Opcenter™ Execution Process (EX PR) software (formerly known as SIMATIC IT Unified Architecture Process Industries) is Siemens' manufacturing execution system (MES) for the process and consumer packaged goods industries. Opcenter Execution Process can help you increase traceability, manage orders more efficiently and monitor production in real time – all based on a state-of-the-art platform and app approach.

This release brings new functionalities to facilitate weighing and dispensing projects, notably regarding scales management and connectivity. Leveraging Opcenter Connect (formerly MIO), serial scales can be connected in real-time to the new widget that guides the operator through the weighing operation by displaying the target weight (setpoint) and the current weight at the scale, but also relevant data such as tare, scale stability, minimum and maximum quantities and more.

The new scale widget was carefully crafted to create an optimal user experience. Readability and user interaction were designed for shop floor operators. The widget will make use of colors, text positioning and focus areas to help the operator quickly and accurately perform the weighing operation.

Weighing operations often need to be calculated to set the target weight and minimum and maximum quantities. New properties have been added to enable these calculations considering the density and potency of the material or lot. Additional properties for lot expiration control have also been added. It is now possible to define standard material validity duration and time lapse, which can be used in production. When creating a new lot, these time ranges will be calculated for expiration date and limit date for use in production.

Opcenter EX PR 3.2 introduces two brand new tasks to manage material allocation and consumption. The material preparation task allows the operator to scan a material tracking unit (MTU) and define a quantity to be prepared/allocated to the work order. The MTU split is automatically carried on, allocating the new MTU resulting from the transaction. The task is completed once the operator has prepared/allocated all the items in the material requirement list, with their respective minimum required quantities.

The new material consumption task allows the operator to scan a material tracking unit to consume it into the work order. If the MTU has been previously prepared/allocated, then the consumption is performed automatically, allowing...
What’s new in Opcenter Execution Process 3.2

the operator to repeatedly scan MTUs without interruption, which is ideal for consuming production kits. The consumption task is also independent from the preparation task, and it is not mandatory to have prepared the MTU prior to consumption. The task will verify if the scanned MTU is expected in the material requirement list. If there isn’t a match, the operator will be prompted for a confirmation before proceeding with the MTU consumption. When the expected quantity for a certain material is reached, the task marks the line as completed with a check mark and a green background.

Both tasks make use of the new functional transaction pattern, which provides full transaction traceability, production history and material genealogy. This new traceability pattern is a comprehensive concept applicable to any chain of manufacturing actions involving resources such as lots, MTUs and equipment. Each transaction publishes data through events, signals and Opcenter Connect messages, allowing for further custom extension or data exchange with third-party systems. The pattern is also applied to other tasks such as sampling, equipment allocation and release.

The sampling task has been enhanced to provide additional parameters for sample creation and follow-up, such as material lot and material revision. The wait task is now capable of holding the overall laboratorial analysis result for a given sample (for example, accepted or rejected), which facilitates the design of expressions and conditions in the workflow for decision-making regarding the sample.

Samples can now be found in the search engine and the resulting search card will display most relevant data, such as sample type, material, lot and result. The card enables drill-down navigation to view the material tracking unit associated with the sample and its genealogy.

Designing the quality execution and control processes in a workflow can become quite complex depending on the scenario, which is why the user manual now provides a chapter dedicated to the topic, explaining how to design a workflow that will trigger and control quality activities based on timers or even counters such as produced units or consumed quantity. The detailed instructions are available as best practices, enabling process engineers to tackle these challenges.

The new import and export capabilities support the data transfer between different environments such as development, quality and production. Even complex structures such as work masters, operations and specifications can be exported and imported easily by any user given the proper access rights.

The operator cockpit is enhanced with better performance and greater usability. Operators will now benefit from easy access to task primary actions right from the tiles, so, for example, they will be able to start or resume tasks with a single click. The operator can also define task filters according to their needs, define multiple views and quickly switch between them. They could, for example, define a task list view for a piece of equipment and another view filtering tasks of a specific work order. The new full-screen user interface for task execution is ideal for complex tasks, and it includes a new header with key information, which can be replaced by a custom component.

Finally, by continuously improving the user experience, in this release we are able to provide revised user interfaces for work master and work order management. The available columns and tile properties were reviewed for optimal readability and the users can now choose additional data to be displayed and compose their own views.

Features
Scale management, connectivity and graphical user interface
• Define scale configurations and their communication channel
• Define multiple scale ranges according to the weight supported by the physical scale and their precision
• Open scale connectivity architecture leveraging on Opcenter Connect
• Advanced scale widget (user interface) available for custom pages, capable of displaying the target weight, minimum and maximum quantities, tare, scale stabilization and more
• The scale widget guides the operator through the weighing process in real-time with optimal user experience
• Detailed development guide with code examples for faster implementation

Material and lot properties for manufacturing processes
• Define material tolerance for weighing and consumption processes
• Define material density and potency to be used for quantity set-point calculation
• Define material validity duration and the time lapse that can be used in production
• Lots will inherit manufacturing properties from material definitions, which can be overridden at any time

Material preparation task
• The operator scans a material tracking unit and define the quantity to be prepared/allocated to the work order
• The task will split the scanned MTU and allocate the new MTU resulting from the transaction
• Full transaction traceability and genealogy
Material consumption task
- The operator scans a material tracking unit to consume it to the work order
- Previously prepared MTUs can be scanned repeatedly without interruption, which is ideal for kit consumption
- MTUs that have not been prepared can also be consumed and the task will check if the scanned MTU is expected in the material requirement list
- Consumption traceability and genealogy

New tracing pattern for production events and resource operations
- A functional transaction is a chain of manufacturing actions involving resources (material lots, MTUs, equipment) that may affect process execution
- Each functional transaction generates its own technical and functional traces, and can also publish messages through events, signal and Opcenter Connect messages
- Sampling and quality control enhancements
- Additional sampling task parameters such as material lot and material revision

Search samples
Find samples in the search engine by ID, name, description or sample type
Main sample properties are available in the search card, such as sample type, material, lot and result
Drill down from the search card and view the material tracking unit associated with the sample and its genealogy

Import and export data across different environments
- Exchange data from reference and master domains from one environment to another
- Complex process entities such as work masters, operations and specifications are also supported
- Any user can easily export or import data according to their access rights

Operator cockpit enhancements
- Enhanced usability, greater performance loading tasks
- Quick access to tasks primary actions, such as start or resume
- Create multiple task views with configurable filters
- New full-screen user interface for task execution and details, including new header that can be replaced by custom component
Barcode parser
• JavaScript service designed to read and decode barcodes
• Can be integrated into custom user interfaces

• Preconfigured with GS1 field to read material tracking units
• Barcode codification can be configured and extended
• Technical documentation available for developers

Production context available as general setting
• The production context is especially useful to define an operator’s workstation (equipment) or their type of activity (work order type)
• It is now easily accessible from the navigation menu and its values are visible at all times at the application header

User experience enhancements
• Revised management user interface for work orders and work masters
• Reviewed grid and tile properties for optimal readability
• New optional grid and tile properties allow for view customization according to user preferences