

TrakSYS™ 10  
Training  
Lab Manual

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# Introduction

### Summary

This lab manual contains detailed instructions for completing several hands-on activities using the TrakSYS application. The following sections describe some of the document conventions and recommendations for executing the lab exercises.

### Training Virtual Server

The exercises in this lab manual are designed to be executed on a specially prepared TrakSYS training server. Each student in the class will be assigned a training server name (T01 through T22). The following steps will allow you to login to and access your personal training server using Windows **Remote Desktop Connection**…

* Click the Start menu and type “Remote Desktop Connection”. Choose the **Remote Desktop Connection** link from the filtered applications.
* A **Remote Desktop Connection (RDP)** dialog should be displayed, type the name of your specific server (T01 through T22) into the **Computer** text entry field and click **Connect**.
* When prompted, the login is **administrator** and the password is **Parsec1**.

You will utilize this same training server for the duration of the class sessions.

### Text Conventions

Throughout the lab manual, certain types of key words will be highlighted in **bold**. The convention is that any menu/button captions, form labels, configuration values, and TrakSYS entity names (such as **Areas** or **Systems**) will be highlighted in bold.

Example: Click the **New** menu option to open the new **Area** input form. Provide the value **Packaging** in the **Name** field before pressing the **OK** button to close the form.

### Step Descriptions

For each lab, there will be multiple steps defined to complete the exercise. Each step contains a short description of **what** needs to be done to complete the work. Beneath the description will be a bullet list of items that give tips and details regarding **how** to complete the step. Finally, on some steps, a concluding description may be provided indicating the expected results when the step is **completed**.

An example of the formatting is shown below.

#### Lab Step

Description of what is to be completed for the step.

* Tips and details of **how** to complete the step.
* Detail 2
* Detail 3
* Etc…

Description of what is expected when the step is **completed**.

### Execution Recommendations

It is quite common to execute the lab steps by repeatedly looking back and forth from the printed lab manual to the screen. During these iterations, it is sometimes difficult to “re-acquire” the last executed instruction from the lab manual. It is recommended that a system of “denoting” each detail/step with a pen/pencil mark as it is completed be adopted.

At the end of each lab, is a **Conclusion** section. It is recommended that this be read after each exercise. It provides some repetitive re-enforcement of skills that were just learned, as well as some additional perspective on the tasks that can only be understood after completing the steps.

# Lab 01 | Installation and Equipment Modeling

### Overview

In this assignment, you will install the TrakSYS software and configure its component infrastructure. Once a platform is available, execute the first steps in modeling a production environment for performance and operations management. Define 3 different Areas named **Batching**, **Packaging**, and **Inventory** for the **Orange County Vitamin** plant (referred to as **OCV** from this point forward). To each Area, add Systems and Sub-Systems that represent the production lines and assets to be monitored by TrakSYS.

### Estimated Time to Complete This Lab

30 Minutes

### Details

The following sections describe the detailed steps to be completed for this lab.

#### Install TrakSYS using the Setup

Install TrakSYS on the training server using the TrakSYS setup. Note that this step includes only running the setup and deploying the files. Further configuration and of the components will be done in the next step using Installation Manager.

* The TrakSYS setup executable can be found in the folder **C:\Setup** and is called **TrakSYS10.exe**.
* Accept the default choices in all dialogs during the setup.

#### Installation Manager | Create a new Database

Using the TrakSYS **Installation Manager** application, create a new, empty TrakSYS database. This would be the first step in setting up a new implementation.

* The **Installation Manager** application can be launched by accessing the Windows Start menu and typing “Installation”. The **Installation Manager** shortcut should appear in the filtered list of applications.
* Select the **Database** section from the left tabs.
* Select the **Create Database** menu option from the right menu.
* In order to create a new database, you must provide administrative credentials to the target server. The **Login** should be preset to **sa**. The **Password** must be provided and is **Sqlsa!23** . The **Local Instance Name** field can be left **empty**.
* Select the **Empty Project Configuration** database from the **Template** list. Leave the other fields as their default values.

Upon completion, return to the **Overview** section from the left tabs. The **Database** status indicator should be a **green check**.

#### Installation Manager | Install and Activate the License

Using the TrakSYS **Installation Manager** application, import and activate a TrakSYS license file in the newly created database.

* Select the **License** section from the left tabs.
* Select the **Import License** menu option from the right menu. Locate the TrakSYS license file at **C:\Setup\license.ts10lic**. Select and import.
* In the **Features** table, modify the **Host** value to the **name of the training server** (the name of the training server is different for every student).
* Select the **Activate License (Online)** menu option from the right menu.

Upon completion, return to the **Overview** section from the left tabs. The **License** status indicator should be a **green check**.

#### Installation Manager | Install Services

Using the TrakSYS **Installation Manager** application, register the **Logic**, **Historian**, **Data Management**, and **Maintenance** services on the training server.

* Select the **Services** section from the left tabs.
* Select the **Install Logic** menu option from the right menu.
* Select the **Install Historian** menu option from the right menu.
* Select the **Install Data Management** menu option from the right menu.
* Select the **Install Maintenance** menu option from the right menu.

Upon completion, all 4 services should be displayed in the **Installed Services** list AND show **Stopped** as the **Status**. Return to the **Overview** section from the left tabs. The **Services** status indicator will NOT be a **green check**, as the services are not all running.

#### Installation Manager | Setup the TS Web

Using the TrakSYS **Installation Manager** application, deploy the **TS Web** application to the training server.

* Select the **Webs** section from the left tabs.
* Select the **Setup TS Web** menu option from the right menu.

Upon completion, return to the **Overview** section from the left tabs. The **Webs** status indicator should be a **green check**.

#### Installation Manager | Change the Database Connection

For the training course, a TrakSYS database has been pre-created with some existing configuration for reference. Use the **Installation Manager** to change the database connection from the new database that was just created, to the pre-existing database called **EDB\_TRAINING**.

* Select the **Database** section from the left tabs.
* Select the **Edit Connection** menu option from the right menu.
* Change the database name in the connection to **EDB\_TRAINING**.

#### Configure the Logic Service

The **Logic Service** entity represents the TrakSYS component that will collect the real-time production data from the plant floor. The training database has a pre-configured **Logic Service**, however, the **Host** name property must be set to the **name of the server** that it is running on.

* In the **TrakSYS Web** ( <http://localhost/ts>/pages/ocv ), Navigate to **Configuration | Services | Logic Services**.
* Select the **OCV** entry in the list of **Logic Services** in slice 1. Click the **Edit** menu option.
* Change the name of the Host field from Master to the **name of the training server** (the name of the training server is different for every student).

|  |
| --- |
| Host |
| <name of your specific training server> |

#### Configure Production Areas

Create 3 **Areas** in the TrakSYS configuration. These Areas will represent the main types of production in the OCV plant.

* In the **TrakSYS Web** ( <http://localhost/ts>/pages/ocv ), Navigate to **Configuration | Systems**.
* Select the **New** menu option under **Areas** to add a new **Area**.
* Create 3 **Areas** with the following property values…

|  |  |
| --- | --- |
| Name | Key |
| Batching | BATCH |
| Packaging | PACK |
| Inventory | INV |

#### Configure a Discrete System and Sub-Systems

Each **Area** will contain 1 or more production lines. These will be represented by TrakSYS **Systems**. Beneath the **Packaging Area**, create the **Packaging Line 1 System**, with 3 **Sub-Systems** called **Filler**, **Labeler** and **Caser**.

* In the **TrakSYS Web** ( <http://localhost/ts>/pages/ocv ), Navigate to **Configuration | Systems**.
* Select the **Packaging Area**.
* In slice 2, select the **New** menu option under **Systems** to add a new **System**.
* Create the **Packaging Line 1 System** with the following property values…

|  |  |
| --- | --- |
| Name | Key |
| Packaging Line 1 | P1 |

* Select **Packaging Line 1** from the **System** list in slice 2. Additional details and options for **Packaging Line 1** will be displayed in slice 3.
* Select **Sub-Systems** from the **Related** menu in slice 3. The **Packaging Line 1** details will move to slice 1 and the **Sub-Systems** will be listed in slice 2.
* In slice 2, select the **New** menu option under **Sub-Systems** to add a new **Sub-System**.
* Create 3 **Sub-Systems** under **Packaging Line 1** with the following property values…

|  |  |
| --- | --- |
| Name | Key |
| Filler | FLR |
| Labeler | LBL |
| Caser | CSR |

#### Installation Manager | Start the Logic Service

Using the TrakSYS **Installation Manager** application, start the **Logic Service** on the training server.

* Select the **Services** section from the left tabs.
* Select the **Logic Service** from the **Installed Services** list and click the **Start** button.

Upon completion, the Logic Service should be shown in the **Installed Services** list AND show **Running** as the **Status**.

### Conclusion

In this exercise, you have learned how to install and configure the TrakSYS components for use in an implementation using the setup and the **Installation Manager** application. You have also created several TrakSYS configuration entities including **Areas**, **Systems** and **Sub-Systems**. Finally, you now know how to start and re-start the **Logic Service**. This will be required whenever new configuration changes are made.

It is recommended that you take moment to review the navigation through the Configuration section of the application. Cycle between **Areas** to see the child **Systems**. Select a System and display its **Sub-Systems**. Experiment with the **Edit** menu option on different entities to become used to modifying and saving changes to the configuration.

Many of the following labs and real-world use of the TrakSYS software rely on and build upon the basic skills learned in this lab.

# Lab 02 | Tags

### Overview

**Tags** are an essential part of any TrakSYS implementation. **Tags** represent real-time data points in the configuration which can originate from a number of different sources such as the automation layer (PLCs and devices via OPC), virtual values, or internal variables used to store important data like business rule calculation inputs.

**Tags** are entities in TrakSYS that are used to map to and store these data points and calculations, making the reported/calculated values available for consumption to other parts of the TrakSYS configuration.

In this assignment you will configure **Tags** that will be responsible for connecting to the **OCV** factory automation, making logical decisions, triggering **Events**, and holding other real-time production statuses. The **Tags** you configure in this lab will be integrated into future parts of the **OCV** implementation.

### Estimated Time to Complete This Lab

30 Minutes

### Details

The following sections describe the detailed steps to be completed for this lab.

#### Configure Virtual Tags

There is a pre-existing **Tag Group** structure defined in the training database under **Packaging / Line 1**. There is a **Tag Group** beneath **Line 1** called **[ Product ]** which is designed to hold Tags related to the current product being produced. Create **Virtual Tags** with the following properties in the **[ Product ]** folder.

|  |  |
| --- | --- |
| Name | Data Type |
| P1.PRODUCT.BOTTLES\_PER\_MINUTE | Integer |
| P1.PRODUCT.BOTTLE\_SIZE | String |
| P1.PRODUCT.BOTTLES\_PER\_CASE | Integer |
| P1.PRODUCT.BOTTLE\_SUPPLIER | String |

* In the **TrakSYS Web** ( <http://localhost/ts>/pages/ocv ), Navigate to **Configuration | Tags**.
* Select the appropriate **Tag Group** from the tree in slice 1 to reveal the list of child **Tags** in slice 2.
* Select the **New** menu option under **Tags** and add new **Tags** with properties specified in the table above.
* Select **Virtual Tag** from the **New Tag** type list.

#### Configure an OPC Access Name

In order to read data from **OPC Tags**, an **OPC Access Name** must be configured to define the connection information required by the **Logic Service**. In this training scenario, there is no real PLC to attach to, but TrakSYS will be run in a “simulation mode” to mimic Tag value changes.

Configure a new **OPC Access Name** to connect to the **Packaging Line 1** PLC using a Matrikon OPC server.

* In the **TrakSYS Web** ( <http://localhost/ts>/pages/ocv ), Navigate to **Configuration | Tags | Access Names**.
* Select the (pre-existing) **Packaging Access Name Group** in slice 1 to reveal the list of child **Access Names** in slice 2.
* Select the **New** menu option under **Access Names** and add a new **Access Name** (of OPC type) with the following properties…

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Node | OPC Server | Simulation Mode |
| Packaging 1 PLC | <training server name> | Matrikon.OPC.Simulation.1 | Checked |

#### Configure OPC Tags

After an **OPC Access Name** is created, **OPC Tags** can be configured and attached to the new **Access Name**. Configure the following 5 automation points as **OPC Tags**.

There is a pre-existing **Tag Group** structure defined in the training database under **Packaging / Line 1**. There are 3 **Tag Groups** defined for the **Filler**, **Labeler** and **Caser**. Create **OPC Tags** with the following properties in the appropriate folders.

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Access Name | Item Name |
| P1.FILLER.MOTOR\_RUNNING | Discrete | Packaging 1 PLC | N7:11/1 |
| P1.FILLER.TIPPED\_BOTTLE | Discrete | Packaging 1 PLC | N7:11/2 |
| P1.FILLER.TEMP | Float | Packaging 1 PLC | F1:10/1 |
| P1.LABELER.LABEL\_JAM | Discrete | Packaging 1 PLC | N7:11/3 |
| P1.CASER.MISPLACED\_TRAY | Discrete | Packaging 1 PLC | N7:11/4 |

* In the **TrakSYS Web** ( <http://localhost/ts>/pages/ocv ), Navigate to **Configuration | Tags**.
* Select the appropriate **Tag Group** from the tree in slice 1 to reveal the list of child **Tags** in slice 2.
* Select the **New** menu option under **Tags** and add new **Tags** with properties specified in the table above.
* Select **OPC Tag** from the **New Tag** type list.
* The **Access Name** picker can be opened by clicking the picker icon next to the **Access Name** label. After the picker is displayed, select the Access Name to be assigned from the list in the right margin.

#### Configure a Compare Tag

A trigger condition is needed to determine when the **Filler** temperature is higher than normal. Create a **Compare Tag** to monitor the Filler temperature, and return a Discrete 1 value when the temperature is higher than **95** degrees.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data Type | Left Operand | Operation | Right Operand |
| P1.FILLER.TEMP\_HIGH | Discrete | P1.FILLER.TEMP | > | 95 |

* Create the **Compare Tag** in **Tag Group** called **Packaging\Line 1\Filler**.
* To select a **Tag** for the **Left Operand**, change the picker icon from **123** to the **Tag** symbol to open the **Tag Picker** in the right margin. Type any part of the **Tag** name in the search box (for instance “P1.FILLER”) and select the **Find Tags** button to filter the existing **Tags** to the list below. Select the **P1.FILLER.TEMP** entry in the list to assign it.

#### Configure a Script Tag

A more complex trigger condition is needed to determine when an event should be recorded indicating that the **Filler** stopped due to overheating. Create a **Script Tag** to monitor the Filler running **Tag**, as well as the temperature **Tag** and return a Discrete 1 when the Filler is running, and the temperature is higher than **95** degrees.

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Script Type | Script |
| P1.FILLER.OVERHEATED | Discrete | Simple | ({P1.FILLER.MOTOR\_RUNNING}) AND ({P1.FILLER.TEMP} > 95.00) |

* Create the **Script Tag** in **Tag Group** called **Packaging\Line 1\Filler**.
* Create the **Tag** using **Simple** for the **Script Type**. This means that the script will be created using a **VB.NET** syntax.
* The **Script Tag** must be created first, then the actual script can be added using the **Script Action** in the slice 3 menu.
* **Tag** values can be inserted into the script by surrounding the **Tag Name** with curly braces {}.

### Conclusion

In this exercise, you have learned how create and configure several types of **Tags**. There are several different types of **Tags**, but all **Tags** return a single, typed value. **Tags** are used/consumed by other configuration elements within TrakSYS, and can also be used as inputs to other more complex logic and script **Tags**.

Some of the **Tags** that you have created in this lab for **Packaging Line 1** will be used in later exercises as states and conditions to trigger events and other real-time business rules.

# Lab 03 | System Definitions

### Overview

In this assignment you will learn to configure entities that will collect and process production data from physical assets (**Systems**).

* **Events Definitions** define how TrakSYS monitors real-time status values to start and end stoppage **Event** records.
* **KPI Calculations** define how TrakSYS captures production count and theoretical rate information in **Interval** records, allowing the calculation of standard and custom KPI metrics for analysis.
* **Task Definitions** define how TrakSYS creates form instances for personnel to complete and record production information as **Task** records.
* **Sample Definitions** define data structures for recording SPC data (**Sample Sub-Groups**) for quality testing and analysis.
* **Function Definitions** define how TrakSYS monitors real-time status values and creates **Batch Step** records for tracking actions on Batch **Systems**.

### Estimated Time to Complete This Lab

30 Minutes

### Details

The following sections describe the detailed steps to be completed for this lab.

#### Configure Event Definitions

**Event Definitions** must be created under the **Packaging Line 1 System** to track time spent during breaks and changeover. These definitions will be triggered from **Virtual Tags** that will be manipulated manually.

* In the **TrakSYS Web** ( <http://localhost/ts>/pages/ocv ), Navigate to **Configuration | Systems**.
* Select the **Packaging Area** in slice 1 to reveal the list of child **Systems** in slice 2.
* Select the **Line 1 System** in slice 2 to show the **System** details in slice 3.
* Select the **Event Definitions** option in the **Related** menu in slice 3. The item details for the **Packaging Line 1 System** should shift to slice 1 and slice 2 should contain an empty list of **Event Definitions**.
* Select the **New** menu option under **Event Definitions** and add new **Event Definitions** with the following properties…

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Trigger Tag | OEE Event Type | Priority |
| Break | P1.EVENT.BREAK | Availability Loss | 10 |
| Changeover | P1.EVENT.CHANGEOVER | Availability Loss | 10 |

#### Configure Event Definitions for Sub-Systems

**Event Definitions** must be created under the various **Sub-Systems** under **Packaging Line 1**. These definitions will be triggered from **OPC Tags** holding machine status from the automation layer.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sub-System | Name | Trigger Tag | OEE Event Type | Priority |
| Filler | Tipped Bottle | P1.FILLER.TIPPED\_BOTTLE | Performance Loss | 20 |
| Filler | Overheated | P1.FILLER.OVERHEATED | Performance Loss | 20 |
| Labeler | Label Jam | P1.LABELER.LABEL\_JAM | Performance Loss | 20 |
| Caser | Misplaced Tray | P1.CASER.MISPLACED\_TRAY | Performance Loss | 20 |

* In the **TrakSYS Web** ( <http://localhost/ts>/pages/ocv ), Navigate to **Configuration | Systems**.
* Select the **Packaging Area** in slice 1 to reveal the list of child **Systems** in slice 2.
* Select the **Line 1 System** in slice 2 to show the **System** details in slice 3.
* Select the **Sub-Systems** option in the **Related** menu in slice 3. The item details for the **Packaging Line 1 System** should shift to slice 1 and slice 2 should contain a list of **Sub-Systems**.
* Select a **Sub-System** in slice 2 to show the **Sub-System** details in slice 3.
* Select the **Event Definitions** option in the **Related** menu in slice 3. The item details for the **Sub-System** should shift to slice 1 and slice 2 should contain an empty list of **Event Definitions**.
* Select the **New** menu option under **Event Definitions** and add new **Event Definitions** with the properties specified above.

#### Configure a KPI Calculation

A **KPI Calculation** for **Packaging Line 1** is needed to monitor and record production counters and related data in order to calculate standard OEE metrics. The **KPI Calculation** should be set to record intervals every **30** minutes, and to obtain the line’s theoretical rate from an existing **Virtual Tag**.

* In the **TrakSYS Web** ( <http://localhost/ts>/pages/ocv ), Navigate to **Configuration | Systems**.
* Select the **Packaging Area** in slice 1 to reveal the list of child **Systems** in slice 2.
* Select the **Line 1 System** in slice 2 to show the **System** details in slice 3.
* Select the **KPI Calculations** option in the **Related** menu in slice 3. The item details for the **Packaging Line 1 System** should shift to slice 1 and slice 2 should contain an empty list of **KPI Calculations**.
* Select the **New** menu option under **KPI Calculations** and add a new **KPI Calculation** with the following properties…

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Interval Duration | Derived Input | Calculation Units | Theoretical Rate |
| OEE | 30 | Total | 10 | P1.PRODUCT.BOTTLES\_PER\_MINUTE |

* To select a **Tag** for the **Theoretical Rate**, change the picker icon from **123** to the **Tag** symbol to open the **Tag Picker** in the right margin. Type any part of the **Tag** name in the search box (for instance “P1.PRODUCT”) and select the **Find Tags** button to filter the existing **Tags** to the list below. Select the **P1.PRODUCT.BOTTLES\_PER\_MINUTE** entry in the list to assign it.

#### Configure a KPI Calculation Good Counter

The input counter for good production units will come from pre-existing **Tag** in the **Caser Sub-System** called **P1.COUNTER.GOOD\_CASES**. Since the **GOOD\_CASES** **Tag** counts entire Cases, it must be converted to individual Bottles using a multiplier **Tag** called **P1.PRODUCT.BOTTLES\_PER\_CASE**.

Configure a new **Good KPI Counter** under the **OEE KPI Calculation** for **Packaging Line 1**.

* Navigate to the item slice for the **OEE KPI Calculation** under **Packaging Line 1**.
* Select the **Good** option in the **Related** menu in slice 3. Slice 2 should contain an empty list of **KPI Counters**.
* Select the **New** menu option under **KPI Counters** and add a new **KPI Counter** with the following properties…

|  |  |  |
| --- | --- | --- |
| Name | Counter | Counter Units to Input Units Multiplier |
| Good Cases | P1.COUNTER.GOOD\_CASES | P1.PRODUCT.BOTTLES\_PER\_CASE |

#### Configure KPI Calculation Bad Counters

The input counters for bad or reject production units will come from pre-existing **Tags** in the **Filler and Labeler Sub-Systems** called **P1.COUNTER.BAD\_BOTTLES\_FILLER** and **P1.COUNTER.BAD\_BOTTLES\_LABELER**.

Configure new **Bad KPI Counters** under the **OEE KPI Calculation** for **Packaging Line 1**.

* Navigate to the item slice for the **OEE KPI Calculation** under **Packaging Line 1**.
* Select the **Bad** option in the **Related** menu in slice 3. Slice 2 should contain an empty list of **KPI Counters**.
* Select the **New** menu option under **KPI Counters** and add new **KPI Counters** with the following properties…

|  |  |
| --- | --- |
| Name | Counter |
| Bad Bottles Filler | P1.COUNTER.BAD\_BOTTLES\_FILLER |
| Bad Bottles Labeler | P1.COUNTER.BAD\_BOTTLES\_LABELER |

### Conclusion

In this exercise, you have learned how and configure some examples of **System** functionality to capture **Events** and **KPI Intervals**. **Task**, **Sample** and **Function Definitions** are configured in a similar way and will be explored in future lab modules.

In addition to learning about these new configuration entities, you have had more practice in navigating through the configuration hierarchy and user interfaces. The patterns of item slices, lists and **Action**/**Related** menus, will be the same used throughout the rest of the TrakSYS application and training exercises.

# Lab 04 | Production Information

### Overview

In this assignment you will configure entities and properties that will add additional context to the basic data (Event, KPI, Task, Quality, etc…) collected from the plant floor. Adding dimensions such as **Shift**, **Team**, **Job** (Process Order) and **Product** (SKU) to collected production data makes the TrakSYS implementation more effective by increasing reporting/analysis options, improving traceability, and supporting root cause analysis.

### Estimated Time to Complete This Lab

30 Minutes

### Details

The following sections describe the detailed steps to be completed for this lab.

#### Assign Job Tags to a System

In order to capture the current **Job** that is executing on **Packaging Line 1**, the real-time **Job**-information **Tags** must be associated with the **Packaging Line 1 System**. Navigate to and edit the **Packaging Line 1 System** and assign the following (pre-existing) **Job Tags** to the appropriate properties…

|  |  |
| --- | --- |
| Job Tag | Planned Size Tag |
| P1.JOB.NAME | P1.JOB.PLANNED\_SIZE |

* After entering the properties form for **Packaging Line 1**, click the **Job** tab on the left to reveal the **Job** related **Tag** properties.

#### Configure a Shift Schedule

To understand any data trend relationships to the operators running the line, a personal **Schedule** must be configured that designates a repeating pattern of **Shifts** and **Teams**.

* In the **TrakSYS Web** ( <http://localhost/ts>/pages/ocv ), Navigate to **Configuration | Schedules**.
* Select **Packaging** in slice 1 to reveal a list of child **Schedules** in slice 2.
* Select the **Main** in slice 2 to show the **Schedule** details in slice 3.
* Select the **Schedule Patterns** option in the **Related** menu in slice 3. The item details for the **Main Schedule** should shift to slice 1 and slice 2 should contain an empty list of **Schedule Patterns**.
* Select the **New** menu option under **Schedule Patterns** and add a new **Schedule Pattern** with the following properties…

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Start Date/Time | Duration | Effective Date/Time | Calendar Tick Marks |
| Standard | <todays date> 8:00:00 AM | 7 | <todays date> 8:00:00 AM | 60 |

#### Configure a Shift Schedule

Once the **Pattern** entity is created, the actual calendar of **Shift/Team** assignment to work on the process must be created.

There are 2 **Shift** times in the **OCV Packaging** area, **Day** and **Night**.

* The **Day Shift** should be scheduled to work Monday through Friday days per week from 8:00 AM to 5:00 PM.
* The **Night Shift** should be scheduled to work Monday through Friday days per week from 5:00 PM to 2:00 AM the following day.

In addition, there are 2 different **Teams** of users that are assigned to work during these time periods, **Team A** and **Team B**.

* **Team A** should be assigned to work on the **Day Shift** every day it exists.
* **Team B** should be assigned to work on the **Night Shift** every day it exists.

The following tips will assist in configuring the calendar pattern…

* Navigate to and select the **Main Schedule Pattern** in slice 2 to reveal details in slice 3.
* Select the **Calendar** menu option in slice 3 to open the calendar editor screen.
* Using the mouse cursor, **drag and highlight** an area in the calendar to create a new **Schedule Pattern Item** (click OK to confirm).
* If the timeframe (**Start and End Date/Time**) highlighted is not accurate it can be adjusted manually in the properties form.
* Select the desired **Shift** and **Team** to be assigned to the **Schedule Pattern Item**.
* Click **OK** to save the item and repeat as needed.
* Once the first **Schedule Pattern Item** is created, the **Copy** menu item can be used (in the right side menu on the calendar page) to duplicate the exact item one day in the future.

#### Take the Shift Schedule out of Edit Mode

Each Schedule contains a property called **Allow Schedule Edits (Edit Mode)**. Since the Logic Service is constantly evaluating real-time data collection against the configuration, a **Schedule** should be switched into **Edit Mode** while it is being changed or created. This prevents the Logic Service from loading an incomplete version of a **Schedule**.

Before a **Schedule** can be used for real-time data collection, it must be switched **out of Edit Mode**. Navigate to the **Packaging Schedule** and uncheck the **Allow Schedule Edits (Edit Mode)** property.

* Navigate to the **Packaging Schedule** and enter the properties form by clicking the **Edit**.
* Un-check the **Allow Schedule Edits (Edit Mode)** property and **Save**.

#### Assign a Shift Schedule to a System

Once the **Schedule** and **Pattern** have been created, the **Schedule** must be assigned/associated to the **Packaging Line 1 System**. Navigate to and edit the **Packaging Line 1 System** and assign the **Packaging / Main Schedule** to the **Schedule** property.

|  |
| --- |
| Schedule |
| Packaging / Main |

* Use the **picker** icon to the right of the **Schedule** field to open the **Schedule** picker in the right margin.

#### Create Products for a Product Set

A list of **Products** that can be made on the **Packaging Line 1 System** must be created to store **Product** specific attributes that will be used during real-time data collection. The new **Products** can be added beneath the pre-existing **Product Set** called **Packaging**. The **Packaging Product Set** has also been pre-associated with the **Packaging Product Scheme** which defines 4 attributes for…

* Bottles per Minute (BPM)
* Bottle Size (BSZ)
* Bottles per Case (BPC)
* Bottle Supplier (BSP)

Add 2 new **Products** to the **Packaging Product Set**.

* In the **TrakSYS Web** ( <http://localhost/ts>/pages/ocv ), Navigate to **Configuration | Products**.
* Select **Packaging** in slice 1 to reveal an empty list of child **Products** in slice 2.
* Select the **New** menu option under **Products** and add new **Products** with the following properties…

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Product Code | BPM | BSZ | BPC | BSP |
| Adravil | ADRA | 360 | 200 | 32 | ABC Bottles |
| Prospirim | PROS | 240 | 150 | 24 | Bottle Mart |

* Note that the user-defined attributes are available under the **Attributes** tab of the **Product** properties form.

#### Assign a Product Set and Product Tag to a System

Once **Products** are created in the **Packaging Product Set**, the **Product Set** must be assigned/associated to the **Packaging Line 1 System**. Navigate to and edit the **Packaging Line 1 System** and assign the **Packaging Product Set** to the **Product Set** property.

|  |
| --- |
| Product Set |
| Packaging |

* After opening the properties form for **Packaging Line 1**, click the **Product** tab on the left to reveal the **Product** related properties.

In addition, the real-time **Tag** holding the current **Product Code** for the line must be assigned/associated. While in the properties form for **Packaging Line 1 System**, assign the **Product Code Tag** for **Packaging Line 1**.

|  |
| --- |
| Product Code Tag |
| P1.PRODUCT.CODE |

### Conclusion

In this exercise, you have configured and assigned **Job Tags**, **Shift Schedules** and **Products**. Moving forward, any data collected against **Packaging Line 1** will now be recorded with the context of which **Job** and **Product** was running at the time, as well as which **Shift**/**Team** were working on the process.

Collecting data with these additional dimensions allows for more complex analysis, more detailed traceability, and improved decision making.

In addition to learning about these new configuration entities, you have had more practice in navigating through the configuration hierarchy and user interfaces. The patterns of item slices, lists and **Action**/**Related** menus, will be the same used throughout the rest of the TrakSYS application and training exercises.