

SIEMENS

Training on Camstar Products

ANYTIME



ANYWHERE

eLearning Course Catalog

SIEMENS

Notices

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General Information

In addition to traditional instructor led training, Camstar Education Services offers eLearning in the Camstar Education Portal. This online training is self paced to support training on your schedule, at your pace; when and where you need it. This catalog of courses contains training available online now or planned for release in the near future. Your commercial agreement with Camstar and your specific job role will determine which training you will be able to access.

Online training is provided as self-paced education with interaction in the form of questions and answers and supplemented by labs and exercises. To perform the hands on practice labs you will need access to a training model separate from the Education Portal. Please contact Camstar Education for lab environment options available.

For instructor led training or quickstart programs, please refer to the **[Camstar Enterprise Platform Course Catalog](#)**.

Open enrollment classes scheduled in Camstar Training Centers are found on the Camstar website Education pages or by contacting the Camstar Education department at SmartCamstar.plm@Siemens.com.

eLearning courses are available by Product and some are generic to support skills development, knowledge transfer or project instructions. Where there are dependencies they are noted. Unless specifically stated, the learning events apply to the latest Camstar product release.



Camstar eLearning Course Descriptions

Camstar Education Portal

Introduction to the Camstar Education Portal

Camstar Education Portal
Introduction to Camstar Education Portal

This learning event is a pre-requisite to engaging in Camstar online training. It introduces the learning management system (LMS) and provides information about how to navigate the Education Portal and how to engage with Camstar Education to meet all your training needs on Camstar products. When you register for the Camstar Education Portal, this course will be included in your My Courses section and should be completed before other required or elective courses.

Camstar Portal User Interface

Camstar Training	Camstar Training	Camstar Training	Camstar Training
100.1	100.2	100.3	100.4
Camstar Portal Login and Security	Navigation in the Camstar Portal	Portal Menu Definitions	Modeling the Factory in Camstar Portal

100.1 Camstar Portal Login and Security

This learning event provides instructions related to the login to the Camstar Portal and security associated with Camstar products. Regardless of the Camstar products you are working with Camstar Portal login and security are consistent across the entire platform. This course provides the basic information you will need about log in credentials and system security. It is good information for everyone and vital information of system administrators responsible for setting up users.

100.2 Navigation in the Camstar Portal

This learning event provides instructions related to navigation in the Camstar Portal, page layouts, icons, and conventions that form a standardized user experience. The “Camstar Portal Login & Security (100.1)” learning event should be taken as a prerequisite to this learning event. It also has a companion learning event Portal Menu Definitions (100.3) that describes how to configure a menu and associate it with a system user. This learning event will concentrate on page and part navigation within the portal user interface.

100.3 Portal Menu Definitions

This learning event provides instructions related to how to form portal menu definitions to support users of the system by providing an efficient system user interface. The “Camstar Portal Login & Security (100.1)” and “Portal Navigation (100.2)” learning events are complementary to this learning event.

100.4 Modeling the Factory in Camstar Portal [*coming soon](#)

This learning event provides instructions related to how to configure the Factory Information Model using pages in the Camstar Portal. The “Camstar Portal Login & Security (100.1)” and “Portal Navigation (100.2)” and “Portal Menu Definitions (100.3)” learning events are complementary to this learning event.

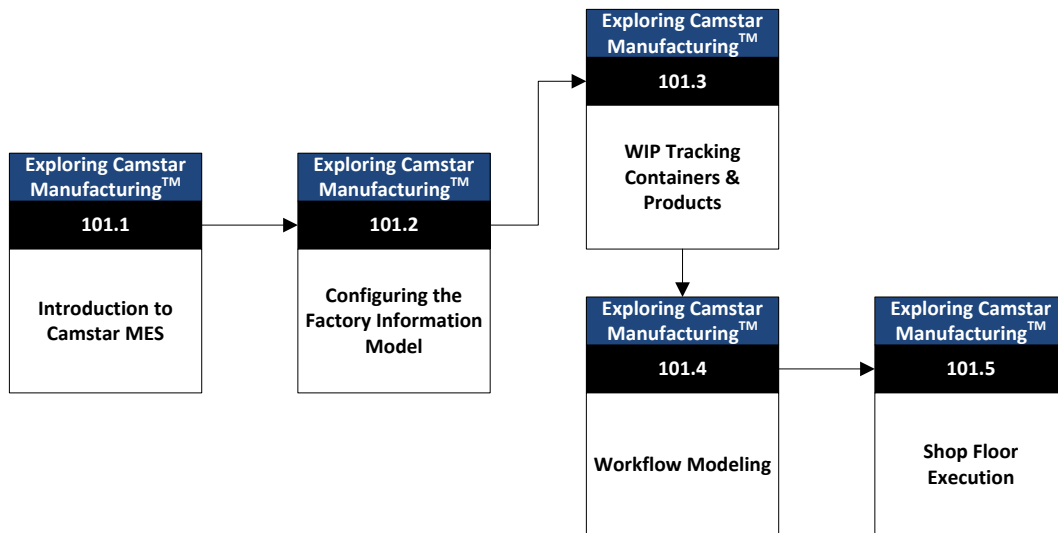
Camstar Enterprise Platform

Training in these catalogs are on both v5 and v6 of the Camstar Manufacturing Product.

Exploring Camstar Manufacturing

The purpose of this course is to teach users how to use Camstar to configure a Factory Model; how to navigate in the Camstar Portal as you learn the transactions available for processing work within your model; and the functionality available to configure and tailor the Camstar solution to fit your specific project requirements. This course will also explore the basic concepts and principles behind Camstar Manufacturing and how they relate to manufacturing operations.

Exploring Camstar Manufacturing is the foundation and entry point to understanding Camstar and implementing a solution in your factory. Exploring Camstar Manufacturing is made up of multiple learning events to allow users to quickly locate specific topics of interest and to focus on training as it is needed.



These learning events form the foundation of the out of the box Camstar MES and should be completed in the prescribed sequence.

101.1 Introduction to Camstar MES

This learning event is an introduction to Manufacturing Execution Systems (MES) and the Camstar MES specifically.

101.2 Configuring the Factory Information Model

This learning event introduces the Factory Information Model and describes the elements that make up the Physical, Process, and Execution models to form a computer model of your factory environment in support of shop floor activity.

101.3 WIP Tracking, Products and Containers

This learning event explains how Camstar MES addresses *work in process tracking* by using uniquely identified *containers of products*. It includes information about some supporting objects in the Factory Information Model like container levels, product families, and user codes.

101.4 Workflow Modeling

This learning event explains the structure for building workflows including operations, specs, steps, workflows, and user codes. You will learn how to manage container movement on a workflow to model the specific requirement of your production processes.

101.5 Shop Floor Execution

This learning event introduces basic out of the box single function transactions to effect changes to containers on the shop floor or to indicate movement of work in process. It includes a description of the state and status of work in process.

These learning events build on the foundation of the out of the box Camstar MES by providing additional product capability, functionality, and controls in support of your Camstar Manufacturing implementation. These learning events can be completed in any sequence.

Exploring Camstar Manufacturing™
111
Electronic Procedures

Exploring Camstar Manufacturing™
112
Material Control

Exploring Camstar Manufacturing™
114
Configurable User Data Collection

Exploring Camstar Manufacturing™
115
Managing and Attaching Documents in Camstar

Exploring Camstar Manufacturing™
113.1
Manufacturing Audit Trail

Exploring Camstar Manufacturing™
113.2
Modeling Audit Trail

Exploring Camstar Manufacturing™
113.3
Container Search

111.0 Electronic Procedures

Electronic Procedures allow for configuration of tasks that include data collection, computations, transaction execution, and instructions to shop floor users. They can be configured as a users primary interface to perform work and view shop floor information. This learning event teaches how to configure the objects that make up Electronic Procedures, how to deploy them in your factory model, and how to perform the tasks in the system. It is comprised of 3 parts. Part 1 is a general overview of Electronic Procedures. Part 2 addresses model configuration. Part 3 covers executing transactions and performing tasks within the eProc framework.

112.0 Material Control

Material Control is a key capability of the Camstar MES and provides the ability to track production at all levels of material consumption. The Bill of Materials provides visibility and control of parts, components, raw materials, or products consumed to make a final product. This learning event explains how products by type are used to provide tracking and control as materials are issued on the shop floor. It includes the modeling objects required and optional and the transactions that support material control.

113.1 Manufacturing Audit Trail

Every action performed in the system is written to the database. The Manufacturing Audit Trail is a configurable tool to view current status, historical information, and details related to work in process.

113.2 Modeling Audit Trail

The Modeling Audit Trail provides visibility of changes to the instance data to build a factory information model. Instances of modeling objects added, updated, or deleted are tracked in the Modeling Audit Trail and visible to Modelers for each object in the model. A separate page is available to allow non modeler users of the system to retrieve audit information about modeling. This learning event covers the Modeling Audit Trail in the Modeling function and as a stand alone page.

113.3 Container Search

This learning event covers the Container Search page and how to use it to locate work in process and perform transactions on one or more containers based on the dynamic transaction buttons embedded in the Container Search page.

114.0 Configurable Data Collection

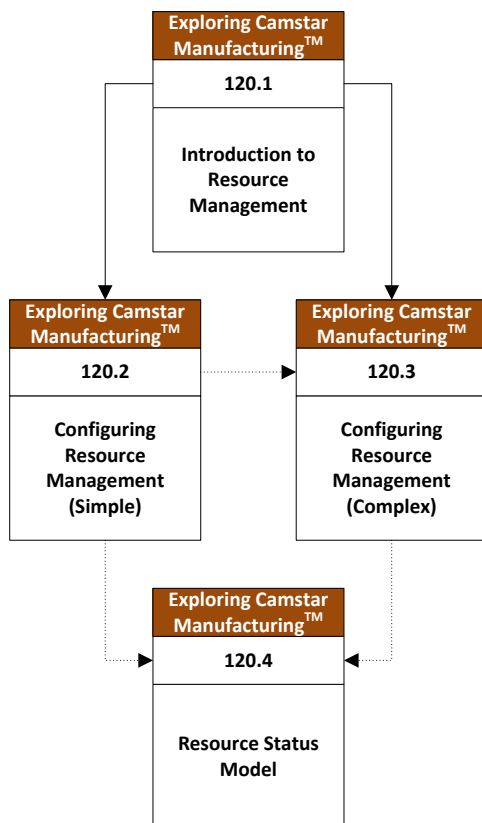
Data to be recorded on work in process associated with tests, measurements, or observations on inspection can be configured as a function of modeling using User Data Collection and linked to transactions performed at steps in the workflow. This learning event covers model configuration and execution on the shop floor to record configured parametric data.

115.0 Managing and Attaching Documents in Camstar

Camstar Manufacturing allows you to define a pathway to, or upload files and view them within the context of the system. These files are modeled as Documents and can include information such as machine setup instructions, work instructions, and diagrams.

Resource Management Course

These learning events build on the foundation of the out of the box Camstar MES by providing additional capability, functionality, and controls in support of resources (machines or tools) used in your Camstar Factory Information Model.



120.1 Introduction to Resource Management

This learning event provides an introduction to the objects that form Resource Management capability in Camstar Manufacturing and how they are used in shop floor tracking to provide information pertinent to equipment use and efficiency. The Resource Set Up transaction used to effect a change to the status of a resource is discussed. There are two learning events subsequent to this one that provide examples of simple and complex use of resources.

120.2 Configuring Resource Management (Simple)

This learning event provides an example of simple use of resources in manufacturing to record equipment or tools used as containers are processed on the shop floor. It covers how to define and group resources and mapping them to specs to provide lists users can select from as work is processed.

120.3 Configuring Resource Management (Complex)

This learning event provides a more complex example of Parent and Child resources and how they work together to provide work stations and work cells for processing multiple containers across many machines within a workflow step. This learning event also describes the Line Clearance capability used to manage and control how work is distributed on resources.

120.4 Resource Status Model

This learning event describes the objects used to form a state model that ensures resources are managed according to your equipment specifications. You define the states and how equipment transitions from one state to another when a machines is down and progressing back to an in production state.

Exploring Camstar Manufacturing Feature Modules

Feature Modules are separately licensed features that fit on top of the base Camstar Manufacturing product to extend product capability and functionality. The Education Portal contains eLearning courses for 5 licensed modules on Camstar Manufacturing.

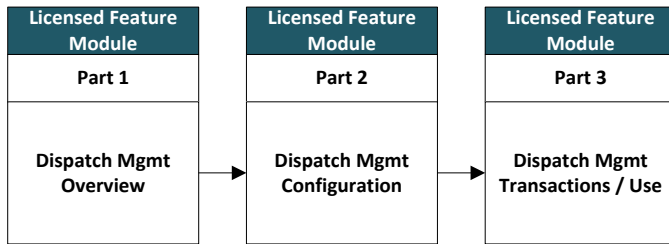
The feature modules are developed in parts as described below:

Part 1 provides an overview and introduction to the licensed feature module. It is appropriate for project managers and sponsors who are not involved in the model configuration or shop floor execution. It is also appropriate for all audiences, modelers responsible for configuration and users.

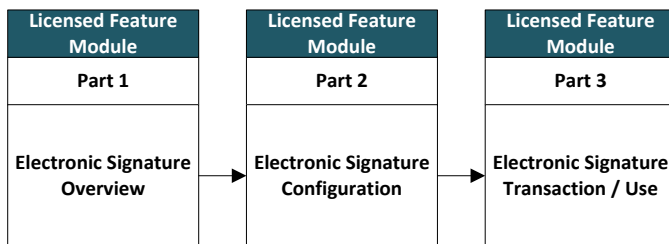
Part 2 introduces the objects that make up the feature and how they relate to the factory information model. Modeling sequence is described.

Part 3 describes the execution or transactions related to the feature module and how data is used by the system to manage or control shop floor activity.

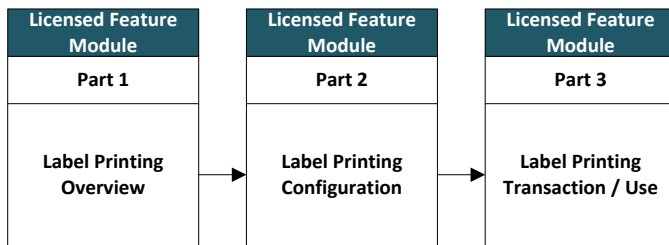
Dispatch Management



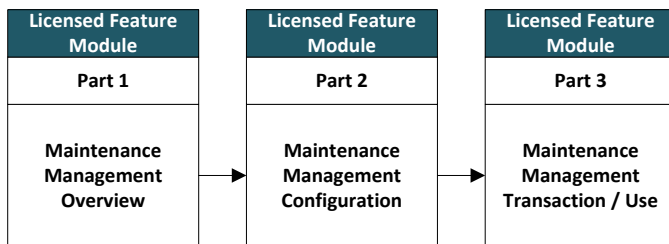
Electronic Signatures



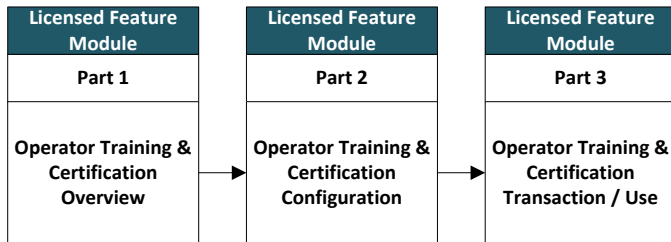
Label Printing



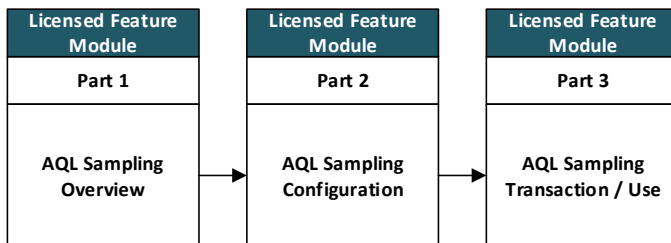
Maintenance Management



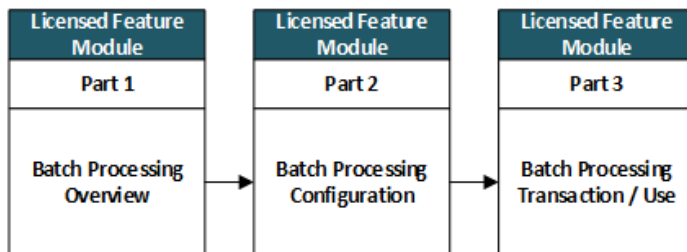
Operator Training & Certification



AQL Sampling



Batch Processing

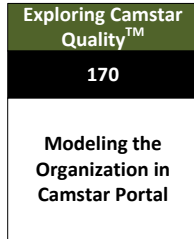


Exploring Camstar Quality

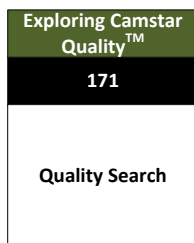
The Camstar Quality curriculum is in development and expected for release sometime in 2015. The following learning events are included in the CQ curriculum.

170 Modeling the Camstar Quality Organization

The purpose of this course is to teach users how to use Camstar Quality to configure a Organization Model for tracking nonconformances or quality events. It is a pre-requisite to the licensed feature modules.



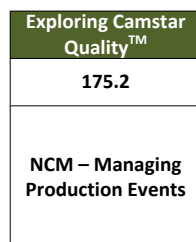
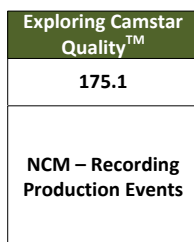
171 Searching Quality Records *coming soon



An elective course on how to search quality records is also provided. This learning event will also discuss the Concierge and Message Centers used to provide lists of quality records to users of the system.

Exploring Camstar Quality Feature Modules

Feature Modules are separately licensed features that fit on top of the base Camstar product to extend product capability and functionality. The Education Portal contains eLearning courses for 2 licensed modules on Camstar Quality.



175.1 NCM Recording Production Events

This learning event describes the pages used to record nonconformances in your system. It builds on the organization model configured in the 170 learning event.

175.2 NCM Managing Production Events

This learning event describes the pages used to manage nonconformances in your system. It builds on the organization model configured in the 170 learning event and the recording of production events as described in 175.1.

Exploring Camstar Quality™	Exploring Camstar Quality™
185.1	185.2
Event Management – Recording Events	Event Management – Managing Events

185.1 Event Management Recording Events **coming soon*

This learning event describes the pages used to record events that are not production related in your system. Quality incidents can happen anytime and anywhere and may not be related to work tracked in you Camstar MES. It builds on the organization model configured in the 170 learning event.

185.2 Event Management Managing Event Records **coming soon*

This learning event describes the pages used to manage event records in your system. It builds on the organization model configured in the 170 learning event and the recording of nonproduction events as described in 185.1.

Camstar Semiconductor Suite

The Camstar Semiconductor Suite curriculum is in development and additional training offerings will be continually released.

Exploring Camstar Semiconductor Suite

The purpose of this series of e-learning modules is to teach users how to use Camstar Semiconductor Suite to configure a Factory Model; how to navigate in the Camstar Portal as you learn the transactions available for processing work within your model; and the functionality available to configure and tailor the Camstar solution to fit your specific project requirements.

200.1 Introduction to Semiconductor Suite

"Introduction to Camstar Semiconductor Suite" is the foundation and entry point to understanding Camstar and implementing a solution in your factory. It is a prerequisite to all other courses offered in the Camstar Semiconductor Suite curriculum.

200.2 Semi Camstar Portal Navigation (Transactions)

This learning event:

- Introduces the three sample process models commonly found in Semiconductor manufacturing.
- Describes the general layout of the UI that it used to perform transactions in Semiconductor Suite.
- Describes the transaction page ("one stop shopping page"), WIP Main and Equipment WIP Dispatch.

200.3 WIP Tracking – Products / Lots

The ability to track work in process (WIP) is critical for the Semiconductor manufacturers. WIP Tracking is a key capability of Camstar Manufacturing and also a primary reason manufacturers seek out Camstar MES application (Semiconductor Suite).

200.4 Exploring Semiconductor Front End

This introductory course introduces a sample model that is applicable to the frontend of the semiconductor manufacturing flow. This model is a simplified Fab processing process and will be referenced when introducing the Camstar functionalities/features in subsequent eLearning courses.

200.5 Exploring Semiconductor Back End

This introductory course introduces a sample model that is applicable to the backend of the semiconductor manufacturing flow. This model is a simplified Assembly, Test and Packing process and will be referenced when introducing the Camstar functionalities/features in subsequent eLearning courses.

200.6 Exploring Semiconductor Probe Process

This introductory course introduces a sample model that is applicable to the probe process of the semiconductor manufacturing flow. This model is a simplified Wafer Probe process and will be referenced when introducing the Camstar functionalities/features in subsequent eLearning courses.

221.1 Min Max Windows

Min – Max stands for Minimum and Maximum. Time Windows are defined relative time segments in which shop floor manufacturing events must occur. In Semiconductor Manufacturing, there are time constraints placed on some types of processing. Violation of these time constraints can result in defects. Sometimes a minimum amount of time is required for processing at a step.

221.2 Supplementary Specs

In Semiconductor Manufacturing, there is a need for customized processing on a specific lot. As an example, a lot may be designated for experimentation on a workflow that performs operations specifically for the experiment – these are unique and separate operations that are not part of the standard processing. Semiconductor Suite allows for the modeling of this type of processing which is sometimes referred to as a planned or ad hoc reassignment. The feature is called Supplementary Specs.

221.3 Lot Modifications

The Semiconductor Suite MES allows for the changing of a lot attribute value at any time and for any reason. The access to this feature is often controlled so that only supervisors and production engineers can make the change without resulting in misprocessing. The change could be beyond the scope responsibilities of an operator on the factory floor.

221.4 Tools Plans *coming soon

In Semiconductor Manufacturing, there is a need to manufacture specific product through specific tools on equipment. The tools must be associated with the equipment and changed based on the product that is going to be processed. A tool plan provides this functionality to force specific tools to be used for equipment based on specific product processes.

221.5 Semi – Binning and Grading *coming soon

In Manufacturing, there is a need to assign a quality grade to products and sort products based on a grade. Products with a different quality grades can be used in different grade and this grade can align with different customers. Associated with grading is the process of placing the products into bins based on grades. The process is called “binning.”

221.6 Semi – Yield Calculations *coming soon

Yield Control is used to test the output of a process step based on rejects, bins and data collected. Yield calculation is triggered at the following events: Complete Insertion, Post Process Bins/Rejects/Data Collections and Move out. Yield limits are based on a set of criteria used to indicate which limits to reference; Common Limits, Lot Size limits, Loss Reason Limit and Bin Limits.

Yield Handler, Yield Control, Yield Calculation and Yield Limits all reference the same base functionality.

221.7 Label Printing for Semi coming soon

The solution available for printing labels from the Semiconductor product is a separate application (windows service) that process print requests transacted from the Camstar Manufacturing Semi Suite. It can be configured and deployed with the initial implementation of the Semiconductor MES tracking or as an add on in later phases. For this reason it is provided as a separate training feature module.

Camstar Interoperability – CIO

400 Introduction to CIO

The goal of this course is to introduce CIO and provide perspective on how CIO may be leveraged to support a Camstar installation.

401 CIO Message Object

This course defines what a message is, describes the types of objects that represent a “message” within the CIO system, and introduces the concept of message properties and their use inside CIO.

402 CIO Modeling Objects

This course consists of 6 modules and reviews and classifies the various types of common CIO modeling objects required to configure basic inbound and outbound touchpoints.

403 CIO Channel Adapter Host

This course will explain the role of the Channel Adapter Host within the CIO system and describe how it may be configured for use in single-server and fault-mitigating server configurations.

404 CIO Broker Service

This course describes how messages are processed inside of CIO by the Broker Service.

405 CIO Message Routing

This goal of this course is to provide greater understanding of the function of the CIO Router service.

406 CIO Logging

The goal of this course is to provide greater understanding of what information is stored in the CIO Logs and methods used to view log contents.

406 CIO Workflows and Workflow Designer

This course describes the purpose of Workflows in CIO and introduces the CIO Workflow Designer tool. Topics include modifying existing workflows, compound message structure and compound workflows.

407 CIO Message Mapping

This course reviews message mapping inside of CIO and includes information about: The purpose of maps, referencing XML via XPath, utilizing message maps, the Map Designer Interface, mapping lists and mapping multilevel lists.

Camstar Delta Training

Software Development Lifecycle

This training describes changes in Camstar's release naming format.

Import / Export Training

Camstar has long supported Import/Export from and to the Modeling Database. Manual Export is a standalone process to select modeling instance data and saving it to an export file (from the current modeling system) Manual Import is a standalone process to consume an export file (into the current modeling system) These two processes complement each other and are usually employed in sequence (Export followed by Import). An export file can be physically moved from one system to another.

Minor Enhancements

This training briefly describes minor enhancements to Camstar v5 thru release v5.8 and includes the following:

- 1) Allowing for the Comment Log information captured as part of an event to be displayed in the Mfg Audit Trail
- 2) Defaulting the Resource field on the Move page if the Resource was set on a Move In
- 3) Pressing Enter on the modeling copy acts as if the Copy button was pressed
- 4) Enhanced Mfg Audit Trail page to allow exporting the History Mainline grid to Excel by default
- 5) Enhance Eprocedure to remain in the same operation once a container has completed its tasks and the last task moves it out of the step
- 6) Enabling certain shop floor action buttons to be available in both View and Edit mode
- 7) Defaulting the static selection values in Designer when adding an NDO, RDO or enumeration, so you don't have to default it manually
- 8) Automatically placing the cursor position in the username field when loading the Login page
- 9) Enhancement to allow WIP Messages to work with Immediate Action transactions and Dynamic Action Panel

Portal / Portal Studio Enhancements

This training affects users of the Portal and Portal Studio and discusses the various enhancements made to the Portal and Portal Studio in version 5 thru 5.8.

Modeling Framework

This training discusses how the modeling framework was built out to incorporating Modeling into the Portal. This change was made to bring the shop floor and modeling together in one location, the shop floor was migrated to the portal in v5.1

Grid Control

The grid control in the portal has several different modes for displaying and entering data. Grid Control affects developers in Camstar. Depending on the need, data can be presented and accessed in different ways such as read only modes, Read-write modes, etc.

Workflow Viewer Control

A new workflow viewer control was introduced when the Modeling framework was moved to the Portal. It eliminates the dependencies on Infragistics.

Pre-Release Review Notes

The below Pre-Release Review Notes are available in the Camstar Education Portal. Pre-Release notes include powerpoint and demo of functionality in an upcoming release. This section along with Bridge training are intended to keep you informed of product changes over time.

V6 Pre-Release Review SU 1 through 13

V6 Semi SU7 Pre-Release Review

Resource Center

You will find valuable information in the resource center in the form of white papers, how to instructions, instruction video's and demonstrations, as well as a Master glossary of terms. This section of the Education Portal will change frequently as new materials become available, so check back often.

Master Glossary of Terms:

Key terms identified in training are defined in a searchable glossary

White Papers:

Thruput

This white paper describes how Camstar manages thruput at operations to provide production quantity reporting by shift or by resource.

WIP Messages

Situational messages based on container attributes can be configured and delivered to users. This configuration includes the ability to require acknowledgement or place containers on hold. The messages and actions taken are written to history and this learning event teaches configuration, use in the factory model, and visibility of recorded messages.

Multi-Container Hierarchy

This white paper discusses the ability to track containers within containers to effect changes or record data on many containers with a single transactions. The transactions used in Multi-Container tracking are discussed in this white paper and examples are provided.

Bill of Process

This white paper discusses the ability to establish spec overrides based on specific containers, manufacturing orders, or products.

Data Migration

This white paper discusses the methods available for migration of data from one environment to another. It is complemented by a video presentation.

Container Attributes

This white paper describes configurable user attributes that can be defined and mapped on Container object and transactions.

Email Notification

Email notifications can be configured, stored, and distributed by the system based on specific system actions. This learning event introduces how to configure and use email notification.

Business Rule on Container Transactions

This document was written to describe a method of configuring business rule execution on a container service. The purpose of this document is to explain the required Designer and modeling configuration in Camstar Manufacturing which allows the system to perform this action.

Label Printing Configuration

This Label Printing Configuration document explains the usage of the Label Printing Module.

How to Migrate Roles, Menus and Pages

This document describes the steps needed to configure Roles, Virtual Pages and Portal Menu Definitions in a subsequent Camstar environment.

Labs

Structured labs on a storyline are provided for download from the Education Portal for learning events where appropriate. Access to a stand alone training model environment is necessary to perform the labs as written. Camstar provides hosted lab environments for a fee. Contact Camstar for information on training model environments to support hands on practice of concepts learned.

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To request subscription pricing, access to lab environments, or other information please contact SmartCamstar.plm@Siemens.com