

Index

+

+, 31

-

-, 31

A

Adder, 27, 39, 92
Analyze, 73, 77
analyze data, 33
animation, 39
arcs, 4, 37
 segmented, 38
are you busy message, 11
arrivals
 batch, 83
attributes, 23–24, 39, 43

B

balk, 19
Balk node, 15, 25, 27
Box Plot, 32–33
Bucket, 33, 65, 77
Bucket Control Panel, 73
buffer, 17
busy, 16

C

capacity, 13, 19
chart components, 71
check box
 Collect Data, 73, 77
Clear Palette, 62
clearSetFromAttribute, 31–32
Collect Data, 73, 77
command buttons, 4
command panel, 4
Component Control Panel, 68
component dictionary data set, 64
component id, 64
component state sample path, 65, 69
compound components, 47
 controlling exposure, 49
 editing, 52
 pop-up menu, 48
connecting components, 37
Connector, 36, 81, 95
control panel
 Box Plot, 34

Bucket, 33, 73

Component, 68

Compound Component, 51

DataSource, 60

Exponential Control Panel, 57

Histogram, 35

Line Plot, 36

MModifier, 24

Modifier, 23

MServer, 15

MTrigger, 22

NumberHolder, 30

Priority Queue, 18

Sampler, 13, 55

Simulation, 73

Switch, 25

Trigger, 20, 30

controls, 31–32

currentValue, 31–32

D

data collection, 33, 40
DataSource Control window, 59
DataSource Distribution, 59
decrement, 31
Deterministic Distribution, 56
distribution, 21, 55
 DataSource, 59
 Deterministic, 56
 Erlang, 56
 Exponential, 56
 Formula, 58
 Gamma, 56
 IUniform, 56
 Markov-modulated Poisson, 86
 Mixture, 59
 Nonhomogeneous Poisson, 56, 84
 Uniform, 56

E

Edit, 52
elementary components, 11
 Box Plot, 33
 Bucket, 33
 Connector, 36
 FIFO Queue, 17
 Histogram, 34
 Holders, 29
 Label, 36
 LIFO Queue, 17

- Line Plot, 35
 Logic Components, 19
 MModifier, 24
 Modifier, 23
 MServer, 14
 MTrigger, 21
 NumberHolder, 29
 Port, 36
 Priority Queue, 17
 Router, 26
 Sampler, 12
 Server, 14
 Splitter, 28
 StringHolder, 32
 Switch, 25
 Transaction Pool, 12
 Trigger, 20
empty, 19
 Erlang Distribution, 56
 Exponential Distribution, 56
 Expose/Hide Details, 11
- F**
 FIFO Queue, 17
filter, 19
filterOne, 19
 Formula Distribution, 58
 Formula Manager, 43
 Formula Manager Window, 25, 43, 85
 formulas, 43
- G**
 Gamma Distribution, 56
 graphs, 64
- H**
 Histogram, 32
 histogram
 queue length, 71
 time in queue, 77
 Holders, 29
- I**
id, 13, 16, 19, 21–23, 25–28, 31–32
 images, 39
insert, 19
 IUniform Distribution, 56
- L**
 Label, 36
 LIFO Queue, 17
 Line Plot, 32, 35
 logic
 Adder, 27
 MModifier, 24
 Modifier, 23
 MTrigger, 22
 NumberHolder, 31
 Queue components, 18
- Router, 27
 Server components, 15
 Source components, 13
 StringHolder, 32
 Switch, 26
 Trigger, 21
 Logic Components, 19
- M**
 M/M/1 Queue, 6
 M/M/c/K, 79
 Markov-modulated Poisson Process, 86
 menu
 Options, 57
 MModifier, 24
 model, 61
 assembly, 92
 batch arrivals, 83
 batch service, 89–91
 queue with reneging, 79, 81
 routing, 95
 scanning a queue, 81
 servers as resources, 93–95
 service break down, 87–88
 state-dependent service, 87
 Modifier, 23, 39, 43, 80
 MServer, 14, 55
 MTrigger, 21
- N**
 New Palette, 62
 Nonhomogeneous Poisson Distribution, 56
 Nonhomogeneous Poisson Process, 84
 Nonhomogeneous Possion Parameter Window, 85
 number in a queue, 67
 NumberHolder, 29
 NumberHolder Control Panel, 29
- O**
off, 16
on, 13
- P**
 palette, 3
 Palette, 52, 62
 palette
 component, 3
 Formula Manager, 43
 pie chart
 server utilization, 75
 pop-up menu, 4
 pop-up menu selections
 Assemble Components, 47–48
 Control Panel..., 4, 11
 Disassemble Components, 48
 Duplicate, 37
 Edit, 48, 52
 Expose/Hide Details, 4, 11, 48
 on arcs, 38

Select Components..., 50
 Start, 4
 Stop, 4
 Toggle Exposure, 50
 Tools, 4
 Port, 36, 49
preempt, 16
preemptContinue, 16
print, 31–32
 Priority Queue, 17, 80–81
 pull down menus
 Clear Palette, 62
 New Palette, 62
 pull-down menu selections
 Graph..., 64
 Model..., 61
 Open..., 61
 Save As, 61
 pull-down menus
 Clock Options, 58
 Seeds..., 57
 push button
 Analyze, 73, 77

Q

query message, 11
busy, 16
capacity, 13, 19
currentValue, 31–32
id, 13, 16, 19, 21–23, 25–28, 31–32
off, 16
on, 13
releaseType, 19
remaining, 13
size, 13, 19
sizeIs, 16
space, 16, 19
value, 21, 31–32
 queue
 priority, 80
 reneging, 79, 81
 scanning a queue, 81
 Queue Components, 17
 queue length statistics, 69

R

random variation, 55
releaseOne, 19
releaseType, 19
remaining, 13
 removeFromQueues, 41
 removeFromServers, 40
removeIt, 16
reset, 14, 16, 19, 21–22, 24–28, 31–32
 reset the simulation, 68
 restoring information
 cuploadpa, 63
 Router, 26, 43
 routeToId, 41

S

sample path, 64, 67
 Sampler, 4, 12, 39, 55
 batch arrivals, 83
 SAS data set, 33, 40, 73, 76
 SAS Graph, 64
 Save Graph Window, 64
 Save Model Window, 61
 saving information, 61
 component dictionary data set, 64
 component state sample path, 65
 graphs, 64
 model, 61
 Palette, 62–63
 sample path, 64
 transaction state sample path, 65
 seed values, 57
seize, 16
 Select Components..., 50
 Server, 55
 as resource, 93–95
 batch, 89–91
 break down, 87–88
 state-dependent service, 87
 Server Components, 14
 server utilization, 67
 server utilization statistics, 73
setCapacity, 14, 16
setDistribution, 16
setFromAttribute, 31–32
setFromTrigger, 21
setFromTrigger, 31–32
setParameter1, 14, 16
setParameter2, 14, 16
 Simulation Control Panel, 73
 simulation window
 pop-up menu, 48
size, 13, 19
sizeIs, 16
 Source Components, 12
space, 16, 19
 Splitter, 28, 93–94
start, 14, 16, 19, 21–22, 24–28, 31–32
 start the simulation, 68
state, 69
 state change, 11, 20, 22, 25–26
 statistics, 33, 69
 queue length, 69
 server utilization, 73
 time in the system, 77
stop, 14, 16, 19, 21–22, 24–28, 31–32
 stop the simulation, 68
 StringHolder, 32
 Switch, 25, 43–44, 80
 system performance
 queue length, 69
 server utilization, 73
 time in the system, 77

T

time in a queue, 67
 time in service, 67
 time in system, 67
 time in the system statistics, 77
 time units, 58
 Toggle Exposure, 50
 transaction
 attributes, 23–24, 39
 generation, 12
 history, 39
 timing of arrivals, 41
 transaction arrival, 11
 Transaction Pool, 12, 39
 transaction state sample path, 65
 transactions, 39
 saving state information, 65
 Trigger, 20, 55
 delayed trigger event, 21
 Trigger Interval, 21
 Trigger Value, 21
 Trigger Control Pane, 30
 trigger message, 11, 40
 +, 31
 -, 31
 balk, 19
 clearSetFromAttribute, 32, 31
 controls, 31–32
 decrement, 31
 empty, 19
 filter, 19
 filterOne, 19
 insert, 19
 preempt, 16
 preemptContinue, 16
 print, 31–32
 releaseOne, 19
 removeIt, 16
 reset, 14, 16, 19, 21–22, 24–28, 31–32
 seize, 16
 setCapacity, 14, 16
 setDistribution, 16
 setFromAttribute, 31–32
 setFromTrigger, 31–32
 setParameter1, 14, 16
 setParameter2, 14, 16
 start, 14, 16, 19, 21–22, 24–28, 31–32
 stop, 14, 16, 19, 21–22, 24–28, 31–32

U

Uniform Distribution, 56
 units, 58
 User Interface, 2

V

value, 21, 31–32

W

window

Bucket control panel, 73
 Component Control Panel, 68
 Compound Node Editor, 52
 DataSource Control, 59
 Formula Manager, 25, 43, 58, 85
 Nonhomogeneous Possion Parameter, 85
 NumberHolder Control Panel, 29
 Palette, 52
 Save Graph, 64
 Save Model, 61
 Simulation Control Panel, 73
 Trigger Control Panel, 30