

Module 4

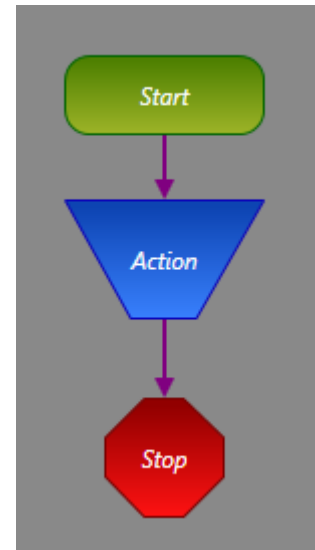
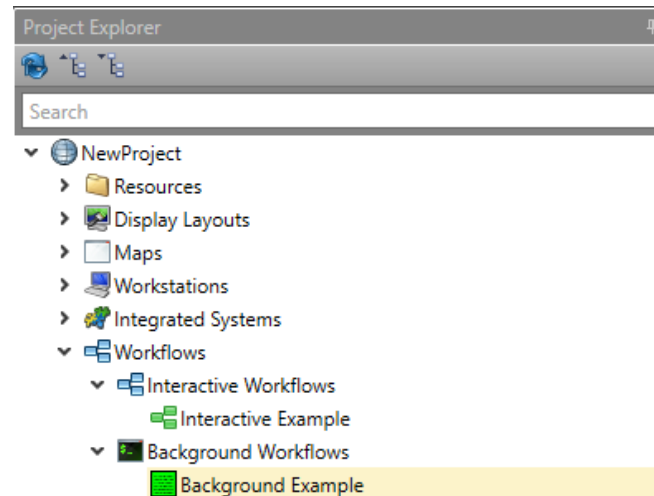
Advanced Features: Workflows

Overview



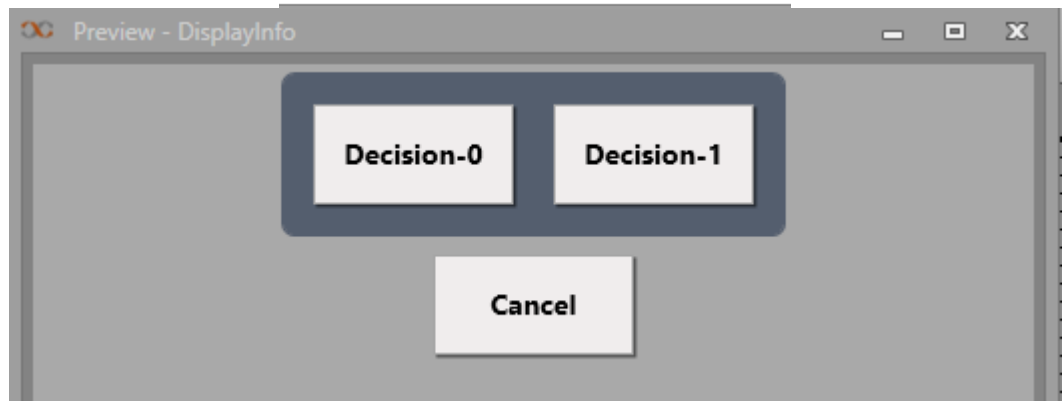
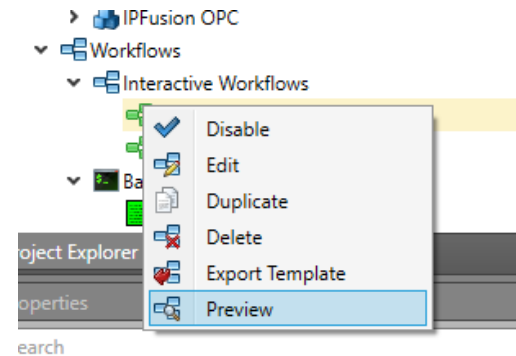
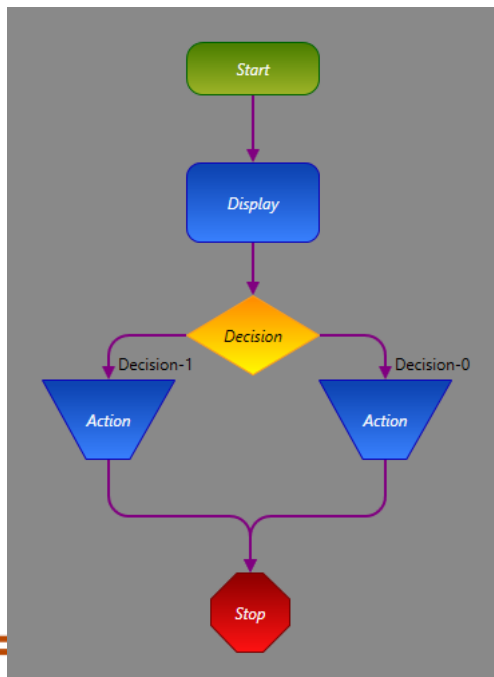
Overview

- Standard Operating Procedure (SOP)
 - Respond and handle situations consistently
- Triggered by events (or conditions)
- Design is similar to Maps (design tab, toolbox, etc)



Overview – Interactive Workflows

- Launches in popup or function panel
- Can only be used in graphical Runtime
- Interaction with user (display text, images, files, prompt for choices)
- Can be previewed from right-click menu (workflow must be saved first)

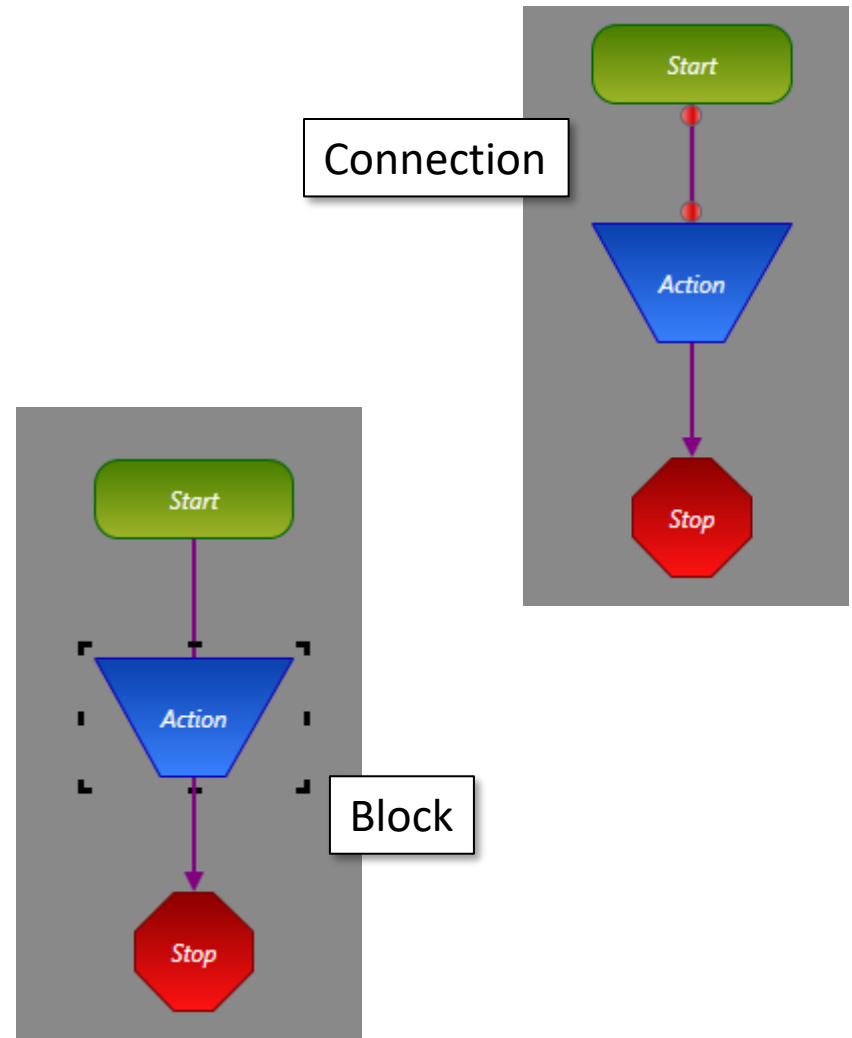


Overview – Background Workflows

- Launches in background
- Performs operation only, no interaction with user
- Single execution / high availability

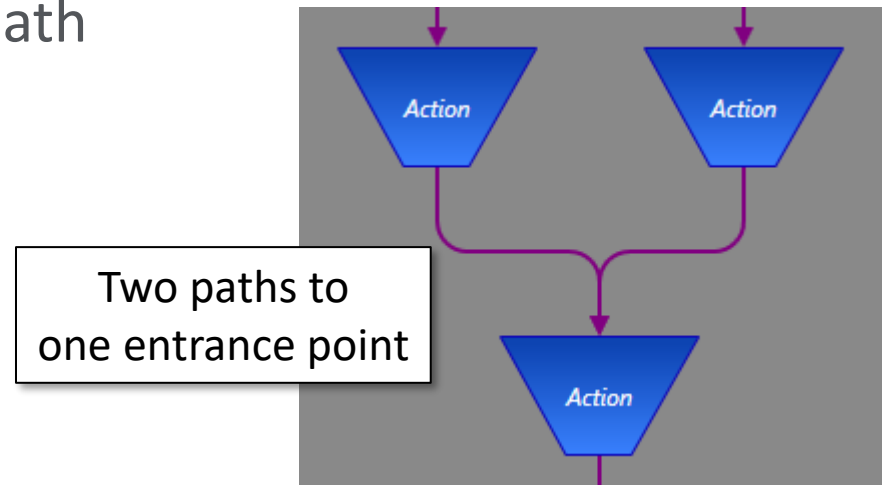
Design – Blocks & Connections

- Blocks
 - All functions in a Workflow are performed by blocks
- Connections
 - Connections are followed from Start to Finish in a logical order
 - All connections must be valid, or the Workflow cannot be enabled
 - When the Workflow is invalid, connections are red. When valid, they are purple



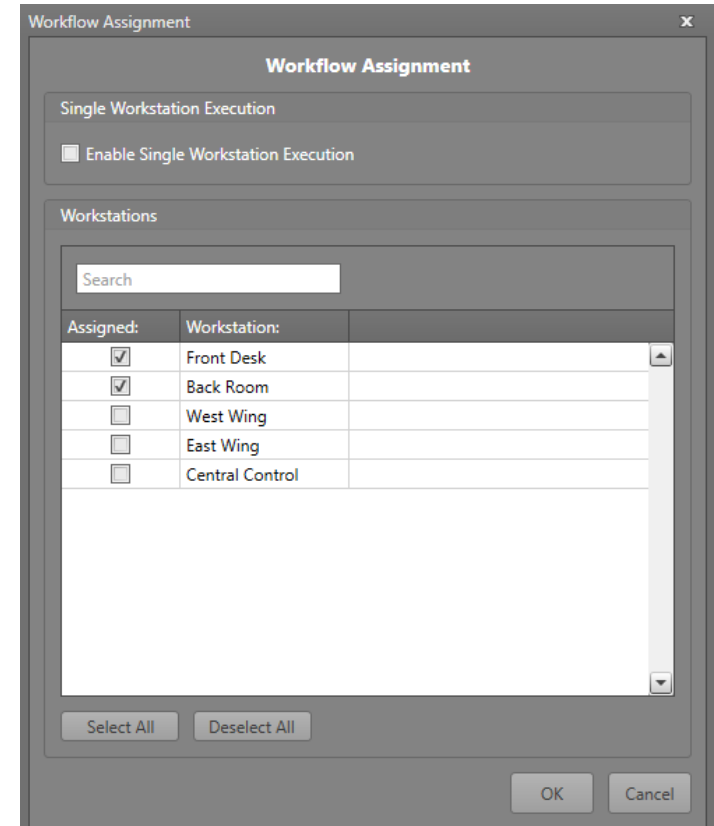
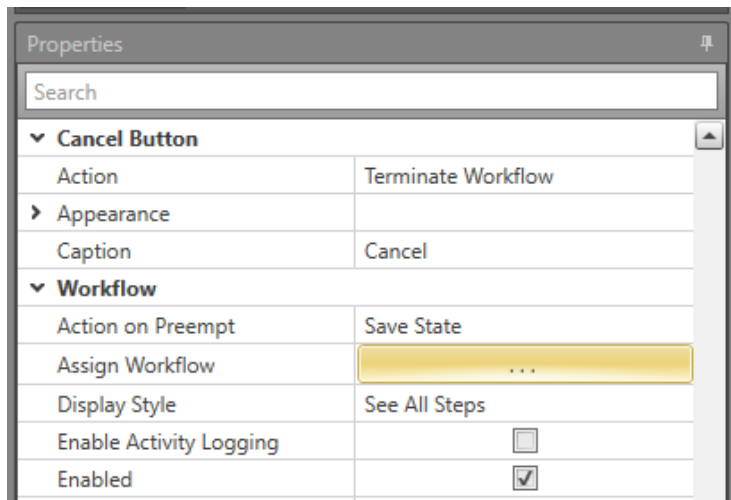
Design – Blocks & Connections

- Blocks have one entrance point and a set number of exit points, depending on the block type
- Entrance points can accept multiple paths
- Exit points can only go to one path



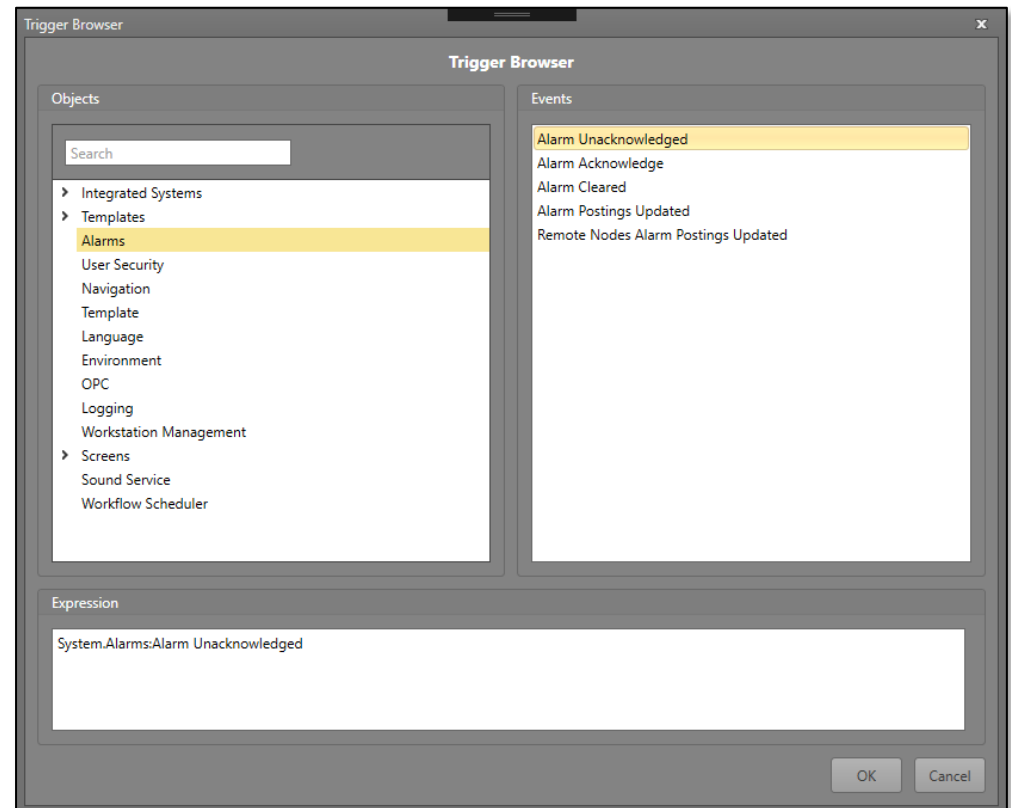
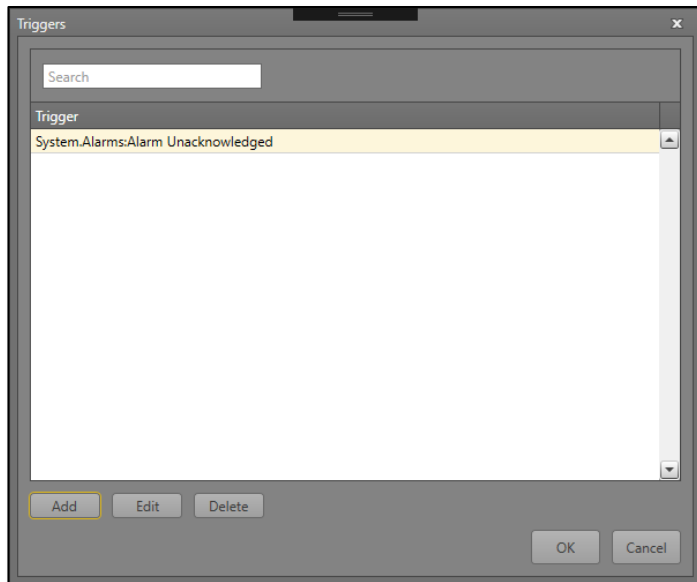
Design – Assigning Workflows

- Selectively assign Workflows to Workstations
- All, none, or specific Workstations
- Can execute on a single Workstation when assigned to multiple



Design – Defining Triggers

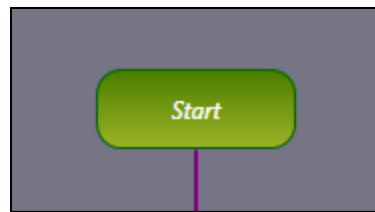
- Use Trigger Browser to define which events will trigger the workflow
- Can add multiple triggers



Common Blocks

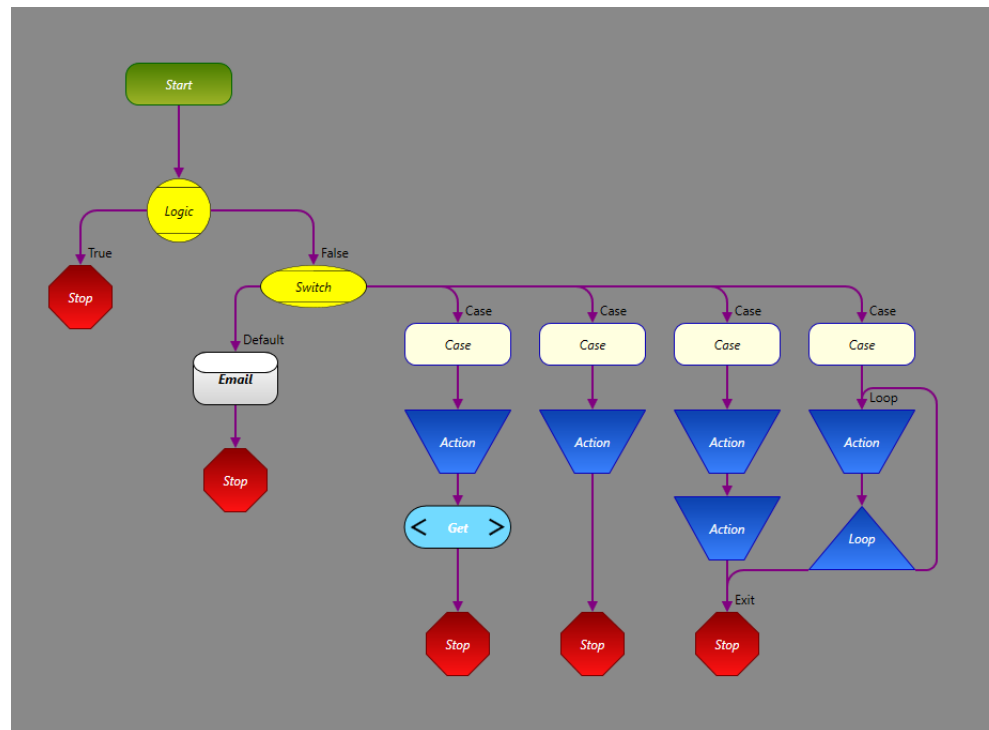
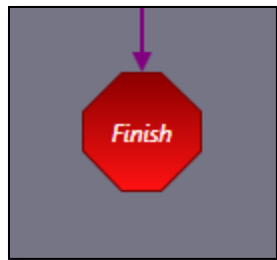
Common Blocks – Start

- Each Workflow must contain one, and only one, **Start** block
- Logical flow begins here when the Workflow is triggered



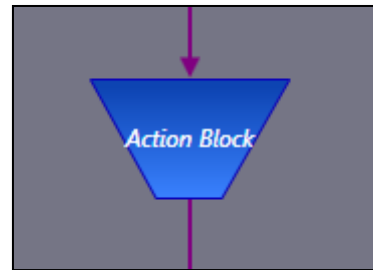
Common Blocks – Finish

- Each Workflow must contain at least one **Finish** block
- Logical flow ends here
- Possible to use multiple **Finish** blocks in order to clean up the appearance of the Workflow (larger Workflows can be complicated)



Common Blocks – Action

- Performs an action which is chosen from the **Action Browser**
- Parameters are passed to the action using the **Object Browser**



Common Blocks – Action

The image displays two software windows. The background window is titled "Action Browser" and is divided into three main sections: "Objects", "Commands", and "Expression".

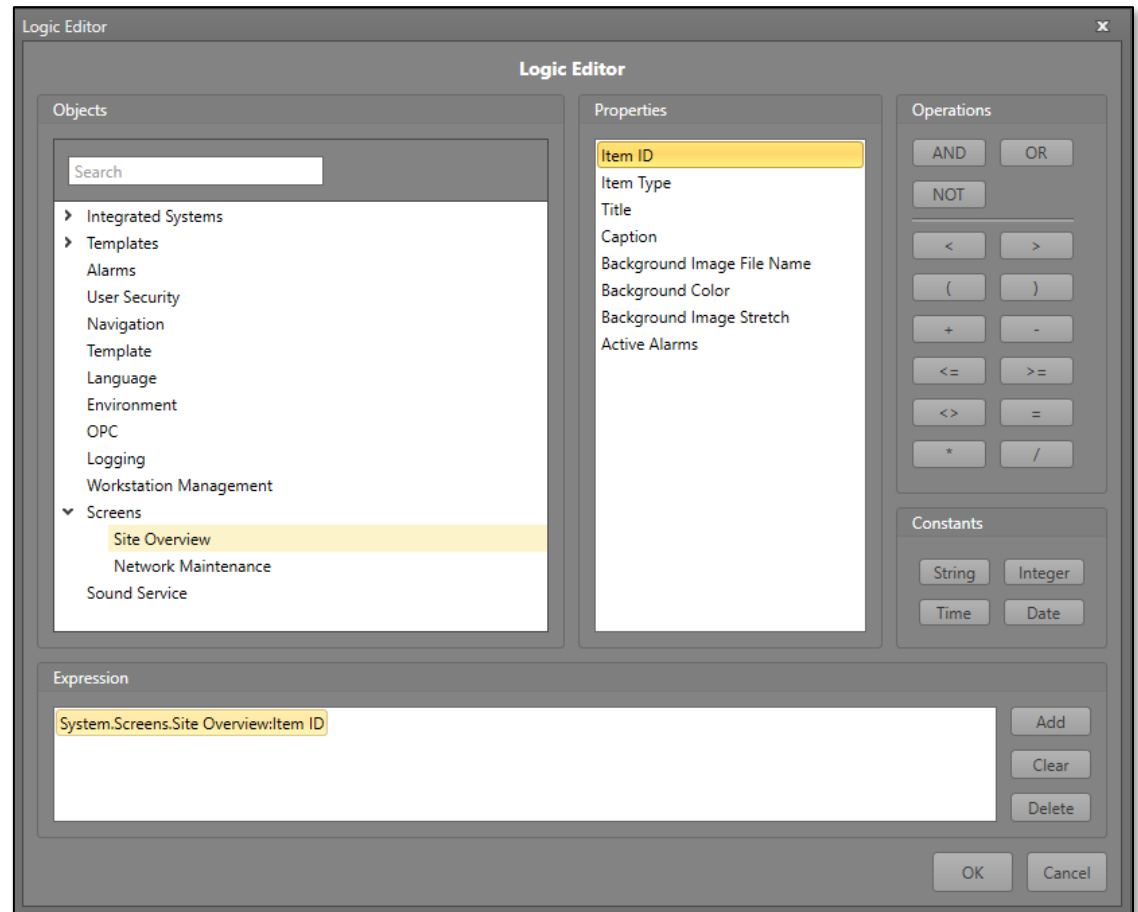
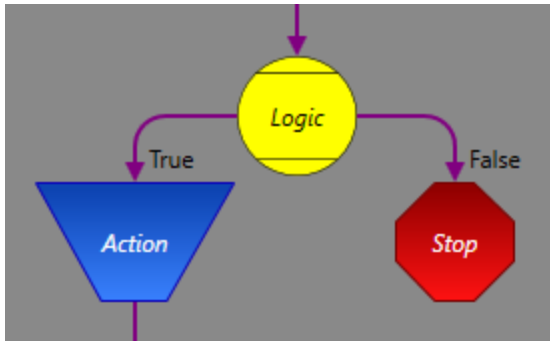
- Objects:** A search bar is at the top. Below it is a tree view with the following items: Integrated Systems, Templates, Alarms, User Security, Navigation, Template, **Language** (highlighted in yellow), Environment, OPC, Logging, Workstation Management, Screens, Sound Service, and Logging.
- Commands:** A list of actions is shown, with "Change View Language (Language Name)" highlighted in yellow. Below it is "Change Logging Language (Language Name)".
- Expression:** A text field contains the expression: `System.Language:Change View Language(Language Name)`.

The foreground window is titled "Single Selection Browser" and contains:

- A search bar.
- A section titled "Available Selections:" containing a list with one item: **DEFAULT_LANGUAGE** (highlighted in yellow).
- Buttons at the bottom: "Advanced", "OK", and "Cancel".

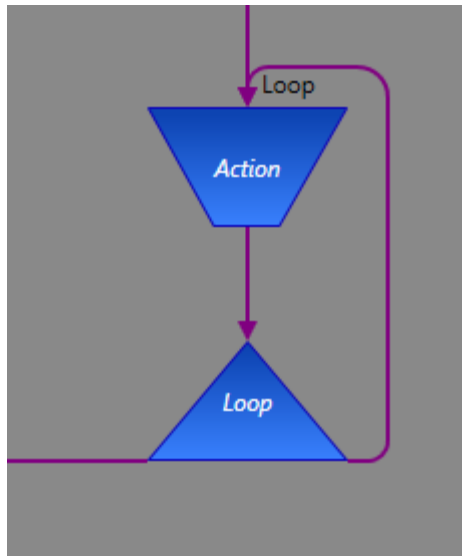
Common Blocks – Logic

- Evaluates a logical expression, built with **Logic Editor**
- Chooses left path if true, right path if false



Common Blocks – Counter Loop

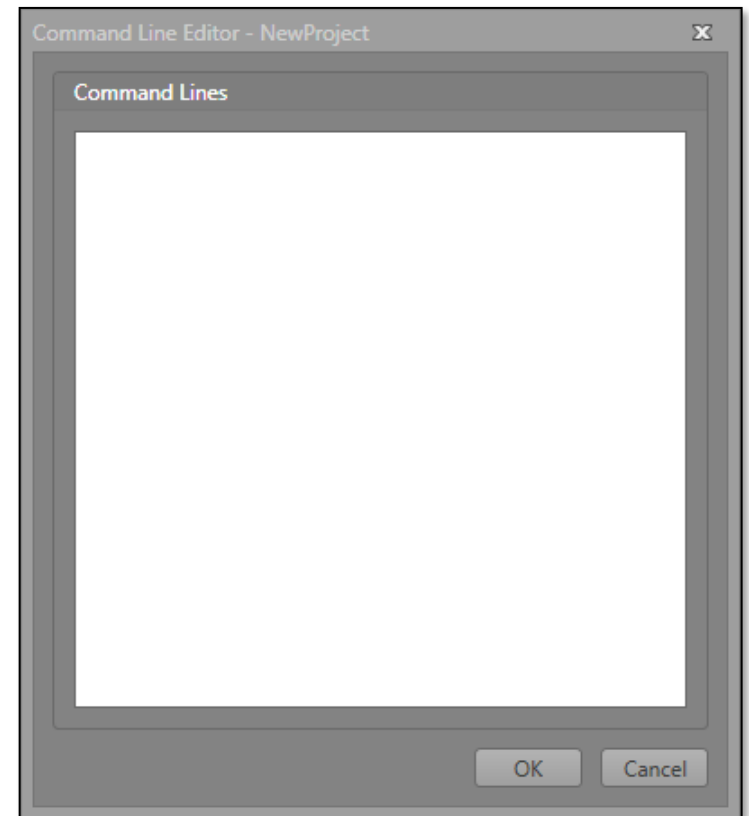
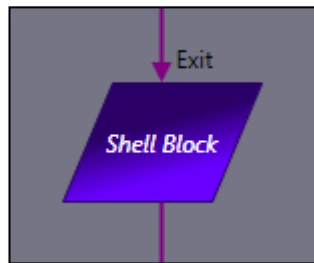
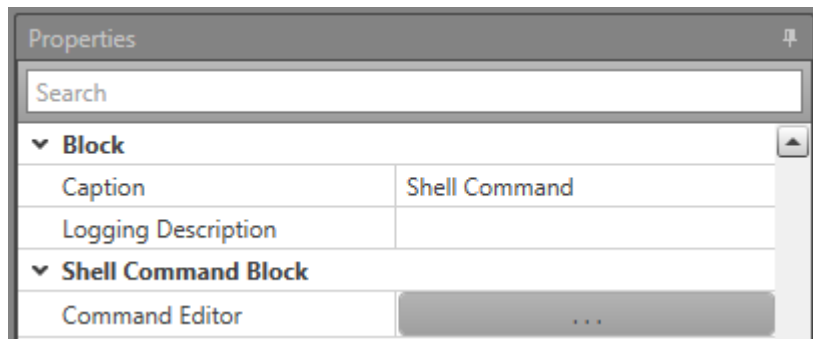
- Loops through the same logic until the exit value is reached
- Used to repeat sections of logic a set number of times
- Left path is exit, right path is loop



Properties	
Search	
▼ Block	
Caption	Loop
Logging Description	
▼ Default	
Exit Value	1

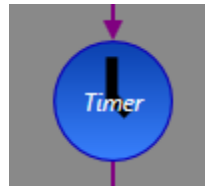
Common Blocks – Shell

- Executes shell script, defined in **Command Editor**
- Used to interact with Windows environment outside of Runtime (start external application, etc)



Common Blocks – Timer

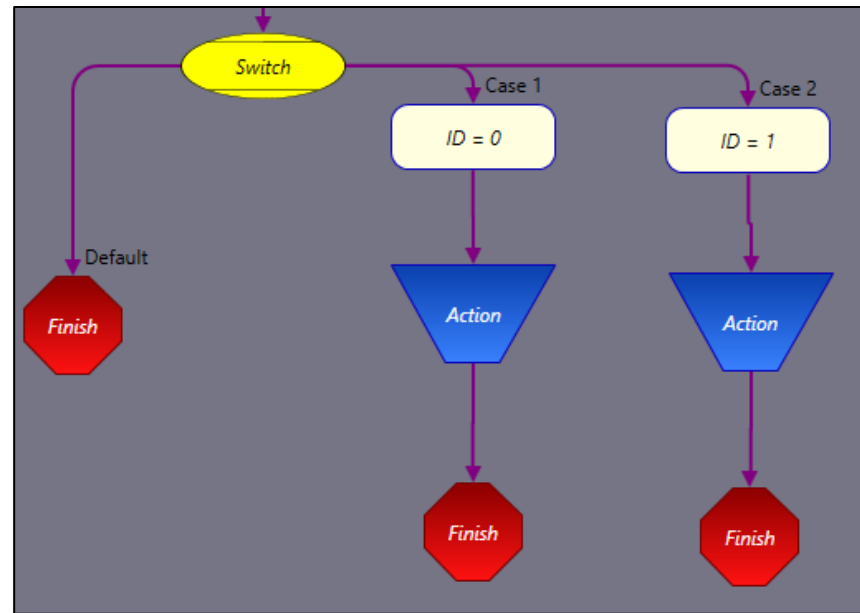
- Delays execution of the Workflow by a set number of seconds



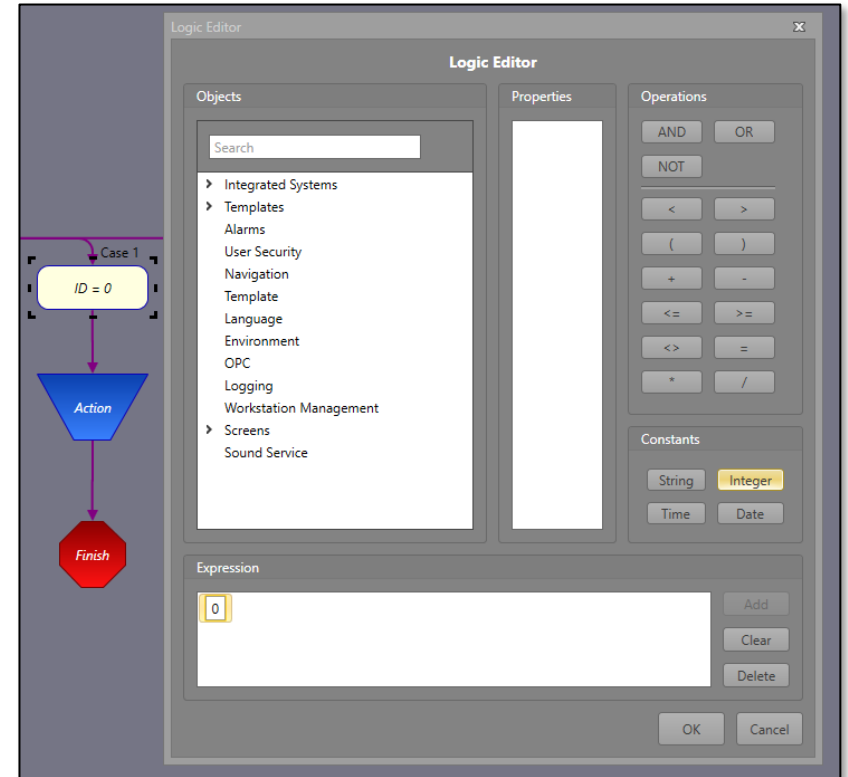
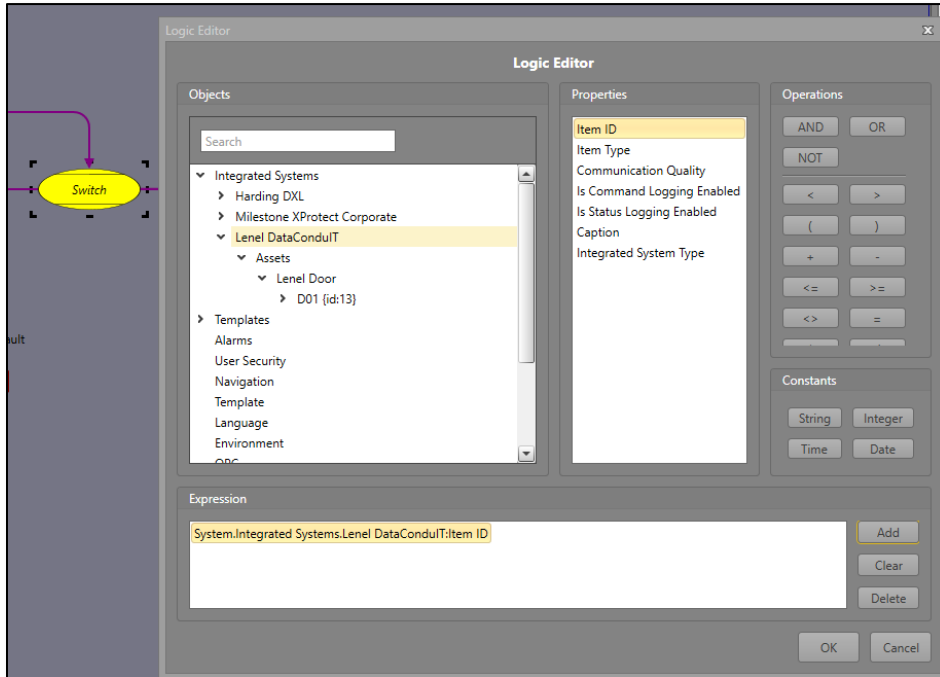
Properties	
Search	
▼ Block	
Caption	Timer
Logging Description	
▼ Timer Block	
Postpone Time (s)	1.000

Common Blocks – Switch Case

- Execute a sequence of blocks if a logic expression matches one of the specified cases.
- Left section is the default path where no case matches.

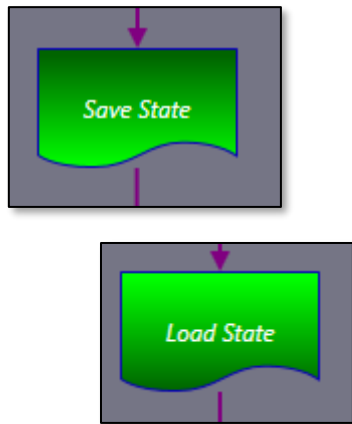


Common Blocks – Switch Case



State Blocks

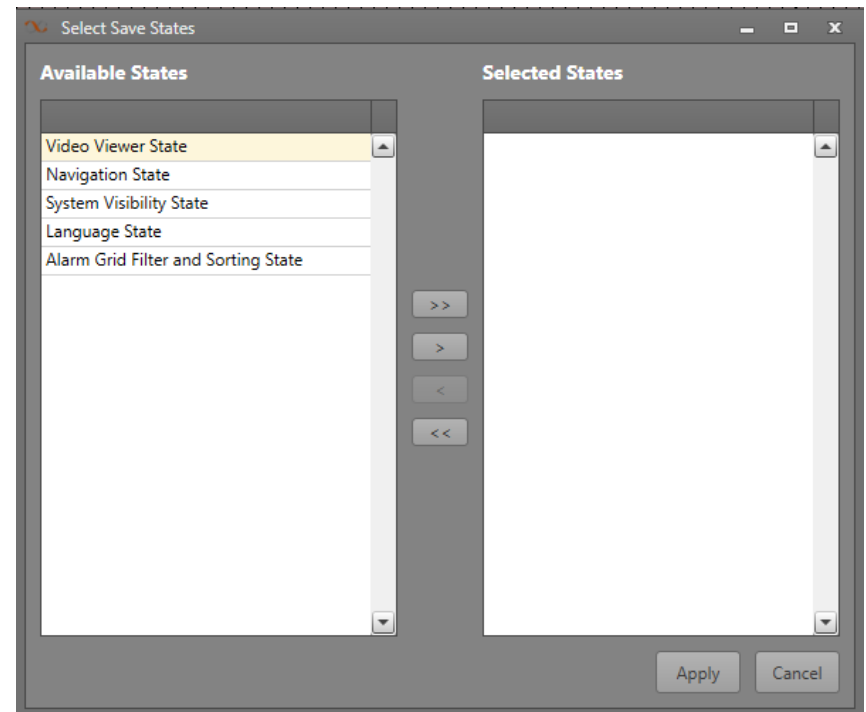
- Save or load specific states of various IPFusion entities.
- The states are saved in a file and users will need to input the filename which the block will use to save as or load from.



Properties	
Search	
▼ Block	
Caption	Load State
Logging Description	Load State Block
▼ State Block	
Configuration	Select States
Filename	Saved State - October 18 2020 ...

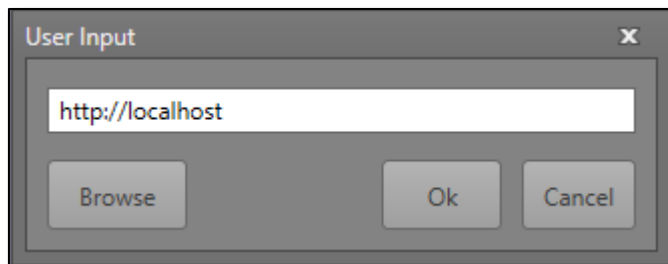
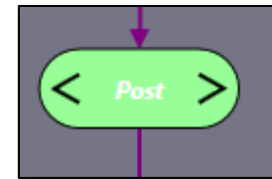
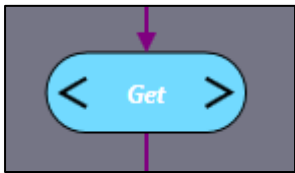
State Blocks

- **Video Viewer State** — Will save or load all the viewer IDs and the camera asset IDs that are playing in them.
- **Navigation State** — Saves or loads all the Map IDs that are currently displayed in the **Map Container**.
- **System Visibility State** — Saves or loads the state (pressed or not) of the **System Visibility** buttons. displayed on each **Map Container**.
- **Language State** — Will save or load the currently used Runtime language.
- **Alarm Grid Filter and Sorting State** — Saves or loads the sorting and filtering applied to **Alarm grids** in Runtime.

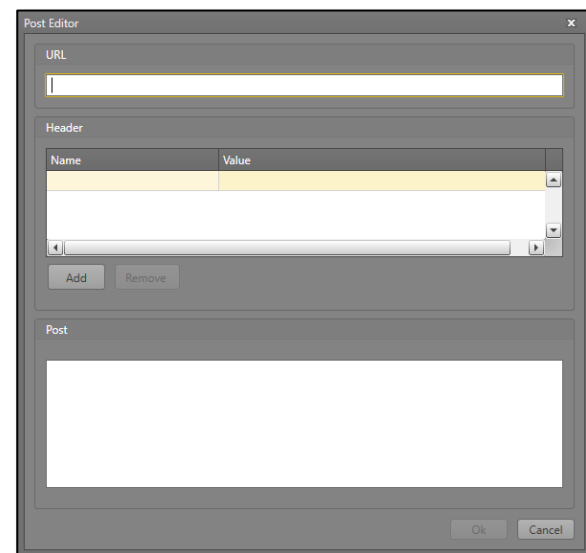


HTTP Blocks

- A **Get** block is used to perform an HTTP Get request from a specified URI.
- A **Post** block provides facility to do a rest HTTP Post request using configured settings.



A 'User Input' dialog box with a title bar containing 'User Input' and a close button (X). It features a text input field containing 'http://localhost'. Below the input field are three buttons: 'Browse', 'Ok', and 'Cancel'.



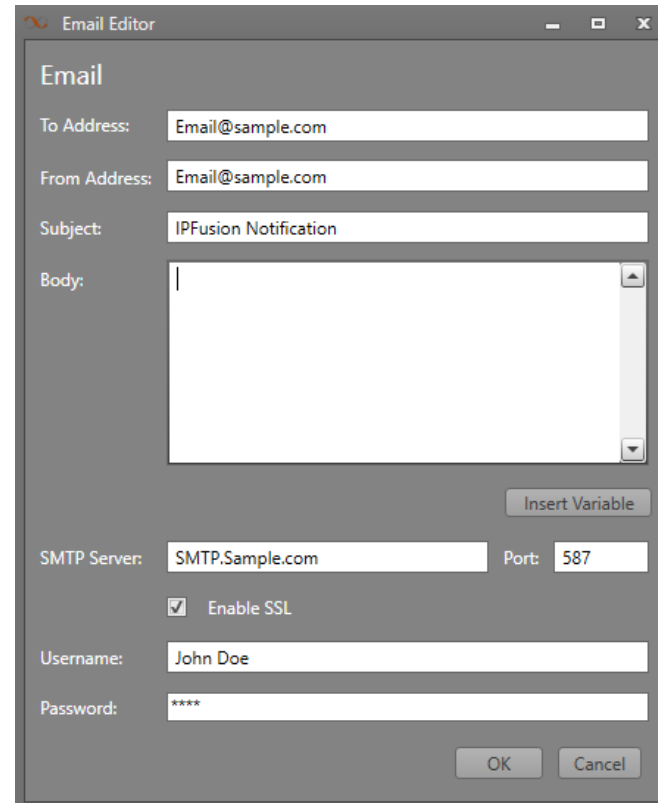
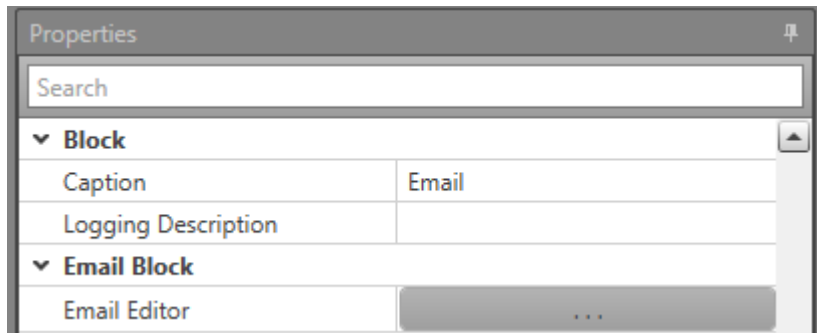
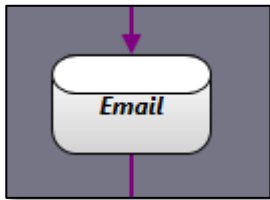
A 'Post Editor' dialog box with a title bar containing 'Post Editor' and a close button (X). It has several sections:

- URL:** A text input field.
- Header:** A table with two columns: 'Name' and 'Value'. Below the table are 'Add' and 'Remove' buttons.
- Post:** A large text area for entering the request body.

At the bottom right are 'Ok' and 'Cancel' buttons.

Email Block

- Used to send plain text email messages to a recipient.
- Specify the needed information and settings in the **Email Editor**.



Interactive Workflows



Interactive Workflows

- Fully customizable from properties

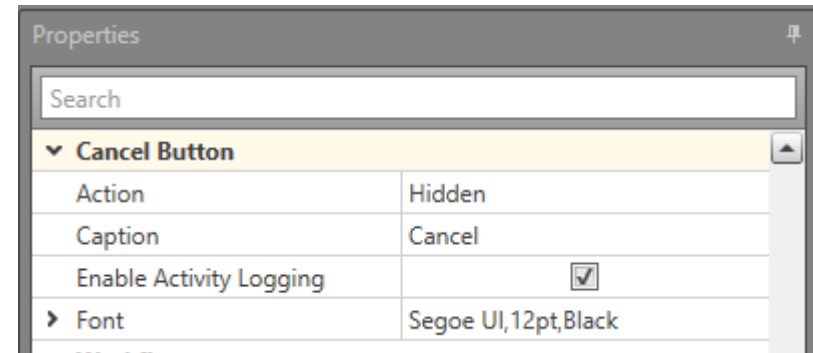
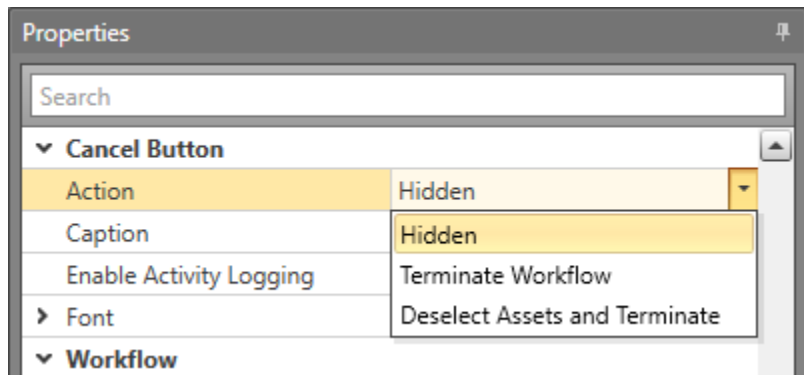
Properties

Search

▼ Cancel Button	
Action	Terminate Workflow
▶ Appearance	
Caption	Cancel
▼ Workflow	
Action on Preempt	Save State
Assign Workflow	...
Display Style	See All Steps
Enable Activity Logging	<input checked="" type="checkbox"/>
Enabled	<input checked="" type="checkbox"/>
Execution Priority	1
Function Panel	Default
Logging Description	Interactive Example
Name	Interactive Example
Triggers	...
Unique Identifier	Workflow-1

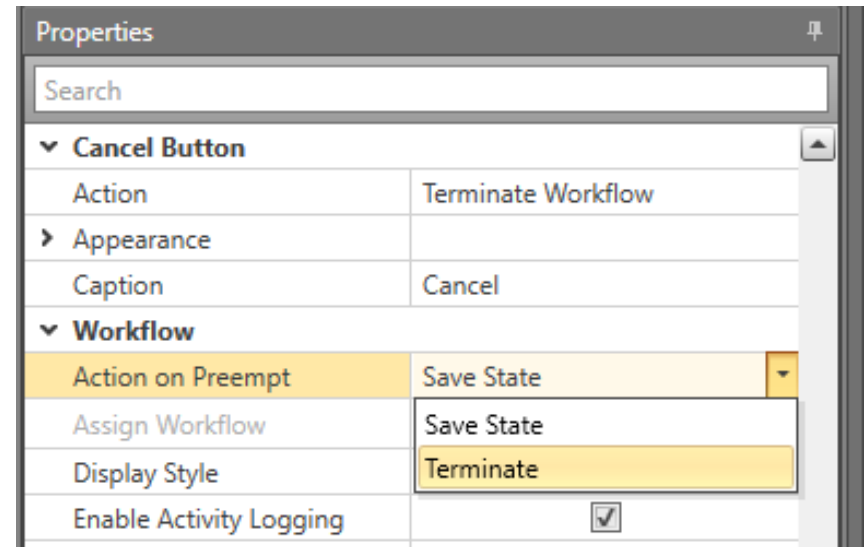
Interactive – Cancel Button

- **Hidden** – Hides **Cancel Button**.
- **Terminate Workflow** – Closes the Workflow.
- **Deselect Assets and Terminate** – Closes the Workflow and deselects all assets.
- **Font** – Define font used for **Cancel Button** caption.



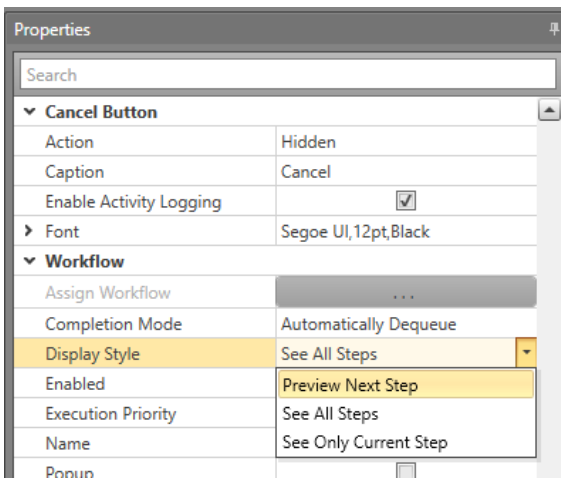
Interactive – Action on Preempt

- **Save State** — When the current operating Workflow is completed and there is a **Save State** Workflow waiting, the highest priority one will run
- **Terminate** — These Workflows can never be in a waiting state. If a higher priority Workflow begins operating, this one will be terminated.

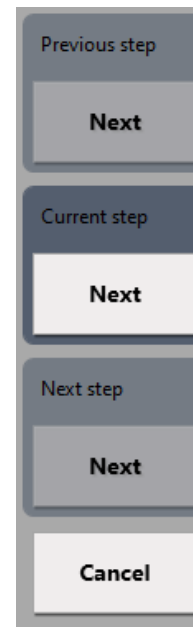


Interactive – Display Style

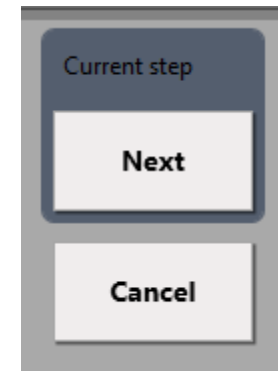
- **Preview Next Step** – Displays the current and next steps, with current step highlighted.
- **See All Steps** – Displays all steps, with current step highlighted.
- **See Only Current Step** – Displays the current step only.



Preview Next



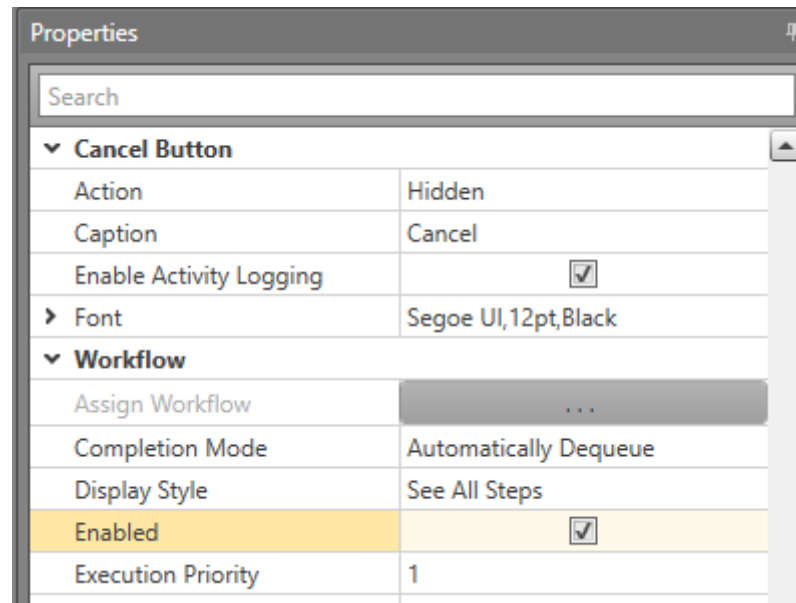
See All



See Current

Interactive – Enabled

- Can only run Workflow when this option is checked, and all logic paths are valid
- Can be unchecked to disable Workflows that are no longer required, or that are not ready for production yet (useful during design phase).



The screenshot shows a 'Properties' window with a search bar at the top. Below the search bar, there are several sections. The 'Cancel Button' section is expanded, showing properties like Action (Hidden), Caption (Cancel), and Enable Activity Logging (checked). The 'Font' section is collapsed, showing Segoe UI, 12pt, Black. The 'Workflow' section is expanded, showing properties like Assign Workflow (a button with three dots), Completion Mode (Automatically Dequeue), Display Style (See All Steps), Enabled (checked), and Execution Priority (1). The 'Enabled' property is highlighted in yellow.

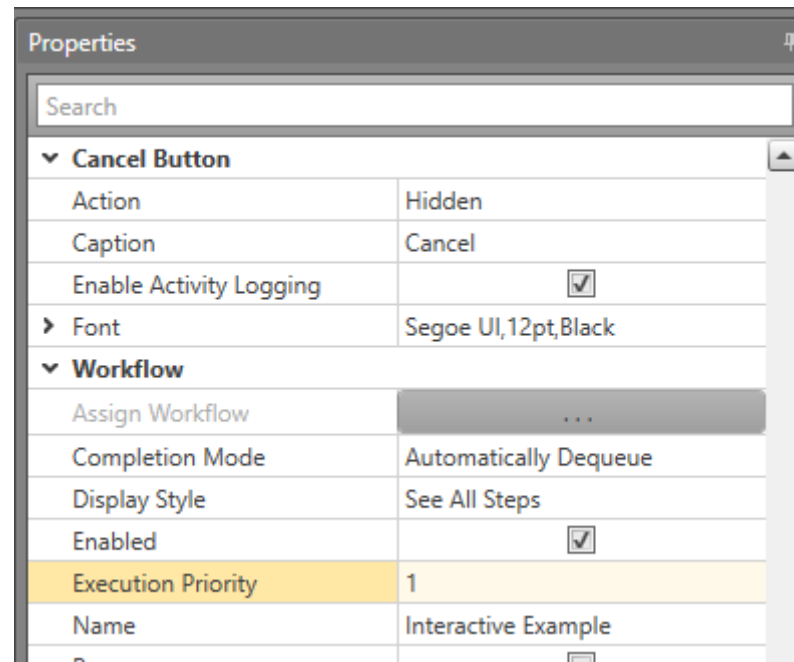
Cancel Button	
Action	Hidden
Caption	Cancel
Enable Activity Logging	<input checked="" type="checkbox"/>

Font	
Font	Segoe UI, 12pt, Black

Workflow	
Assign Workflow	...
Completion Mode	Automatically Dequeue
Display Style	See All Steps
Enabled	<input checked="" type="checkbox"/>
Execution Priority	1

Interactive – Execution Priority

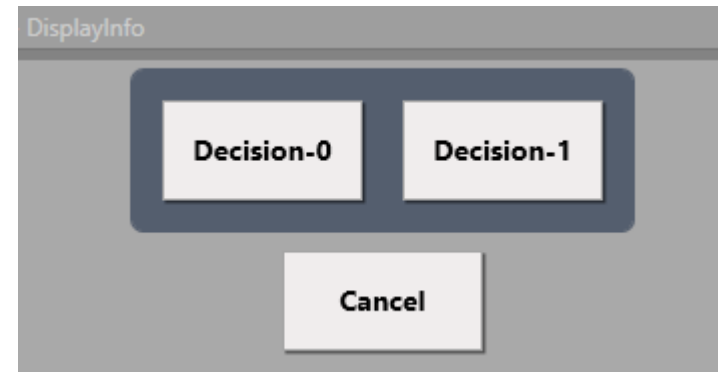
- Only one interactive Workflow can run at a time.
- This property defines which will run first (lower number = higher priority)



Interactive – Name

- Defines title that shows in the Workflow header in Runtime

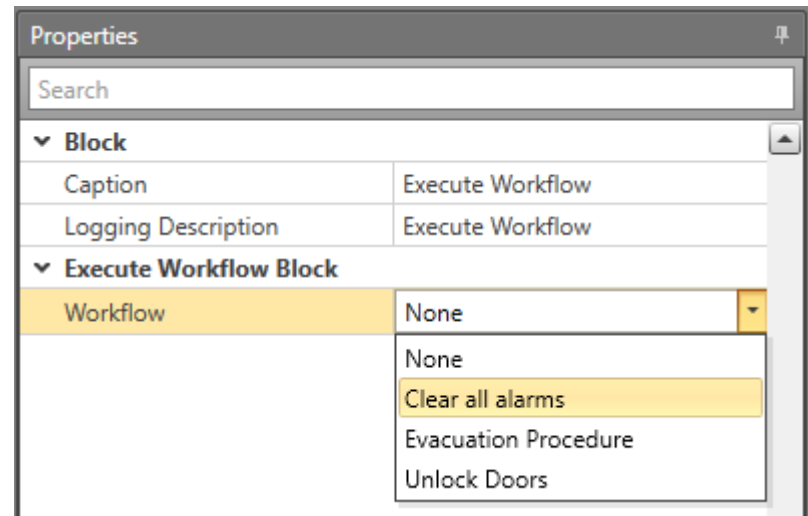
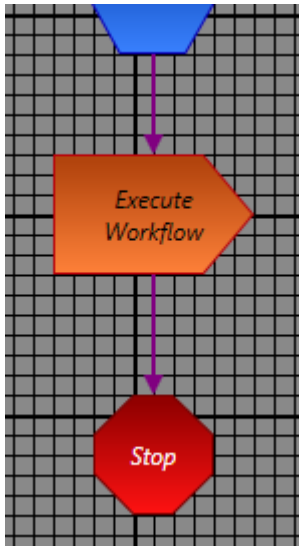
Properties	
Search	
▼ Cancel Button	
Action	Terminate Workflow
▶ Appearance	
Caption	Cancel
▼ Workflow	
Action on Preempt	Save State
Assign Workflow	...
Display Style	See All Steps
Enable Activity Logging	<input checked="" type="checkbox"/>
Enabled	<input checked="" type="checkbox"/>
Execution Priority	1
Function Panel	Default
Logging Description	DisplayInfo
Name	DisplayInfo
Triggers	...
Unique Identifier	Workflow-3



Interactive Blocks

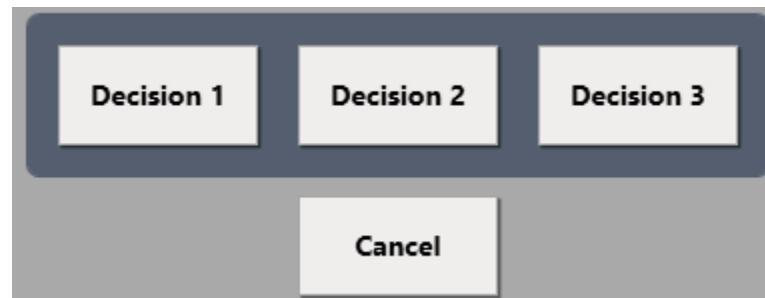
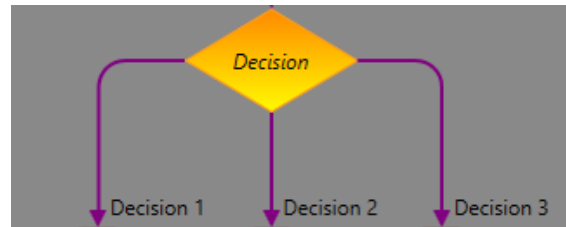
Interactive Blocks – Execute Workflow

- Triggers another Interactive Workflow
 - Configure the Workflow property to specify which one to execute
- Exit path can only be connected to a stop block



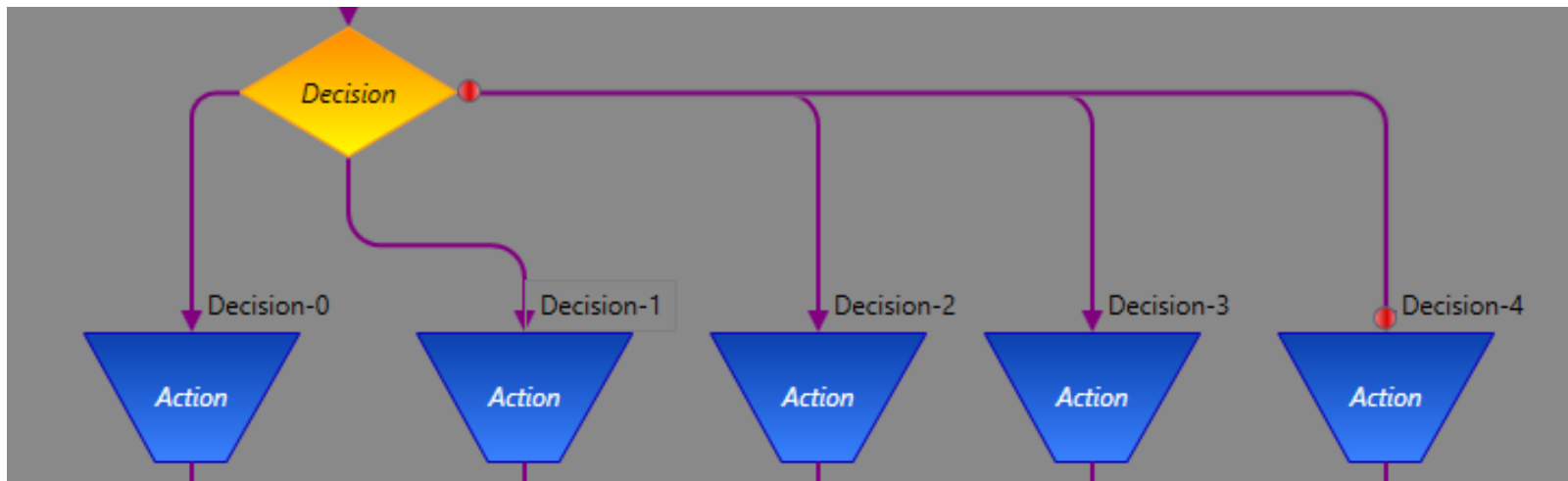
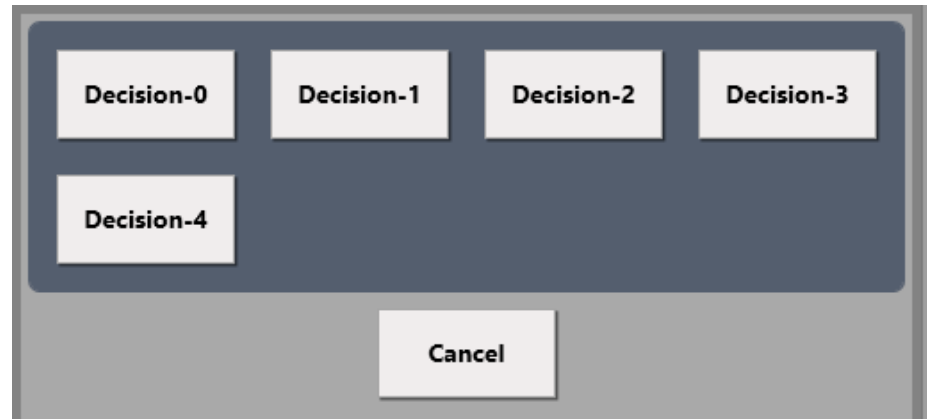
Interactive Blocks – Decision

- Prompts the user for a decision (button press)
- Button text defined by exit paths
- Button order defined by order of path creation
- Button appearance customized in properties



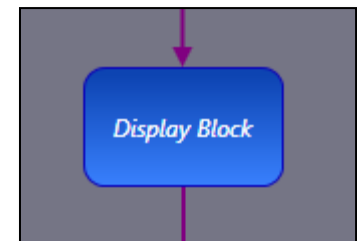
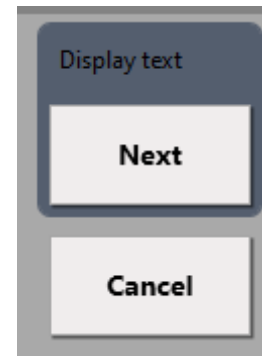
Interactive Blocks – Decision

- Unlimited exit paths can be created



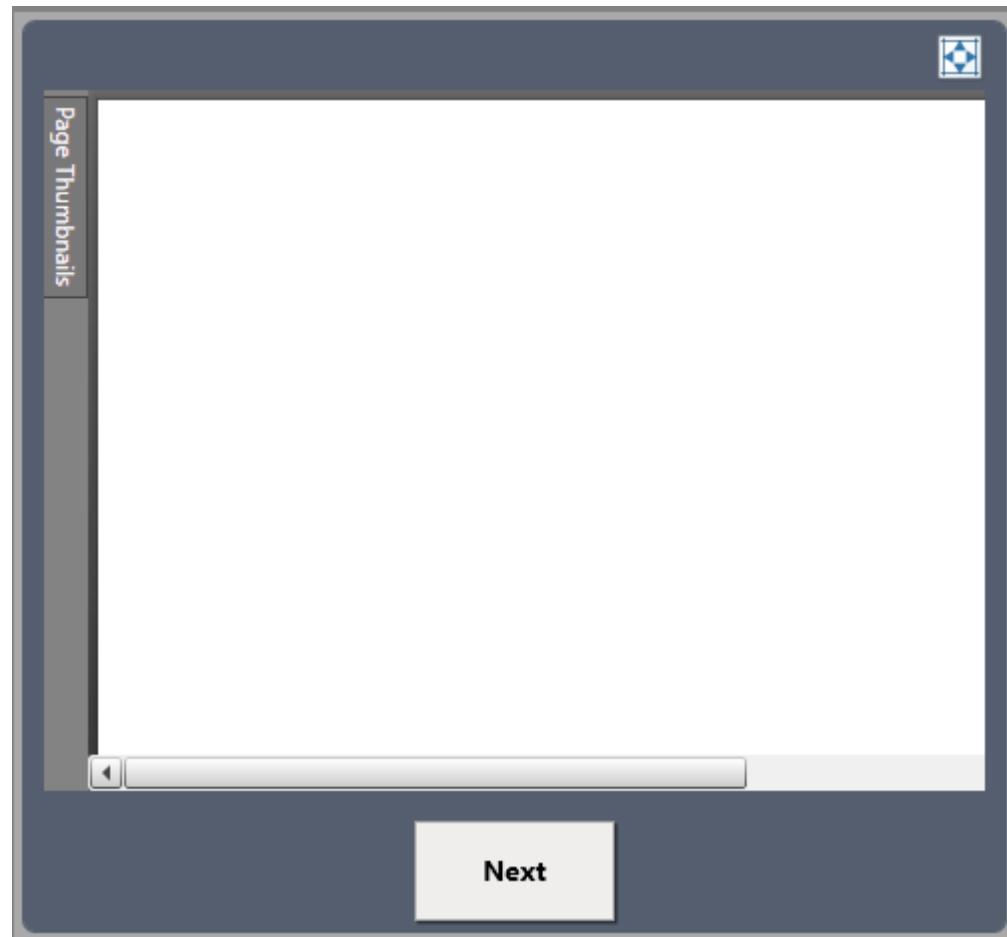
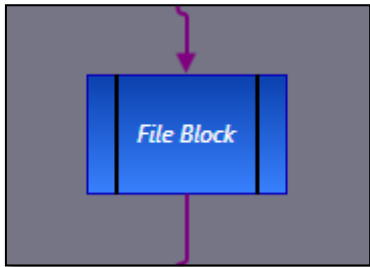
Interactive Blocks – Display

- Simple text or image display, used to provide information to the user.
- **Runtime Title** – Title displayed in Runtime.
- **Display Text** – Text to display.
- **Advance on Press** – Check to add a button that the user must press to advance to the next block.
- **Image Path** – Choose an image to display along with text.
- **Display Order** – Choose to display the image (if configured) either above or below the text



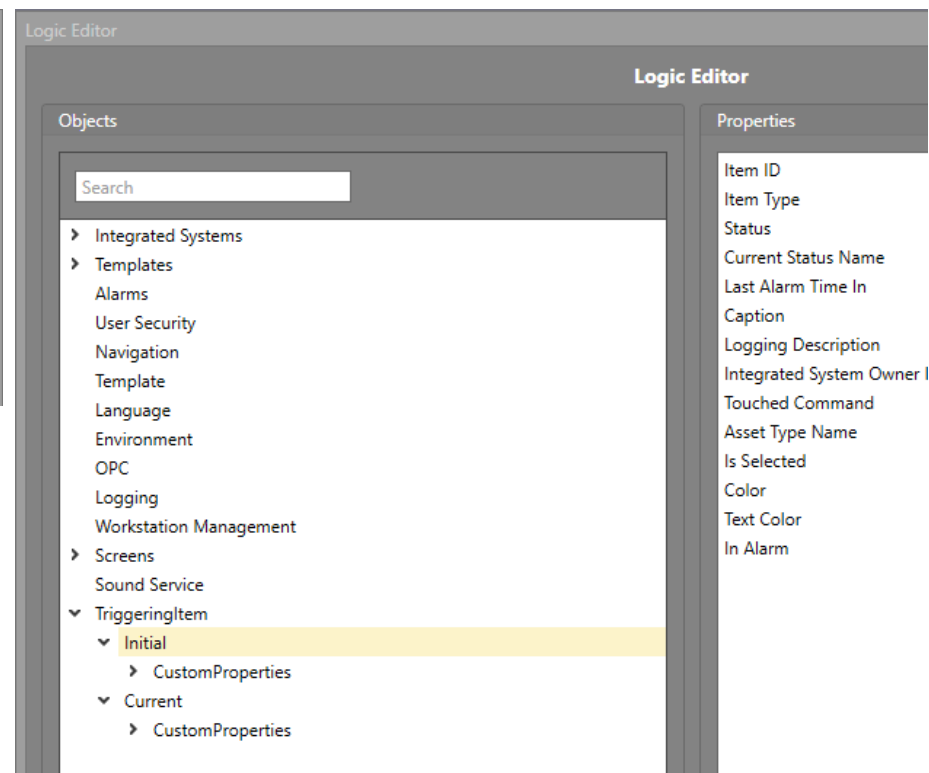
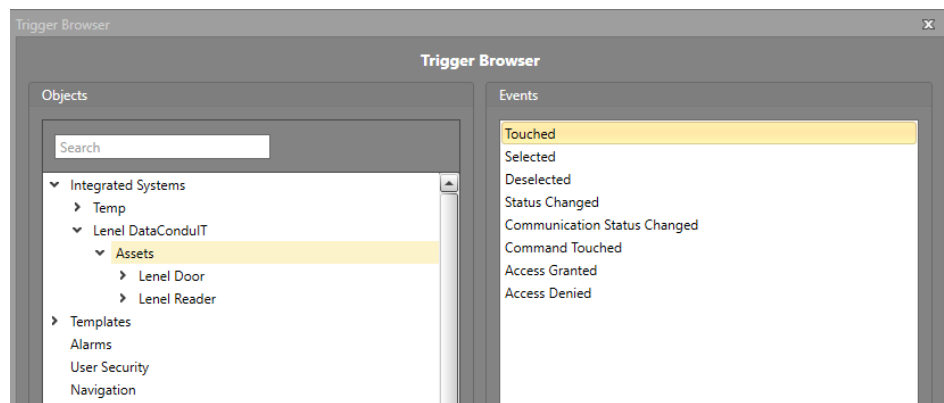
Interactive Blocks – File

- Similar to a **Display** block but can display any resource file, not just an image.



Global Workflows

- Trigger from any of the Assets in an Integrated System
- Apply logic, actions to **Triggering Item**
- Current vs Initial State



Module 4 Complete

