Asprova's "Pocket Manual" series No.2

Schedule Evaluation

Examine the results of rescheduling from many different aspects.
Run simulations and compare schedule results.

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November 2008 (Ver.6)
http://www.asprova.com/

What is a schedule evaluation?

Schedule evaluation is a function for evaluating, from a wide range of perspectives, the results of rescheduling. It is used to count and calculate such things as, for example, quantities and rates of manufacturing orders delayed in delivery date, number of unallocated operations, number of switches for each production item per resource, and average lead-time for each order. These evaluation parameters are calculated for all planning, for each order, for each product item and for each resource. Each is then stored in a schedule evaluation results table for each order, for each production item and for each resource. The calculations are made by schedule evaluation command, so that the evaluation can be embedded in the menu and made at any time required while rescheduling is going on.

For example, Figs. 1 to 3 below show an example of the evaluation parameters for all planning and that the evaluation results are stored and kept in the schedule evaluation table.

Property	Value	D
Default schedule evaluation parameter (08/11/08 18:17:	Default schedule evaluati	
Comments (0)		C
Evaluated time	2008/11/08 18:17:00	T
File		N
Number of late purchase orders	0	N
Number of late manufacturing orders	0	N
Number of late sales orders	0	N
Number of EST violation manufacturing orders	0	N
Number of unassigned operations	0	N
Number of operations assigned to dummy resource	0	N
Number of forcibly assigned operations	0	N
Number of time constraint violation operations	0	N
Number of res qty violation operations	0	N
Number of insufficient input qty operations	0	N

General | Evaluation | Order | Operation | Common | Internal | All pro

▲ Fig. 1 Basic tab for schedule evaluation results (property window)

Property	Value	Description
Default schedule evaluation parameter (08/1	Default schedule evaluati	
Number of purchase orders	0	Number of p
Number of manufacturing orders	15	Number of
Number of sales orders	0	Number of s
Number of event orders	0	Number of e
Number of inventory (absolute) orders	0	Number of i
Number of inventory (fluctuation) orders	0	Number of i
Purchase order LET achievement	0.00%	Percentage
Manufacturing order LET achievement	100.00%	Percentage
Sales order LET achievement	0.00%	Percentage

General | Evaluation | **Order** | Operation | Common | Internal | All pro

▲Fig. 2 Tab for results of schedule evaluation of orders (property window)

Property	Value
Default schedule evaluation parameter (08/11/08 18:17:00)	Default schedule eval
Manufacturing order lead time average	1.47 days
Manufacturing order lead time MIN	1.47 days
Manufacturing order lead time MAX	1.47 days
Wait time average (after subtracting time constraint MIN)	0.12 days
Wait time MIN (after subtracting time constraint MIN)	0 days
Wait time MAX (after subtracting time constraint MIN)	0.49 days
Wait time average	0.19 days
Wait time MIN	0.04 days
Wait time MAX	0.53 days
Setup time total	0.22 days
Setup time percentage	20.51%
Number of item changeovers	0
Load average	1.90%
Load MIN	0.00%
Load MAX	3.71%

General | **Evaluation** | Order | Operation | Common | Internal | All pro

▲Fig. 3 Evaluation tab for results of evaluating schedules (property window)

Figs. 4～6 show the properties for evaluating all orders, product types and resources. These evaluation results do not remain in the history, but are overwritten every time the **Evaluate schedule command** executes.

Property	Value	De
02	02	
Earliness		Th
Lateness	-9932M	Th
Earliness (time constraints MAX)		Th
Lateness (time constraint MAX)		Th
Number of not fully pegged output instructions	1	Nu
Number of insufficient input qty instructions	1	Nu
Insufficient input qty instructions		Lis

General | Spec | Settings | Assignment | Results | **Evaluat**

▲Fig. 4 The evaluation tab for the results of evaluating order schedules (property window)

Property	Value	D
ProductA	ProductA	
Inventory MAX (evaluation result)	140	R
Inventory MIN (evaluation result)	0	R
Manufacturing order lead time average (evaluation result)	3D7H12M	R
Manufacturing order lead time MAX (evaluation result)	5D4H24M	R
Manufacturing order lead time MIN (evaluation result)	1D11H12M	R

General | Spec | Settings | Inventory | Lot | Split | Fix | **Evaluation**

▲Fig. 5 The evaluation tab for the results of evaluating schedules for product items (property window)

Property	Value
Mixer1	Mixer1
Number of assigned operations (evaluation result)	15
Number of item changeovers (evaluation result)	12
Setup time total (evaluation result)	1540M
Number of time constraint violation operations (evaluation result)	0
Number of res qty violation operations (evaluation result)	0
Number of insufficient input qty operations (evaluation result)	0
Wait time total (evaluation result)	0S
Wait time average (evaluation result)	
Wait time MIN (evaluation result)	
Wait time MAX (evaluation result)	
Load average (evaluation result)	50.73

General | Spec | Settings | Split | Task | **Evaluation** | KPI | Skill

▲Fig. 6 Evaluation tab for the results of evaluating resource schedules (property window)

Properties for evaluating the entire schedule are output to the message table.

S	Message	Cate	Tim
	[Default schedule evaluation parameter] Start	Logi	200
	Target sales orders: 0	Logi	200
	Target mfg. orders : 15	Logi	200
	Production lead time average (per order): 4.76 days	Logi	200
	Late manufacturing orders: 2 (13.33 %)	Logi	200
	Target operations: 45	Logi	200
	Average wait time: 876 minutes	Logi	200
	Average wait time (move time, etc. subtracted): 786 minutes	Logi	200
	Setup time : 15.59 %	Logi	200
	[Default schedule evaluation parameter] End	Logi	200

▲Fig. 7 Schedule evaluation output to the message table

The evaluation parameters output to the message table can be selected by the planning parameter.

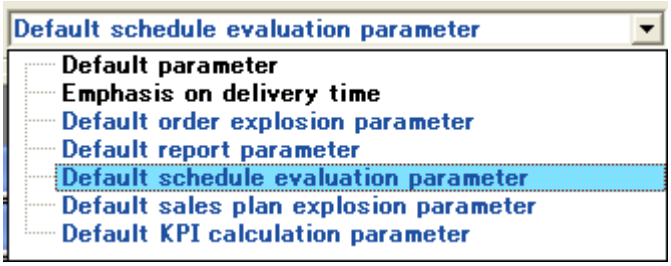
Property	Value	D
Default schedule evaluation parameter	Default sche	
Purchase orders		S
Manufacturing orders		S
Sales orders		S
Event orders	No	N
Absolute inventory orders		S
Relative inventory orders		S
Late manufacturing orders		S
Late sales orders		S
EST violating manufacturing orders		S
Operations	Yes	M
Unassigned operations	Yes	M
Operations assigned to dummy resource	Yes	M
Forcibly assigned operations	Yes	M
Time constraint violating operations	Yes	M
Resource quantity violating operations	Yes	M
Operations with insufficient input qty	Yes	M
Manufacturing order lead time (average)		S
Manufacturing order lead time (min)		S
Manufacturing order lead time (max)		S
Wait time average (without time constraints)		S
Wait time min (without time constraints)		S
Wait time max (without time constraints)		S
Wait time average		S
Wait time min		S
Wait time max		S
Total setup time		S

General | Time periods | Settings | Filter | Peg | Plan

▲Fig. 8 Select properties that are output in messages with the planning parameters

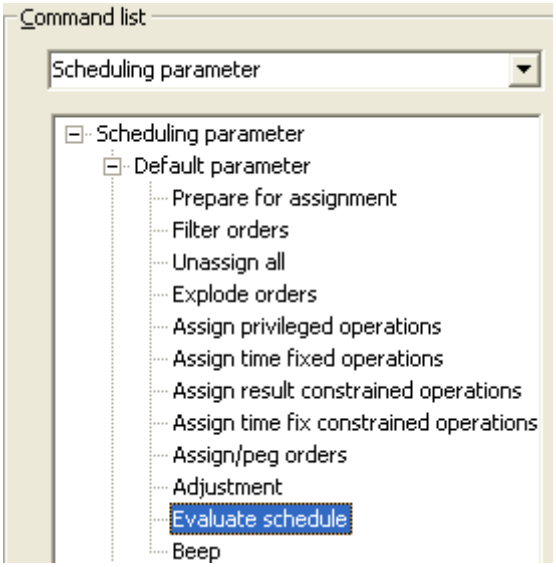
Evaluating schedules

Selecting the default schedule evaluation parameter, which is set by default, and then rescheduling can execute schedule evaluation.



▲Fig. 9 The schedule evaluation parameter located in presets (planning parameter combo box).

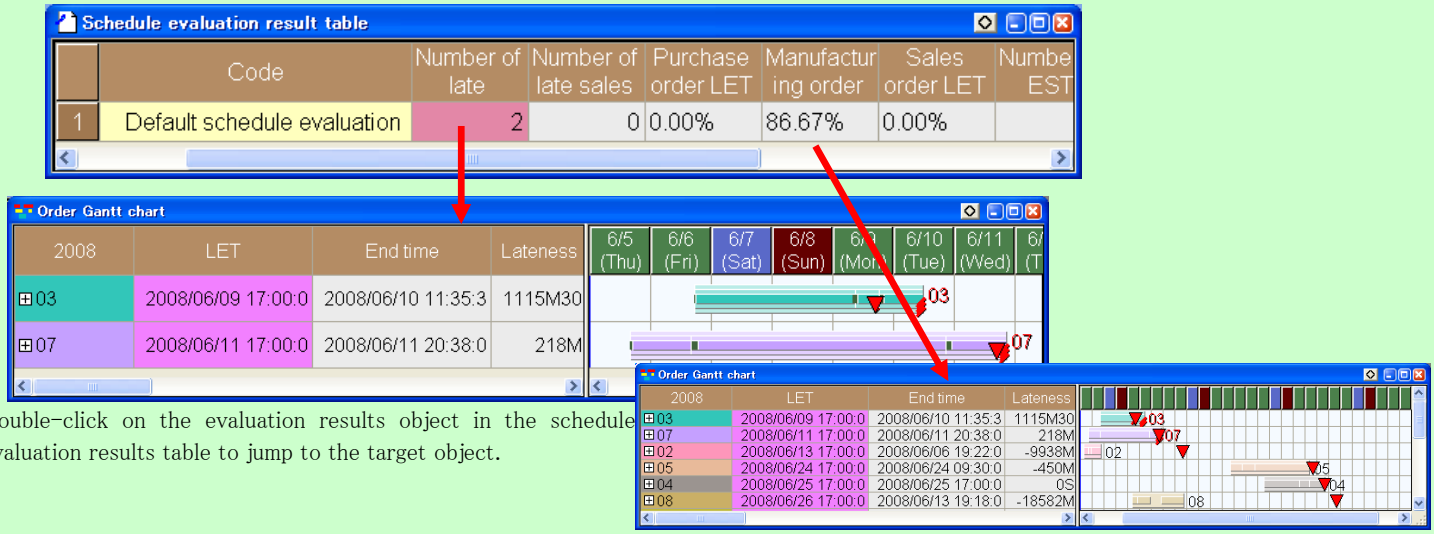
In addition, the parameter can be executed by any timing required by incorporating it into planning parameters.



▲Fig. 10 The schedule evaluation command incorporated into planning parameters. The command can be inserted into any position required and can be executed any number of times in planning parameters (planning command editing dialogue).

Help "Schedule evaluation" (Help No. 773600)

Checking evaluation results



Double-click on the evaluation results object in the schedule evaluation results table to jump to the target object.

Compare simulations

When a schedule evaluation command is executed, the data at that time can be saved. Make a "backup" for the schedule evaluation results command class's property "Save data in Ar4 file" and specify the file path in the "Ar4 file name."

Property	Value	D
Evaluate schedule	Evaluate schedule	
Result code expression	GetObjectName(ME)+'	S
Comment expression (0)		S
Order filter expression		F
Operation filter expression		F
Item filter expression		F
Resource filter expression		F
Inventory calculation start time		S
Inventory calculation end time		E
Res load calculation start time		S
Res load calculation end time		E
Save data in Ar4 file	Backup	A
Ar4 file name	'as-'+Format(Now(),'yy	S
Max # schedule evaluation results	50	S

General | Common | All properties

▲Fig. 11 Properties in the schedule evaluation results command class

Done in this manner, data at the instant the schedule evaluation command is executed remains as an Ar4 file, and the operations allocation status can be compared with schedule evaluation results as simulation results.

Q & A

1. When we run planning parameters we have made, including schedule evaluation commands, the schedule evaluation commands do not run well.

Is the upload orders command installed in front of the schedule evaluation command? The upload orders command or the upload operations command must be executed before the schedule evaluation command is executed. After acquisition, the filter orders command or the filter operations command can be used for filtering.

For more information

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