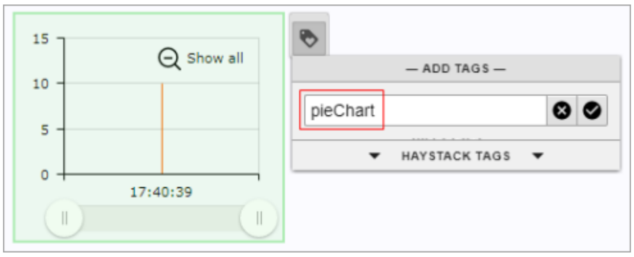
Complete the following steps to add a pie chart.

	Workflow step
①	Adding an AM chart
②	Adding data points to the chart
③	Copying the program
④	*(Optional)* Modifying the chart labels

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 .



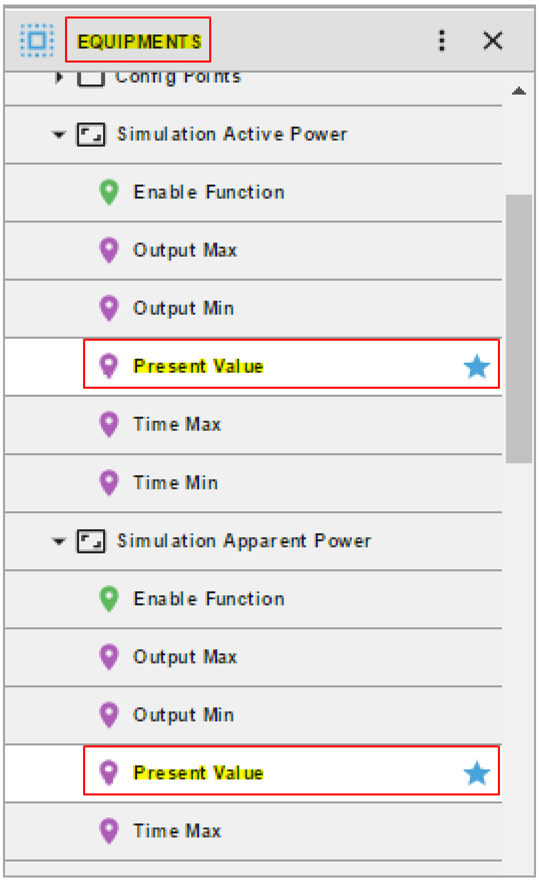
pieChart

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

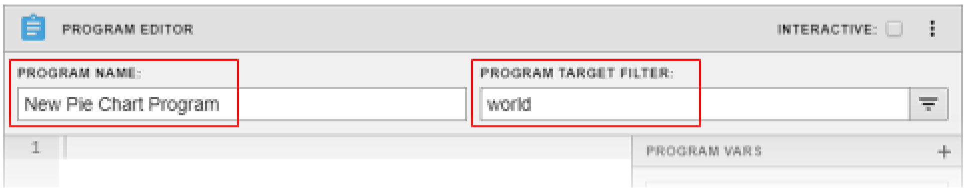
If you are using the **Sample dashboard facility manager** graphic, skip to the Step *Editing the chart labels*.

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.

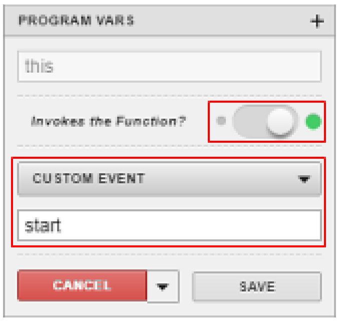
3. Type **world** in the **PROGRAM TARGET FILTER** field.



PROGRAM NAME: New Pie Chart Program

PROGRAM TARGET FILTER: world

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**.



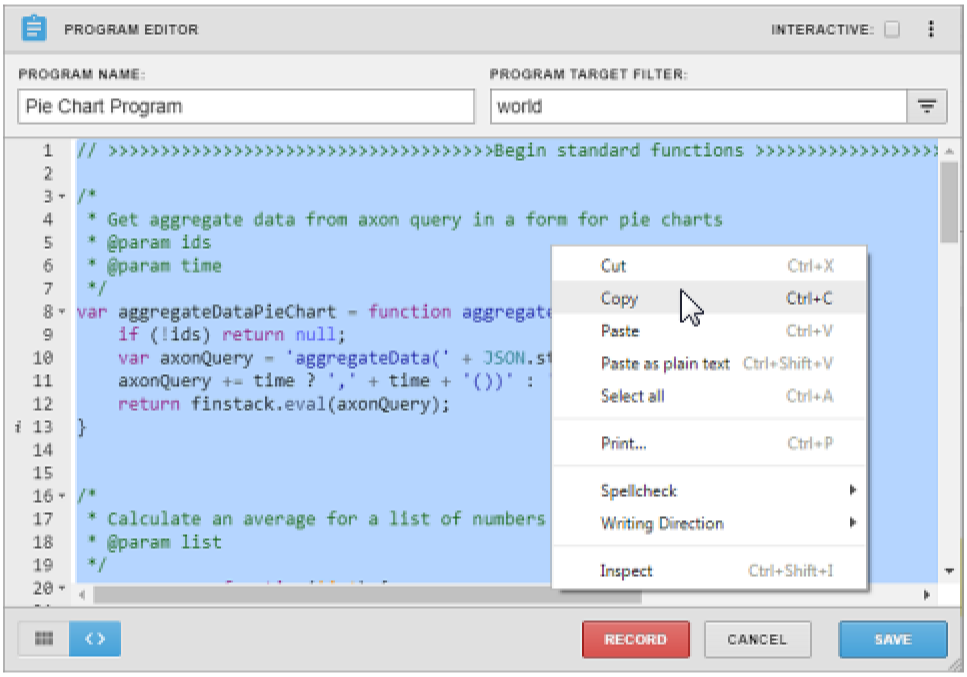
this

Invokes the Function? ON

CUSTOM EVENT

start

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.



PROGRAM NAME: Pie Chart Program

PROGRAM TARGET FILTER: world

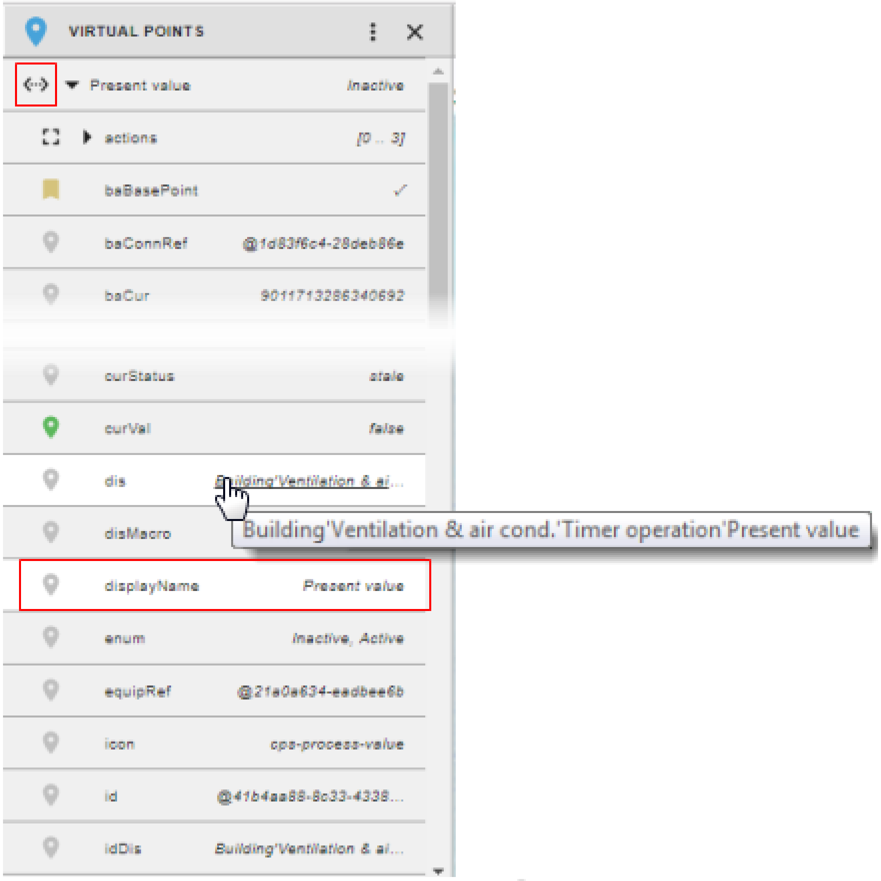
```
// >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>Begin standard functions >>>>>>>>>>>>>>>>>

/*
 * Get aggregate data from axon query in a form for pie charts
 * @param ids
 * @param time
 */
var aggregateDataPieChart = function aggregate
    if (!ids) return null;
    var axonQuery = 'aggregateData(' + JSON.st
    axonQuery += time ? ',' + time + '())' :
    return finstack.eval(axonQuery);
}


/*
 * Calculate an average for a list of numbers
 * @param list
 */
```

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.



Present value	*Inactive*
actions	*[0 .. 3]*
baBasePoint	✓
baConnRef	*@1d83f6c4-28deb86e*
baCur	*9011713286340692*
curStatus	*stale*
curVal	*false*
dis	*Building'Ventilation & ai…*
disMacro	
displayName	*Present value*
enum	*Inactive, Active*
equipRef	*@21a0a634-eadbee6b*
icon	*cps-process-value*
id	*@41b4aa88-8c33-4338…*
idDis	*Building'Ventilation & ai…*

Building'Ventilation & air cond.'Timer operation'Present value

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.

7.4.8.2 Adding a bar or line chart

Use the workflow in this section to add a bar chart.

	Workflow step
①	Adding an AM chart
②	Adding data points to the chart
③	Copying the program
④	Displaying the Daily Max Power line

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.

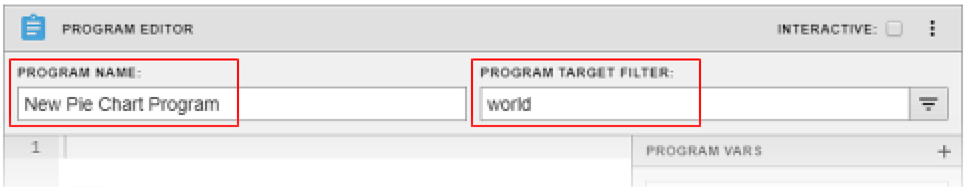
For more information, see the Adding information from a trended data point [→ 181] section.

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.

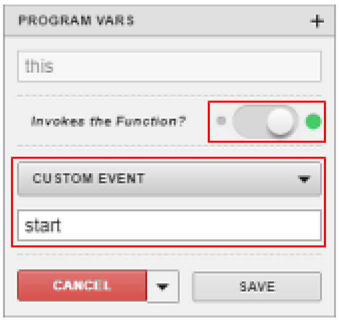
Note
If you are using the **Sample dashboard facility manager** graphic, skip to the Step *Displaying the Daily Max Power line*.

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.



PROGRAM NAME: New Pie Chart Program
PROGRAM TARGET FILTER: world

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**.



this
Invokes the Function? ON
CUSTOM EVENT
start

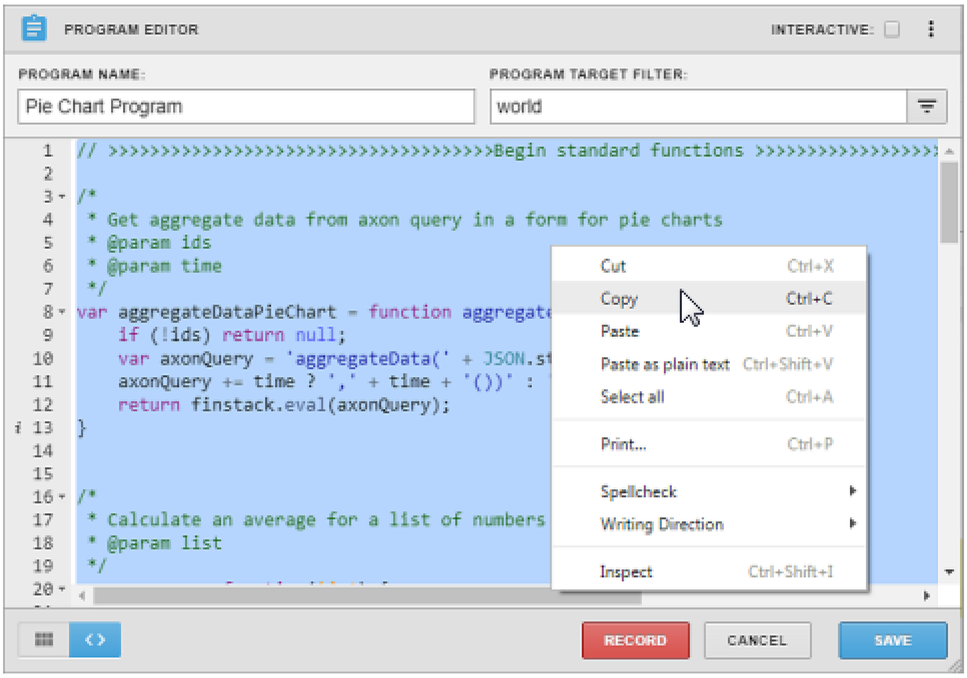
9. Do the following to copy the program from the **Sample dashboard facility manager** graphic:
   a. Go to Desigo Control Point and display the **Sample dashboard facility manager** graphic.

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.



PROGRAM NAME: Pie Chart Program

PROGRAM TARGET FILTER: world

```
// >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>Begin standard functions >>>>>>>>>>>>>>>>>

/*
 * Get aggregate data from axon query in a form for pie charts
 * @param ids
 * @param time
 */
var aggregateDataPieChart = function aggregate
    if (!ids) return null;
    var axonQuery = 'aggregateData(' + JSON.st
    axonQuery += time ? ',' + time + '())' :
    return finstack.eval(axonQuery);
}


/*
 * Calculate an average for a list of numbers
 * @param list
 */
```

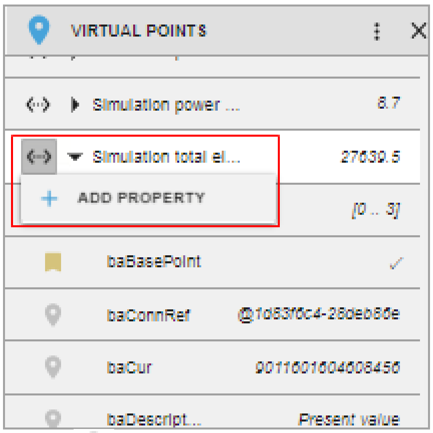
10. Navigate back to the **PROGRAM EDITOR** dialog box in your graphic and paste the contents of the program.

11. Click **SAVE** to save the program in your graphic and close the **PROGRAM EDITOR** dialog box.

④ 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.

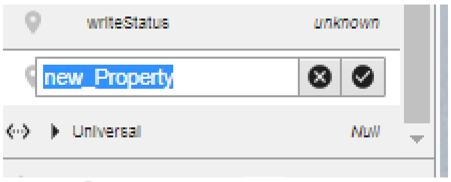
1. In the **VIRTUAL POINTS** pane, click for the *energy consumption* data point and select **ADD PROPERTY**.



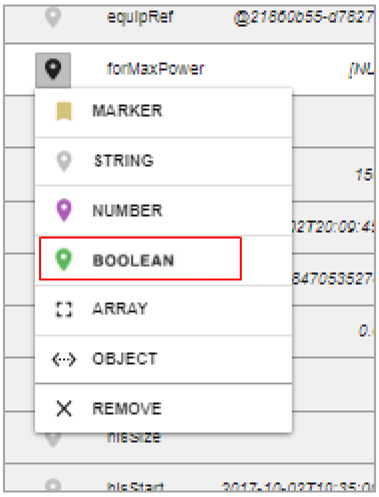
Simulation power ... 8.7
Simulation total el... 27639.5
[0 .. 3]
baBasePoint ✓
baConnRef @1d63f6c4-28deb86e
baCur 9011601604608456
baDescript... Present value

⇨ A string tag is added.

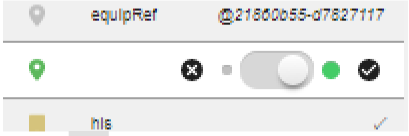
2. Scroll down to find the new property, change its name to **forMaxPower** and click ✓.



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



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



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

7.5 Customizing standard Sample Room / Sample Room Segment supersample graphics

The navigation component for the **Sample Room** and **Sample Room Segment** supersample graphics must be adjusted if these graphics are customized. Otherwise, links in the customized graphics will still navigate to the supersample graphics. The customized graphics must be defined as a startup page to resolve this problem.

!	*NOTICE*
	Add only one pair of Room / Room Segment graphics to the startup pages list. Navigation can be unpredictable if the **Define startup page** list contains multiple pairs of **Room / Room Segment** graphics.

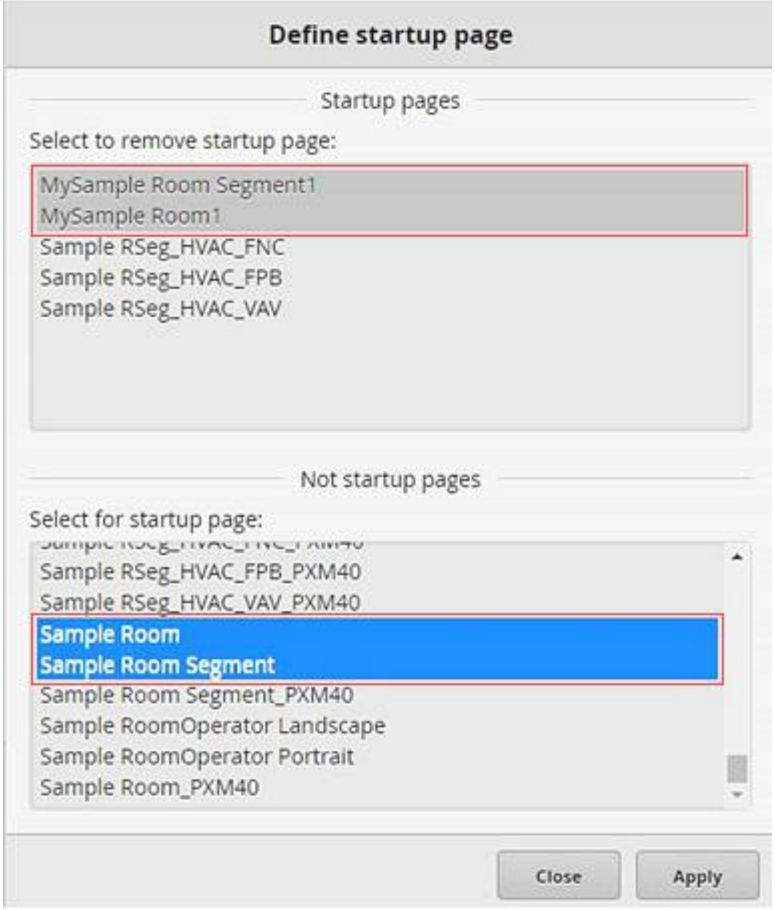
Use the following workflow to adjust the navigation for customized **Sample Room / Sample Room Segment** graphics .

Workflow

1. Edit the **Sample Room** and **Sample Room Segment** supersample graphics in Graphics Builder and 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. In **Plant view**, select > > **Define startup page**.
3. Select the **Sample Room** and **Sample Room Segment** supersample graphics in the **Startup pages** section.
4. Select your customized **Sample Room** and **Sample Room Segment** graphics in the **Not startup pages** section.
5. Click **Apply** to assign your customized graphics and remove the supersample graphics and then click **Close**.



Define startup page

Startup pages

Select to remove startup page:

MySample Room Segment1
MySample Room1
Sample RSeg_HVAC_FNC
Sample RSeg_HVAC_FPB
Sample RSeg_HVAC_VAV

Not startup pages

Select for startup page:

Sample RSeg_HVAC_FPB_PXM40
Sample RSeg_HVAC_VAV_PXM40
Sample Room
Sample Room Segment
Sample Room Segment_PXM40
Sample RoomOperator Landscape
Sample RoomOperator Portrait
Sample Room_PXM40

⇨ Navigation between your customized **Room** and **Room Segment** graphics now works.

7.6 Creating end user room graphics

When creating end user room graphics, it is recommended that you start with a sample graphic and use **SAVE AS GRAPHIC** to save your customized version. The Supersample graphic library contains the following sample graphics for end user room graphics:

- **Sample RoomOperator Landscape** end user room graphic
- **Sample RoomOperator Portrait** end user room graphic

Supersample graphics [→ 155]

Creating end user room graphics

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

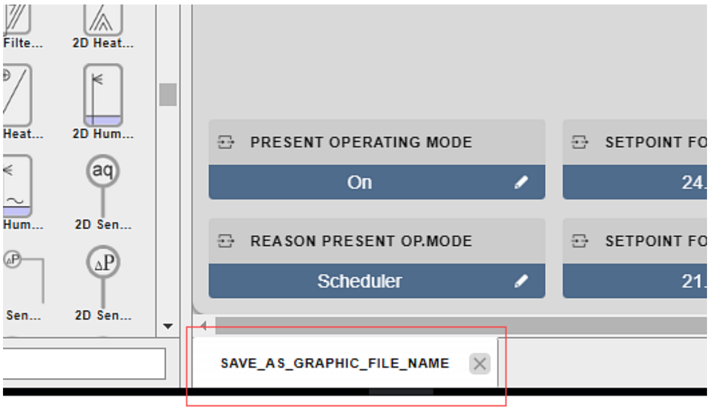
1. Select > > **Configure graphics** > .
   ⇨ The **Configure graphics** – **Edit** dialog box displays all graphics in Desigo Control Point.

2. Select one of the following templates from the graphics library and click **Edit**:
   - **Sample RoomOperator Landscape**
   - **Sample RoomOperator Portrait**

   ⇨ Graphics Builder opens the selected 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.

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



PRESENT OPERATING MODE: On

REASON PRESENT OP.MODE: Scheduler

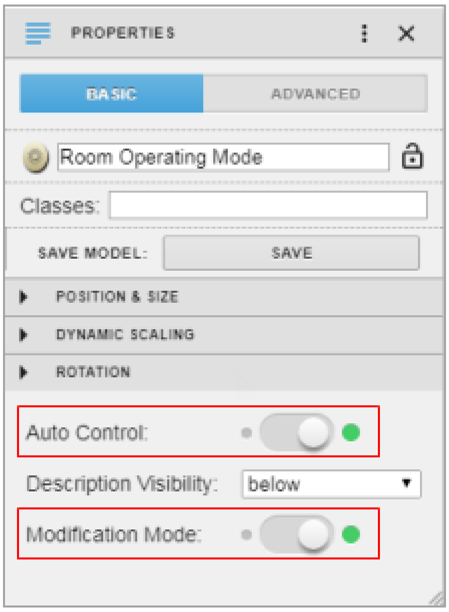
SAVE_AS_GRAPHIC_FILE_NAME

4. See the following subsections to make the desired modifications:
   - Additional controls for widgets [→ 196]
   - Modifying the button icons in the navigation bar [→ 197]
   - Setting up room graphic widgets that command multiple objects [→ 199]
   - Tips for editing the Sample RoomOperator Portrait template [→ 201]
5. When you are finished editing, click and **SAVE** to save the graphic.

7.6.1 Additional controls for widgets

The following controls can be added to widgets through the **BASIC** **PROPERTIES** pane:

- **Auto control**, which uses a widget to release a data point.
- **Modification mode**, which displays a small clock next to the widget if the data point is in a mode that is higher than room operator priority.



Room Operating Mode

Classes:

SAVE MODEL:

Auto Control:

Description Visibility: below

Modification Mode:

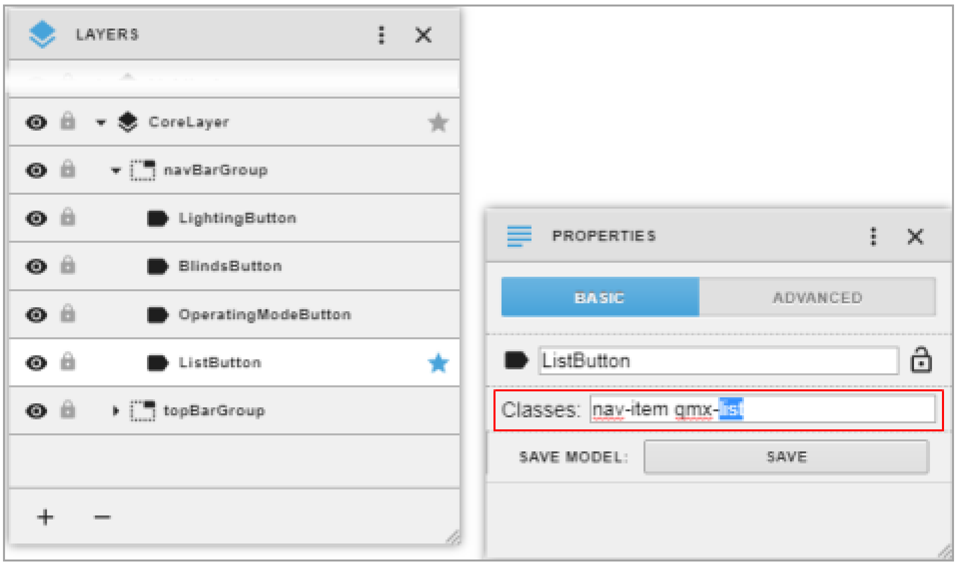
7.6.2 Modifying the button icons in the navigation bar

Use this procedure to modify the button icons in the navigation bar of the portrait template.

▷ This procedure uses the **PROPERTIES** ≡ and **LAYERS** ◆ panes.

1. From the Room graphic widgets [→ 198] topic, get the file name(s) for the button image(s) you want to use.
2. In the **LAYERS** ◆ pane, expand **CoreLayer** and **navBarGroup**.
   ➪ A list of the current navigation buttons is displayed.
3. Select the button to modify.
4. In the **Classes** field of the BASIC **PROPERTIES** ≡ pane, replace **qmx-[file-name]** with the name of the icon. Do not delete **nav-item**.

➪ The new icon displays on the graphic.

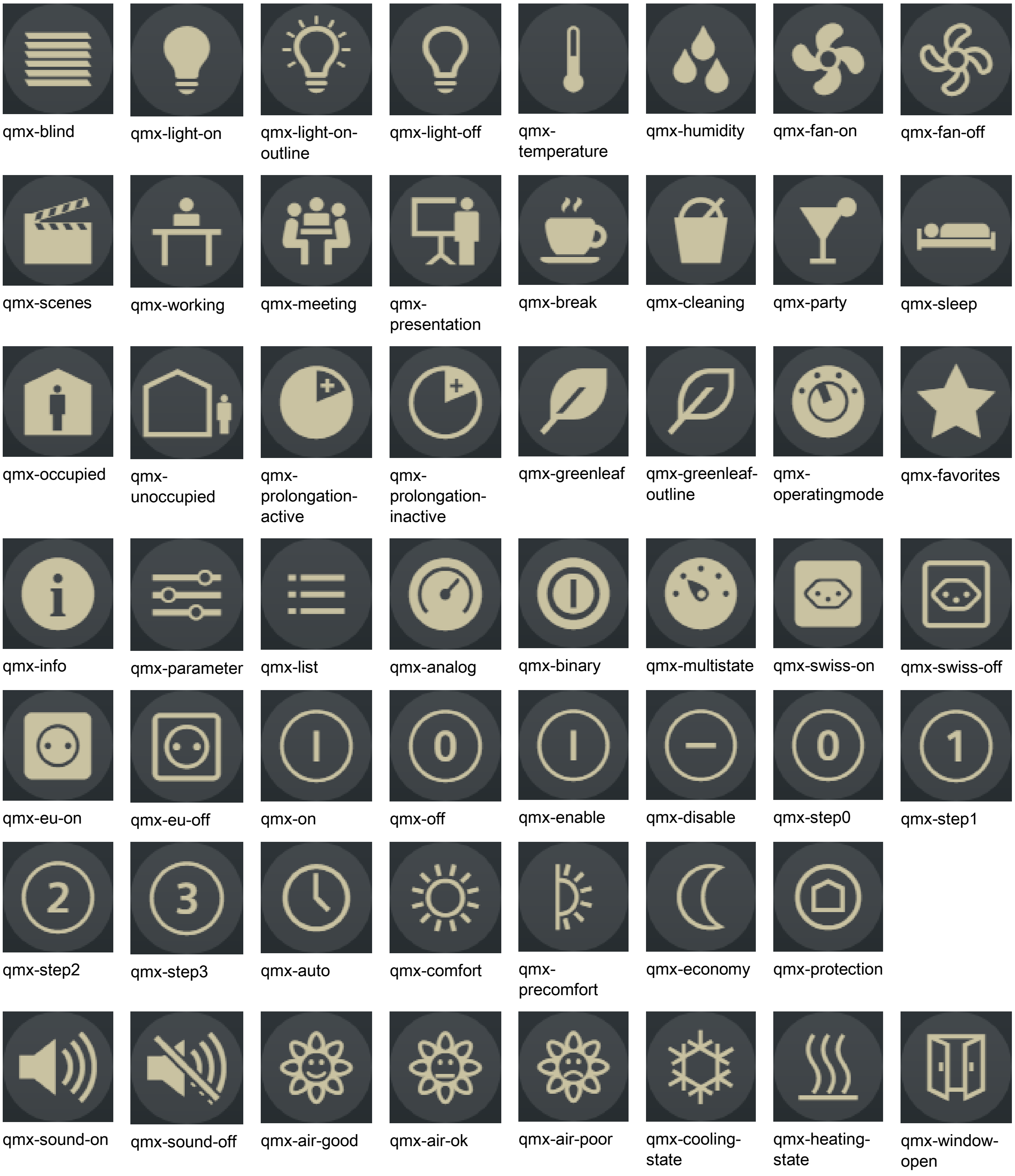


ListButton

Classes: nav-item qmx-list

7.6.2.1 Room graphic widgets

This topic outlines commonly-used room graphic widgets and their file names. The widget file name is used to modify the navigation buttons in an end user room graphic.



qmx-blind	qmx-light-on	qmx-light-on-outline	qmx-light-off	qmx-temperature	qmx-humidity	qmx-fan-on	qmx-fan-off
qmx-scenes	qmx-working	qmx-meeting	qmx-presentation	qmx-break	qmx-cleaning	qmx-party	qmx-sleep
qmx-occupied	qmx-unoccupied	qmx-prolongation-active	qmx-prolongation-inactive	qmx-greenleaf	qmx-greenleaf-outline	qmx-operatingmode	qmx-favorites
qmx-info	qmx-parameter	qmx-list	qmx-analog	qmx-binary	qmx-multistate	qmx-swiss-on	qmx-swiss-off
qmx-eu-on	qmx-eu-off	qmx-on	qmx-off	qmx-enable	qmx-disable	qmx-step0	qmx-step1
qmx-step2	qmx-step3	qmx-auto	qmx-comfort	qmx-precomfort	qmx-economy	qmx-protection	
qmx-sound-on	qmx-sound-off	qmx-air-good	qmx-air-ok	qmx-air-poor	qmx-cooling-state	qmx-heating-state	qmx-window-open

Table 79: File names for commonly-used widgets.

7.6.3 Setting up room graphic widgets that command multiple objects

The following room graphic widgets are designed to command multiple objects:

- Analog light group
- Binary light group control
- Blind group control

This procedure adds a group control widget to the template.

▷ This procedures uses the **COMPONENTS**, **EQUIPMENTS** and **VIRTUAL POINTS** panes.

Hint: To navigate more easily, click ⋮ in the heading of one of the views and select **FLOAT**.

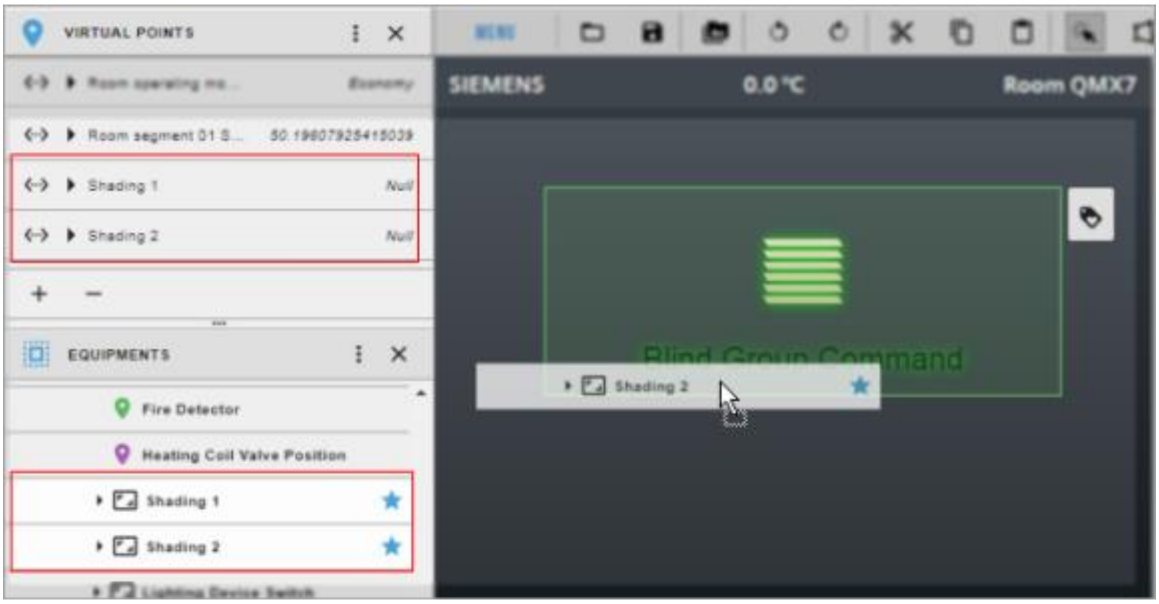
1. From **COMPONENTS**, drag-and-drop a widget that commands multiple objects onto the graphic.
2. In the **EQUIPMENTS** pane, press **CTRL** and click to select all the data points you want in the group.

   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.

   – For a lighting group, select the command points for lighting.

   – For a blinds group, select the **equip** for each blinds command, which contains the **angle** and **height**.
3. Drag-and-drop the group of data points onto the widget.
4. In the **VIRTUAL POINTS** pane, verify that a virtual point has been added for each data point that was assigned to the group widget.



7.6.4 Binding a room graphic widget to a standard BACnet object

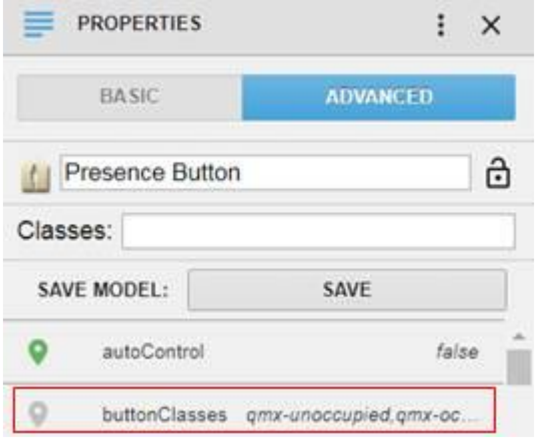
Selected room graphic widgets can be bound to a standard BACnet object. Other widgets can only be bound to a proprietary object. For example, the **qmx-occupied** widget allows a binding to a BACnet BO object. The **qmx-light-on** widget can only be bound to a proprietary TRA object.

Binding a room graphic widget to a standard BACnet object

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

1. Create an end user room graphic and add one of the widgets shown in the following table. For example, **qmx-occupied** for room occupancy.

2. Drag-and-drop an appropriate object from **EQUIPMENTS** onto the widget. See the following table for the **BA object type** or **BACnet object** that can be used with the selected widget.
3. Get the file name for the widget from the following table.
4. Locate the string tag **buttonClasses** in the **ADVANCED** **PROPERTIES**.



Presence Button

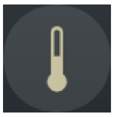
Classes:

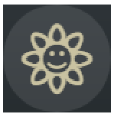
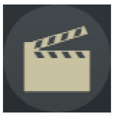
SAVE MODEL: SAVE

autoControl false

buttonClasses qmx-unoccupied,qmx-oc...

5. Replace **qmx-[file-name]** with the name of the new widget.
6. Select ✓ to save your changes.

Widget	Description	File name	BA object type	BACnet object
	room occupancy	qmx-occupied		Any BO
	outside air temperature	qmx-outside-temperature	APrcVal	
	outside air humidity	qmx-humidity	APrcVal	
	window contact	qmx-window-open	BCalcVal	
	room temperature setpoint (rel.)		APrcVal	

Widget	Description	File name	BA object type	BACnet object
	room temperature setpoint (abs.)		APrcVal	
	room air humidity		ACalcVal	
	room air quality (analog)		ACalcVal	
	room air quality (multistate)	qmx-airquality	MCalcVal	
	heating-cooling status		MCalcVal	
	room temperature	qmx-room-temperature	ACalcVal	
	fan, multistaged (3 stages)		MPrcVal	
	fan, multistaged (2 stages)		MPrcVal	
	fan, single-speed		BPrcVal	
	fan, variable-speed		APrcVal	
	rapid ventilation		BPrcVal	
	scene	qmx-scenes	CmdObj	
	lighting, dimming; Pattern1…		LgtAOut	
	lighting, switching		LgtBOut	
	shading		BlsOut	

7.6.5 Tips for editing the Sample RoomOperator Portrait template

Displaying layers for editing

The **Sample RoomOperator Portrait** template contains four control layers and a navigation bar at the bottom to navigate between the layers. When this graphic is opened in Graphics Builder, you may need to use 👁 **Show/hide** to display the layer to edit. The **ListLayer** is the default view.

This procedure changes the template layer displayed for editing.

▷ This procedure uses the ▣ **EQUIPMENTS** and ◈ **LAYERS** panes.

1. In the ◈ **LAYERS** pane, click 👁 to hide the **ListLayer** layer.
2. Click 👁 to display the layer to edit. For example, **BlindsLayer**.
3. Drag-and-drop the desired control widget onto the end user room graphic.
4. From ▣ **EQUIPMENTS**, drag-and-drop the command point onto the widget.
5. When you're done editing:
   - Click 👁 to hide the control layers you edited.
   - Click 👁 to return the **ListLayer** layer to the default view.

Sorting the navigation bar buttons

1. In the **LAYERS** pane, expand **CoreLayer** and **navBarGroup**.
   ⇨ A list of the current navigation buttons is displayed.
2. Drag-and-drop a button to change its position in the list.

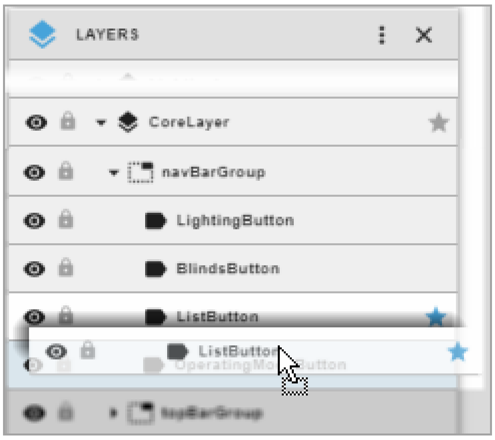
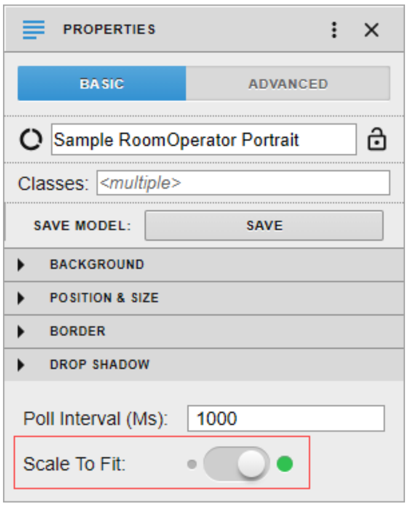


Fig. 44: Sorting the navigation bar buttons.

Automatic resizing

- If **Scale To Fit** is ON, the graphic is automatically resized to fit the display when the graphic is rendered.
  - To use a single graphic on devices with different size screens, switch **Scale To Fit** ON.
  - By default, **Scale To Fit** is ON for graphics in the Supersample graphics library.
- If **Scale To Fit** is OFF, the graphic always displays at the size specified in the **POSITION & SIZE W** and **H** fields.

  For end user room graphics, switch **Scale To Fit** OFF to maximize the available space for controls and to maintain the room graphic widget sizes when the graphic is viewed on different size screens.



Sample RoomOperator Portrait

Classes: <multiple>

Poll Interval (Ms): 1000

Scale To Fit:

7.7 Creating graphics that display multiple plants

This section outlines tips for creating a single graphic that combines the data for several partial plants.

For example, you want to display three heating groups in a single graphic. If you use the relative binding query suggested by Desigo Control Point, every object in the graphic displays three times. The following examples outline how to modify the binding query to solve this problem.

Example 1 – Creating a binding query with the $id variable

This option maintains the **$id** variable at the root of the binding query and adds a **navName** tag to distinguish between the heating groups in the graphic.

Original binding query	Modified binding query for one heating group
equipRef->equipRef==$id and equipRef->[*equipTag*] and (point or shadowPoint) and [*pointTag*]	equipRef->equipRef**->siteRef**==$id **and** **equipRef->equipRef->navName=="AHU1"** and equipRef->[*equipTag*] and (point or shadowPoint) and [*pointTag*]

Table 80: Displaying multiple plants using the $id variable.

Example 2 – Replacing the $id variable with a navName tag

This option replaces the **$id** variable with a specific **navName**. A binding defined by a **navName** instead of the **$id** variable is not affected by where the graphic is opened for viewing.

Original binding query	Modified binding query for one heating group
equipRef->equipRef==$id and equipRef->[*equipTag*] and (point or shadowPoint) and [*pointTag*]	equipRef->equipRef**->navName=="AHU1"** and equipRef->[*equipTag*] and (point or shadowPoint) and [*pointTag*]

Table 81: Displaying multiple plants using the $id variable.

8 Advanced functionality

The procedures in this section assume you have the following knowledge:

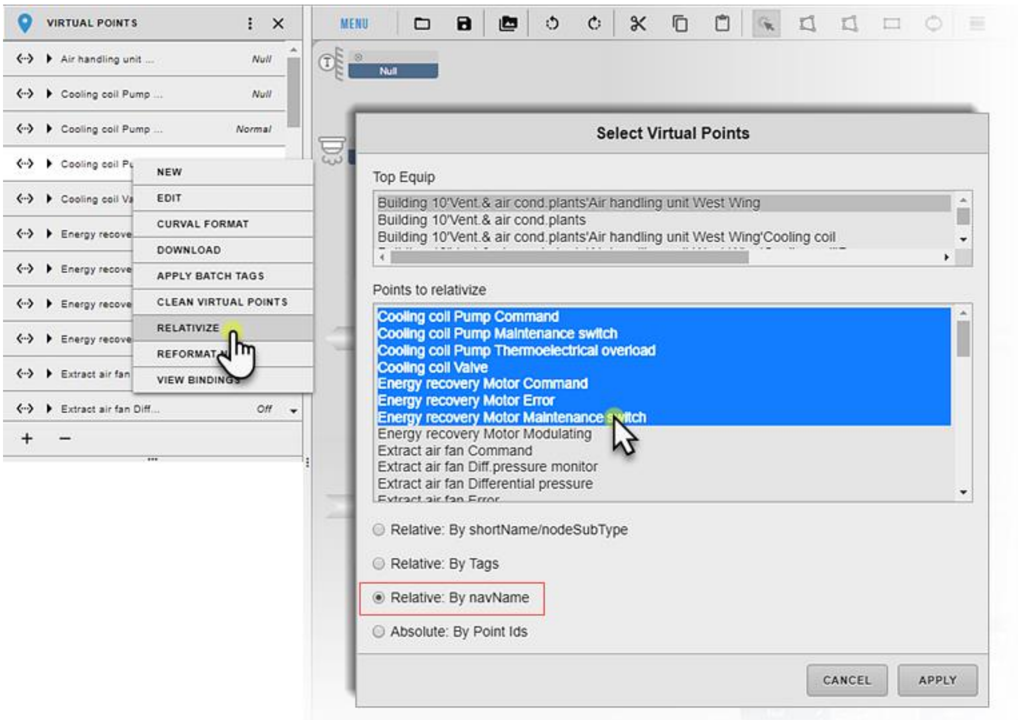
- Programming
- Javascript
- BACnet

8.1 Modifying the binding option for multiple points

Use this procedure to modify the binding option for multiple points. For example, when you’re creating graphics for BACnet devices or devices with non-standard applications.

▷ 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**.



Top Equip

Building 10'Vent.& air cond.plants'Air handling unit West Wing
Building 10'Vent.& air cond.plants
Building 10'Vent.& air cond.plants'Air handling unit West Wing'Cooling coil

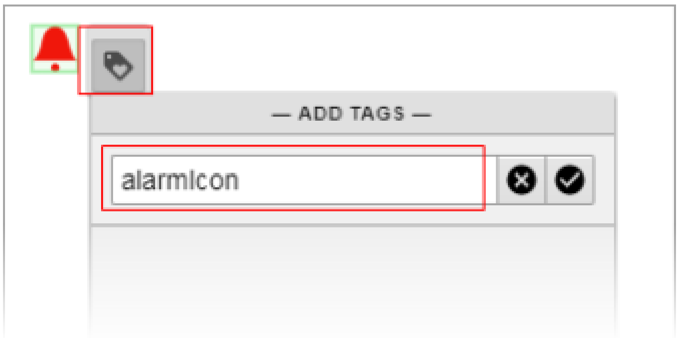
Points to relativize

Cooling coil Pump Command
Cooling coil Pump Maintenance switch
Cooling coil Pump Thermoelectrical overload
Cooling coil Valve
Energy recovery Motor Command
Energy recovery Motor Error
Energy recovery Motor Maintenance switch
Energy recovery Motor Modulating
Extract air fan Command
Extract air fan Diff.pressure monitor
Extract air fan Differential pressure
Extract air fan Error

○ Relative: By shortName/nodeSubType
○ Relative: By Tags
● Relative: By navName
○ Absolute: By Point Ids

8.2 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 ✔.



alarmIcon

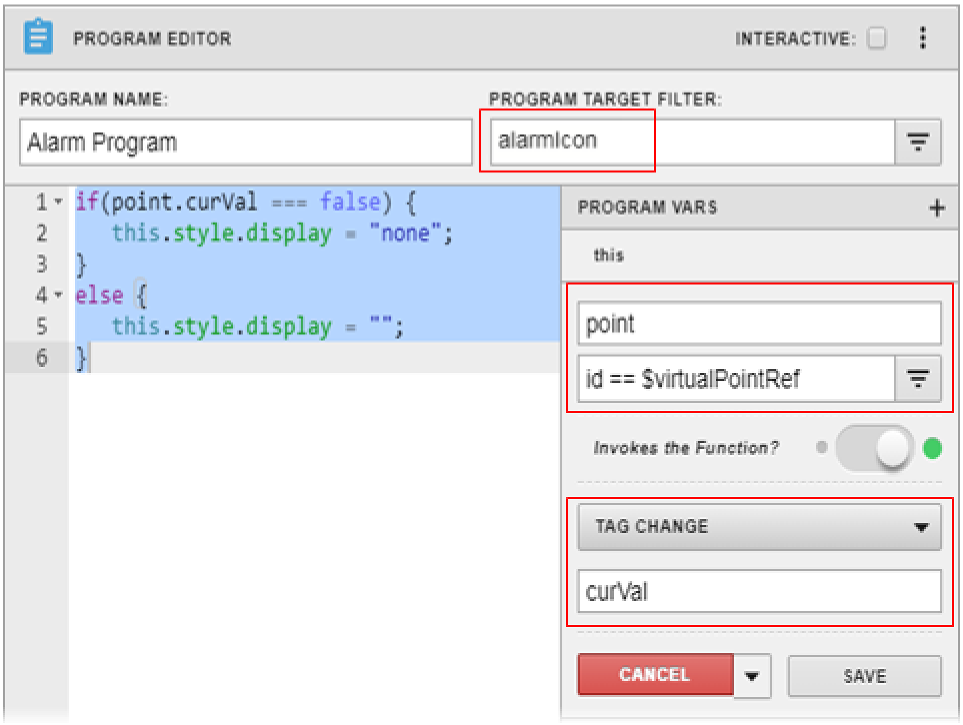
6. Open the **PROGRAMS** 📋 pane and click + to add a new program.
7. In the **PROGRAM TARGET FILTER** field, enter the name of the tag for the graphic component. (In this case, **alarmIcon**.)
8. Paste the following program code for boolean logic into the **PROGRAM EDITOR** and click **SAVE**.

```
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 NAME: Alarm Program

PROGRAM TARGET FILTER: alarmIcon

```
if(point.curVal === false) {
   this.style.display = "none";
}
else {
   this.style.display = "";
}
```

this

point

id == $virtualPointRef

TAG CHANGE

curVal

8.3 Integrating Web cams

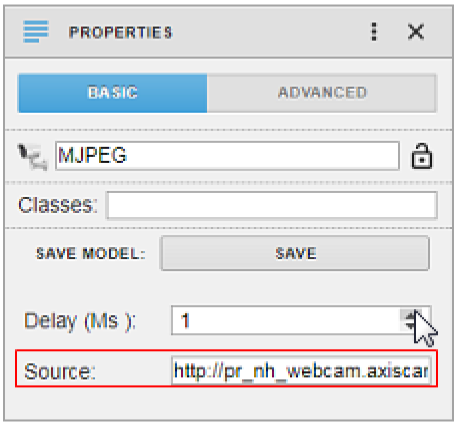
This section provides tips for adding a video component to a graphic.

	⚠ CAUTION
⚠	**Minimize links to external URLs. Linking to external URLs, such as Favorites, Web cams 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.

▷ 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, **http://pr_nh_webcam.axiscam.net:8000/mjpg/video.mjpg?resolution=704x480**



MJPEG

Classes:

Delay (Ms): 1

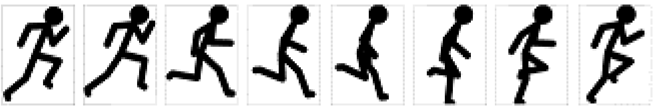
Source: http://pr_nh_webcam.axiscar

4. *(Optional)* Adjust the **Delay (Ms)** value to change the refresh rate.
5. When you are finished editing, click 💾.

8.4 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.

⚠ CAUTION

Do not drag-and-drop the same image multiple times!

Doing so creates duplicate images in your database. To remove duplicate images from the database, right-click and select **TOOLS > TRASH FILES**.

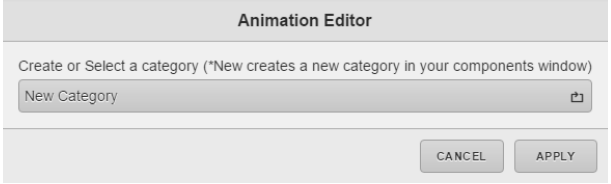
- To use images from a different database, add the images to a graphic, export the graphic, and then import that graphic to the new controller. The import process adds the images to the database.
- GIF files cannot be used with the Animation editor.

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**.

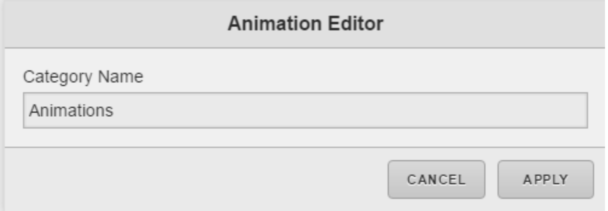
   Note: Custom components cannot be added to the standard **COMPONENTS** categories.


Animation Editor

Create or Select a category (*New creates a new category in your components window)

New Category

4. Enter a **Category Name** and click **APPLY**.


Animation Editor

Category Name

Animations

5. In the **Image Name** field, enter the name to display on the component in the palette.

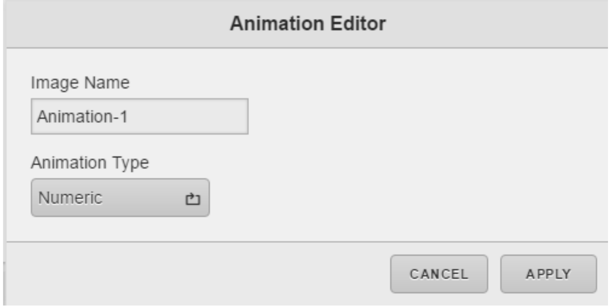

Animation Editor

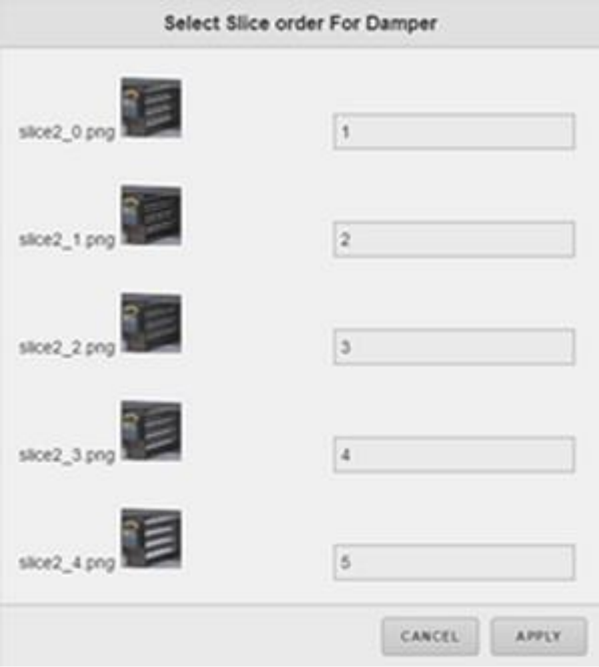
Image Name

Animation-1

Animation Type

Numeric

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.



Select Slice order For Damper

slice2_0.png 1

slice2_1.png 2

slice2_2.png 3

slice2_3.png 4

slice2_4.png 5

8. Click **APPLY** when an image has been selected for each state.

8.5 Creating a button to command multiple data points

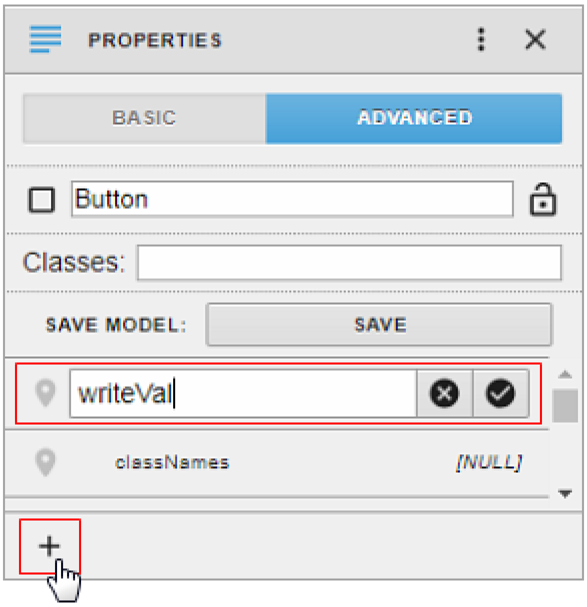
- This program is invoked when a button with the property **writeVal** is clicked.
- At runtime, the program variable **this.writeVal** has the value of the **writeVal** property of the button.
- Multiple button instances can define different **writeVal** property values.
- This same program executes 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 ✓.



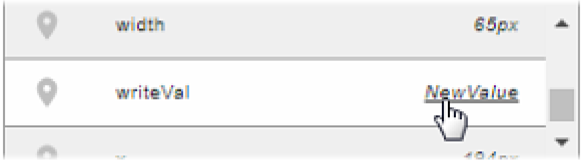
☐ Button

Classes:

writeVal

classNames [NULL]

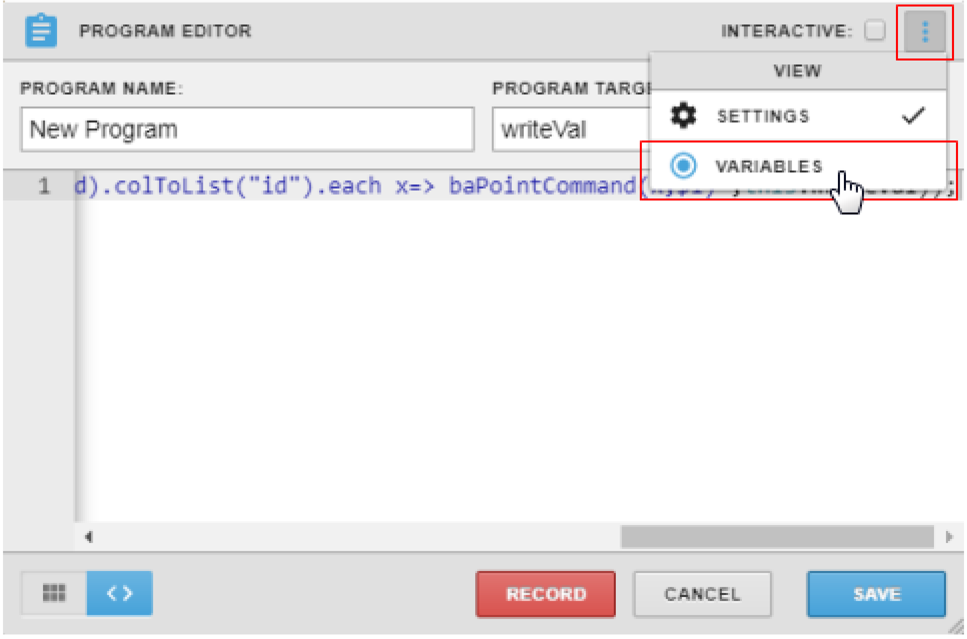
4. Scroll down to locate the **writeVal** tag in the list.
5. Select the value for the **writeVal** tag (initially named **NewValue**), change it to the value to which the data points will be commanded and click ✓.



width 65px

writeVal NewValue

Adding a program to the Button



PROGRAM NAME: New Program

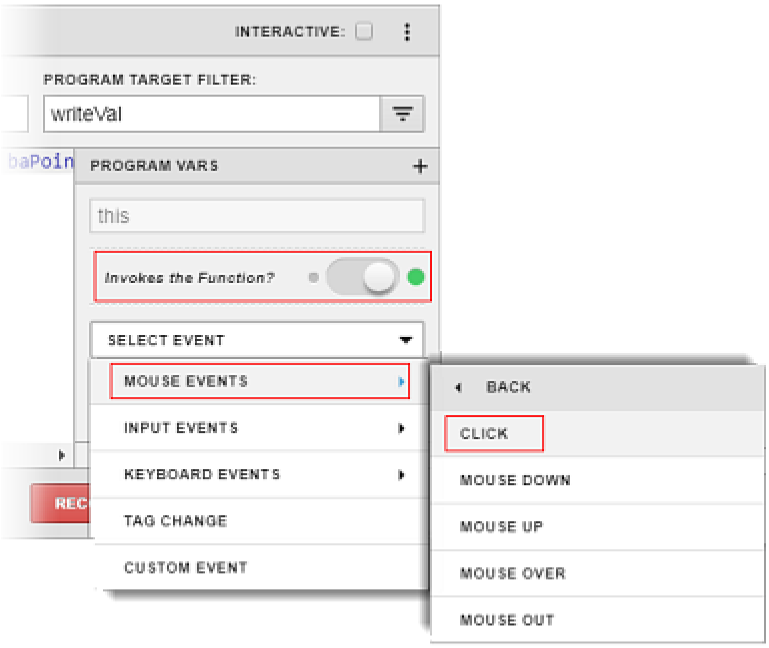
PROGRAM TARG writeVal

```
d).colToList("id").each x=> baPointCommand(
```

▷ This procedure uses the **PROGRAMS** pane.

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 ⋮ 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 ⚙.
6. Set the **Invokes the Function?** toggle switch to **ON**.



PROGRAM TARGET FILTER: writeVal

this

Invokes the Function?

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 💾 and **SAVE** to save the graphic.

Program code for different point commands

Command	Description	Program code to paste into the first line of the PROGRAM EDITOR
Command multiple data points **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.	• **readALL()** 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 baUniqueId query or Relative tag query). • **.getSafe(0..n)** selects a number of records from the total number of records returned by **readAll().** – In this example, if fewer than three items are found, they are safely enumerated, avoiding any indexing errors. – If more than ten items are found, the first three found are enumerated. (This selection is random.) • If only one unique point is expected to be found by the query, consider replacing **readAll()** with **read()** using the syntax shown by other examples in this table. • **baPointCommand()** is executed once for each point selected by **getSafe(0..n).** • The **x** parameter in **baPointCommand()** is replaced with a selected 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('readAll(shadowPoint and writable and kind=="Number").getSafe(0..2).map(x=> x->pointRef.readById).colToList("id").each x=> baPointCommand(x,$1)',this.writeVal));`
Set a specific point out of service	• **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.	`finstack.eval('read(baUniqueId == "3847e44de9331bb8e7526e98b4d3cf15be67be87")->pointRef.baPointCmdOutOfService(true)');`
Command a specific point (without a Priority)	• **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.	`finstack.eval('read(baUniqueId == "3847e44de9331bb8e7526e98b4d3cf15be67be87")->pointRef.baPointCommand(44)');`
Put a specific point back into service	• **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.	`finstack.eval('read(baUniqueId == "3847e44de9331bb8e7526e98b4d3cf15be67be87")->pointRef.baPointPutInService()');`
Override (Priority 8) one specific point	• **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.	`finstack.eval('read(baUniqueId == "3847e44de9331bb8e7526e98b4d3cf15be67be87")->pointRef.baPointOverride(13)');`
Release (Priority 8) one specific point	• **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.	`finstack.eval('read(baUniqueId == "3847e44de9331bb8e7526e98b4d3cf15be67be87")->pointRef.baPointRelease()');`

Command	Description	Program code to paste into the first line of the PROGRAM EDITOR
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 **x** parameter is **baPointcommand()** 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));`

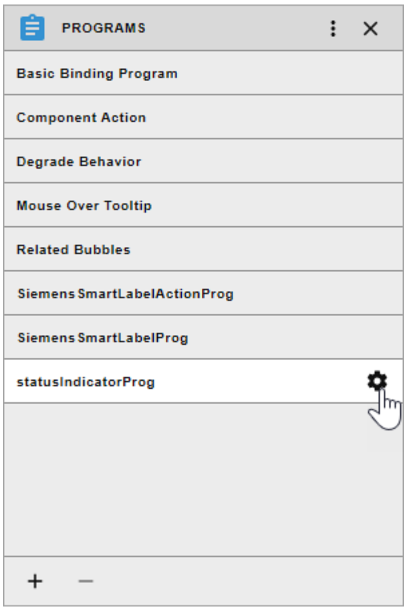
Table 82: Sample lines of program code.

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 .



➪ 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:

```
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.

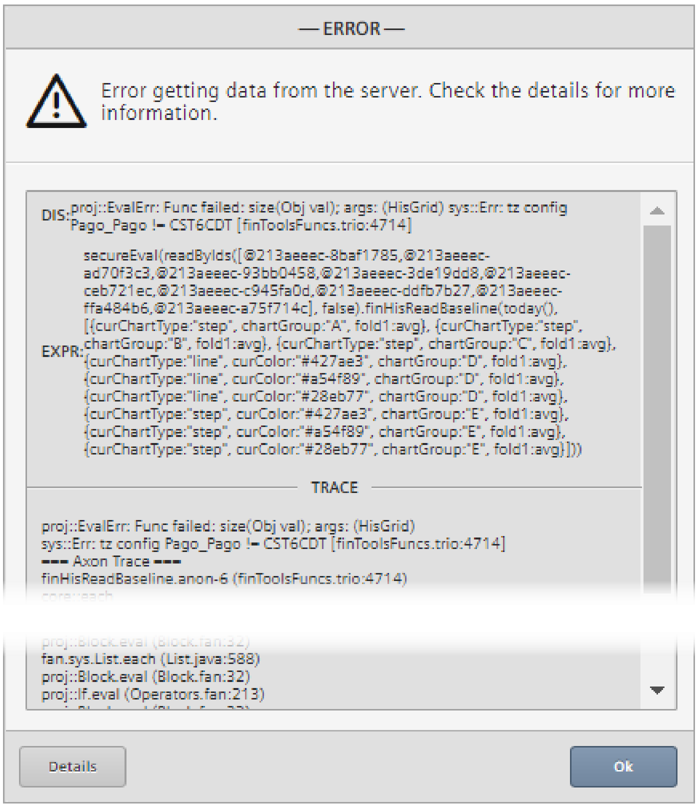
➪ Any `console.log()` statements are output to the **Console** tab of Chrome DevTools.

9 Tips and tricks

9.1 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.

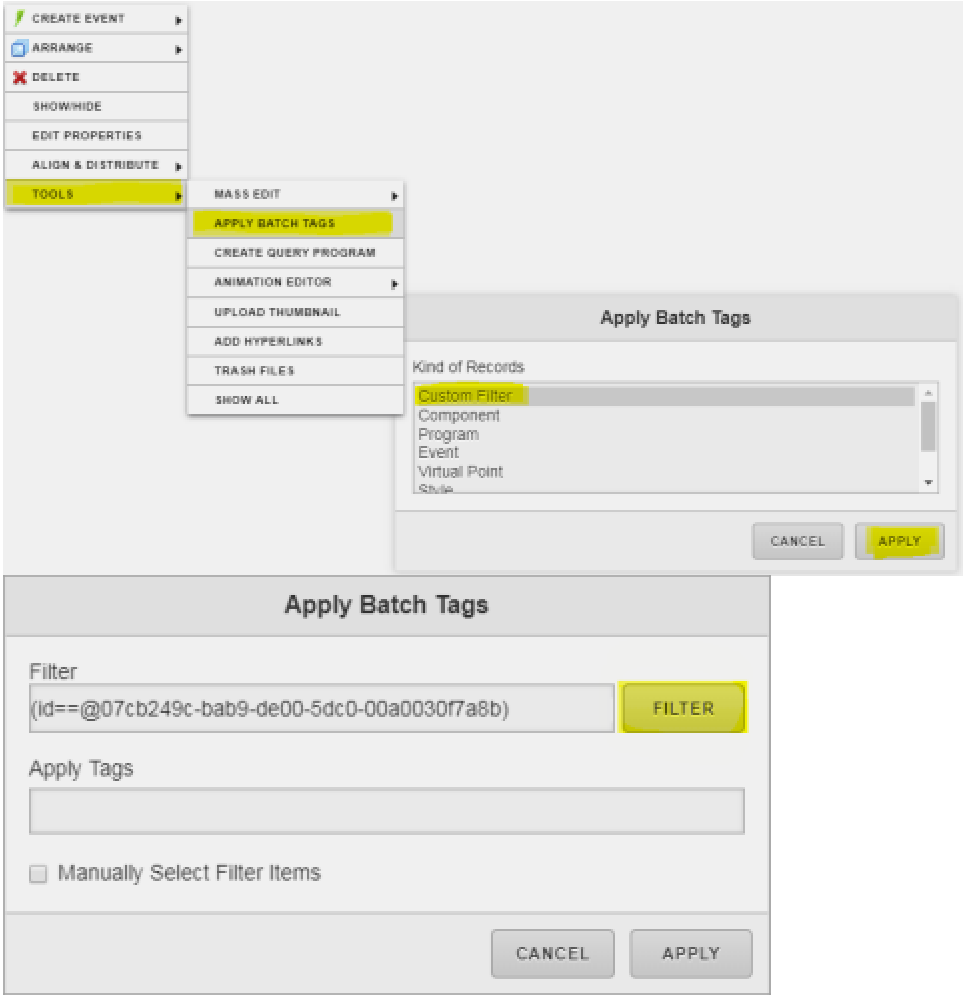


Error getting data from the server. Check the details for more information.

```
DIS: proj::EvalErr: Func failed: size(Obj val); args: (HisGrid) sys::Err: tz config
     Pago_Pago != CST6CDT [finToolsFuncs.trio:4714]

       secureEval(readByIds([@213aeeec-8baf1785,@213aeeec-
       ad70f3c3,@213aeeec-93bb0458,@213aeeec-3de19dd8,@213aeeec-
       ceb721ec,@213aeeec-c945fa0d,@213aeeec-ddfb7b27,@213aeeec-
       ffa484b6,@213aeeec-a75f714c], false).finHisReadBaseline(today(),
       [{curChartType:"step", chartGroup:"A", fold1:avg}, {curChartType:"step",
EXPR:  chartGroup:"B", fold1:avg}, {curChartType:"step", chartGroup:"C", fold1:avg},
       {curChartType:"line", curColor:"#427ae3", chartGroup:"D", fold1:avg},
       {curChartType:"line", curColor:"#a54f89", chartGroup:"D", fold1:avg},
       {curChartType:"line", curColor:"#28eb77", chartGroup:"D", fold1:avg},
       {curChartType:"step", curColor:"#427ae3", chartGroup:"E", fold1:avg},
       {curChartType:"step", curColor:"#a54f89", chartGroup:"E", fold1:avg},
       {curChartType:"step", curColor:"#28eb77", chartGroup:"E", fold1:avg}]))

                              TRACE

proj::EvalErr: Func failed: size(Obj val); args: (HisGrid)
sys::Err: tz config Pago_Pago != CST6CDT [finToolsFuncs.trio:4714]
=== Axon Trace ===
finHisReadBaseline.anon-6 (finToolsFuncs.trio:4714)
core::each

proj::Block.eval (Block.fan:32)
fan.sys.List.each (List.java:588)
proj::Block.eval (Block.fan:32)
proj::If.eval (Operators.fan:213)
```

9.2 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.



Filter: (id==@07cb249c-bab9-de00-5dc0-00a0030f7a8b)

☐ Manually Select Filter Items

9.3 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.

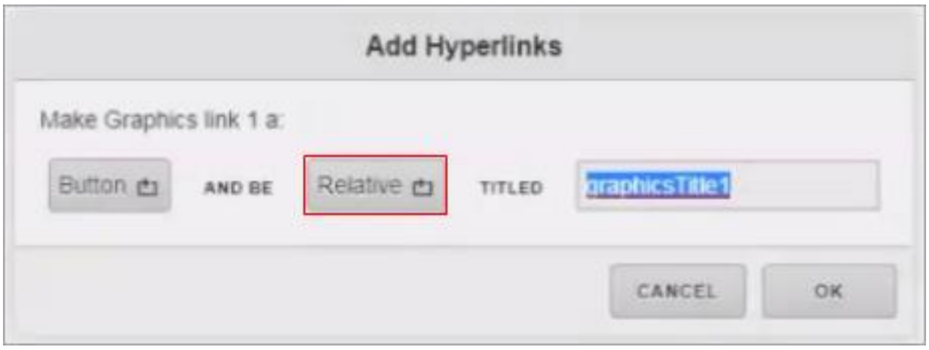
9.4 A graphic with relative binding that includes data points from different branches of the hierarchy cannot be created at the Root level

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.

9.5 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.

9.6 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.

9.7 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).

⚠ CAUTION

When creating user accounts that do not automatically log off, restrict system access to specific functions.

To prevent unauthorized access to other system functions, create separate user accounts for engineering graphics and operating a kiosk.

9.8 Trend log objects in systems with PX primary controllers

Desigo Control Point uses point-based trending for trend configuration and chart creation. Point-based trending follows the Haystack convention and maintains consistency between online and offline trending.

- XWP uses trend log object-based trending.
  - Trend log objects created in XWP are not included in data point integration.
  - The data points that those objects trend are included in data point integration. Sample values of these data points can be displayed in a Chart view.
- Since Desigo Control Point only provides operation and monitoring functions, you must use ABT-SSA online to view and edit trend log objects created in XWP.

9.9 Detection of network interruptions

Only network interruptions longer than 30 seconds are detected and indicated in the user interface.

9.10 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.

9.11 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.

9.12 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.

10 Appendix - Tags applied during data point integration

This section outlines the semantic tags that are applied during data point integration. These tags can be used as a filter in a custom data point integration template. The tags applied depend on the type of device.

- Desigo room controller tags [→ 220]
- Desigo primary controller tags [→ 249]

10.1 Desigo room controller tags

Key	Semantic tags
AhuDmd	air load mode standard
AhuModMan	ahu local manual mode
AhuModManVal	ahu manual mode value
AI	analog input
AI(*)	analog input
AirCdnMonRate	air condensate rate status
AirDmdBdl	air bundle load mode
AirDmdBdl(*)	air bundle load mode
AirFlDvnExEvl	air deviation evaluation extract flow
AirFlDvnExMax	air deviation extract flow max
AirFlDvnSuEvl	air deviation discharge evaluation flow
AirFlDvnSuMax	air deviation discharge flow max
AirFlSuR	air discharge flow room
AirFlTck	air flow tracking
AirFlTck11	air flow tracking
AirNumCdnMon	air condensate number status
AirTDwp	air dew temp
AnnShd	annual shading
AO	analog output
AO(*)	analog output
AQualDmd	air load quality
AQualR	air quality room sensed
AQualR(*)	air quality room sensed
AtmP	atmospheric pressure
BI	binary input
BI(*)	binary input
BlsBtn	pushbutton shading switch
BlsBtn(*)	pushbutton shading switch

BlsBtnCol	collection pushbutton shading
BlsClsnDet	collision detector shading switch
BlsClsnDet(*)	collision detector shading switch
BlsCmd	command shading
BlsCmd(*)	command shading
BO	binary output
BO(*)	binary output
Brgt	brightness measure
Brgt(*)	brightness measure
BrgtCtl	brightness control standard
BrgtCtlMst	brightness control master
BrgtCtlSlv	brightness control slave
BrgtDarkLmOff	brightness dark limit switchOn
BrgtDarkLmOn	brightness dark limit switchOff
BrgtDtr	brightness determination
BrgtEff	brightness effective
BrgtFcd	brightness facade
BrgtFcd(*)	brightness facade
BrgtIdirLmOff	brightness indirect limit switchOff
BrgtIdirLmOn	brightness indirect limit switchOn

BrgtLmOff	brightness limit standard switchOff
BrgtLmOn	brightness limit standard switchOn
BrgtOdr	brightness common outdoor
BrgtOdrEast	brightness east outdoor
BrgtOdrNorth	brightness north outdoor
BrgtOdrSouth	brightness outdoor south
BrgtOdrWest	brightness outdoor west
CcgChw11	ceiling chilled radiant water
Ccl	coil cooling
CclCdnMon	coil condensate cooling status
CclCdnMsg	coil condensate cooling message
CclChw11	chilled coil cooling direct water
CclChw12	cascade chilled coil cooling water
CclChw13	beam chilled coil cooling
CclChwDmd	chilled coil cooling load water
CclCReq	coil cooling request standard

CclCReqMin	coil cooling min request
CclDevMod	coil cooling device mode
CclDx11	coil cooling dxCool single staged
CclDx12	coil cooling dxCool staged two
CclDx1StPos	coil command cooling dxCool stage = 1
CclDx2StPos	coil command cooling dxCool stage = 2
CclDxFlt	coil cooling dxCool fault
CclDxPos	coil cooling dxCool position
CclElPwr	coil cooling electrical power
CclTChwPm	chilled coil cooling primary temp water
CclTRCtrC	coil controller cooling room single temp
CclTSuCtrC	coil controller cooling discharge temp
CclVlvPos	coil cooling position valve
CdnLvlMon	condensate level

CdnMon	condensate switch
CdnMon(*)	condensate switch
CdnMonCol	collection condensate
CdnMonRs	condensate result
CdnMsg	condensate message
CdnMsgCol	collection condensate message
CdnMsgRs	condensate message result
CdnPrev	condensate prevent
CenAnnShd11	annual central shading
CenBrgtFcd11	brightness central facade
CenBrgtWths11	brightness central station weather
CenCndTrg	central condition trigger
CenEmgCmdLgt11	central command emergency lighting
CenEmgDetLgt11	central detector emergency lighting
CenEmgDetShd11	central detector emergency shading
CenEmgHvac	central emergency hvac
CenEmgHvac(*)	central emergency hvac
CenEmgHvac11	central emergency hvac
CenEmgHvacCmdv	central command emergency hvac value

CenEmgLgt	central emergency lighting
CenEmgLgt(*)	central emergency lighting
CenEmgLgt11	central emergency lighting
CenEmgLgtCmdv	central command emergency lighting value
CenEmgLmnr11	central emergency luminaire
CenEmgShd	central emergency shading
CenEmgShd(*)	central emergency shading
CenEmgShd11	central emergency shading
CenEmgShdCmdv	central command emergency shading value
CenEmgShdDly11	central delay1 emergency shading
CenEmgShdDly12	central delay2 emergency shading
CenEmgShdDly13	central delay3 emergency shading
CenEmgSwiLgt11	central emergency lighting switch
CenFcd	central facade
CenFcdShd	central facade shading
CenFcdShd(*)	central facade shading
CenFcdShd11	central facade shading

CenFcdShdDly11	central delay1 facade shading
CenFcdShdDly12	central delay2 facade shading
CenFcdShdDly13	central delay3 facade shading
CenFnct	area cenFunction
CenFrPrtShd11	central freeze freezeStat shading status
CenGlrPrt11	central glare protection
CenHpuSrcInAvl	available central heat input pump source
CenManOpLgt11	central lighting manual operation
CenManOpShd11	central manual operation shading
CenOpLgt	central lighting operation
CenOpLgt(*)	central lighting operation
CenOpLgt11	central lighting operation
CenOpLgtCmdv	central command lighting operation standard value
CenOpLgtM1Cmdv	central command lighting manual1 operation value

CenOpLgtM2Cmdv	central command lighting manual2 operation value
CenOpMod	central mode operation
CenOpMod(*)	central mode operation
CenOpMod11	central mode operation
CenOpModCmdv	central command mode operation value
CenOpModDly11	central delay1 mode operation
CenOpModDly12	central delay2 mode operation
CenOpModDly13	central delay3 mode operation
CenOpModExtd11	central extended mode operation
CenOpShd	central operation shading
CenOpShd(*)	central operation shading
CenOpShd11	central operation shading
CenOpShdCmdv	central command operation shading standard value
CenOpShdDly11	central delay1 operation shading
CenOpShdDly12	central delay2 operation shading

CenOpShdDly13	central delay3 operation shading
CenOpShdM1Cmdv	central command manual1 operation shading value
CenOpShdM2Cmdv	central command manual2 operation shading value
CenOssc11	central optimum start stop
CenPcpPrt11	central precipitation protection
CenPrtShd	central protection shading
CenPrtShd(*)	central protection shading
CenPrtShd11	central protection shading
CenPrtShdCmdv	central command protection shading value
CenPrtShdDly11	central delay1 protection shading
CenPrtShdDly12	central delay2 protection shading
CenPrtShdDly13	central delay3 protection shading
CenRClmOpMod	central climate mode operation room
CenROpDstr01	central distribution operation room
CenSmextEh11	central exhaust extraction smoke

CenSmextSu11	central discharge extraction smoke
CenSolFcd11	central facade radiation solar
CenSolWths11	central radiation solar station weather
CenSpFanSpd	central fan setpoint speed
CenSpShft	central setpoint shift
CenSrvShd	central service shading
CenSrvShd(*)	central service shading
CenSrvShd11	central service shading
CenSrvShdCmdv	central command service shading value
CenSrvShdDly11	central delay1 service shading
CenSrvShdDly12	central delay2 service shading
CenSrvShdDly13	central delay3 service shading
CenSrvSwiShd11	central service shading switch
CenSsnCmp	central compensation seasonal
CenSsnCmp(*)	central compensation seasonal
CenSsnCmp11	central compensation seasonal
CenThPrt11	central protection thermal
CenWdPrt11	central limit protection single wind
CenWdPrt12	central limit protection two wind
CenWthDstr01	central distribution weather
CenWthStn	central station weather
CenWthStn(*)	central station weather
CenWthStn11	central station weather
Cho2HCDmdBdl	bundle changeover cooling heating load pipe two
Cho2HCDmdBdl(*)	bundle changeover cooling heating load pipe two
Cho2NumCDmd	changeover cooling load number pipe standard two
Cho2NumCDmdBdl	bundle changeover cooling load number pipe two
Cho2NumHDmd	changeover heating load number pipe standard two

Cho2NumHDmdBdl	bundle changeover heating load number pipe two
Cho2PipeModCmd	changeover command condition pipe two
ChoAirCDmdBdl	air bundle changeover cool cooling load
ChoAirHCDmdBdl	air bundle changeover cooling heating load
ChoAirHCDmdBdl(*)	air bundle changeover cooling heating load
ChoAirHDmdBdl	air bundle changeover heat heating load
ChoAirModCmd	air changeover command condition
ChoAirNumCDmd	air changeover cooling load number
ChoAirNumHDmd	air changeover heating load number
Chovr2Pipe	changeover pipe two
ChovrCndAirDtr	air changeover determination
ChwDevMod	chilled device mode water
ChwDevMod(*)	chilled device mode water
ChwDmdBdl	bundle chilled load water
ChwDmdBdl(*)	bundle chilled load water
ChwNumCdnMon	chilled condensate number status water
ChwSpTFl	chilled leaving setpoint temp water
ChwTDwp	chilled dew temp water
ChwTOa	chilled outside temp water
ChwVlvPosEvl	chilled evaluation position valve water
ClsnDet	collision detector
CmfBtn	button comfort
CoilTRCtrC	cascade coil controller cooling room temp
CoilTRCtrH	cascade coil controller heating room temp
CoolDwn	coolDown
CReq	cooling mode request
DhuCtl	control dehumidification
DhuCtl11	control dehumidification standard

DhuCtl12	control dehumidification deviation
DhuCtr	controller dehumidification
DlgtCorr	correction daylight
DmpOa	air damper outside
DmpOa11	air damper direct outside
DmpOa12	air cascade damper outside
DmpOa13	air damper mixed outside
DmpOaCReq	air cooling damper outside request
DmpOaDevMod	air damper device mode outside
DmpOaEcmSta	air damper economizer outside
DmpOaPos	air damper outside position
DmpOaTMxCtrC	air controller cooling damper mixed outside temp
DmpOaTRCtrC	air controller cooling damper outside room temp
DmpOaTSuCtrC	air controller cooling damper discharge outside temp

DmpOaVntCtr	air controller damper outside ventilation
DmpPosEx	damper extract position
DmpPosExEvl	damper evaluation extract position
DmpPosSu	damper discharge position
DmpPosSuEvl	damper discharge evaluation position
EmgCmd	command emergency
EmgDet	detector emergency
EmgDlyOn1	delay1 emergency switchOn
EmgDlyOn2	delay2 emergency switchOn
EmgDlyOn3	delay3 emergency switchOn
EmgLmnr	emergency luminaire
EmgLmnrCtl	control emergency luminaire
EmgSwi	emergency switch
EnFanSpd	enable fan speed
EngyEffcy	efficiency energy
EnHclElPos	coil electric enable heating position
EnHpuReHcl	enable heat pump reheat
EnHpuSpd	enable heat pump speed

EnHpuSrc	enable heat pump source
EnRadElPos	command electric enable output radiator
EnRadElPos(*)	command electric enable output radiator
EnRadElPosCol	collection command electric enable radiator
EnRadElPosVal	electric enable radiator value
EvlNumTSuCDmd	cooling discharge evaluation load number temp
EvlNumTSuHDmd	discharge evaluation heating load number temp
EvlTSuCDmdMax	cooling discharge evaluation load max temp
EvlTSuHDmdMax	discharge evaluation heating load max temp
Fan	fan
Fan1Spd	command fan single staged
Fan1Spd11	fan single staged
Fan1SpdMan	fan manual single staged
FanAirFl	absolute air fan flow

FanAirFlCtr	air controller fan flow
FanAirFlDhu	air dehumidify fan flow
FanAirFlMan	air fan flow manual
FanAirFlMaxC	air cooling fan flow max
FanAirFlMaxH	air fan flow heating max
FanAirFlMaxVnt	air fan flow max ventilation
FanAirFlMinC	air cooling fan flow min
FanAirFlMinH	air fan flow heating min
FanAirFlMinVnt	air fan flow min ventilation
FanAirFlRel	air fan flow relative value
FanCReq	cooling fan request
FanDevMod	device fan mode
FanDiffP	delta fan pressure
FanEndAirFlFpb	air box end fan flow powered

FanEndSpdFpb	box end fan powered speed
FanHReq	fan heating request
FanHysAirFlVav	air fan flow hysteresis request vav
FanMultiSpd	command fan multi staged
FanMultiSpd11	fan multi staged
FanMultiSpdMan	fan manual multi staged
FanOp	fan operation
FanOp11	fan operation
FanSpAirFlRel	air fan flow relative setpoint
FanSpdDhu	dehumidify fan speed
FanSpdMaxC	cooling fan max speed
FanSpdMaxH	fan heating max speed
FanSpdMaxVnt	fan max speed ventilation
FanSpdMinC	cooling fan min speed
FanSpdMinH	fan heating min speed
FanSpdMinVnt	fan min speed ventilation

FanSta	fan status
FanSttAirFlFpb	air box fan flow powered start
FanSttSpdFpb	box fan powered speed start
FanSwiOfAflVav	air fan flow request switchOff vav
FanTRCtrC	controller cooling fan room temp
FanTRCtrH	controller fan heating room temp
FanVarSpd	command fan speed
FanVarSpd11	fan speed
FanVarSpd12	air fan flow
FanVarSpdMan	fan manual speed
FanVntCtr	controller fan ventilation
FcdAzmth	azimuth facade
FcdDlyOn1	delay1 facade switchOn
FcdDlyOn2	delay2 facade switchOn
FcdDlyOn3	delay3 facade switchOn
FcdIncl	facade inclination

FcuTCasCtlC11	cascade control cooling fan temp unit
FcuTCasCtlH11	cascade control fan heating temp unit
FcuTRCtlC11	control cooling direct fan temp unit
FcuTRCtlH11	control direct fan heating temp unit
FcuVntCtl11	control fan ventilation
FireDet	fire switch
FireDet(*)	fire switch
FltSta	error status
FpbTCasCtlC11	box cascade control cooling fan powered temp
FpbTCasCtlH11	box cascade control fan heating powered temp
FpbTRCtlC11	box control cooling direct fan powered temp
FpbTRCtlH11	box control direct fan heating powered temp
FreeC	cooling free
FreeCReq	cooling free request standard
FreeCReqVal	cooling free request value
FrPrt	freeze freezeStat status
FrPrtMon	freeze freezeStat status switch
GlrPrt	glare protection
GrnLf	green leaf
HCcg2Pipe11	ceiling pipe radiant two valve water
HCcg4Pipe11	ceiling four individual output pipe radiant regular valve water
HCcg4Pipe13	ceiling common four output pipe radiant six valve water way
HCcg4Pipe15	ceiling four individual output pipe radiant six valve water way
HCcl	coil cooling heating

HCcl2Pipe11	coil common cooling direct heating output pipe two valve
HCcl2Pipe12	cascade coil common cooling heating output pipe two valve
HCcl4Pipe11	coil cooling direct four heating individual output pipe regular valve
HCcl4Pipe12	cascade coil cooling four heating individual output pipe regular valve
HCcl4Pipe13	coil common cooling direct four heating output pipe six valve way
HCcl4Pipe14	cascade coil common cooling four heating output pipe six valve way
HCcl4Pipe15	coil cooling direct four heating individual output pipe six valve way
HCcl4Pipe16	cascade coil cooling four heating individual output pipe six valve way
HCclChovrCnd	changeover coil condition cooling heating
HCclChwDmd	chilled coil cooling heating load water
HCclCReq	coil cool cooling heating request standard
HCclCReqMin	coil cool cooling heating min request
HCclDevMod	coil cooling device heating mode
HCclHpu11	coil cooling heat heating modulating pump
HCclHpu12	coil cooling heat heating pump single staged

HCclHpu13	coil common cooling heat heating output pump standard
HCclHpu16	coil common cooling heat heating output pump reheat
HCclHpu19	coil cooling heat heating individual output pump standard
HCclHpu22	coil cooling heat heating individual output pump reheat
HCclHReq	coil cooling heat heating request standard
HCclHReqMin	coil cooling heat heating min request
HCclHwDmd	coil cooling heating hot load water
HCclTRCtrC	coil controller cooling heating room temp
HCclTRCtrH	coil controller cooling heating room temp
HCclTSuCtrC	coil controller cool cooling discharge heating temp
HCclTSuCtrH	coil controller cooling discharge heat heating temp
HCclVlvPos	coil common cooling heating position valve
HCclVlvPosC	coil cool cooling heating individual position valve
HCclVlvPosH	coil cooling heat heating individual position valve
HCclVlvShofC	coil cool cooling heating isolation valve
HCclVlvShofH	coil cooling heat heating isolation valve
HCDmd	cooling heating load
HcgHw11	ceiling hot radiant water
Hcl	coil heating
HclDevMod	coil device heating mode
HclEl11	coil direct electric heating modulating

HclEl12	cascade coil electric heating modulating
HclEl13	coil electric heating single staged
HclEl14	coil electric heating staged two
HclEl15	coil electric heating staged three
HclEl1StPos	coil command electric heating stage = 1 staged
HclEl2StPos	coil command electric heating stage = 2 staged
HclEl3StPos	coil command electric heating stage = 3 staged
HclElPos	coil command electric heating position
HclElPwr	coil electric electrical heating power
HclHReq	coil heating request standard
HclHReqMin	coil heating min request
HclHw11	coil direct heating hot water

HclHw12	cascade coil heating hot water
HclHwDmd	coil heating hot load water
HclOvrTDet	coil heating overtemp
HclTRCtrH	coil controller heating room single temp
HclTSuCtrH	coil controller discharge heating temp
HclVlvPos	coil heating position valve
HCSta	cooling heating state
HCStaDtr	cooling determination heating state
HCStaDtr11	cooling determination heating state
HpuCmd	command heat pump single staged
HpuCmd1St	command common heat pump stage = 1
HpuCmd2St	command common heat pump stage = 2
HpuCmdC1St	command cooling heat pump stage = 1

HpuCmdC2St	command cooling heat pump stage = 2
HpuCmdH1St	command heat heating pump stage = 1
HpuCmdH2St	command heat heating pump stage = 2
HpuDevMod	device heat mode pump
HpuDevMod(*)	device heat mode pump
HpuElPwr	electrical heat power pump
HpuFlt	fault heat pump switch
HpuFlt(*)	fault heat pump switch
HpuFltCol	collection fault heat pump
HpuFltRs	fault heat pump result
HpuRvrVlv	heat pump reverse valve
HpuSpdMaxC	cooling heat max pump speed
HpuSpdMaxDhu	dehumidify heat max pump speed
HpuSpdMaxH	heat heating max pump speed

HpuSpdMinC	cooling heat min pump speed
HpuSpdMinDhu	dehumidify heat min pump speed
HpuSpdMinH	heat heating min pump speed
HpuSrcAvl	available heat pump source value
HpuSrcCmd	command heat pump source
HpuSrcDmd	heat load pump source
HpuSrcDmdBdl	bundle heat load pump source
HpuSrcDmdBdl(*)	bundle heat load pump source
HpuSrcInAvl	available heat pump source switch
HpuSrcReq	heat pump request source
HpuSrcSta	heat pump source status
HpuSta	heat pump status unit
HpuTRCtlC11	control cooling direct heat pump temp

HpuTRCtlH11	control direct heat heating pump temp
HpuVarSpd	command heat pump speed
HReq	heating mode request
HuR	humidity room
HuRelOa	humidity outside relative
HuRelR	humidity relative room sensed
HuRelR(*)	humidity relative room sensed
HuREvl	evaluation humidity room
HVAC	hvac set
Hvac11	ceiling fan hvac radiant radiator set standard
Hvac12	ceiling hvac radiant radiator set vav
Hvac13	box ceiling fan hvac powered radiant radiator set
Hvac17	ceiling fan heat hvac pump radiant radiator set
HvacGrnLf11	green hvac leaf

HvacPltMod11	ceiling fan hvac mode plant radiant radiator standard
HvacPltMod12	ceiling hvac mode plant radiant radiator vav
HvacPltMod13	box ceiling fan hvac mode plant powered radiant radiator
HvacPltMod17	ceiling fan heat hvac mode plant pump radiant radiator
HvacPscMod	hvac mode occ
HvacPscMod11	hvac mode occ
HwDevMod	device hot mode water
HwDevMod(*)	device hot mode water
HwDmdBdl	bundle hot load water
HwDmdBdl(*)	bundle hot load water
HwTOa	hot outside temp water
HwVlvPosEvl	evaluation hot position valve water

ImncInfl	illuminance influence
Latit	latitude
Lgt	group lighting
Lgt(*)	group lighting
Lgt11	group lighting
LgtBrgtCol	brightness collection
LgtBrgtEff	brightness effective
LgtBrgtRs	brightness result
LgtBrgtSwi11	brightness standard switch
LgtBsc	basic lighting
LgtBsc11	basic lighting
LgtBtn	lighting pushbutton switch
LgtBtn(*)	lighting pushbutton switch
LgtBtnCol	collection lighting pushbutton
LgtCmd	command lighting
LgtCmd(*)	command lighting
LgtConstCtl11	brightness constant standard
LgtCorrDlgtCol	collection correction daylight lighting
LgtCtlMst11	brightness control master
LgtCtlSlv11	brightness control slave
LgtDlyOfPscDet	delay lighting occ switchOff
LgtDlyOnBrgt	brightness delay switchOn

LgtEmgDet	detector emergency lighting
LgtEmgDet(*)	detector emergency lighting
LgtEmgSwi	emergency lighting switch
LgtEmgSwi(*)	emergency lighting switch
LgtGrnLf11	green leaf lighting
LgtImncInfl11	illuminance influence lighting
LgtImncInflCol	collection illuminance influence lighting
LgtLifeCyc11	cycle life lighting
LgtLocManOp11	lighting local manual operation
LgtOpStrgy	lighting operation strategy
LgtOpStrgy11	lighting operation strategy
LgtOrnt	lighting orientation
LgtOrnt11	lighting orientation
LgtOrntDtr	determination lighting orientation
LgtPrSpBrgt	brightness constant present setpoint
LgtPrSwiOnPt	brightness present setpoint switchOn
LgtPscDetCol	collection lighting occ
LgtPscDetRs	lighting occ result
LgtPscMod	lighting mode occ

LgtPscMod11	lighting mode occ
LgtPscOp11	lighting occ operation
LgtSpBrgt	brightness constant setpoint value
LgtSwiOnPt	brightness setpoint switchOn value
LifeCyc	cycle life
Lngit	longitude
LocManOp	local manual operation
ManOp	manual operation
ManOpCnd	condition manual operation
MI	input multistate
MI(*)	input multistate
MO	multistate output
MO(*)	multistate output
NgtCReq	cooling night request standard
NgtCReqVal	cooling night request value
NumAirDmd	air load number standard
NumAirDmdBdl	air bundle load number
NumAirFlDvnEx	air deviation extract flow number
NumAirFlDvnSu	air deviation discharge flow number

NumDmpExActv	active damper extract number
NumDmpSuActv	active damper discharge number
NumVavExStrtn	extract number saturation vav
NumVavSuStrtn	discharge number saturation vav
OpDlyOn1	delay1 operation switchOn
OpDlyOn2	delay2 operation switchOn
OpDlyOn3	delay3 operation switchOn
OpModDlyOn1	delay1 mode operation switchOn
OpModDlyOn2	delay2 mode operation switchOn
OpModDlyOn3	delay3 mode operation switchOn
OpModExtd	extended mode operation
OpModSwi	mode operation switch
OpModSwi(*)	mode operation switch
OpStrgyDtr	determination operation strategy
Ossc	optimum start stop
PcpDet	precipitation switch
PcpPrt	precipitation protection
PltModDtr	determination mode plant

PltOpMod	mode operation plant
PrOpMod	mode operation present
PrSpAirFlExR	air extract flow present room setpoint
PrSpC	cooling present setpoint value
PrSpCCmf	comfort cooling present setpoint
PrSpCEco	cooling economy present setpoint
PrSpCPcf	cooling preComfort present setpoint
PrSpCPrt	cooling present protection setpoint
PrSpDhu	dehumidification present setpoint
PrSpH	heating present setpoint value
PrSpHCmf	comfort heating present setpoint
PrSpHEco	economy heating present setpoint
PrSpHPcf	heating preComfort present setpoint
PrSpHPrt	heating present protection setpoint
PrSpVnt	present setpoint ventilation
PrtDlyOn1	delay1 protection switchOn
PrtDlyOn2	delay2 protection switchOn
PrtDlyOn3	delay3 protection switchOn
PscBtn	button occ
PscDet	occ switch
PscDet(*)	occ switch
PscModDtr	determination mode occ
PscOp	occ operation
Pwr	measure power
R	area room
Rad	radiator
RadDevMod	device mode radiator
RadDndftVal	downdraft radiator value
RadEl11	electric modulating radiator
RadEl12	electric radiator single staged
RadElPos	command electric output position radiator
RadElPos(*)	command electric output position radiator
RadElPosCol	collection command electric position radiator
RadElPosVal	electric position radiator value
RadElPwr	electric electrical power radiator

RadHReq	heating radiator request
RadHw11	hot radiator water
RadHwDmd	hot load radiator water
RadOvrTDet	overtemp radiator switch
RadOvrTDet(*)	overtemp radiator switch
RadOvrTDetCol	collection overtemp radiator
RadOvrTDetRs	overtemp radiator result
RadTRCtrH	controller heating radiator room temp
RadVlvPos	command output position radiator valve
RadVlvPos(*)	command output position radiator valve
RadVlvPosCol	collection command position radiator valve
RadVlvPosVal	position radiator value valve
RAQual	air quality room value
RAQualInd	air indication quality room
RAutoCnd	automation condition room
Rcg	ceiling radiant

RcgChovrCnd	ceiling changeover condition radiant
RcgChwDmd	ceiling chilled load radiant water
RcgCReq	ceiling cooling radiant request
RcgDevMod	ceiling device mode radiant
RcgHReq	ceiling heating radiant request
RcgHwDmd	ceiling hot load radiant water
RcgTChwPm	ceiling chilled primary radiant temp water
RcgTRCtrC	ceiling controller cooling radiant room temp
RcgTRCtrH	ceiling controller heating radiant room temp
RcgVlvPos	ceiling command common output position radiant valve
RcgVlvPos(*)	ceiling command common output position radiant valve
RcgVlvPosC	analog ceiling cooling position radiant valve

RcgVlvPosC(*)	analog ceiling cooling position radiant valve
RcgVlvPosCCol	ceiling collection command cooling position radiant valve
RcgVlvPosCol	ceiling collection command common position radiant valve
RcgVlvPosCVal	ceiling cooling position radiant value valve
RcgVlvPosH	analog ceiling heating position radiant valve
RcgVlvPosH(*)	analog ceiling heating position radiant valve
RcgVlvPosHCol	ceiling collection command heating position radiant valve
RcgVlvPosHVal	ceiling heating position radiant value valve
RcgVlvPosVal	ceiling common position radiant value valve
RcgVlvShofC	ceiling command cooling isolation output radiant valve
RcgVlvShofC(*)	ceiling command cooling isolation output radiant valve
RcgVlvShofCCol	ceiling collection command cooling isolation radiant valve
RcgVlvShofCVal	ceiling cooling isolation radiant value valve
RcgVlvShofH	ceiling command heating isolation output radiant valve
RcgVlvShofH(*)	ceiling command heating isolation output radiant valve
RcgVlvShofHCol	ceiling collection command heating isolation radiant valve
RcgVlvShofHVal	ceiling heating isolation radiant value valve
RClmOpModIn	climate input mode operation room
REei	efficiency energy indication room
ReHclVlvPosEvl	evaluation position reheat valve
RGrnLf	green leaf room

RGrnLf11	green leaf room
RHuRel	humidity relative room value
RHvacCoo	coordination hvac room
RHvacCoo11	ceiling coordination fan hvac radiant radiator room standard
RHvacCoo12	ceiling coordination hvac radiant radiator room vav
RHvacCoo13	box ceiling coordination fan hvac powered radiant radiator room
RHvacCoo17	ceiling coordination fan heat hvac pump radiant radiator room
RlfCmd	command relief
RlfFnct	function relief
RLgtCoo	coordination lighting room
RLgtCoo11	coordination lighting room
ROpDstr	distribution operation room
ROpMod	mode operation room
ROpMod11	mode operation room
ROpModDtr	determination mode operation room
ROpUn11	operator room unit
ROpUnItf	interface operator room unit
RpdVnt	rapid ventilation
RpdVntOp	operation rapid ventilation
RpdVntOp11	operation rapid ventilation
RPscDet	detect occ room
RScn	room scene
RScn11	room scene
RSegm	area roomSegment
RShdCoo	coordination room shading
RShdCoo11	coordination room shading
RShdDlyOffPsc	delay occ room shading switchOff
RstFrPrt	freeze freezeStat reset status
RstPcpPrt	precipitation protection reset
RTemp	product room temp value
RThLd11	load room thermal
RThLdDtr	determination load room thermal

RWndSta	room state window
Scn	operation scene
Shd	group shading
Shd(*)	group shading
Shd11	group shading
ShdAnnGlrPrt11	annual glare protection
ShdBsc	basic shading
ShdBsc11	basic shading
ShdCenFcd11	central facade local shading
ShdClsnDet11	collision detector shading
ShdDlgtCorr11	correction daylight shading
ShdDlyOfPscDet	delay occ shading switchOff
ShdEmgDet	detector emergency shading
ShdEmgDet(*)	detector emergency shading
ShdEngyEffcy11	efficiency energy shading
ShdGlrPrt11	facade glare protection
ShdGrnLf11	green leaf shading
ShdLocManOp11	local manual operation shading
ShdOpStrgy	operation shading strategy
ShdOpStrgy11	operation shading strategy

ShdPscDetCol	collection occ shading
ShdPscDetRs	occ result shading
ShdPscMod	mode occ shading
ShdPscMod11	mode occ shading
ShdPscOp11	occ operation shading
ShdSrvSwi	service shading switch
ShdSrvSwi(*)	service shading switch
SmextEh	exhaust extraction smoke
SmextEhReq	exhaust extraction request smoke
SmextEhReq(*)	exhaust extraction request smoke
SmextSu	discharge extraction smoke
SmextSuReq	discharge extraction request smoke
SmextSuReq(*)	discharge extraction request smoke
SolAzRel	azimuth relative solar
SolEtRel	elevation relative solar
SolRdDir	direct radiation solar
SolRdn	measure radiation solar
SolRdnCndHi	condition high radiation solar

SolRdnCndLo	condition low radiation solar
SolRdnCndMe	condition medium radiation solar
SolRdnDtr	determination radiation solar
SolRdnEff	effective radiation solar
SolRdnFcd	facade radiation solar
SolRdnFcd(*)	facade radiation solar
SpAirFlEx	air extract flow setpoint
SpAirFlExEvl	air evaluation extract flow setpoint
SpAirFlSu	air discharge flow setpoint
SpAirFlSuEvl	air discharge evaluation flow setpoint
SpAQualRCmf	air comfort quality room setpoint
SpCCmf	comfort cooling setpoint value
SpCCmfCmdv	comfort command cooling setpoint standard value
SpCCmfCmp	comfort compensated cooling setpoint

SpCCmfM2Cmdv	comfort command cooling manual2 setpoint value
SpCReq	cooling request setpoint
SpDhuRelRCmf	comfort dehumidify relative room setpoint
SpFan1Spd	fan setpoint single staged
SpFan2Spd	fan setpoint staged two
SpFan3Spd	fan setpoint staged three
SpFanVarSpd	fan setpoint speed
SpHCmf	comfort heating setpoint value
SpHCmfCmdv	comfort command heating setpoint standard value
SpHCmfCmp	comfort compensated heating setpoint
SpHCmfM2Cmdv	comfort command heating manual2 setpoint value
SpHiCCmf	comfort cooling high setpoint
SpHiHCmf	comfort heating high setpoint
SpHiTSu	discharge high setpoint temp

SpHReq	heating request setpoint
SpHuRelRCmf	comfort humidity relative room setpoint
SpLoCCmf	comfort cooling low setpoint
SpLoHCmf	comfort heating low setpoint
SpLoTSu	discharge low setpoint temp
SplyAflDvnEx11	air deviation extract flow supply
SplyAflDvnSu11	air deviation discharge flow supply
SplyAir	air supply
SplyAir(*)	air supply
SplyAir11	air standard supply
SplyAir12	air bundle supply
SplyCdnPrev11	condensate prevent supply
SplyCho2Pipe11	changeover pipe standard supply two
SplyCho2Pipe12	bundle changeover pipe supply two
SplyChovrAir11	air changeover supply
SplyChw	chilled supply water

SplyChw(*)	chilled supply water
SplyChw11	chilled standard supply water
SplyChw12	bundle chilled supply water
SplyDmpPosEx11	damper extract position supply
SplyDmpPosSu11	damper discharge position supply
SplyFreeC11	cooling free supply
SplyHpuSrc	heat pump source supply
SplyHpuSrc(*)	heat pump source supply
SplyHpuSrc11	heat pump source standard supply
SplyHpuSrc12	bundle heat pump source supply
SplyHuREvl11	evaluation humidity room supply
SplyHw	hot supply water
SplyHw(*)	hot supply water
SplyHw11	hot standard supply water
SplyHw12	bundle hot supply water
SplyRlfFnct11	function relief supply

SplySpAflEx11	air extract flow setpoint supply
SplySpAflSu11	air discharge flow setpoint supply
SplySpTSu11	discharge setpoint supply temp
SplyTDwpEvl11	dew evaluation supply temp
SplyVavExSrt11	extract saturation supply vav
SplyVavOvrr11	override supply vav
SplyVavSuSrt11	discharge saturation supply vav
SpTMxC	cooling mixed setpoint temp
SpTR	room setpoint temp value
SpTR11	room setpoint temp
SpTRDtr	determination room setpoint temp
SpTRShft	room setpoint shift temp
SpTSuDtr	determination discharge setpoint temp
SrvDlyOn1	delay1 service switchOn
SrvDlyOn2	delay2 service switchOn
SrvDlyOn3	delay3 service switchOn

SrvSwi	service switch
TChwPm	chilled primary temp water
TChwPm(*)	chilled primary temp water
TCtlC	control cooling temp
TCtlH	control heating temp
TDwp	dew temp
TDwpEvl	dew evaluation temp
TEx	extract temp
TFlChw	chilled leaving measure temp water
ThPrt	protection thermal
TMx	mixed temp
TOa	outside sensed temp
TOaHiC	cooling high outside temp
TOaHiH	heating high outside temp
TOaLoc	local outside temp
TOaLoC	cooling low outside temp
TOaLoc(*)	local outside temp
TOaLoH	heating low outside temp

TPaAftrt	afterTreatment primary temp
TR	room sensed temp
TR(*)	room sensed temp
TstHvacEmg	emergency hvac test
TSu	discharge temp
TSuCDmdBdl	bundle cooling discharge load temp
TSuCDmdBdl(*)	bundle cooling discharge load temp
TSuHDmdBdl	bundle discharge heating load temp
TSuHDmdBdl(*)	bundle discharge heating load temp
VavAirFlEnd	air end flow request vav
VavEx	extract vav
VavEx11	air extract flow vav
VavEx12	balancing extract pressure vav
VavEx13	conversion extract pressure vav
VavEx14	air extract speed vav

VavExAflMaxVnt	air extract flow max vav ventilation
VavExAflMinVnt	air extract flow min vav ventilation
VavExAflPvdVnt	air extract flow provide vav ventilation
VavExAirFl	absolute air extract flow vav
VavExAirFlCtr	air controller extract flow vav
VavExAirFlRel	air extract flow relative value vav
VavExAirV	air extract measure speed vav
VavExAirVEff	air effective extract speed vav
VavExDevMod	device extract mode vav
VavExDevMod(*)	device extract mode vav
VavExDiffP	delta extract pressure vav
VavExPos	extract position vav

VavExSpAflRel	air extract flow relative setpoint vav
VavExSpAirFl	air command extract flow setpoint vav
VavExStrtnEvl	evaluation extract saturation vav
VavOvrr	override vav
VavSu	discharge vav
VavSu11	air discharge flow vav
VavSu12	balancing discharge pressure vav
VavSu13	conversion discharge pressure vav
VavSu14	air discharge speed vav
VavSuAflMaxVnt	air discharge flow max vav ventilation
VavSuAflMinVnt	air discharge flow min vav ventilation
VavSuAirDmd	air discharge load vav
VavSuAirFl	absolute air discharge flow vav
VavSuAirFlCtr	air controller discharge flow vav

VavSuAirFlMaxC	air cooling discharge flow max vav
VavSuAirFlMaxH	air discharge flow heating max vav
VavSuAirFlMinC	air cooling discharge flow min vav
VavSuAirFlMinH	air discharge flow heating min vav
VavSuAirFlRel	air discharge flow relative value vav
VavSuAirFlRlf	air discharge flow relief vav
VavSuAirV	air discharge measure speed vav
VavSuAirVEff	air discharge effective speed vav
VavSuCDmd	cooling discharge load vav
VavSuChovrCnd	changeover condition discharge vav
VavSuCReq	cooling discharge request vav
VavSuDevMod	device discharge mode vav

VavSuDevMod(*)	device discharge mode vav
VavSuDiffP	delta discharge pressure vav
VavSuHDmd	discharge heating load vav
VavSuHReq	discharge heating request vav
VavSuPos	discharge position vav
VavSuSpAflRel	air discharge flow relative setpoint vav
VavSuSpAirFl	air command discharge flow setpoint vav
VavSuStrtnEvl	discharge evaluation saturation vav
VavSuVntDmd	discharge load vav ventilation
VavTCasCtlC11	cascade control cooling temp vav
VavTCasCtlH11	cascade control heating temp vav
VavTRCtlC11	control cooling direct temp vav
VavTRCtlH11	control direct heating temp vav

VavTRCtrC	controller cooling room temp vav
VavTRCtrH	controller heating room temp vav
VavVntCtl11	control vav ventilation
VntCtl	control ventilation
VntCtr	controller vav ventilation
WarmUp	warmUp
WdPrt1	limit protection single wind
WdPrt2	limit protection two wind
WdSpd	measure speed wind
WdSpd(*)	measure speed wind
WdSpdCol	collection speed wind
WdSpdFst	first measure speed wind
WdSpdFst(*)	first measure speed wind
WdSpdFstCol	collection first speed wind
WdSpdFstRs	first result speed wind
WdSpdRs	result speed wind
WdSpdScd	measure second speed wind

WdSpdScd(*)	measure second speed wind
WdSpdScdCol	collection second speed wind
WdSpdScdRs	result second speed wind
WndCont	contact window
WndCont(*)	contact window
WthDstr	distribution weather

10.2 Desigo primary controller tags

Key	Semantic tags
Ahu10	ahu air plant
Ahu20	ahu air plant
Ahu30	ahu air plant
Ahu31	ahu air plant
Ahu32	ahu air plant
Ahu33	ahu air plant
Ahu34	ahu air plant
Ahu35	ahu air plant
Ahu40	ahu air plant
Ahu70	ahu air plant
Ahu80	ahu air plant
AQualEx	air extract measure quality
AQualSu	air discharge measure quality
Avl	available
Bo	boiler
Bo1	boiler
Bo2	boiler
Bo3	boiler
Bo4	boiler
Bo5	boiler
Bo6	boiler
Bo7	boiler
Bo8	boiler
Bu	burner
ByDmp	bypass damper modulating
Ccl	coil cooling
CclT	chilled coil control cooling temp water
CclX	chilled coil control cooling humidity relative temp water
CclX1	absolute chilled coil control cooling humidity temp water
Cds	condenser

CGen	chilled chilledWaterPlant plant water
CGen10	chilled chilledWaterPlant plant water
CGrp	chilled cooling distribution water
CGrp10	chilled cooling distribution water
CGrp60	chilled cooling distribution water
CGrp65	chilled cooling distribution water
CGrp66	chilled cooling distribution water
CGrp70	chilled cooling distribution water
CGrp71	chilled cooling distribution water
Ch1	chiller
Ch2	chiller
Ch3	chiller
ChiSwi	chimney switch
ChwPu	chilled circ pump vfd water
CirPu	circ pump vfd
Cmd	command enable run
Cmd1	command stage = 1
Cmd2	command stage = 2
CmdVal	command value
CmnFlt	error

CMxCrt10	chilled
COAlmRef	alarm co reference
CprFlt	compressor error
CrgBtn	charge switch
CrgMan	charge manual
CwPu	circ cooling pump vfd water
DeeT	control dxCool temp
DeeX	control dxCool humidity relative temp
Dhw	domestic plant water
DhwCrg	charge
DhwCrg10	charge water
DhwCrgEl20	charge elec
DhwEl20	domestic elec plant water
DhwHyd10	domestic plant water
Dmp	bypass damper modulating
DmpEh	air damper exhaust
DmpMx	air damper mixed
DmpOa	air damper outside
DmpRc	air damper recirculated
DmpShofEh	air damper exhaust isolation shutoff

DmpShofOa	air damper isolation outside shutoff
DP	delta measure pressure
DPEx	delta extract pressure value
DPExMon	delta extract pressure switch
DPMon	delta pressure run run switch
DSpTBo	analog command freq speed
Efcy	efficiency energy recovery value
EfcyLmRd	efficiency energy recovery switch
ElHcl	coil elecHeat electric heating preheat
EmgSwi	emergency stop switch
Er	error switch
Erc	energy recovery
ErcMon	efficiency energy recovery
ErcPl	energy exchanger heat plate recovery
ErcRnacl	coil energy parallel recovery runaround

ErcRnacl5	coil energy recovery runaround sequence
ErcRo	energy recovery rotational
ErPuTwin	error pump twin
Evp	evaporator
ExpRad	exponent leaving parameter temp water
FanEx	extract fan vfd
FanSu	discharge fan vfd
Fb	feedback run
Fdp10Clsd	close damper fire stage = 10 switch
Fdp10Opnd	damper fire open stage = 10 switch
Fdp11Clsd	close damper fire stage = 11 switch
Fdp11Opnd	damper fire open stage = 11 switch
Fdp12Clsd	close damper fire stage = 12 switch
Fdp12Opnd	damper fire open stage = 12 switch
Fdp13Clsd	close damper fire stage = 13 switch

Fdp13Opnd	damper fire open stage = 13 switch
Fdp14Clsd	close damper fire stage = 14 switch
Fdp14Opnd	damper fire open stage = 14 switch
Fdp15Clsd	close damper fire stage = 15 switch
Fdp15Opnd	damper fire open stage = 15 switch
Fdp16Clsd	close damper fire stage = 16 switch
Fdp16Opnd	damper fire open stage = 16 switch
Fdp1Clsd	close damper fire stage = 1 switch
Fdp1Opnd	damper fire open stage = 1 switch
Fdp2Clsd	close damper fire stage = 2 switch
Fdp2Opnd	damper fire open stage = 2 switch
Fdp3Clsd	close damper fire stage = 3 switch

Fdp3Opnd	damper fire open stage = 3 switch
Fdp4Clsd	close damper fire stage = 4 switch
Fdp4Opnd	damper fire open stage = 4 switch
Fdp5Clsd	close damper fire stage = 5 switch
Fdp5Opnd	damper fire open stage = 5 switch
Fdp6Clsd	close damper fire stage = 6 switch
Fdp6Opnd	damper fire open stage = 6 switch
Fdp7Clsd	close damper fire stage = 7 switch
Fdp7Opnd	damper fire open stage = 7 switch
Fdp8Clsd	close damper fire stage = 8 switch
Fdp8Opnd	damper fire open stage = 8 switch
Fdp9Clsd	close damper fire stage = 9 switch

Fdp9Opnd	damper fire open stage = 9 switch
FdpEx	damper extract fire
FdpSu	damper fire supply
FilEh	air exhaust filter
FilEx	air extract filter
FilOa	air filter outside
FilSu	air discharge filter
FireDet	fire switch
Fl	flow value
FlDet	flow run switch
FlEr	error flow
FlPu1	flow pump stage = 1 switch
FlPu2	flow pump stage = 2 switch
FltFlmInd	error flame
FltInd	error fault
FrCtl	freeze freezeStat status
FrInd	freeze freezeStat status
FrPrtBo	freeze freezeStat status
FrPrtMon	freeze freezeStat status
GasDet	gas switch

GasVlv	gas valve
Hcrv	curve heating
HGen11	hot hotWaterPlant plant water
HGen30	hot hotWaterPlant plant water
HGenCas10	hot hotWaterPlant plant water
HGenExt20	hot hotWaterPlant plant water
HGrp10	distribution heating hot plant water
HGrp11	distribution heating hot plant water
HGrp12	distribution heating hot plant water
HGrp15	distribution heating hot plant water
HGrp20	distribution heating hot plant water
HGrp60	distribution heating hot plant water
HGrp65	distribution heating hot plant water
HGrp70	distribution heating hot plant water

HiPFlt	error max pressure
HuEx	extract humidity
Hum	air humidifier
HumAw	air humidifier relative washer
HumAw1	absolute air humidifier washer
HumCSte	cold humidifier relative steam
HumCSte1	absolute cold humidifier steam
HumEl	electric humidifier relative steam
HumEl1	absolute electric humidifier steam
HumSte	humidifier relative steam
HumSte1	absolute humidifier steam
HumUsnc	humidifier relative ultrasonic
HumUsnc1	absolute humidifier ultrasonic
HuOa	air humidity outside sensed
HuSu	discharge humidity
HysFrPrt	freeze freezeStat status
HysOvrT	overtemp
LoPFlt	error min pressure
ManSwi	manual switch

Mdlt	analog command freq speed
MnPu	circ main pump vfd
MntnReq	error maintenance
MntnSwi	maintenance switch
MntnSwi1	maintenance stage = 1 switch
MntnSwi2	maintenance stage = 2 switch
Mot	motor vfd
MtrEg	energy meter
MtrGas	gas meter
MtrOil	meter oil
MxCrt	circuit mixing
MxCrt10	circuit control leaving mixing temp
MxCrt20	circuit control entering mixing temp
MxCrt30	circuit control mixing room temp
OilLeak	leak oil
OilPFlt	error oil pressure
OpModMan	manual mode operation
OpModSwi	mode operation switch
OpStaCpr	run state
OvrTDet	overtemp

PEx	extract measure pressure
Plant	plant
Plt	plant
PltFrPrt	freeze freezeStat status
PMaxMon	max pressure switch water
Pmin	min pressure value water
PMinMon	min pressure switch water
PMnAlm	alarm main pressure
PosMinOa	air min outside
PPreAlm	preAlarm pressure
PreHcl	coil heating preheat
PrLd	load present
PrLoad	load present
PrOpMod	mode operation present
PrSpTMnFl	flow main present setpoint temp
PrSptSto	present storage temp water
PSu	discharge measure pressure
Pu	circ pump vfd
PuFlt	error
PuTwin	pump twin

PuTwinGFos	grundfos pump twin
ReHcl	coil heating reheat water
RfMch	compressor
RfMon1	error refrigerant stage = 1
RfMon2	error refrigerant stage = 2
RsnPrOpM	mode operation reason
SftyTLm	limiter overtemp
SftyTMon	overtemp switch
Sp	analog command
SpC	cooling setpoint
SpChw	analog command speed
SpCmf	comfort setpoint
SpCorr	correction setpoint
SpDhu	dehumidification setpoint
SpEco	economy setpoint
SpH	heating setpoint
SpHu	humidity setpoint
SpMdlt	analog command freq speed
SpP	analog command
SpPreCmf	preComfort setpoint
SpPrt	protection setpoint
SpPuHd	analog command
SpTBo	analog command freq speed

SpTFl	effective flow leaving setpoint temp water
SpTFlDs	design leaving setpoint setpointAt = outside and air and temp and design and value temp water
SpTFlHi	high leaving setpoint setpointAt = outside and air and temp and high and value temp water
SpTFlMax	leaving max setpoint setpointAt = max and flow temp water
SpTFlMin	leaving min setpoint setpointAt = min and flow temp water
StSwi	step switch
StSwi1St	single staged step switch
StSwi4St	multi staged step switch
StTraSta	stage state transient
TAfErc	air energy recovery temp
TBo	boiler leaving temp water
TDhw	domestic temp water
TEh	air exhaust temp
TEx	extract temp

TFl	leaving temp water
TFrPrtW	freeze freezeStat status temp water
TGly	glycol temp
ThOvrld	overload switch thermal
ThOvrld1	overload stage = 1 thermal
ThOvrld2	overload stage = 2 thermal
TIn	entering temp water
TMnFl	leaving main temp water
TMnRt	entering main temp water
TOa	air outside sensed temp
TOaDct	duct outside temp
TOaDsgn	air design outside parameter temp
TOaHi	air high outside parameter temp
TOut	leaving temp water
TOvr	error overtemp
TR	air room temp
TraSta	state transient value

TRt	entering temp water
TStg	strategy temp water
TSu	discharge temp
TTnkBtm	min tank temp water
TTnkTop	max tank temp water
Vlv	valve water
VlvByp	bypass modulating valve
VlvMx	mixing valve
VlvRtMx	mixing return valve
VlvShof	isolation shutoff valve valve
Vnt10	ahu air plant
Vnt20	ahu air plant
WLoLvlDet	error level low switch water

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