Critical manufacturing
an ASM PT company

Scheduling Labor

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scheduling

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In certain manufacturing environments, particularly when the production process consists of manual assemblies and operations, labor may be the restricting factor, as a pool of Employees may be responsible for executing a large spectrum of operations. Considering that there may be multiple Shifts and Teams which rotate throughout the day/week, that each Employee may have his own Calendar as result of absenteeism, sick leave and vacations, and also that each Employee may have his/her own set of skills/Certifications, this can become a constraining factor.

Scheduling supports labor scheduling, in other words, constraining the operations execution to when both required Resource and Employee are available.

Info

Labor scheduling significantly worsens the time performance of scheduling. Activate it only when labor is a constraining factor.

In order to implement labor scheduling, it is necessary to:

- Activate labor scheduling
- Specify the labor availability
- Specify the labor demand

Activate Labor Scheduling

Activating Labor Scheduling is done through the Schedule, with four properties:

- Schedule Personnel - activates the functionality.
- Scheduled Personnel Mode - whether, in terms of labor availability, each Employee should only have his/her position considered, of if he/she is eligible to execute any of his granted Certifications. This only applies for the Resource Personnel Requirements, not to the Step Certification Requirements.
- Scheduled Personnel restrict to Area - whether each Employee should be consider just for Jobs in his Area, or all the Areas associated with the Schedule.
- Enforce Scheduled Personnel at Track-In - when executing the Schedule, the system will enforce, at *Track-In*, that the exact Employees that were scheduled are checked-in to the Resource (in other words, it is not just sufficient to have the correct quantity of Employees with the correct Certifications, it must be the ones determined by scheduling),

Specifying the Employee Availability

For Employees to be considered, the following steps are required:

- Create the required Certifications, and assign and grant them to corresponding Employees.
- Create the Teams for the Employees. Make sure that the Team's property Code is filled in. Assign the Employees to their respective teams.
- Create a Calendar.

- Create a ShiftDefinition, with as many shifts as necessary. For each shift, enter the Team Pattern by combining the Team Codes in order to represent the team rotation for that shift. For example, if there are three Teams with the Codes A, B and C, and if a shift has a Team Pattern of A, then it will always be the Team A allocated to that shift; if the Team Pattern is ABC, then in consecutive days with the same Shift Definition, the Team assigned to the shift will rotate in this way: A -> B -> C -> A.
- Associate the Shift Definition with the appropriate Calendar week days. Generate Calendar Days for the required horizon.
- Create a Shift Plan, and associate it with the Calendar. Add as many Workgroups as required. A Workgroup is a group of Employees with likewise Positions.
- Assign each Employee to a Team, a Shift Plan, a Workgroup and a Position.
- Generate Employee Calendar Days in the Shift Plan.

Specifying the Employee Demand

Resource Personnel Requirements

To implement labor requirements, the resource personnel requirements must be filled in for each Resource that requires employees. This is done in terms of Certifications, being possible to assign multiple Certifications to a single Resource. Also, for each Certification, it is possible to define these properties:

- Quantity: number of required Employees with this Certification
- Allocation Type: if the employee is required during Process, Setup or both
- Allocation: how much of the Employees allocation is to be spent in this Resource. In other words, a single Employee may be assigned to multiple Resources at once, so long as the sum of all his allocations is less than or equal to 1.

Step Certification Requirements

In addition to the Resource Personnel Requirements, it is also possible to define requirements in the Step Certification Requirements Context table, using the Step and, optionally, the Product or Product Group. If this is configured, then for all the Resource Personnel Requirement placed by the Resources included in the scheduling process, the system will only consider the employees which have not only the certification specified in the Resource Personnel Requirements but also the certification of the Step Certification Requirements, if the context applies. It is possible to see the Employee's allocation to a Schedule Scenario Job by selecting the Job, opening the details tab on the right, and expanding the Employees tab.

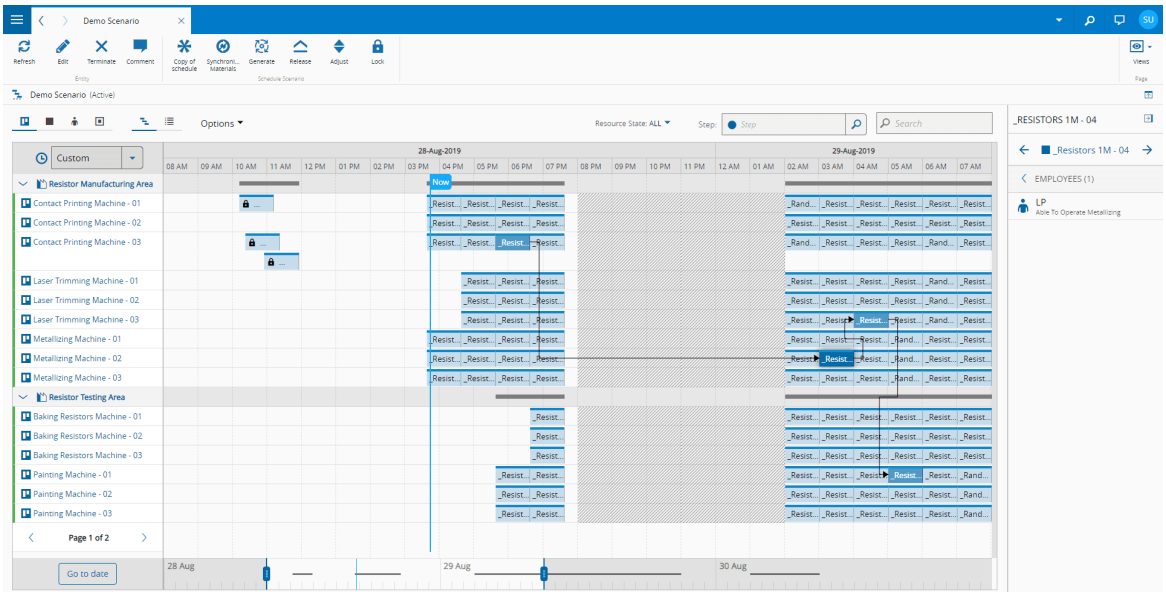
Info

Step Certifications are not considered if there are no Resource Personnel Requirements being demanded in Resources where the specified Step, Product or Product Group are being Processed.

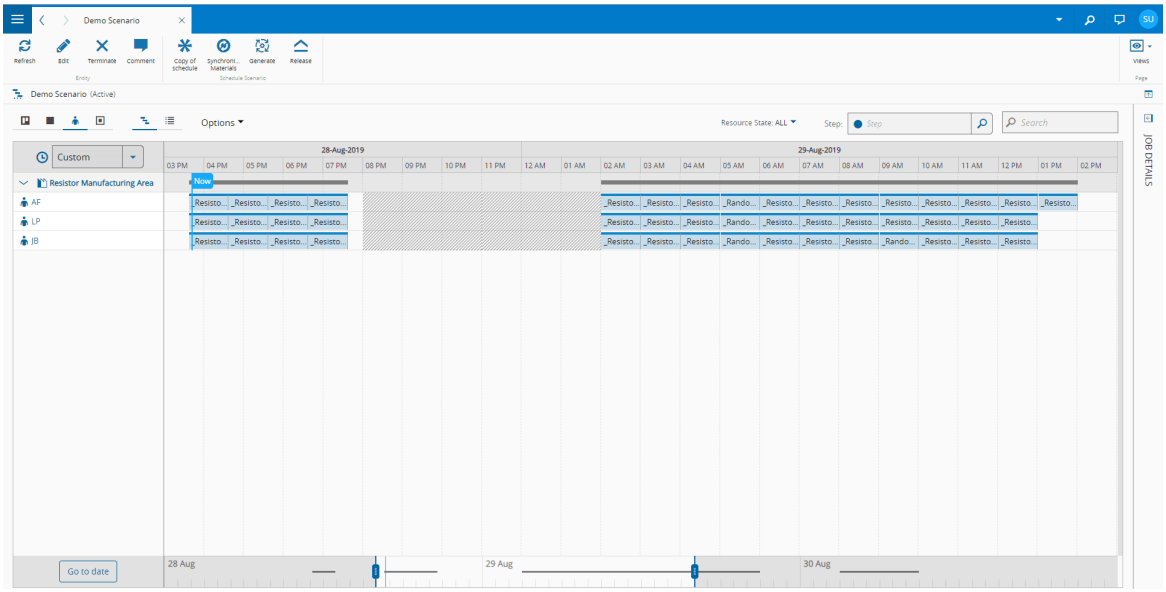
Info

Step Certifications are optional, that is, it is possible to just use the Resource Personnel Requirements to specify which Certifications should be scheduled.

It is possible to see the Employee's allocation to a particular Schedule Scenario Job by selecting the Job, opening the details tab on the right, and expanding the Employees tab.



In addition, by navigating to the Employee view, it is possible to see which Jobs are assigned to each Employee.



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