UC018: Create & Edit Product Assembly

Product Model, Model Component, Product Assembly, Assembly Component, PLM



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UC018: Create & Edit Product Assembly

# UC018: Create & Edit Product Assembly

## Description

This is the core feature of our GTS solution. A product model and its components is the base of an assembly. For each and every model component, a component assembly is created to represent an actual, physical assembly.

Creation of an assembly component consists of creating and persisting the assembly along with a bunch of metadata. Examples of this metadata are: usernames, assembly dates and times, any issue that occurred during assembly, etc.

The goal is to enable T&T features while impacting the user’s workload as little as possible. The user will use this feature during every part of the production process. Since the main focus of the user will be assembling products, the additional workload due to this feature should be kept as low as possible.

A user will usually input data using a hand scanner and we’d like to prevent him / her having to use anything else. Our previous T&T solutions forced the user to alternate between mouse, keyboard and scanner to the point where the user could only scan after selecting the proper input field.

The product model’s components are listed in a fixed order and each component will display work instructions, if available. The user finishes a step in the physical assembling of the product and then uses the scanner to scan the appropriate metadata for that step. The system will determine what component the newly scanned data is to be assigned to but is limited to the currently active model state.

Even though input will be mostly done by use of hand scanners, input validation is required. For manual input as well as scanner input. The validation of this input as well as other business rules will be developed in a domain centric approach. This means that the domain model (code that defines the application classes) contains this validation and where the model is expressed, the validation can be loaded from the model itself.

A hierarchy of model component states will be created for every product model by configuring the “State” property of that component. The components are (for the most part) grouped by their states. After completing all components for a particular state the user can “Deport” the current assembly to the subsequent state.

Component assembly data can be changed only if their state is active, if a state is already deported or a previous state is active, no changes can be done to it by a regular user. If a change needs to be made according to the regular user, the assembly must be placed in remark. Placing an assembly in remark is described in **UC012.**

QA personnel and admins can freely deport or return to a previous state. They can also add and change remark metadata, and elect to set remarks to “resolved”. How this is done is described in **UC013**.

Finally, at each component step of a product assembly a drilldown can be performed if the component in question is a reference to a product assembly.

## Level

User Goal

## Trigger

Primary Actor scans a serial nr of any kind of product model.

## Primary Actor

The Primary Actor is a regular user

## Additional/Supporting Actors

QA personnel (for Remark management) and Admins (for creation of models, components and work instructions)

## Stakeholders

* Production
* Operations
* Engineering
* Management

## Preconditions

The Primary Actor must have use of a workstation with an active internet connection or at least an internal access to the application. The workstation will have a browser window open, pointing to the site.

## Main Success Scenario

To start with or continue work on a product assembly, a user will scan a product serial in any part of the application and the system will open the corresponding product assembly page. At any point a user can choose to open the product page for any serial he / she comes across. If the assembly doesn’t exist yet the system will create it.

## Extensions

**Alternate flow:** instead of using a scanner to scan a serial from anywhere in the application the user can use the mouse to place focus in a search field and enter the serial manually. The same goes for component assemblies, the use places the cursor where needed and enter manually. However this should be avoided or discouraged.

**Exception:**

* A user tries to change assemblies that are in Remark. The system should block all attempts unless made by QA personnel or an admin specifically to handle and resolve this Remark
* A user tries to deport to a state without filling in all data for the previous state, the system should block the deportation

An extension can be made to create alerts from / in conjunction with, reports made by this feature. So instead of only having a pull strategy that warns us only after we decided to display reports, this provides us with a push strategy that ensures we take action in time.

## Post Conditions

* Success End Condition
  + All data concerning an assembled product is saved and T&T is enabled from the start of production.
  + The product is physically and administratively in the correct state to be shipped to a customer
* Minimal Guarantees
  + The system will guarantee that products in Remark are blocked from continued assembly, test and shipping

## Frequency

For each and every assembled product this UC will be executed.

## Special Requirements

* Performance:   
  Timeout values will be set so the user receives “a resource unavailable” message if this occurs
* Security  
  Only administrators have access to this page
* Usability / Accessibility  
  User must be able to view page in English, French and Spanish.
* Other  
  The UI must be able to be used over a range of platforms: PC, laptop, tablet, smart phone…

## Issues and Next Steps

Proper research on how to implement the UI for this UC must be done. The user friendliness of the application is in large amount determined by the functioning of this UC’s page