Material Handling and Process Updates

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Agenda

1 AMR/Otto Motors

2 Black Box

3 End of line packaging

4 Smart Conveyors

5 Baggage Handling

6 Flow Control

7 Process - Tanks&Pipes V3

AMR Framework: Reminder

- The AMR Framework script includes smart path planning code capable of managing large fleets of bots (AMRs) without deadlocks occurring.

- Jobs are defined in QuickLogic.

- Emulate3D AMR systems are Transfer State compatible.

- AMR Tile components quickly build up a grid system.

- Adjust weighting/priority parameters on tiles to influence AMR pathing.

- Tile tracks can be unidirectional, bidirectional, and bidirectonal with different directional priorities.

- Add/Remove pods to tiles. Supports custom user pod objects.

- AMR Grid Manager can be used to schedule jobs.

- Native collision avoidance and path planning. "Claiming tiles" and A-star algorithm for navigation.

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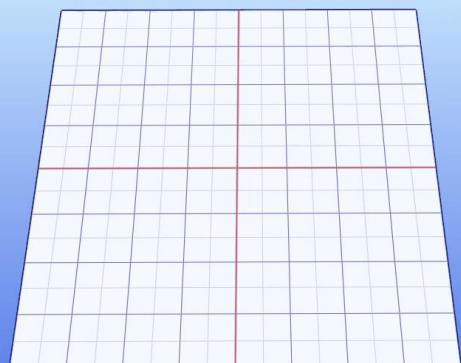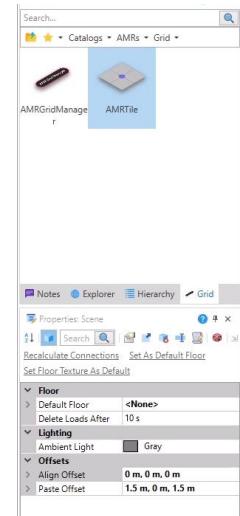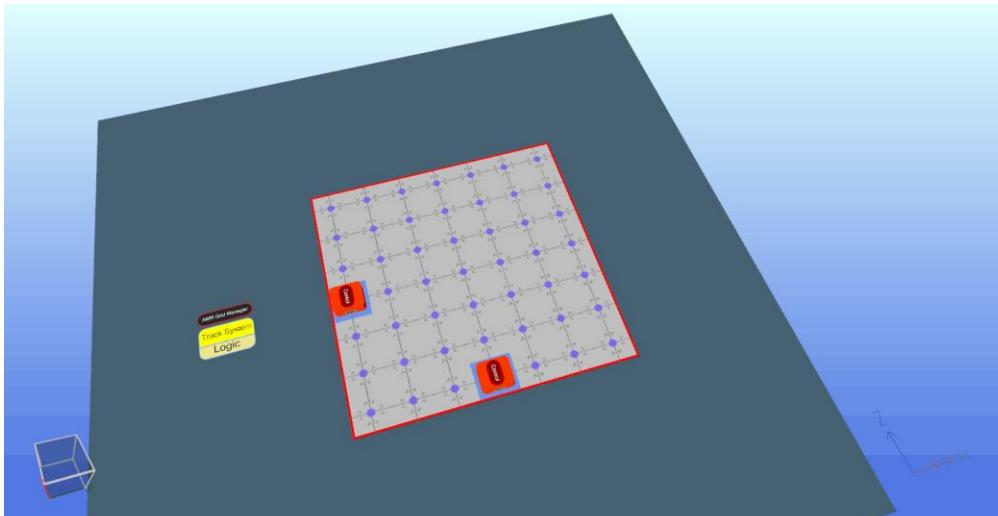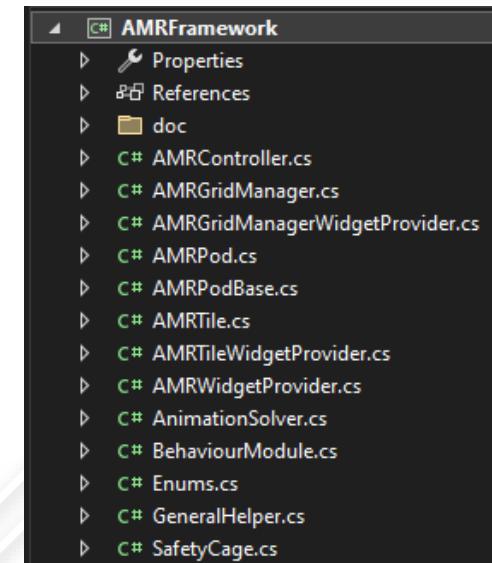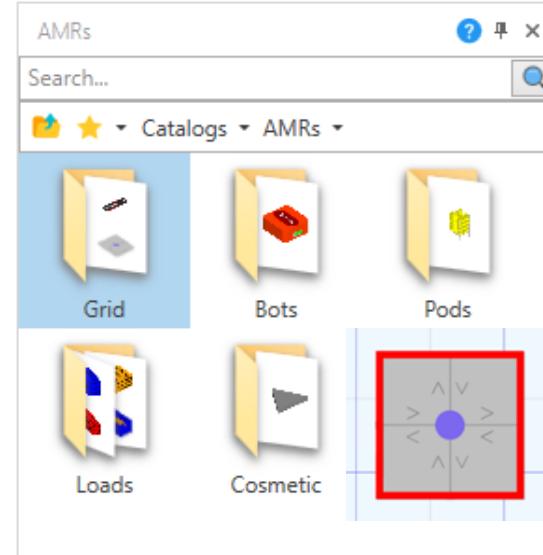
AMR Framework: New Additional Features

Additional features over the last year for the AMR Framework.

**Safety Cage script that allows an external obstruction to be represented with a set radius.**
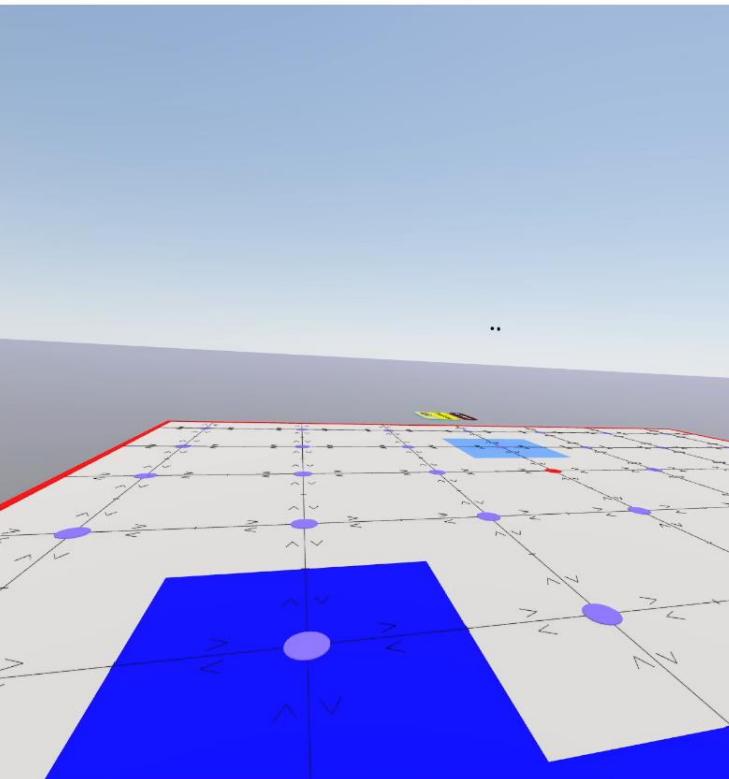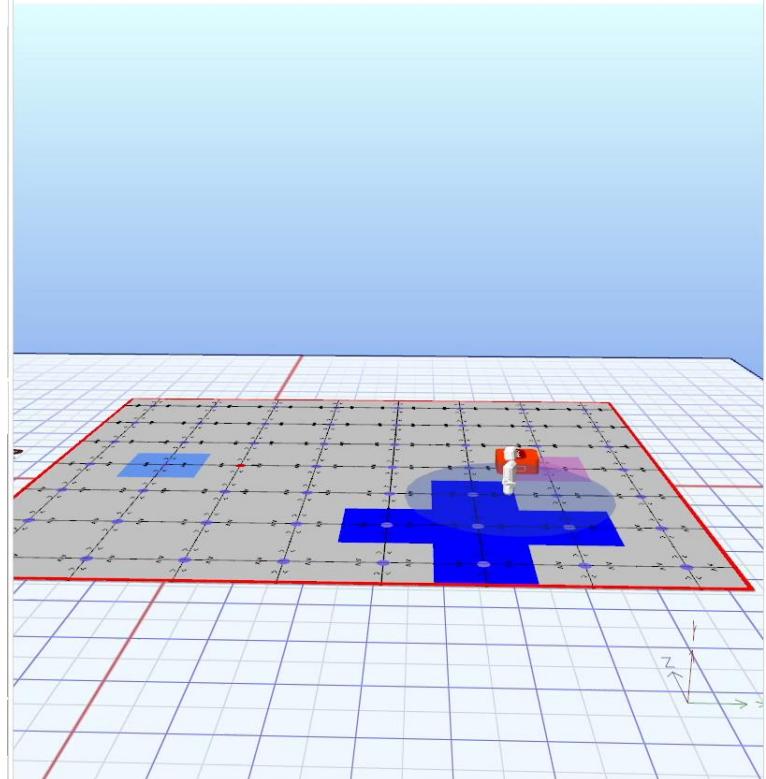
Performance Optimizations
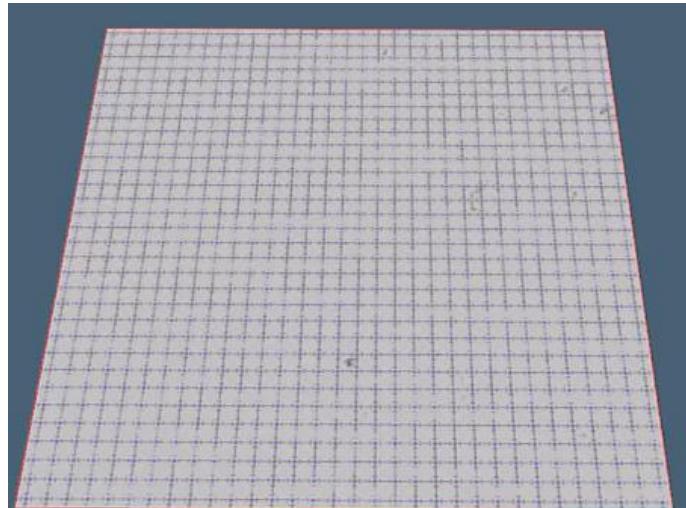

AMRFramework 0.8.4
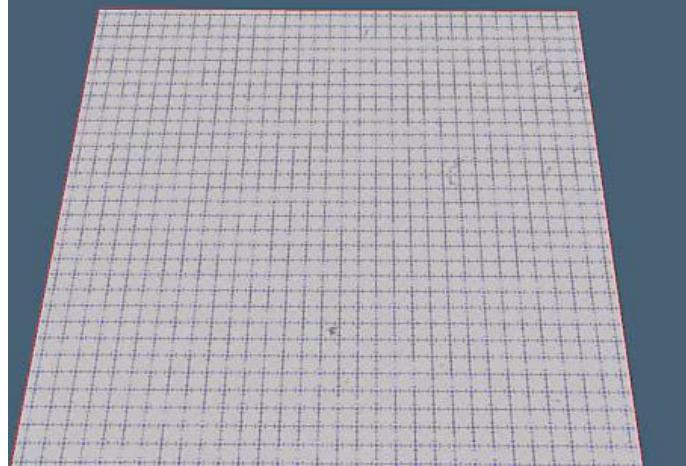
AMRFramework 0.9.2

AMR Lifts
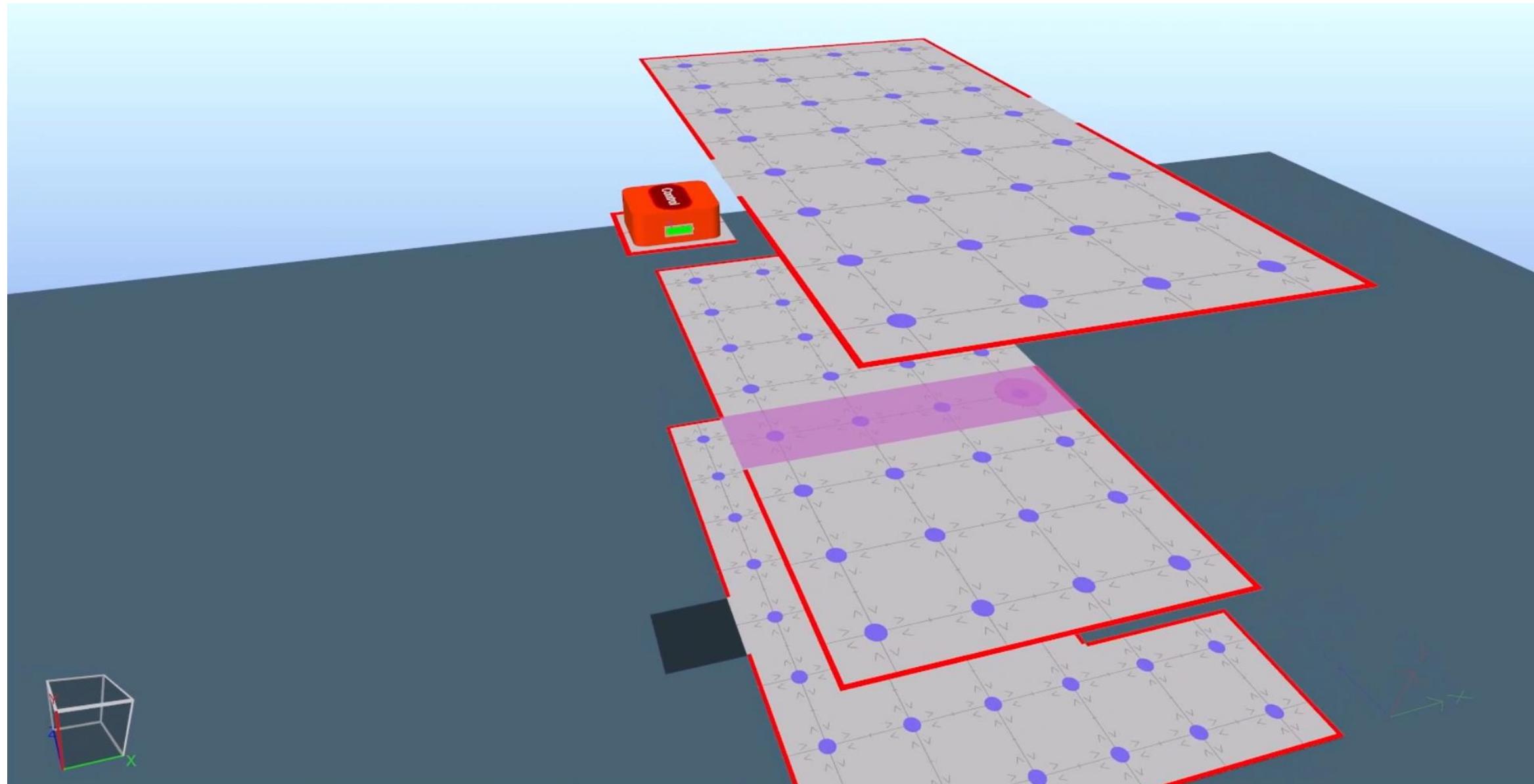
Clearpath Robotics - Otto Motors

Rockwell Automation's recent acquisition of Clearpath Robotics presents new and exciting opportunities
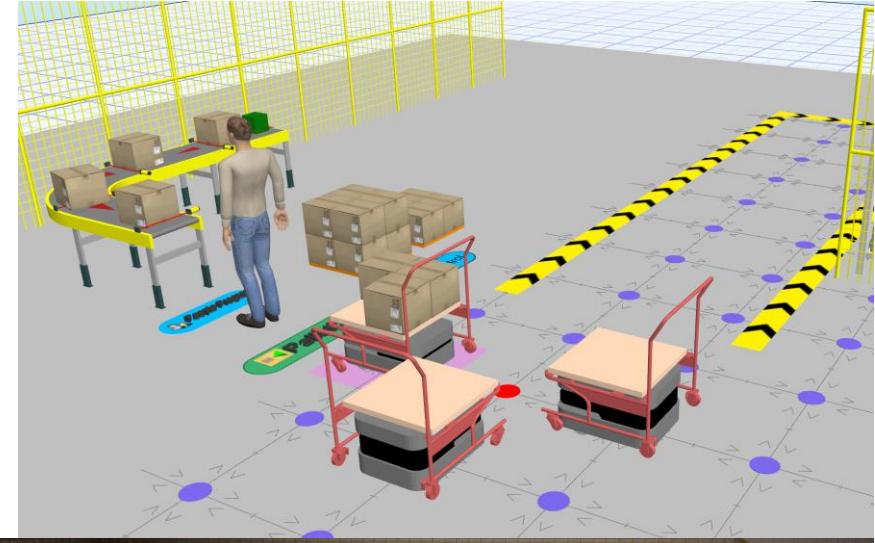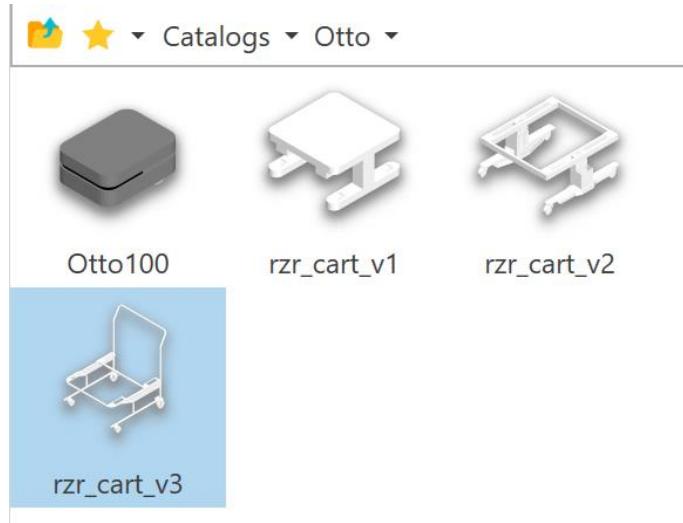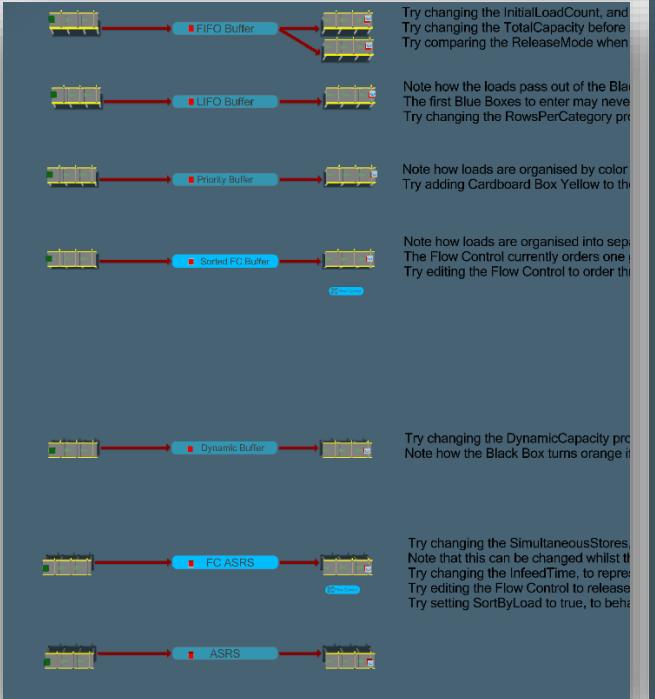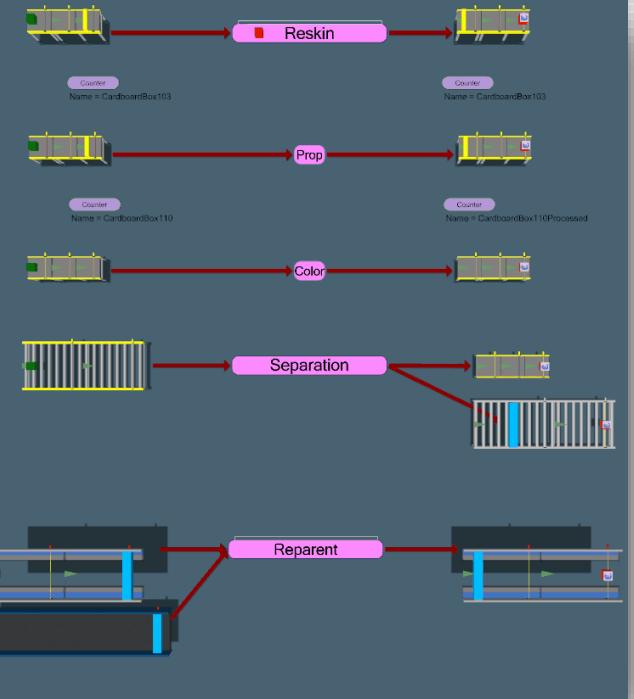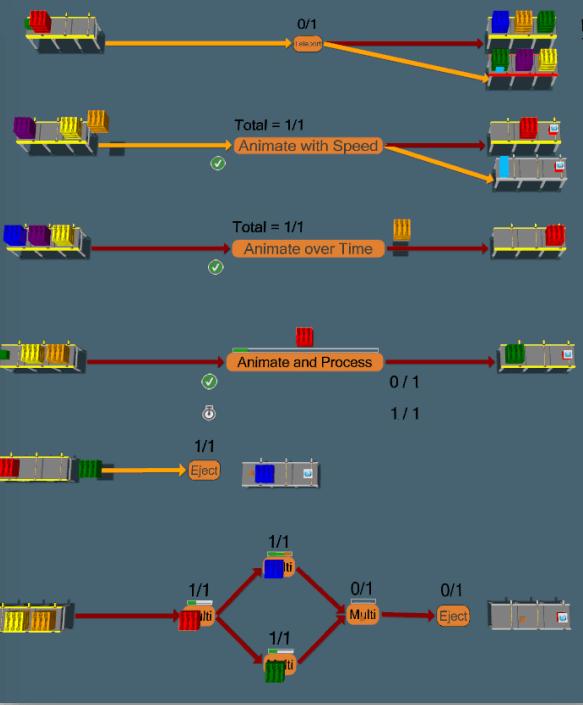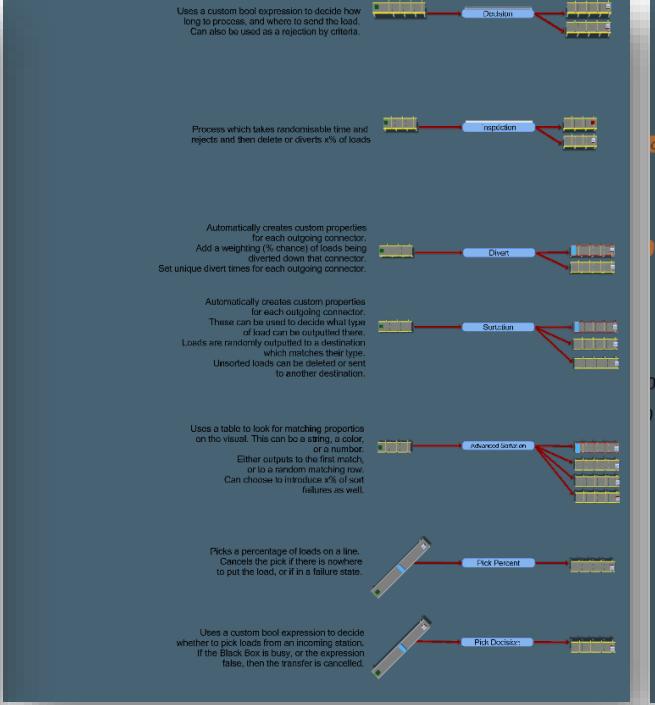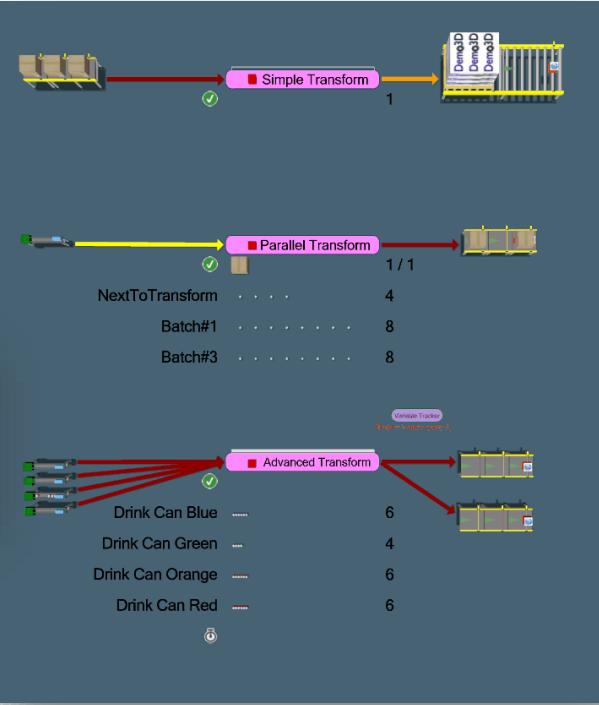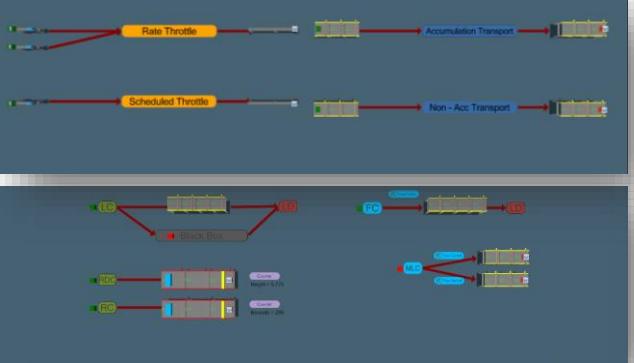
Black Box V3

Black Box V3 Performance Improvements
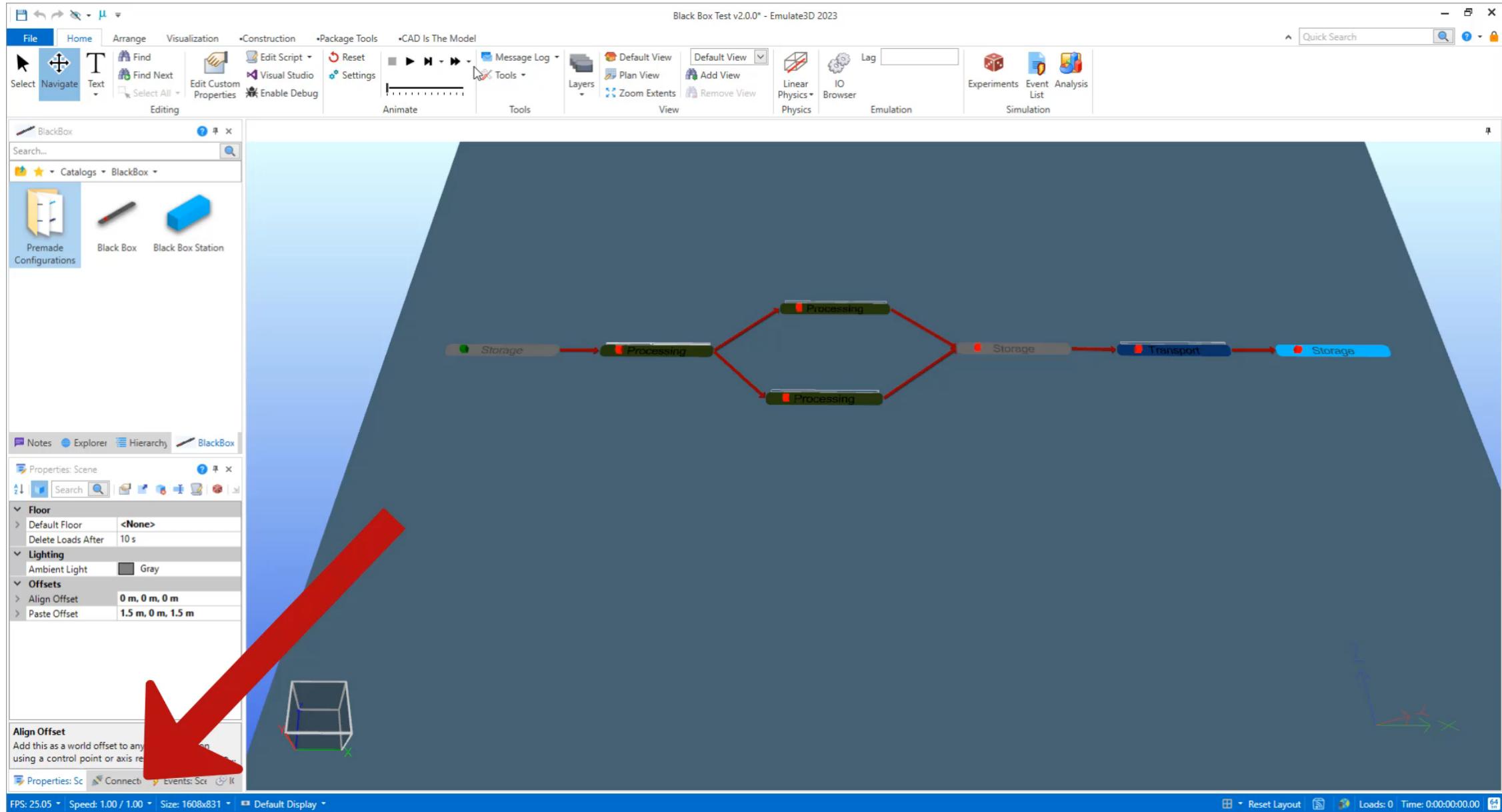
End of Line Packaging Components

Coming soon to the Package Manager

Recirculation Table

Volumetric Physics
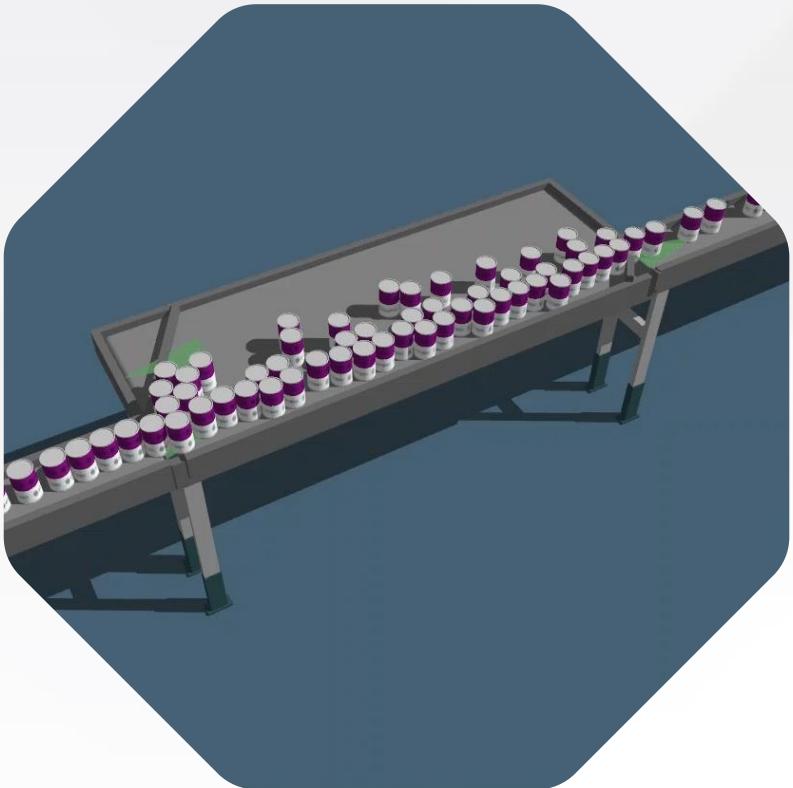
Linear Physics
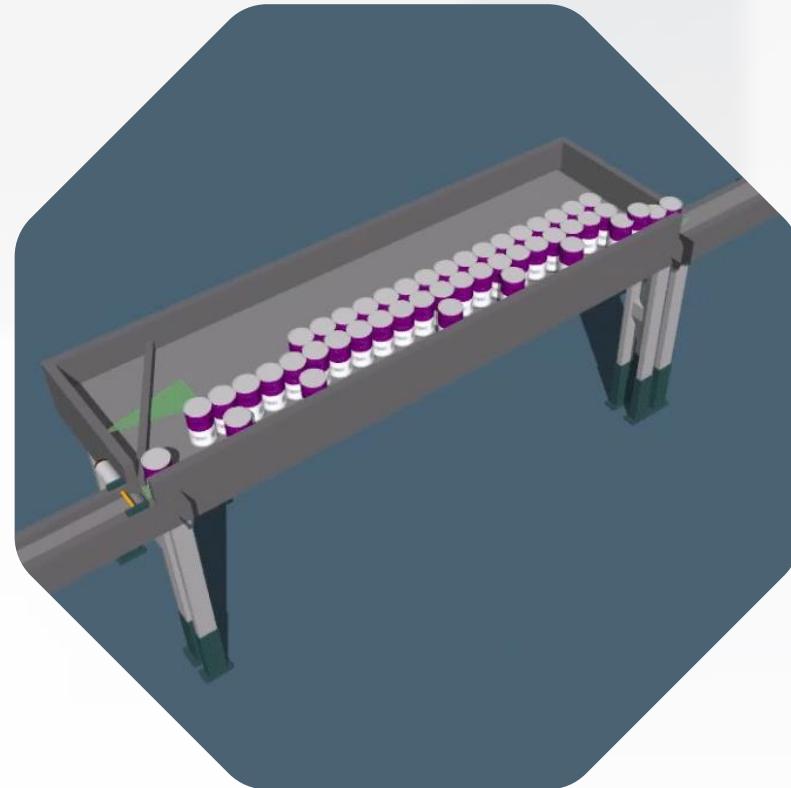
Case Erector
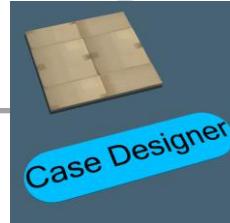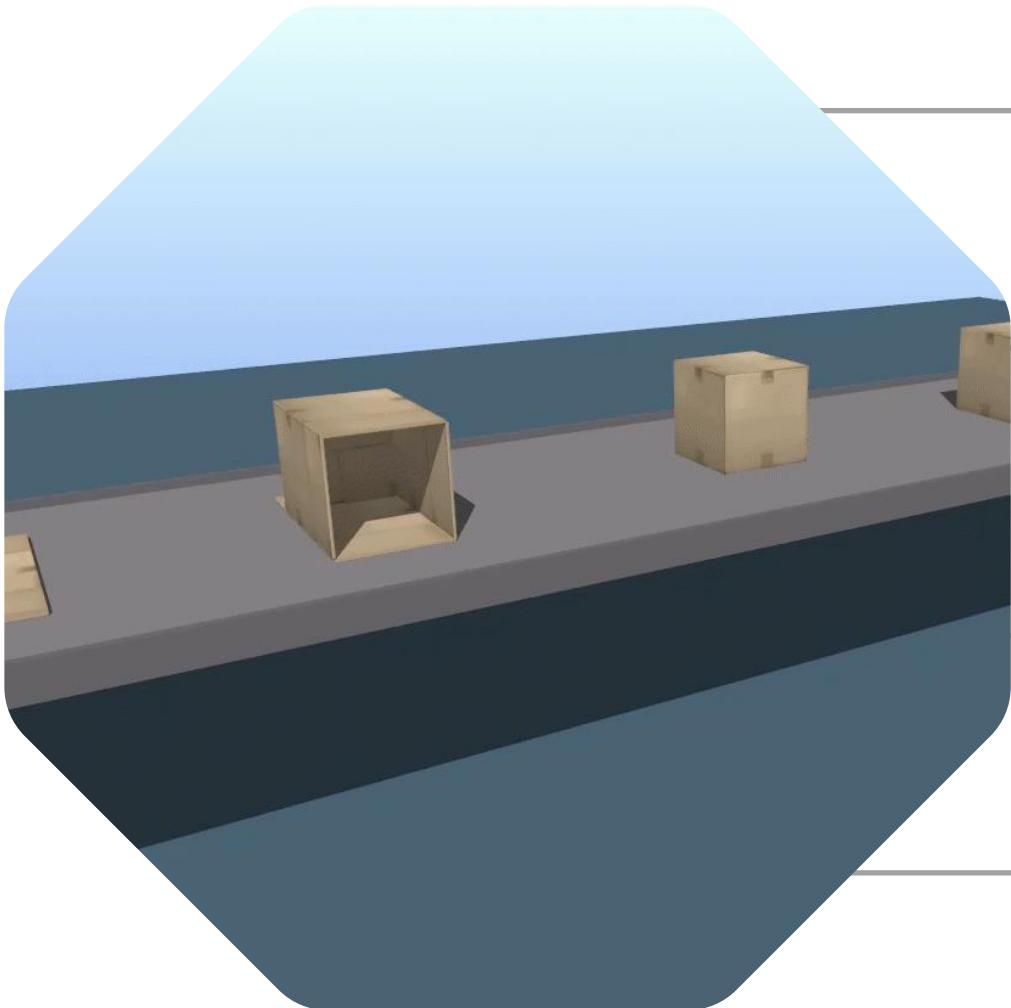
Case designer

Specify the size and texture of the flattened box

Case Erector

Similar to Flow Controller. Set when the sides should form, i.e after blocking a sensor.

QuickScript

New widgets for folding sides at certain times.
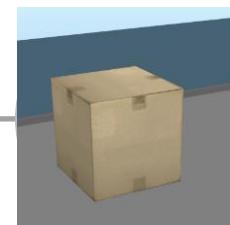
Convert to container and box visuals

Allow partially and completed boxes to have physics interactions.

Bulk Palletizer

Palletize
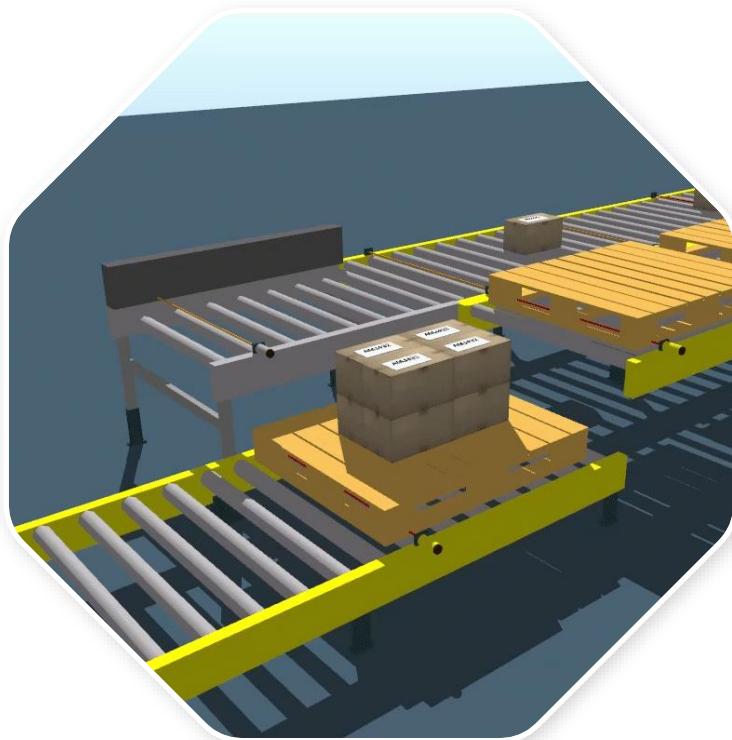
Push

Integration
with existing
Palletizer
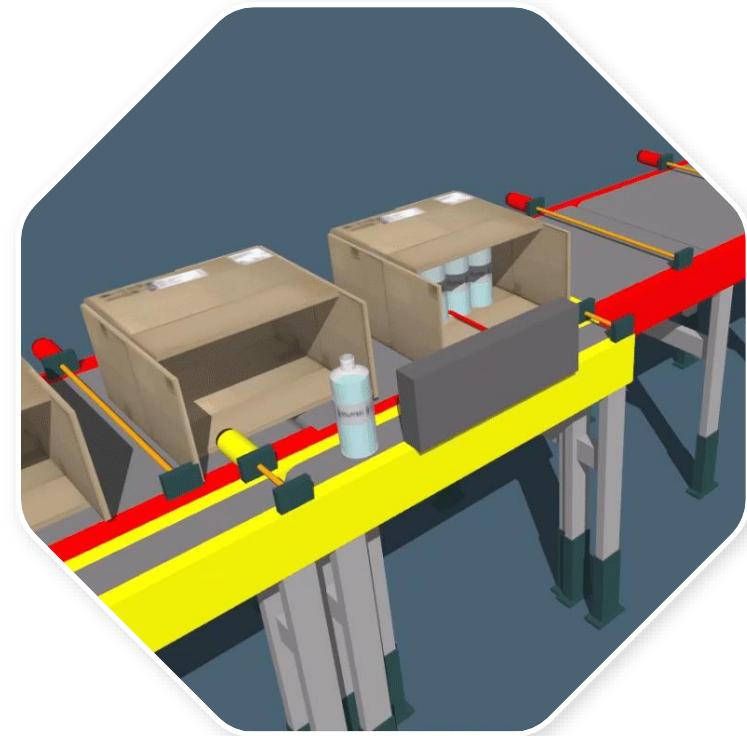
Pallet Patterns

Other components
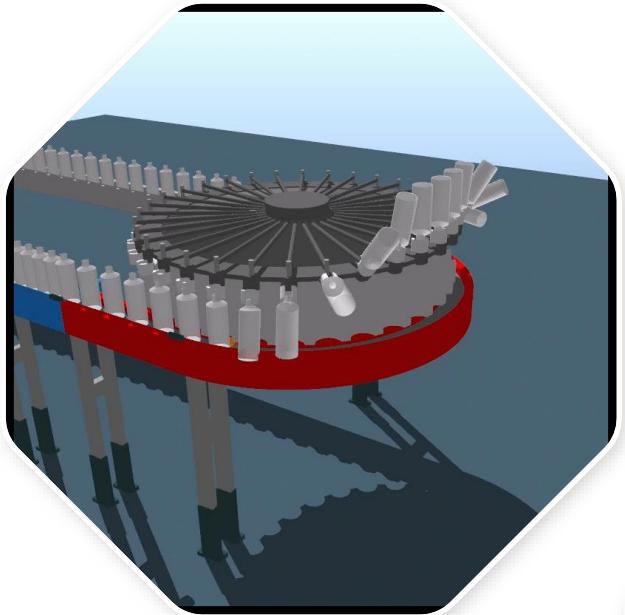
Bottle Rinser

Label Applicator

ASRS Crane

Weigh Station

Smart Conveyors - A reminder

- New Protocols
- New Properties
- New Catalog Organisation
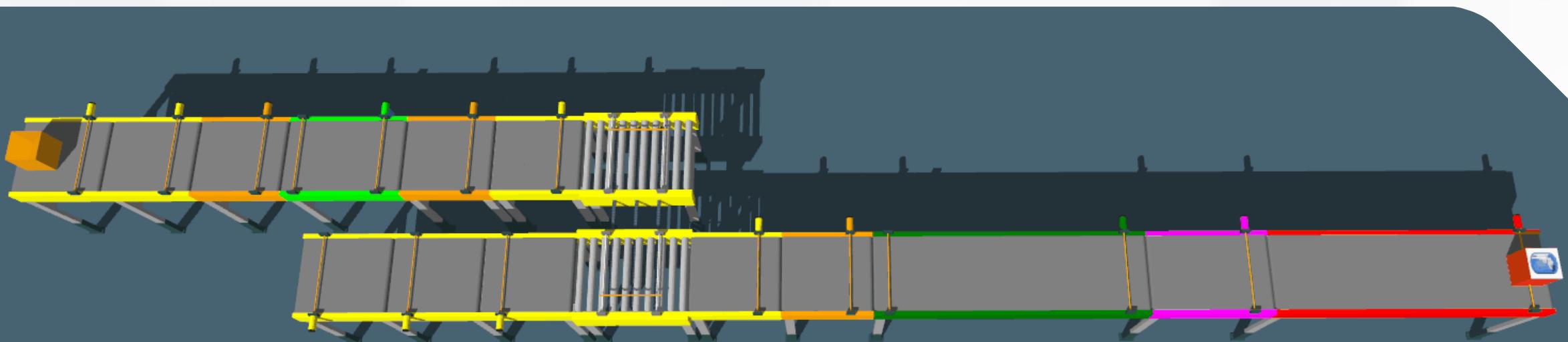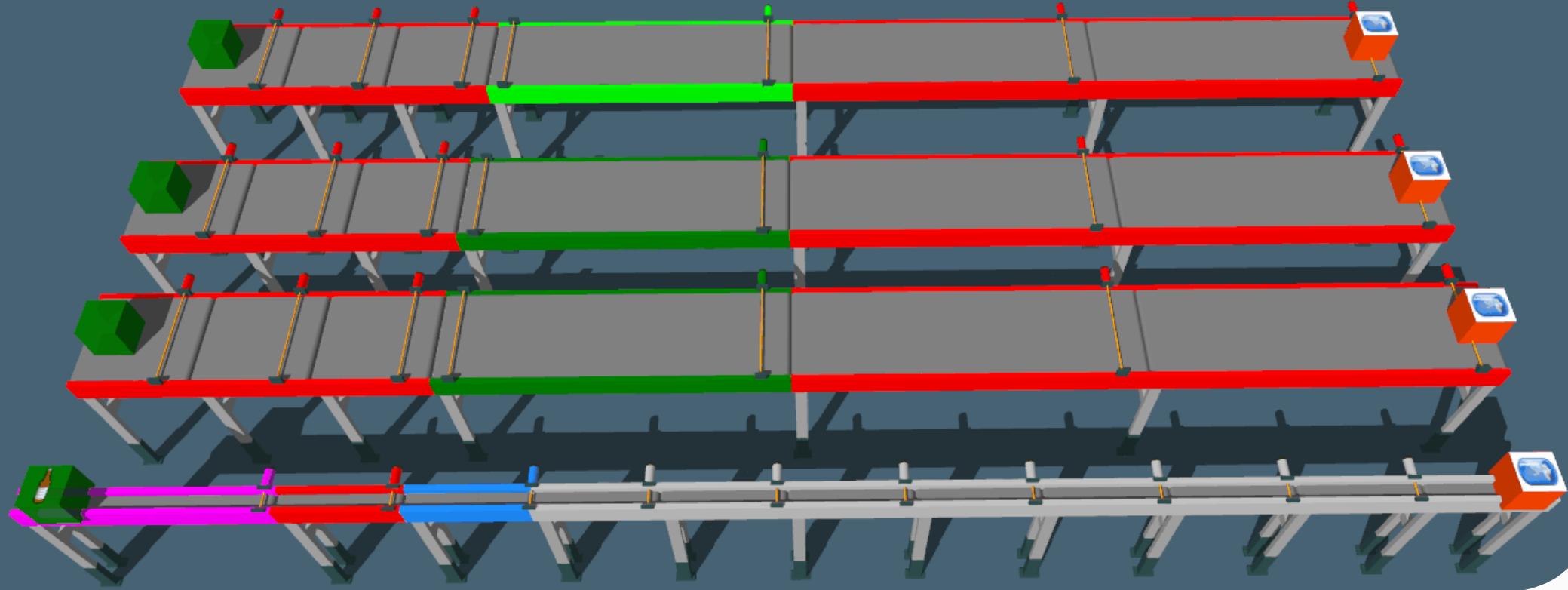
Slug Creation and Indexing

Control slug creation and indexing using zones, or through using stop blades and brakes

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New Smart Conveyors Catalog Organisation

Broken down into conveyor types, each containing multiple protocols

Smart Conveyors Catalog
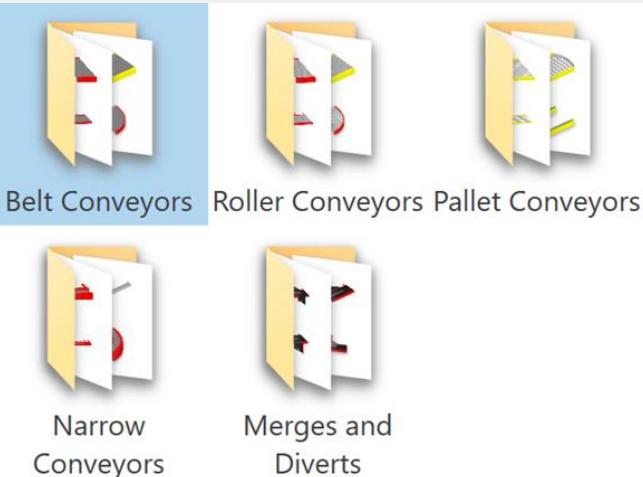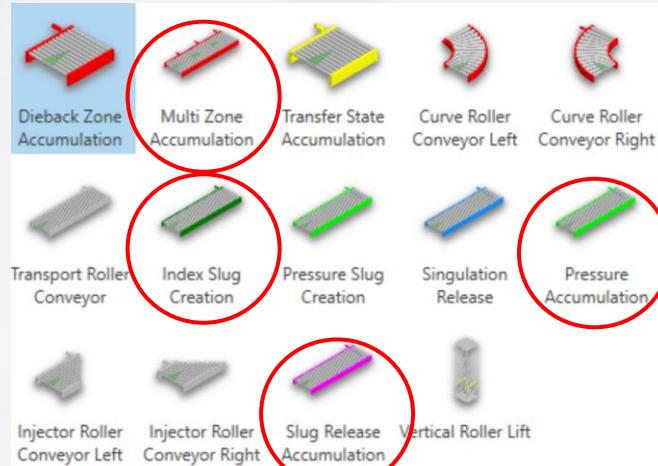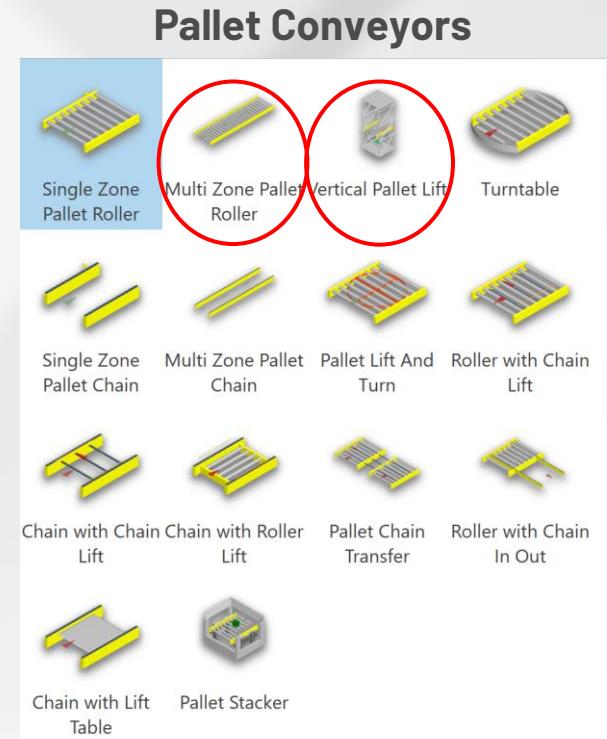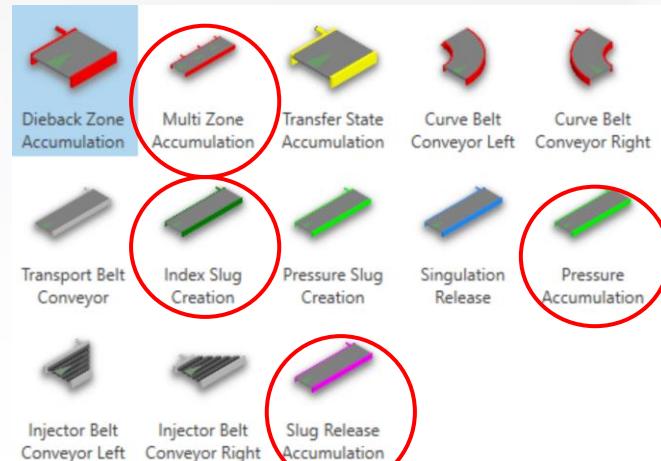
- Belt Conveyors
- Roller Conveyors
- Pallet Conveyors
- Narrow Conveyors
- Merges and Diverts

Roller Conveyors

- Dieback Zone Accumulation
- Multi Zone Accumulation
- Transfer State Accumulation
- Curve Roller Conveyor Left
- Curve Roller Conveyor Right
- Transport Roller Conveyor
- Index Slug Creation
- Pressure Slug Creation
- Singulation Release
- Pressure Accumulation
- Injector Roller Conveyor Left
- Injector Roller Conveyor Right
- Slug Release Accumulation
- Vertical Roller Lift

New Components!

Pallet Conveyors

- Single Zone Pallet Roller
- Multi Zone Pallet Roller
- Vertical Pallet Lift
- Turntable
- Single Zone Pallet Chain
- Multi Zone Pallet Chain
- Pallet Lift And Turn
- Roller with Chain Lift
- Chain with Chain Lift
- Chain with Roller Lift
- Pallet Chain Transfer
- Roller with Chain In Out
- Chain with Lift Table
- Pallet Stacker

Belt Conveyors

- Dieback Zone Accumulation
- Multi Zone Accumulation
- Transfer State Accumulation
- Curve Belt Conveyor Left
- Curve Belt Conveyor Right
- Transport Belt Conveyor
- Index Slug Creation
- Pressure Slug Creation
- Singulation Release
- Pressure Accumulation
- Injector Belt Conveyor Left
- Injector Belt Conveyor Right
- Slug Release Accumulation

Narrow Conveyors

- Dieback Zone Accumulation
- Multi Zone Accumulation
- Transport Belt Conveyor
- Curve Belt Conveyor Left
- Curve Belt Conveyor Right
- Pressure Slug Creation
- Singulation Release
- Slug Release Accumulation

Merges and Diverts

- Merge Left Right
- Merge Right
- Merge Left
- Divert Left Right
- Divert Right
- Divert Left
- Popup Transfer
- Box Chain Transfer

Baggage Handling Updates

Single Plough Diverter – HaltLoadPosition

Tilt Tray – Vertical CrossBelts

Managed Merge Controller – IsStrictMerge

Sorter Content Tracker – UseDisabledTrayFunc

Tilt Tray Outfeeds – InhibitTimeoutDelay

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Baggage Handling Updates

**Single Plough Diverter –
HaltLoadPosition**

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CrossBelts**

**Managed Merge
Controller –
IsStrictMerge**

**Sorter Content Tracker
– UseDisabledTrayFunc**

**Tilt Tray Outfeeds –
InhibitTimeoutDelay**

Flow Control Variants

Pre-made common configurations example

Multi-flow:

Multiple sources/targets either sequential or random order

Percentage:

Sorted based on percentages

Decision:

Target decision based on expression being true or false

Reject:

Reject and recolour proportion of loads

Process – Tanks & Pipes V3
Updates

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X-Pipe

Configuration	
AllowSpill	True
CurrentLiquid	Empty
SplitLength	0 m
Dimensions	
DiscontinuousLength	15 m
PipeDiameter	0.15 m
PipeLength	1 m
General	
Name	SP2
Position	
World Location	0.5966 m, 0.5 m, -2.4887 m

FlowSource pushes air through
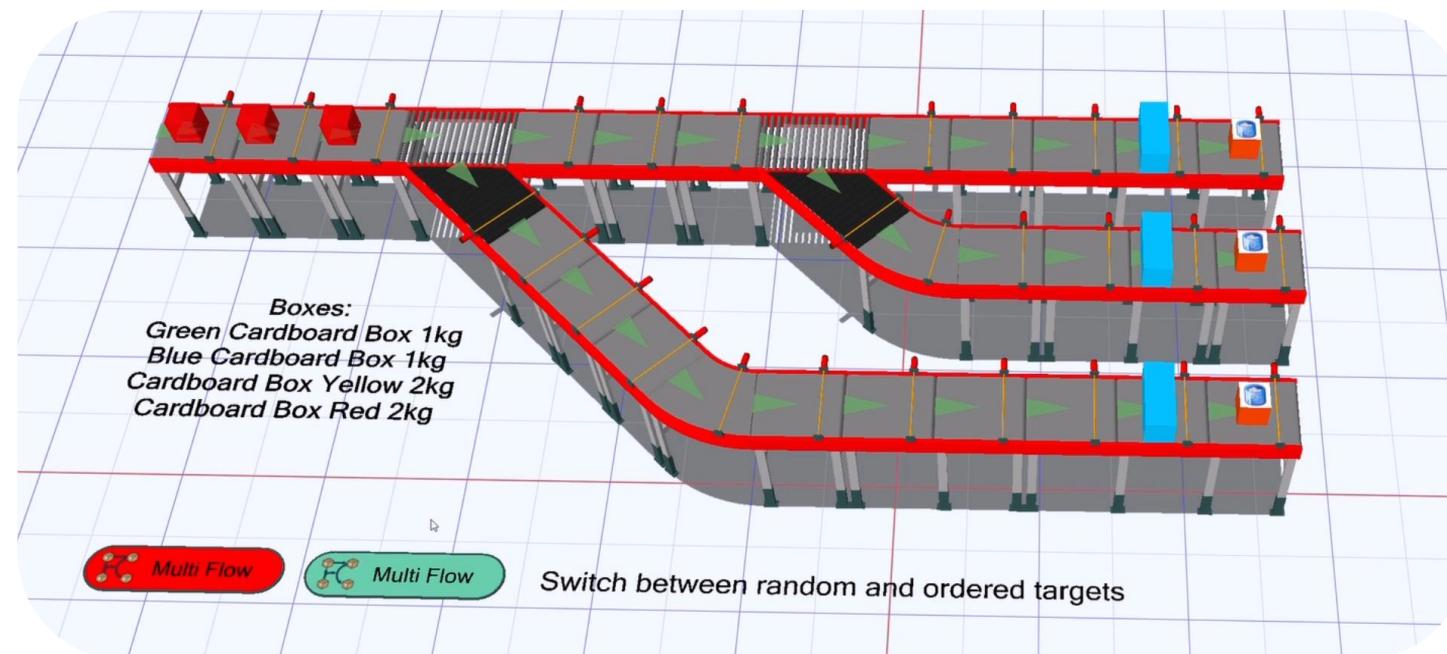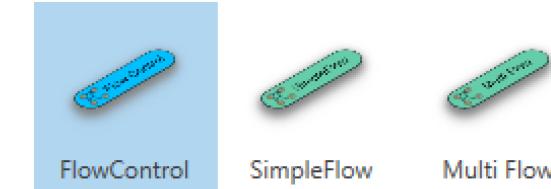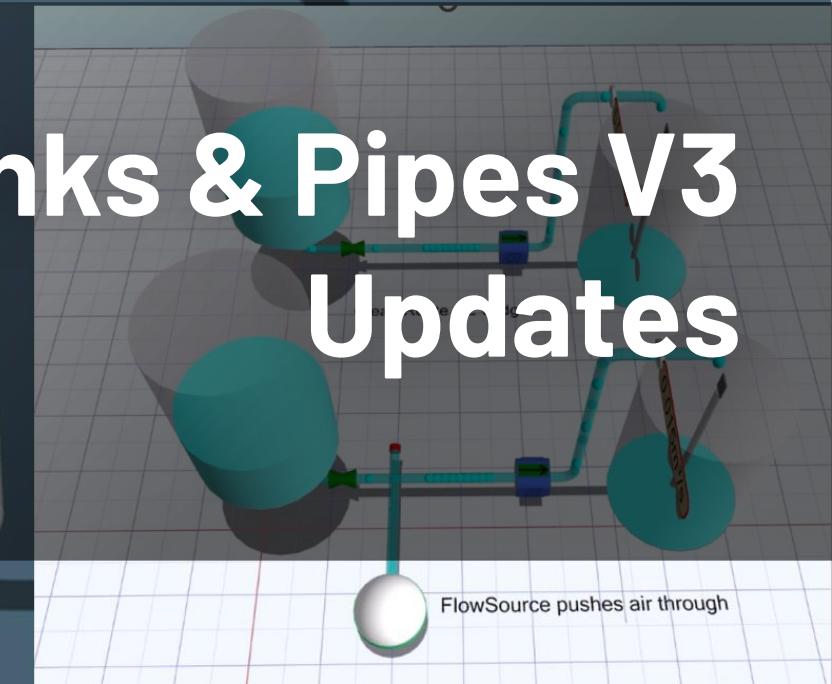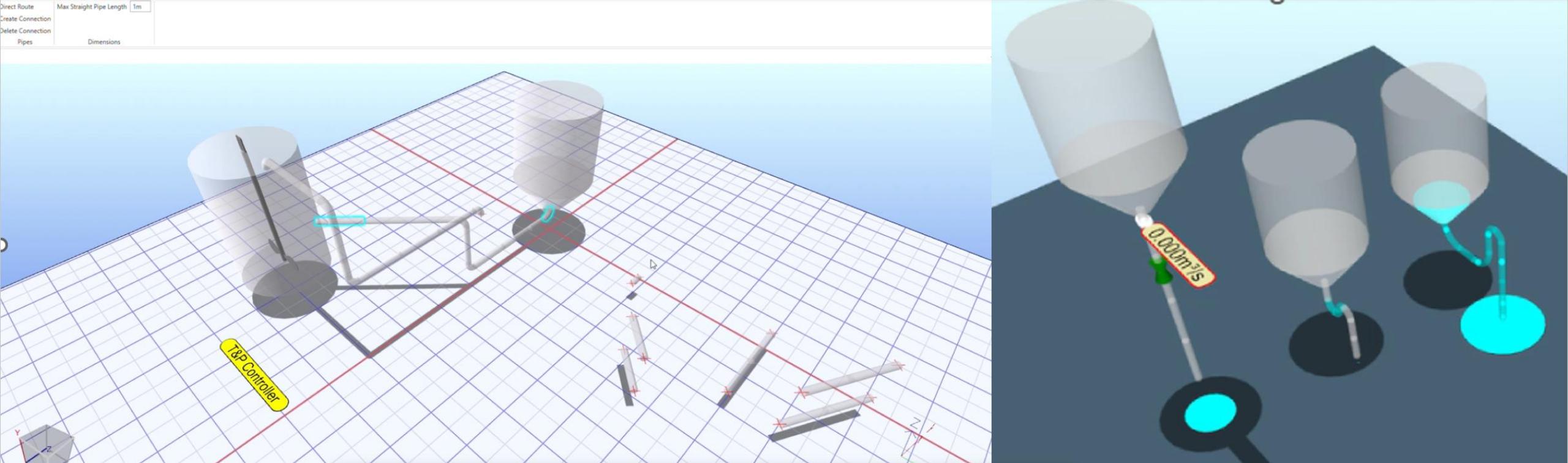
Pipe Connecting Toolbar
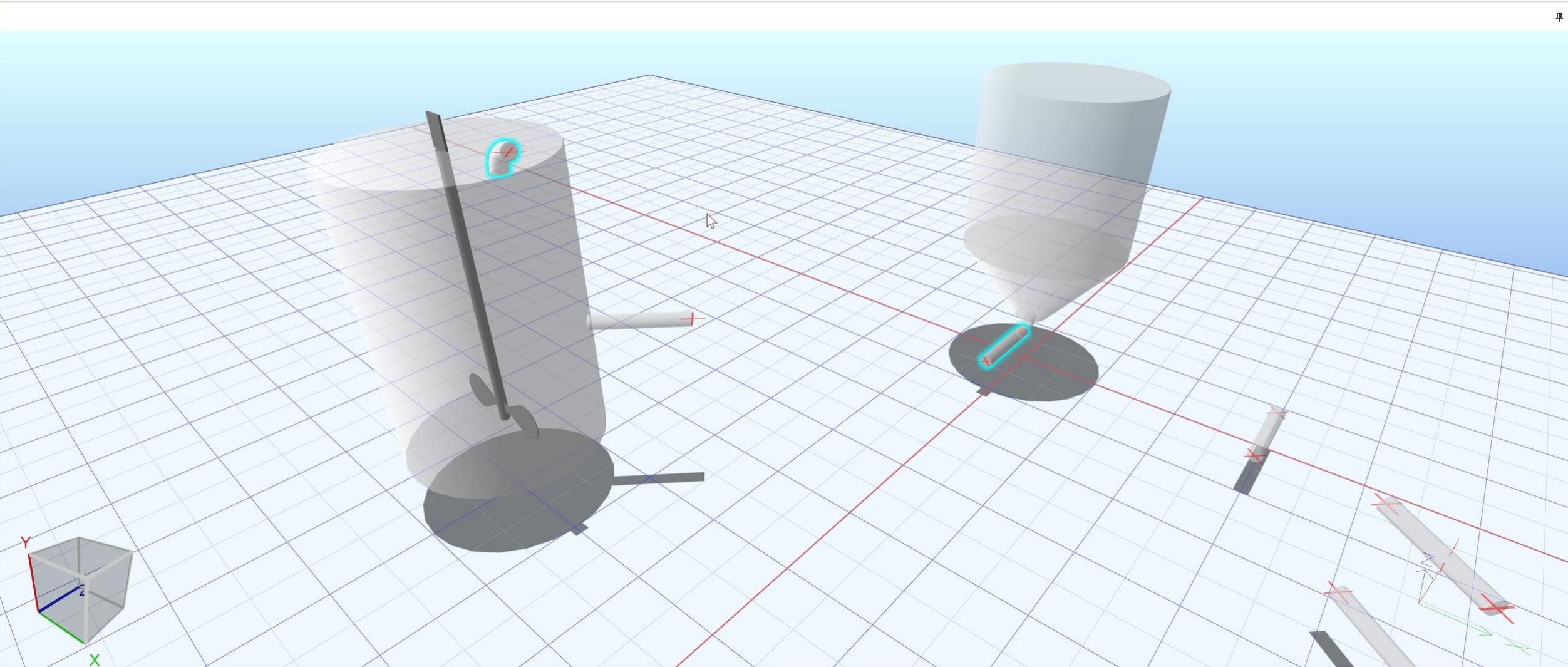
Cleaning – Pigging and clearing pipes

Clean Route QL Widget

FlowSource pushes air through
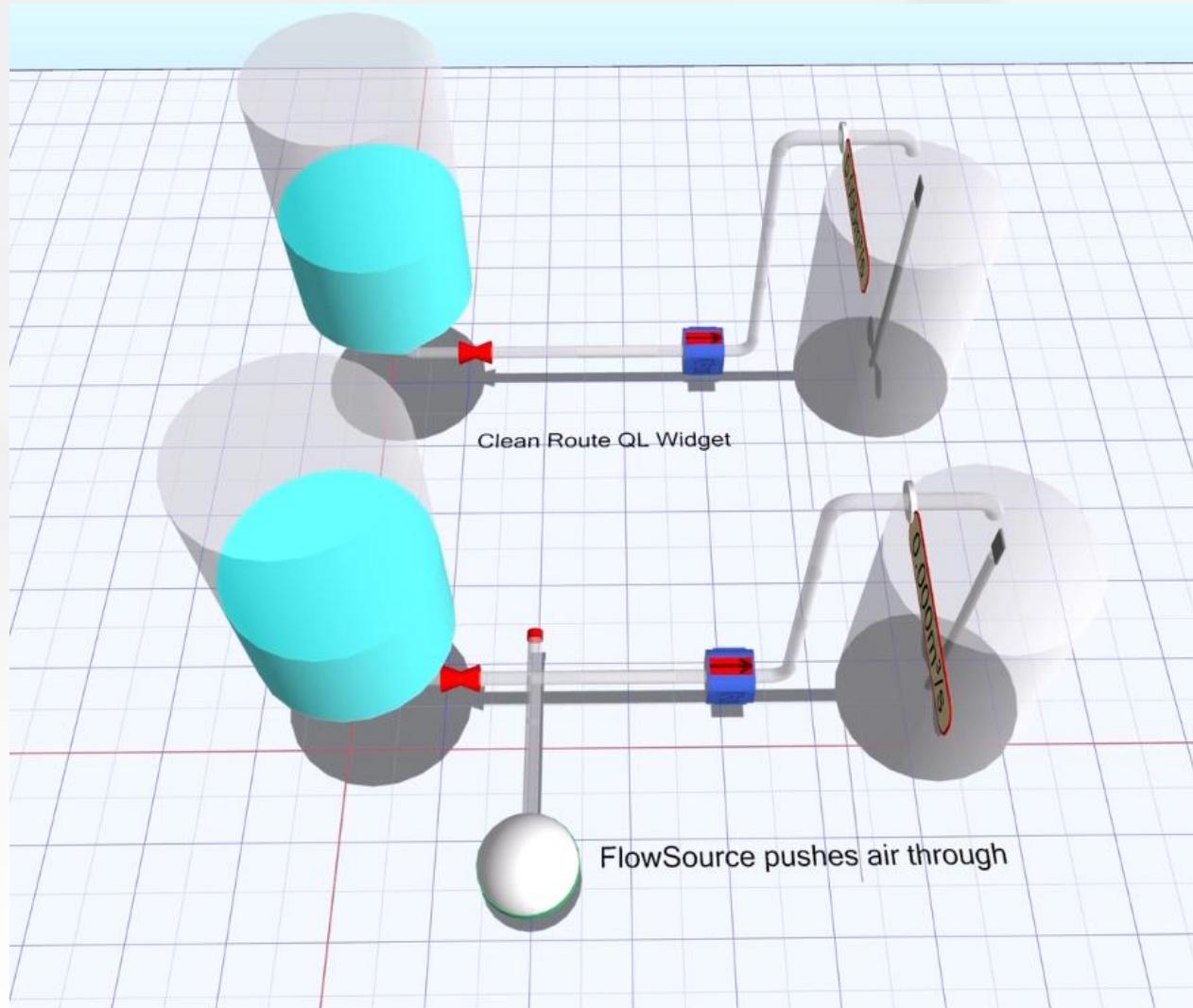
Manual pipe cleaning QuickLogic Widgets

`clean route from [start] to [end]`

Manually clean the route from the given start to end point.

`clean route from [start] to [end] via [pipe]`

Manually clean the route from the given start to end point, via an alternate pipe.

Pigging: FlowSource can push air through pipes

⌄ Configuration	
AddToScenario	False
› Destinations	Tank1,EndCap1
Flow	0.5 m³/s
PositiveDisplacemer	True
⌄ Control	
Active	False
CurrentLiquid	Empty
IsFlowing	False
Pressure	100.4634 Pa

Further Tanks&Pipes V3 Updates:

Draining/Siphoning Pipes
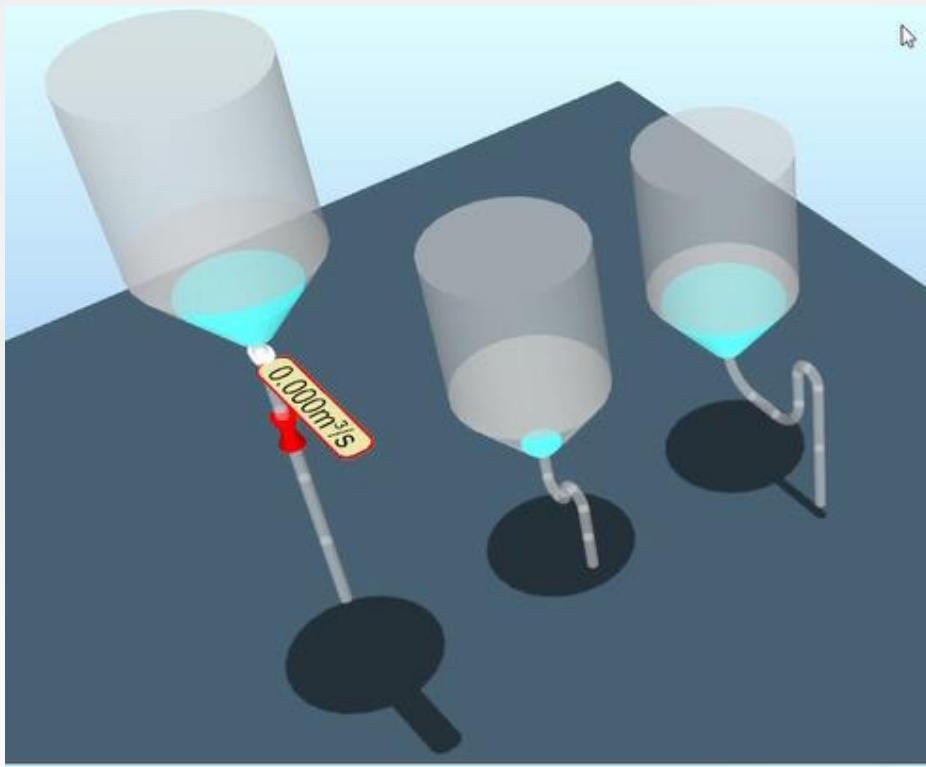
X-Pipe and Discontinuous straight pipe
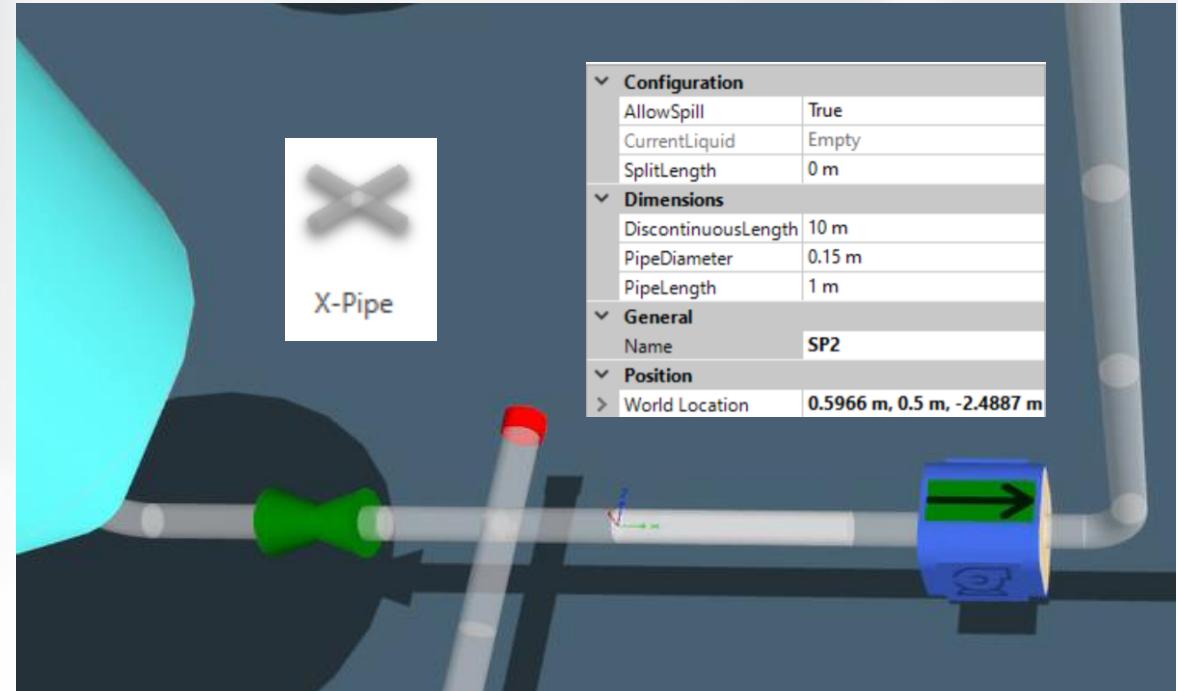
Other Updates:

- **Scenarios now allow for multiple tables**
- **Optional Sensor Fluctuation**
- **Improved pump noise to show on CurrentPressure/Flow**

New Signal Scaling Aspect

THANK YOU!
Any Question?

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