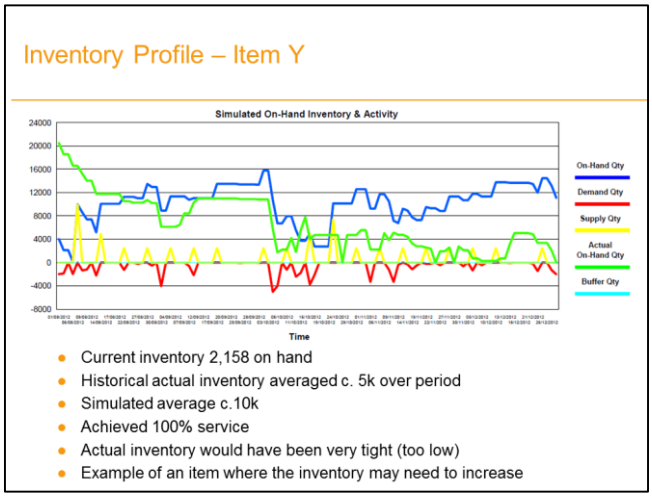
Orchestr8 Simulation

Demand-Driven Innovation. Epic Results.



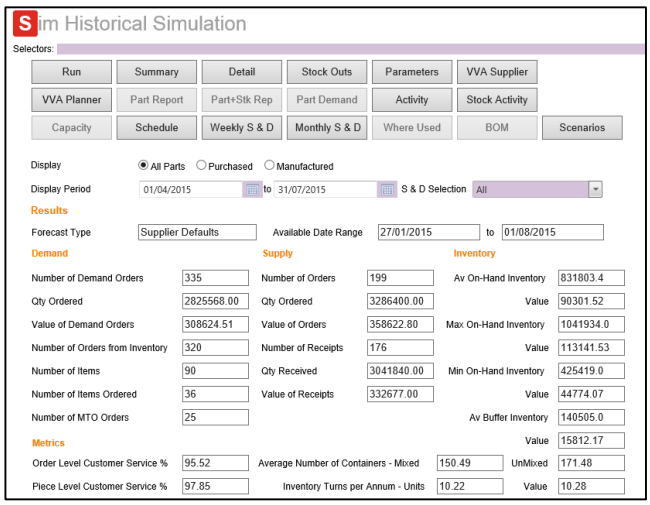
We all aim to optimize all kinds of aspects of our business, but we all also are aware it's very challenging to put reality in an optimization model. Nevertheless, we require insights which enable us to prevent poor decision making. More than ever, variability has become a constant factor in our life whereby we still need to make the best decisions. The ability to carry out "what-if" analysis that lead to a "best" setup of the supply chain is more and more appreciated. *Simulation makes us better understand how various components interact with each other and how they affect overall supply chain performance.*

Orchestr8 empowers businesses to do so by means of its module *Simulat8*. It's installed along with Oper8 and *allows users to model and plan across the supply chain.*

The module can cope with *historical what-if simulations* and with *forward simulations* to show the potential impact of the current forecast given existing parameters. Capacity planning reports are linked to the forward simulation functionality to allow resources and physical supply chain elements to be planned effectively. Results are generated in terms of likely stock profiles, number of transactions (make events, sales, orders and receipts), space requirements and resource required in man hours to support the model.

How does it work? We provide *five types of simulation capabilities*, being

1. Part Simulation
2. Historical Simulation on group of parts, BOM included
3. Forward Simulation on group of parts, BOM included
4. Forward Simulation Capacity
5. Historical Simulation Capacity

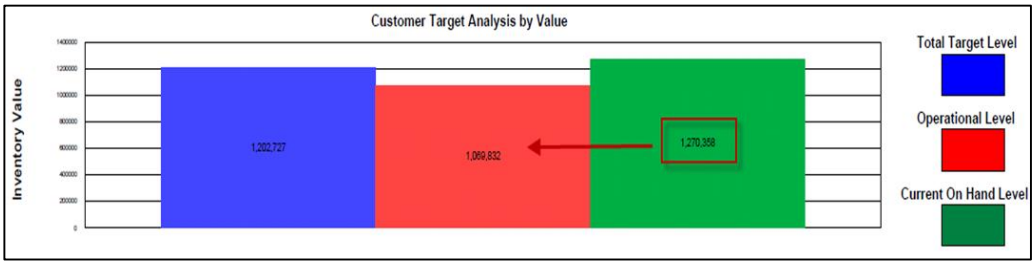


For a detailed description of these five types of simulation capabilities, we invite you to have a look on page 3 and further.

In both historical and forward simulations, key supply chain parameters can be altered (e.g.

forecast, lead time, service target etc.) to allow the impact of altering the operating rules in the supply chain. This allows quick impact analysis and business case development as well as supporting an analysis of Total Cost of Ownership for bought products.

Simulations can be run at item and group level giving users flexibility.



In brief

- Simulate using known historical demand data or forecast data
- Simulate items or groups of items
- Alter planning rules, dates, service levels, targets, lead time, MOQ, forecast or demand data to run different scenarios
- Ability to save and access scenarios after they have been run
- Run simulations across multiple nodes in the supply chain
- Full Bill of Material support in simulations
- Scenarios produce detailed supply chain planning outputs in terms of:

  - ✓ Orders / transactions
  - ✓ Service levels achieved
  - ✓ Inventory levels and turns
  - ✓ Capacity required – production and space
  - ✓ By volume and value
  - ✓ Drill down by product group or item

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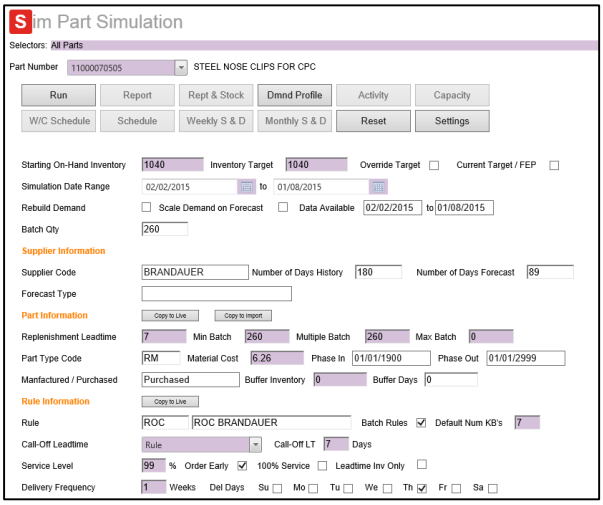
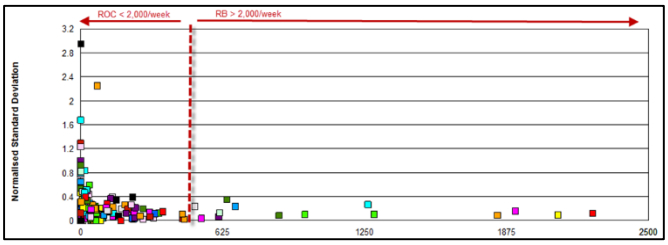
Part Simulation



Part simulation is a program that lets the user run a simulation of supply chain performance for one item over a defined period of history.

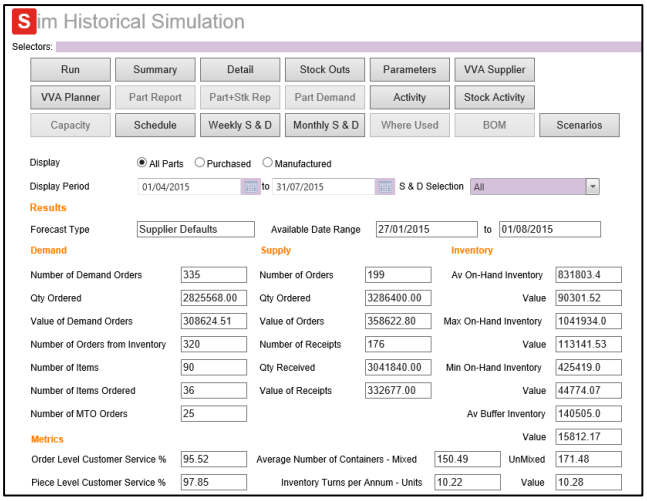
The programs start by calculating the inventory target that currently applies using the current inventory rules for the part. Having obtained the inventory target the program then re-runs history over the period defined in the start and end dates for the simulation range. The program uses the historical demand usage of the part over this period to simulate what new orders would be raised each day applying the appropriate inventory rule and target for the part or group of parts. Taking the expected leadtime for delivery we can then show when the inventory would be received into stock, and the resulting on hand inventory level.

The simulation therefore provides an on hand inventory level profile over the simulated date range as well as the number and value of orders raised and consumed. This can be used for capacity analysis purposes.



The Part Simulation page is highly functional and interactive, allowing the user to change parameters related to the part and rule information and re-run simulations to quickly compare results without affecting the current live master data settings. Part Simulation is typically used to validate the selection of inventory rules drawn from the VVA analysis.

Historical Simulation



The historical simulation is a program that lets the user run a simulation of supply chain performance for a group of parts over a defined period of history.

The program starts by calculating the inventory targets that currently apply using the current inventory rules for the parts in the group. Having obtained the inventory targets the program then

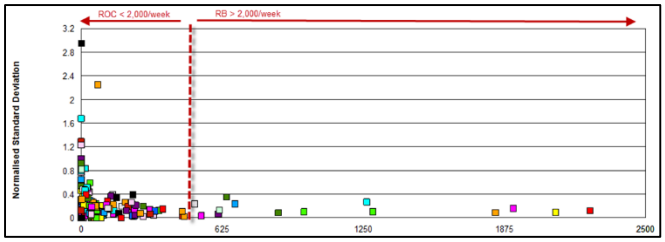
re-runs history over the period defined in the start and end dates for the simulation range. The program uses the historical demand usage of each part over this period to simulate what new orders would be raised each day applying the appropriate inventory rule and target for the parts. Taking the expected leadtime for delivery we can then show when the inventory would be received into stock, and the resulting on hand inventory level.

The simulation run therefore provides an on hand inventory level profile over the simulation date range as well as the number and value of orders raised and consumed, that can be used for capacity analysis purposes.

The historical simulation collects the results for each individual part and presents the results summarised by supplier, part type code or part number.

The Historical simulation has additional functionality that allows it to blow through a manufacturing BOM, to generate simulation results for multiple levels in the BOM structure, e.g. to simulate the performance and requirements for inbound inventory holding which is used to supply a factory environment and finished goods inventory position.

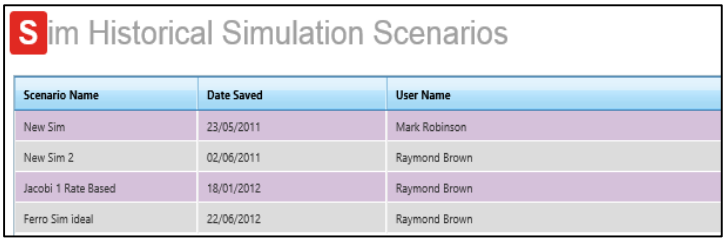
The Historical simulation page is highly functional and interactive, allowing the user to change parameters related to the part and rule information and re-run simulations to quickly compare results without affecting the current live part master data. These parameters can be easily reset to their original value.



Historical simulation is typically used to validate the selection of inventory rules created by using the VVA analysis.

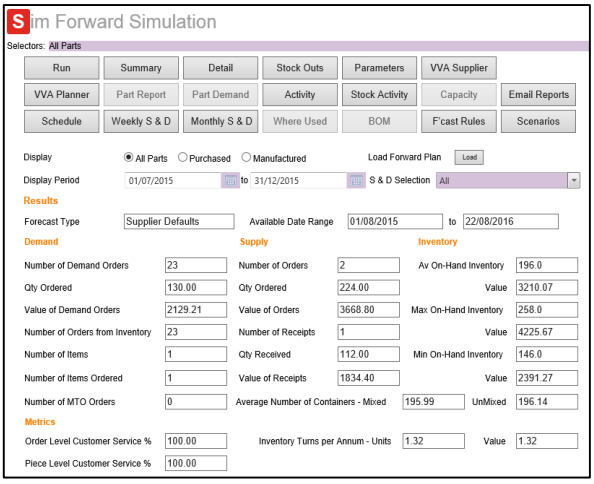
Historical Simulation Scenarios

The scenario capability allows the user to save results from group simulations. This screen allows the user to retrieve the scenario to review all of the associated options for that scenario. This screen also allows the user to manage the saved scenarios.


Sim Historical Simulation Scenarios

Scenario Name	Date Saved	User Name
New Sim	23/05/2011	Mark Robinson
New Sim 2	02/06/2011	Raymond Brown
Jacobi 1 Rate Based	18/01/2012	Raymond Brown
Ferro Sim ideal	22/06/2012	Raymond Brown

Forward Simulation



The forward simulation is a program that lets the user run a simulation of supply chain performance for a group of parts over a defined period into the future.

The program starts by calculating the inventory targets that currently apply using the current inventory rules for the parts in the group selected. Having obtained the inventory targets the program then runs a forward simulation over the defined simulation period going out into the future. The program uses the forward plan table for each part over this period to simulate what new orders would be raised each day applying the appropriate inventory rule and target for the parts. Taking the expected lead time for delivery we can then show when the inventory would be received into stock, and the resulting on hand inventory level.

The simulation run therefore provides an on hand inventory level profile over the simulation date range as well as the number and value of orders raised and consumed, that can be used for capacity analysis purposes. A secondary use of the forward simulation is to give a predictive forward ordering schedule. In this mode we can choose to include current inventory targets and current open orders in the simulation and then the program will calculate and add in the planned orders that we are likely to raise over the simulation period. This can be used as a predictive forecast plan for suppliers that require increased forward visibility.

The forward simulation collects the results for each individual part and presents the results summarised by supplier, part type code or part number.

The forward simulation has additional functionality that allows it to blow through a manufacturing BOM, to generate simulation results for multiple levels in the BOM structure, e.g. to simulate the performance and requirements for inbound inventory holding which is used to supply a factory environment and finished goods inventory position.

The Forward Simulation page is highly functional and interactive, allowing the user to change parameters related to the part and rule information and re-run simulations to quickly compare results.

Forward Simulation is typically used to validate the selection of inventory rules created well as creating capacity planning information.

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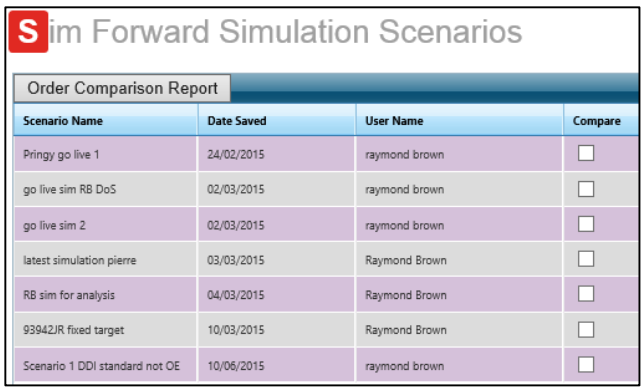
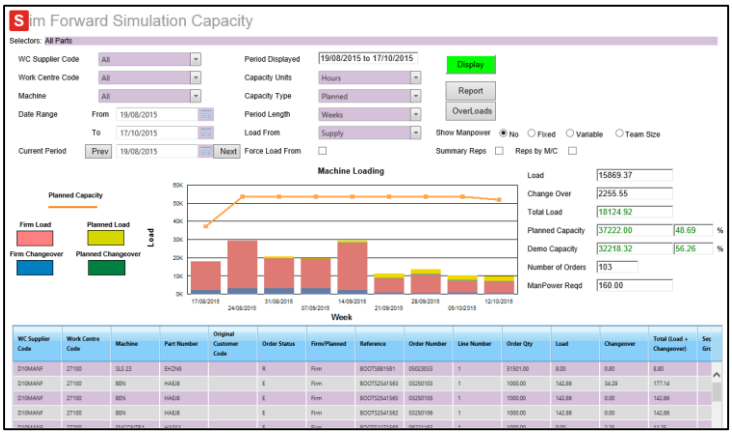
Forward Simulation Scenarios

The scenario capability allows the user to save results from forward simulations. This screen allows the user to retrieve the scenario the review all of the associated options for that scenario. This screen also allow the use to manage the saved scenarios.



Forward Simulation Capacity



This capacity screen provides the ability to review the existing firm orders alongside planned orders within the current capacity plan. This view clearly illustrates the loading by period and work centre with an indicator of the available capacity. The opportunity to consider machine or line change over requirements is also available.

This functionality should form part of a periodic (weekly or monthly) sales and operations planning process (S&OP) to assess and understand current and future capacity requirements.

Historical Simulation Capacity

This capacity screen provides the ability to review the historical actual loading on a work centre for a period in the past. This view clearly illustrates the loading by period and work centre, whilst indicating what the available capacity was for that period. Machine or line change over requirements is also included for review.