

SIMIO **SYNC**

2022

PRACTICAL APPLICATIONS



Make Transport Replenish Template

Agenda

What is a template?

Why Make Transport Replenish?

Template Overview

Bicycle Assembly Example

Real-Time Connectivity Example





What is a Template?

- Templates are used to speed up the development of design and scheduling models by leveraging common data schemas.
- Data models can be modified to match to format of the source data.
- Most of the detail is added through the data. Very little modeling detail is added through the facility window.
- Facility window is used mainly for validation.



Why Make Transport Replenish Template

- Material movement within the models is often handled using movement times.
- Material availability and material replenishment were handled by an outside system (e.g. ERP) or calculated per order.
- Configuration of tasks on servers were static. They were not setup for a dynamic product mix.
- This template provides a standard framework
 - Use of transporters for material movement.
 - Material replenishment is handled by inventory replenishment policies.
 - Product based tasks capture the complexities involved with dynamic product mixes.



Make

- Primary and secondary resources are defined similar to the other scheduling examples.
- Routing table has been renamed to Operations to match the ISA-88 standard. Movement between locations is mapped using the Operations table.
- The tasks for the server are not defined within its object definition. Tasks are defined in a child table of the Operations table. The name of this table is “Phases” to also match the ISA-88 standard.
- The Phases table has child tables for secondary resources and phase state assignments.
- Bill Of Material table is a child table of the Operations table, but only used by certain Phases.



Transport

- The Operations table has properties to define the Vehicle that are to be used to move entities from one location to another.
 - If the Vehicle property is populated, this vehicle is used to move the entity to its next location.
- There is also a Vehicle Worker property also defined on the Operations table.
 - If the Vehicle Worker property is populated, this worker will be required to move with the vehicle to the location to pick the entity and will be required to move with the vehicle until the vehicle moves the entity to its destination.



Replenish

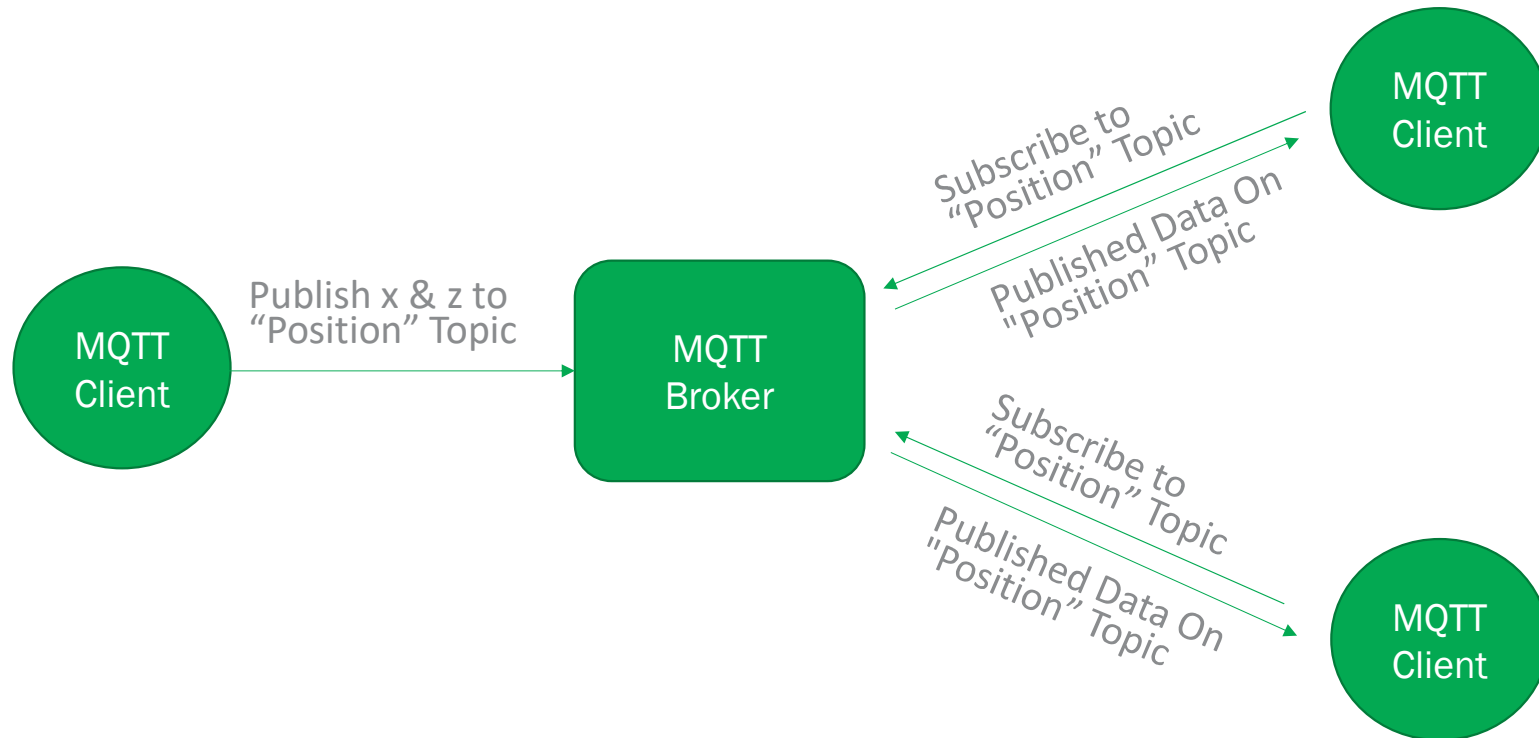
- Inventory Locations table is used to create the Inventory Elements. Replenishment Policies for the location are also defined in this table.
- When On Replenishment Order Process is triggered, the process creates Components Orders based on the replenishment policy.
- Component Orders can also be created when material is produced to the inventory location.
- The Inventory Locations table are mapped to one or many operations to route and make the Component Orders.



History Of Bicycle Assembly Examples

- SchedulingBicycleAssembly.spfx
 - Original Bicycle Assembly example. Assumes purchase orders and component orders are generated by outside system. Detailed description of this model provided in SchedulingBicycleAssembly.pdf.
- SchedulingBicycleAssembly_UpdateCreateMOandPOs.spfx
 - Purchase orders and manufacturing orders are generated based on material availability for each sales order. The generated orders are pegged to the sales order.
- SchedulingBicycleAssembly_MakeTransportReplenish.spfx
 - Purchase orders and component orders are generated using the inventory element replenishment policies.

MQTT - Message Queuing Telemetry Transport





Thank you.