What's New in SIMUL8 2007

Below are details on all the fantastic new features that have been added in SIMUL8 2007.

Input Summary

See: Objects/ Input Summary

Object Inpu	t Summary													
Work Entries	Storage Bins	Work 0	Centers 🕠	/ork Exits	Resources	Conveyo	s Tanks	Pipes	Load	ers/Unloaders	Process Ovens	Paths	Vehicles	
Name		Index	Position		Timing						High Volume	Replicate	Routing In 📥	
			From Left	From Top	Rule	P1	P2	P3	P4	Distribution			Rule	🕜 Help
MODU work		64	267	69	Standard	lbl_work	0	0	0	Fixed		1	Priority	B
LIV work		67	263	130	Standard	lbl_work	0	0	0	Fixed		1	Priority	l l
ROV work		70	259	184	Standard	lbl_work	0	0	0	Fixed		1	Priority	
PR work		73	257	242	Standard	lbl_work	0	0	0	Fixed		1	Priority	
PCTU work		76	259	295	Standard	lbl_work	0	0	0	Fixed		1	Priority	
ROVMEG work	8	79	258	351	Standard	lbl_work	0	0	0	Fixed		1	Priority	
Tech1 work		82	259	411	Standard	lbl_work	0	0	0	Fixed		1	Priority	
Tech2 work		85	257	476	Standard	lbl_work	0	0	0	Fixed		1	Priority	
MODU dummy		93	131	69	Standard	0	0	0	0	Fixed		1	Priority	
LIV dummy		101	128	130	Standard	0	0	0	0	Fixed		1	Priority	
ROV dummy		103	127	184	Standard	0	0	0	0	Fixed		1	Priority	
PCTU dummy		107	127	295	Standard	0	0	0	0	Fixed		1	Priority	
ROVMEG dum	ny	109	127	351	Standard	0	0	0	0	Fixed		1	Priority	
Tech1 dummy		111	129	411	Standard	0	0	0	0	Fixed		1	Priority	
Tech2 dummy		113	127	476	Standard	0	0	0	0	Fixed		1	Priority	
Dummy		339	195	21	Standard	0	0	0	0	Fixed		1	Priority	
Schedule		341	304	21	Standard	Ibl_Activ	0	0	0	Fixed		3	Expired On	
None work		64	262	552	Standard	lbl_work	0	0	0	Fixed		1	Priority	
None dummy		93	131	552	Standard	0	0	0	0	Fixed		1	Priority	
PR dummy		103	126	242	Standard	0	0	0	0	Fixed		1	Priority 🔛 🐸	
Completion DS	Time				Concern Concerns								>	

The Input Summary provides a summary of all the objects in your simulation. Each object type is displayed on a separate tab as the properties of the objects are quite different.

Double click on a cell and it will open the relevant dialog for the object.

Customizable Results Summary

See Results / SIMUL8 Dashboard

We've added a Results Tab to the Dashboard. You can add any result from the Result Summary and then use the formatting tools to customize the display, change the order of items and add additional text. You hide columns so you don't need to see SIMUL8's name for the results if you don't want to.

You can set this to be displayed at the end of a trial instead of the results summary.

Dashboard				
Inputs Results				🗸 ок
			<u>~</u>	
Resource Utilization		· ·		💢 Cancel
Router	50.84	%		🕜 Help
Information Lines	86.98	%		
CSR	39.5	%		음리 몰카
Ticket Lines	89.18	%		
Average Queue Sizes				
Router	0.52			
Information Lines	2.68			
CSR	0.05			🔊 🗉
Ticket Lines	2.89			
			<u>×</u>	
			<u>></u>	

Define Your Own Charts

See Results/Charts.

Flexibility to customize their display:

- Change the chart type (bar, line, step, pie etc.).
- Choose between a 2D and 3D display.
- Display grid lines.
- Choose colors for backgrounds, graph lines and chart data.
- Display point labels.
- Display a data table.
- Option to fix axis scales rather than redraw so can specify min and max, SIMUL8 will resize if data goes out with bounds.
- Define axis labels
- Add constant lines such as upper and lower bounds.

Ability to Use Chart Image:

- Print charts.
- Copy to chart to clipboard as image.

Define your own charts:

- Ability to chart any expression on a time series chart.
- Chart multiple series on one chart.

Chart Properties	
General Data XAxis YAxis	🗸 ок
Title Contents: Queue for CSR	X Cancel
Show Chart 🗹 Show Title 🔽	Help
Style 🔛 🔽	Copy Data
Background Color	
Chart Box Color	
Point Labels 🗌 3D 🗌 Data Grid 🗌	
Legend	
Show 🗌 Position Left 💌	
Chart Properties	
Chart Properties General Data XAxis YAxis	ΟΚ
Chart Properties General Data XAxis YAxis	ОК
Chart Properties General Data X Axis Y Axis New Series X Delete	OK Cancel
Chart Properties General Data XAxis YAxis New Series X Delete Label Expression	Cancel
Chart Properties General Data X Axis Y Axis New Series X Delete Color Style Weight Label Expression Color Style Weight Contents: Queue for CSR Image: Contents: Color Style Image: Contents: Color	Copy Data
Chart Properties General Data X Axis Y Axis New Series X Delete Color Style Weight Label Expression Color Style Weight Contents: Que For CSR	V OK Cancel Help Copy Data
Chart Properties General Data X Axis Y Axis New Series X Delete Image: Color Style Weight Label Expression Color Style Weight Contents: Queue for CSR Image: Color Style Weight Series 2 k*var no info lines Image: Color Style Weight	Cancel Help Copy Data
Chart Properties General Data X Axis Y Axis New Series X Delete Color Style Weight Label Expression Color Style Weight Contents: Que Contents: Queue for CSR Image: Contents: Image: Contents: Series 2 k*var no info lines Image: Contents: Image: Contents: Image: Contents: Image: Contents:	Cancel Help Copy Data
Chart Properties General Data X Axis Y Axis New Series X Delete Color Style Weight Label Expression Color Style Weight Contents: Que for CSR Image: Contents: Image: Contents: Series 2 k*var no info lines Image: Contents: Image: Contents: Image: Contents:	Cancel Help Copy Data
Chart Properties General Data X Axis Y Axis New Series X Delete Image: Color Style Weight Label Expression Color Style Weight Contents: Que Contents: Queue for CSR Image: Color Style Series 2 k*var no info lines Image: Color Image: Color Image: Color	Copy Data
Chart Properties General Data X Axis Y Axis New Series X Delete Image: Color Style Weight Label Expression Color Style Weight Contents: Que Contents: Queue for CSR Series 2 k*var no info lines	Cancel Help Copy Data
Chart Properties General Data X Axis Y Axis New Series Tolete Label Expression Color Style Weight Contents: Que Contents: Que Contents: Color Style Weight Series 2 k*var no info lines Toleta Toleta <t< td=""><td>Cancel Help Copy Data</td></t<>	Cancel Help Copy Data
Chart Properties General Data XAxis YAxis New Series X Delete Label Expression Contents: Que Contents: Queue for CSR Series 2 k*var no info lines	Cancel Help Copy Data

Export to Results Template Enhanced

See Results / Export to Template

Feature extended can now export directly to Excel and PowerPoint as well and can also export spreadsheet ranges as tables.

Results Export to Template		
Templates Template file S:\Temporary\template.doc S:\Temporary\Template.ppt S:\Temporary\template.xls	Do not export to template(s) after run (or trial). DK Cancel DK Help Map Properties	
Add Remove Mappings Field Property simTime Simulation Tin wholeSheet Var[[1,1:3,9] WCWorking Work Center WCAverageUse Work Center WCAverageUse Work Center WCAverageUse Work Center WCAverageUse Work Center	Type C Expression Result Range from Sheet Map Field Name wholeSheet Sheets Var1 Var1[1,1;3,9]	Cancel
Add Remove Edit		

Add Button to Toolbar

Right Click on the toolbar and select Feature Buttons.

Add a shortcut to SIMUL8 menu options:

- Add button to Toolbar for any menu item, for example distributions or labels.
- A separate toolbar where these buttons will be placed will be created.
- Added buttons will be remembered by SIMUL8 and are not specific to a model file.
- Specify your own bitmap for the button.

Right Click on the toolbar and select Visual Logic Buttons.

Button to Open Visual Logic for edit:

- User can add a button to the toolbar which when pressed will open a specified Visual Logic section.
- User can specify there own bitmap for button.
- Will only be remembered by file that is will not appear whenever SIMUL8 is run.

eature Buttons		
Choose Features Distributions Go to end of warm-up period Go to simulation time Groups Images	Added to Toolbar Distributions Charts Duickview	V OK
Jobs Matrix Jobs Matrix Macros - Start/Stop Recording Open all sub-windows Overheads Preferences Presentation Mode		
Buildkview Results Comparison Results Export Results Export to Template Results Save as Text Results Save as XML Bavenue		
Run a script of commands		

New Information Store

The Information Store now allows you to see all the values of the Global Data Items on the same window without having to drill down into each individual item.

Global Data Items can be sorted by type, and the displayed order can be sorted by name, rest or current value or memo.

Information Store				
Global Data Item	🛆 🛛 On Reset	Current Value	Memo 🔺	🗸 ок
📮 Recent				
loop2	0	0		💢 Close
ss waiting times	-			
🖨 Numbers				Пер
Graph Sync Interval	0	0		Properties
··· Overhead Cost	0	0		
Overhead Revenue	0	0		New
Results Collection Period	0	0		Carry
Simulation Time	0	0		Copy
Warm Up Period	0	0		Erase
- balked calls total	0	637		
g	0	2362	row counter for waiting	References
k	99	112		Search
loop	0.4	2363		Jeaich
loop2	0	0		Tofile
r	83	97		
var no info lines		4		
🕆 var no ticket lines		4		
var row	6	7		Show Type
×	6	6		
Simulation Objects				

Search

Search all the values stored in the Global Data Item to find the ones containing the values you need. This is really useful in large simulations where lots of data is being dynamically changed or when you're taking over a simulation from another user.

Search Enter value to search for percentage	Parameter Type Image: Number Image: Spreadsheet	Search
⊇ Exact match ⊙ Partial match	V Text V Object	Help
Results Responses (3,3) Percenta Responses (3,23) Percenta	ige of Lost Calls: ige of completed calls	

To File

Quickly export all your Global Data Items and their values to a notepad file.



Сору

Individual or multiple variables in the information store can be copied to clipboard and pasted into other simulations along with their definitions.

SIMUL8 Explorer

The SIMUL8 Explorer has been extended to now show:

- All objects routing out from an object.
- All objects routing into an object.
- All Global Data Items referenced by the object.

In addition we've added functionality to let you:

- Sort the explorer alphabetically, by type of object, or date of creation.
- Filter the display to only show objects of specified types.
- Expand all nodes.
- Collapse all nodes.





QuickView



Resource Enhancements

Keep Resources

Work centers now have a resource option "keep resource while there is still work to do"

Detailed Availability Options

You can now specify detailed information about Resource Availability. They can have different types of breaks with different occurrence and absence rates. This is particular useful when using Resources to model your staff behavior.

Availability					
Auto Availability %: Average Absence	Detailed 100 Time?				Cancel
	ne between Absence Time to Return Mo	e>>	Current Break Type Break Type 1 Available Break Types for this object:	Break Type 1 Clone All	New Clone

Remain at work center until feeding queues cleared option

A work center can now try to hold onto a resource until all the work in a feeding queue has been completed.

Also can be controlled through Visual Logic as well so e.g. if Feeding_Queue.count contents <5, release resource. So resource is not attached to item but attached to work center.

Resources Required	
Resources Required	🗸 ок
Resource 1 Add Remove Detail Display Require resources before collecting any work items Release resources as soon as task complete Try to stay here until work in queue is done	Cancel

Resource Traveling Detail Results

Now see exactly how much time a resource has spent traveling between different objects.

Resource Results							
Resource 1		💙 ОК					
Utilization: 9	1%						
Traveling: 0	1 %						
Graph	Technician Jou	rney Time: Total	Traveling Resu	lts (Time units)			
🔄 💿 Sync with	Time From\To	Technician	Load Reel	Body Maker	Load Compactor	Sł 🔨	🗸 ок
	Technician		0.08333	0	0	0 📃	
<u> </u>	Load Reel	0		0.03333	0	0.	💥 Cancel
Units of Dessures i	Body Maker	0	0		0	0.	A Help
Currentlur	Load Compactor	0	0	0		0	Пор
Minimum:	Shoulder Welder	0	0.85	0.31673	0		
Average:	Packer	0	0	0.03333	0	0.	
Maximum:	Inspect Tubes	0	0	0	0	0	
	Load Shoulders	0	0	0	0	0	
Record data for int	Load Caps	0	0	0	0	0	
	Form Cartons	0	0	0	0	0	
	Form Lids	0	0	0	0	0	
	Load Pallet	0	0	0	0	0	
	Place Polythene	0	0	0	0	0 🗸	
						>	

Resource Results by Work Center

Get the time each resource has spent at each work center being, split by use type if required.

Resource Results by Work Center						
	Operator	P_Operator	P_Technician			
Body Maker	0.00	0.00	0.00			
Complete Pallet	0.00	0.00	0.00	💥 Cancel		
Fix Carton Lid	0.00	0.00	0.00	A Help		
Form Cartons	1.54	0.00	0.00			
Form Lids	2.56	0.00	0.00			
Inspect Tubes	0.00	0.00	0.00	Use type		
Label Carton	0.00	0.00	0.00			
Load Caps	1.34	0.00	0.00	Changeover		
Load Compactor	0.00	0.00	0.00	 Work 		
Load Pallet	0.00	0.00	0.00	O Repair		
Load Reel	0.00	0.00	0.00			
Load Shoulders	2.24	0.00	0.00			
Op_Restroom	92.31	0.00	0.00	Percentage		
Packer	0.00	0.00	0.00	0.00		
Place Polythene	0.00	0.00	0.00	Or use type		
Prepare Pallet	0.00	0.00	0.00	Of all use		
QC Inspector_Restroom	0.00	0.00	0.00	O Of availability		
Shoulder Welder	0.00	0.00	0.00			
Tech_Restroom	0.00	0.00	0.00			
<	1					

Visual Logic Improvements

Predictive Text

No more double clicking to write Visual Logic code. Type directly in the Visual Logic Editor and let it predict what you're trying to type.

SIMUL8 Visual Logic: End Run Logic	
All Visual Logic Balk_Left CSR On Exit Logic	~
El End Run Logic 'Obeyed when the simulation reaches end of ''Results Collection Period'' Get Result_Responses[4,34], Current Run , Queue for Call router: Minimum queue size	<u>^</u>
A Command A Command Add automaintain name list Add automaintain name list Add Results Export Template Add speed list location Add to Pool Add to Pool Add Work To Dueue Get Result Responses[6,34]. Current Run, Queue for Information: Average queue size un, Queue for Information: Average queue size	
Get Result Responses(6,36), Current Run, Queue for CSR: Average queue size Get Result Responses(6,36), Current Run, Queue for CSR: Average queue size Get Result Responses(7,34), Current Run, Queue for Ticke) sales: Minimum queue size Calculate Standard Deviation <u>End Run Logic</u> <u>Balk_Left CSR On Exit Logic</u>	~
(result) Queue for Call router: Maximum queue size = 0	200

Customize the Visual Logic Editor

Change the colors of the Visual Logic Editor to get it the way you like.

SIMUL8 Visual Log	gic: End Run Logic			
All Visual Logic		~	Balk_Left CSR On Exit Logic	~
End Run Logic				^
'Obeyed v	when the simulation reach	Customize Visual	Logic Syntax Highlighting	
Get Resu	lt Responses[4,34] , Cu lt Responses[4,35] , Cu	Editor Background	Color Restore D	Default OK
Get Resu	lt Responses[4,36], Cu lt Responses[5,34], Cu	Comment	Color Restore D	efault Cancel
Get Resu	lt Responses[5,35], Cu lt Responses[5,36], Cu	Selected Line	Color <u>Restore D</u>)efault 🥙 Help
 Get Resu Get Resu 	lt Responses[6,34] , Cu lt Responses[6,35] , Cu	BreakPoint	Color Restore D)efault
 Get Resu Get Resu 	lt Responses[6,36] , Cu lt Responses[7,34] , Cu	Disabled Line	Color Restore D)efault
Get Resu	lt Responses[7,35], Cu <mark>n</mark>	entriun, queaeiori	icket sales, maximum queue size	
🔍 👘 👘 🔍 🔍	lt Responses[7,36], Curi	rent Run , Queue for T	icket sales: Average queue size	~
Calculate Standard Devi	ation <mark>\End Run Logic</mark> (Bal	lk_Left CSR On Exit Lo	gic/	
				9 11 12 22 2

Drop Down Access

Access the Visual Logic you want through drop down lists, separated by object and simulation events.

SIMUL8 Visual Logic: End Run Logic	
Al Visual Logic C End Run Logic Get Result var_Final_Throughput, Current Run, Finish SET var_Ave_Cycle_Time = Var_Cummulative_Cycle_Time SET var_Ave_Cycle_Time = var_Ave_Cycle_Time/540	End Run Logic
Work Center 14 dummy Work Complete Logic End Run Logic	
Select Visual Logic to open	21. 26 ?

Visual Logic Functions

You can now have Visual Logic Function routines. Just create a local variable 'Results' and then your Visual Logic can be called in any SET line as the right hand side.

Formula Editor					
Type directly into the box or double click objects in the lists below to insert automatically OK					
112					
Select a type of list	Calculate Standard Deviation	Visual Logic functions are any	💢 Cancel		
Object	Resource Utilization	VL that has a local variable	🕜 Help		
Math Euroction		NEGULI	Objects		
 O VL Function 					
Click to insert ⊕⊙⊗/Z\S\^					

Find

Find has been enhanced to include many more options to customize your search:

- Remove comments from found list
- Remove disabled lines of code from found searches
- Search only this section can now be extended to also search anything called by the current block.
- Search from current line option (with F3 short cut that works from the dialog setting up a new search string)
- Find within the recently found lines (sub set of previous find) (and also "not within")
- Show Previous Search
- Select multiple found lines in list
- Automatically remove selected lines from found list, means you could use it almost like a To Do List, so for example if you need to make sure you've checked every occurrence of set var1 = 10 then you can remove each found line as you go through checking
- If a line is disabled in the code it says [Disabled] beside the line
- Drop down box of recently used search text

Find in Visual Logic					
				 ✓ 	ОК
SIMUL8 Visual Logic: CSR 3 Work Complete Logic CSR 3 Work Complete Logic SET Responses[12,114] = Responses[12,114]+[Simulation Time-work SET Responses[12,114] = Responses[12,114]+[Simulation Time-work Balk_Left Ticket On Exit Logic (CSR 3 On Exit Logic)(CSR 3 Work Complete CSR 3 Work Complete Logic : SET Responses[12,k] = Responses[12,k]=		Where: • All Visual Logic • This Section • Within Found Lines • Within Found Lines • From Current Line (F3) • Backwards (shift) • Include Comments • Include Disabled Lines • Include Titles of Visual Logic Blocks		Cancel Help Display previous	
Information 1 Route "In After Logic : SET Response CSR 1 Route "In After Logic : SET Responses[4,11]	Go to selected found line	Ctrl+F			
Information 2 Route "In After Logic : SET Response Information 2 Route "In After Logic : SET Response Information 3 Route "In After Logic : SET Response Information 4 Route "In After Logic : SET Responses[4,11] CSR 2 Route "In After Logic : SET Responses[4,11]	Select all found lines in current block Set Stop (debug) point on selected found line Set Stop (debug) points on ALL found lines				
	Remove selected found lines from this list Remove found "(Disabled)" lines from this list				
	Copy all to dipboard				

New Visual Logic Commands

- Use Resources "Resource Type", NumberRequested
- Release Resources "Resource Type", NumberReleased
- Set Process Step Route Probability
- Select View
- "Close main sheet and generate event" allows sheets to be displayed like a series of hyperlinked web pages - see example in Sheets folder
- Next Spreadsheet Print Shows Print Setup
- Set Window Name VL command
- BeepOnComplete option in "results collection period" dialog now (for R14) only beeps at the end of non-trial runs and the last run of a trial
- Create Distribution
- Copy Distribution
- "Run Later" allows user to set up a series of experiments to be run at a later time or date (e.g. overnight or at the weekend when the PC is not in use)
- Print Spreadsheet Prints a SIMUL8 spreadsheet using its current print settings and current printer
- Set Next Spreadsheet Print Area Set the Print Area for the next Spreadsheet print action
- Print spreadsheet Area
- Set the Print Page Fitting for the next Spreadsheet print action

Other Visual Logic Improvements:

- New debugging option to "Stop if line contains text xxx"
- Click RIGHT on the tabs in VL editor now shows all tabs in a menu so even long lines can be read

- "References" feature (what calls this code) can now be accessed directly inside the VL editor
- Calls Tree feature shows all the code a VL block calls (and all the call from within any calls too)
- The VL status bar, when showing a variable value, now say if the variable is a "local"
- The VL status bar, when showing a variable value, now also shows any memo associated with the variable
- One-click delete of all Watch Items from Watch-Window
- VL stop debug improvements
 - No longer "stops" on comment lines
 - Can now stop if code tries to reference an "invalid" spreadsheet location (e.g. mysheet[0,3])
 - \circ warning in when breakpoints are all disabled, but a new one is added
- Every executed line of VL can now be logged to a text file (VL Services/Line by Line logging)
- Any block of VL can be executed directly from the VL List
- Call Stack Tracking can now be switched on/off from the Speed Analysis dialog
- CallVL dialog allows you to paste and typing of the name of the logic for quick finding in long lists
- Drag to copy/move VL code now protected to make accidental movement of lines impossible (can be switched off if preferred)
- VL Editor in debug mode has blue arrow to indicate the current execution line
- Navigation through multiple VL blocks now supports BACK and FORWARD to easily move to logic under review (click right menu and also CTRL-B and CTRL-H) We hope also to add back/forward buttons on the bottom of the vI window to make it more obvious
- VL Tabs now remembered when you save/reopen a file
- New Shortcuts:
 - VL has short cut key D to disable and enable code lines
 - VL has short cut key C to add a comment
 - VL has short cut key F3 to "find again from current line within this block"
 - VL has short cut key SHIFT-F3 to "find backwards from current line within this block"
 - Ctrl Doubleclick on a CALL in Visual Logic navigates to that Visual Logic section.
 - CTRL-HOME and CTRL-END now work in the VL editor (go to top line, go to bottom line)

Clock Monitor Wildcards

Simulation Monitor "Stop when event contains text" now allows wildcards in the text

SIMUL8 Step-by-Step Monitor	
History Now Future Options	Close
At Time: Start checking text Stop None 0.00	(2) Help
Stop if step text contains:	
load	
Only Started / Successful O Any	

Miscellaneous

- Weibull and Beta distributions now have a 4th parameter.
- Route-in collect mode on work centers now supports "all" in addition to a specific number of work items "all" means "collect all the work immediately available in the queue".
- When you double click on reference if it's an object, dist, visual logic section or a group now opens properties.
- File/Pref/Compatibility/Excel has open to auto-open excel sheets.
- The Links dialog now automatically updates the Quickview panel as you browse the linked objects for easier debugging.
- Copy entire content of watch window and paste all watch items between simulation files.