

Aralia Release Notes



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DASSAULT SYSTEMS
10, rue Marcel Dassault
78946 Vélizy Villacoublay Cedex
FRANCE
www.3ds.com

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Version 4.2

What's new in Version 4.2

Towards object-oriented commands

There are some changes in the commands to set options (mainly the command set). The general idea is that the command "set something to-some-value" is replaced by command "something set to-some-value". The number of options increased too much to maintain the old style. The new style is more object-oriented. The syntax of commands to set options, attributes, BDD and SoP orders, and probability distribution parameters changed in that way.

Selectors

Set operations in selectors have been improved.

Command 'remove'

The command 'remove <variable>;' is now much faster.

Command line

It is now possible to give command files as arguments of the command line. E.g.

```
aralia file1.ara file2.ara
```

Command attribute

A new option has been defined to get the values of attributes.

```
attribute values <attributes> <variables> [redirection] ;
```

Known Issues

Troubleshooting

bug050507:

Problem in the garbage collections of BDD.
[Fixed in version 4.2b]

bug050809a:

"sop-order clear <selector>" clears bdd-order
[Fixed in version 4.2b]

bug050809b & bug050809c:



No reset of indices after “bdd-order clear <selector>” and “sop-order clear <selector>”
[Fixed in version 4.2b]

bug051026:

Problem in garbage collector. Can cause a crash.
[Fixed in version 4.2b]

bug051125:

Problem in command “rewrite GMG”. Can cause a crash.
[Fixed in version 4.2d]

bug051129:

Problem in command “rewrite GSA” with formulas of the form $t := (g \mid -e)$. The variable e is ignored.
[Fixed in version 4.2d]

bug051201:

Problem in command “rewrite FCF”, special identifiers, e.g. '1234-%uiofe', are not correctly handled.
[Fixed in version 4.2d]

Version 4.3

What's new in Version 4.3

Command 'normalize'

The option 'names' has been changed as follows.

```
normalize names [<identifier>]4 [<redirection>;
```

Now, the renaming is displayed, using commands 'rename' and 'parameter rename'.

Command 'parameter'

New option to rename identifier:

```
parameter rename <identifier> <identifier>;
```

Known Issues

Troubleshooting

bug060828a:

Problem with messages (dialogs).
[Fixed in version 4.3c]

bug060829a:

Dirac distribution gives availability (rather than unavailability).
[Fixed in version 4.3c]

bug060920b:

In calculation of SIL, the level SIL4 range is 10^{-5} to 10^{-4} instead of 0 to 10^{-4} .
[Fixed in version 4.3e]

bug060922:

The command 'compute Pr r tries 100 at 1' adds 0 in the list of mission times.
[Fixed in version 4.3e]

bug060924:

Uncaught exception when using full periodic test distribution with parameter tau set to 0.
[Fixed in version 4.3e]

bug061004:

Uncaught exception when attempting to calculate a probability from a non existing handle.
[Fixed in version 4.3e]



bug061109:

Expression meet (used in filters) is not taken into account into the commands to walk on data structures.

[Fixed in version 4.3e]

Version 4.4

What's new in Version 4.4

Known Issues

Troubleshooting

bug070410:

Identifiers starting with a digit other than 0 and 1 raise an uncaught exception.
[Fixed in version 4.4b]

bug070421:

The option 'display tries' raises an error on the computation of SIL.
[Fixed in version 4.4c]

bug070424:

Values of parameters of probability distributions are not reset correctly when their definition is changed.
[Fixed in version 4.4c]

bug070703:

Parsing of a parenthesized parameter, e.g. '(0.001)', raises an error.
[Fixed in version 4.4e]

bug071115:

Error in the calculation of the BDD of $@(-1,[a,b,c])$ ou de $\#(-1,1,[a,b,c])$
[Fixed in version 4.4h]

bug080205a:

Problem in the choice of singularity points (1/1000 of test interval).
Added: $\epsilon = \min(0.1, 1/1000 \text{ intervalle entre tests})$
Added: test-date - ϵ (test-date, test-date + ϵ)
[Fixed in version 4.4i]

bug080205b:

The calculation of equivalent-lambda gives strange results on periodically tested systems.
[Fixed in version 4.4i]

bug080514:

Memory error in command "display option;"
[Fixed in version 4.4j]

bug080520a:



Problem when parsing a list of parameters and making a syntax error.
[Fixed in version 4.4j]

bug080530a:

Infinite loop in the computation of singularity points of when the period of a periodic-test distribution is 0.
[Fixed in version 4.4j]

bug080530b:

Problem in the calculation of singularity points.
[Fixed in version 4.4j]

bug080530c:

Infinite loop in the calculation of SIL.
[Fixed in version 4.4j]

bug080710:

Error in the command "set from <handle> to <handle> <selector>;"
[Fixed in version 4.4j]

Version 4.5

What's new in Version 4.5

Syntax of probability distributions

The main novelty of Version 4.5 is the change of the syntax of probability distribution and probability distribution parameters. The old syntax (which is still accepted for the sake of ascendant compatibility) relies on command 'law'. The new syntax relies on command 'basic-event'. E.g.

```
law BE1 constant 0.01;
```

versus

```
basic-event set BE1 0.01;
```

Beyond changing command structure, several changes have been made in the syntax of the distributions:

- Parameters of distributions are now surrounded with parentheses and separated with commas. E.g.

```
basic-event set BE1 exponential(0.01,100);
```

- Time dependent distributions (exponential, Weibull, periodic-test...) take an additional parameter which denotes the mission time. The mission time becomes a parameter. E.g.

```
basic-event set BE1 exponential(0.01,mission-time+10);
```

- Random deviates names are suffixed by "deviate", e.g.

```
basic-event set BE1 uniform-deviate(0.01,0.02);
```

Commands for conditional instructions

Two commands for conditional instructions have been introduced.

```
if <expression> then <instruction> [else <instruction>] fi;  
while <expression> <instruction>
```

Known issues

Troubleshooting

bug081003:

The message memory exhausted is not printed.

[Fixed in version 4.5b]

bug081031:

Very long running time to compute the probability distribution periodic test (with 11 parameters).
[Fixed in version 4.5e]

bug081117:

Problem in the computation of means and sums of probabilities and importance factors over mission times.
[Fixed in version 4.5e]

bug081204:

The Boolean parameter 'x' of the full periodic-test distribution (with 11 parameters) is inverted.
[Fixed in version 4.5f]

bug081209a:

The computation of RAW is based on an incorrect formula:
 $RAW(S,e) \# (Pr(S,e)/Pr(S))/Pr(S).$
 $RAW(S,e) = Pr(S|e) / Pr(S) = (Pr(S,e)/Pr(e))/Pr(S).$
[Fixed in version 4.5f]

bug081210a:

Problem with new syntax of histogram (impossible to re-import a histogram printed by means of the command 'display law').
[Fixed in version 4.5f]

bug081211a:

Wrong algorithm to compute $CQr(S,e) = (Pr(S) - Pr(S,e))/(1.0 - p(e))$.
[Fixed in version 4.5f]

bug081211b:

No algorithm to compute importance factors of gates from ZBDD.
[Fixed in version 4.5f]



Version 4.6

What's new in Version 4.6

Version 4.6 is the first one released as a DASSAULT SYSTEMES product. Major internal changes have been done to fulfill DASSAULT SYSTEMES quality standard.

Extension of command set

Commands "set delay-before-interruption" and "set seed" take now an expression as argument rather than a simple integer.

```
set delay-before-interruption <expression> ;  
set seed <expression> ;
```

Known Issues

bug081211c:

No algorithm to compute importance factors of gates from Sums-of-Products.

Troubleshooting

bug090205:

Random-deviates is not reset when 1) sorting products on probability and 2) printing probabilities of products. Arbitrary values where therefore user/printed.

[Fixed in version 4.6a]

Version 4.7

What's new in Version 4.7

Internal changes started with version 4.6 are going on.

Commands for conditional instructions

One additional command for conditional instructions has been introduced.

```
foreach <shell-variable> in <selector> <instruction>
```

Known issues

bug081211c:

No algorithm to compute importance factors of gates from Sums-of-Products.

bug090504:

The command 'print "hello world\n" > "empty.txt";' outputs 'true'. The parser reads it as 'print' expression "'hello world\n" > "empty.txt'" and prints the results.

Troubleshooting

bug090205:

Random-deviates are not reset when 1) sorting products on probability and 2) printing probabilities of products. Arbitrary values were therefore user/printed (this bug has been fixed in a different way in version 4.7 than in version 4.6).

[Fixed in version 4.7a]

bug090326:

Parsing error for parameters: $(-a + b)$ was read as $-(a + b)$

[Fixed in version 4.7a]

bug090514:

Infinite loop on command "sort literals < :>order".

[Fixed in version 4.7a]

bug090517:

Memory leak in the parser parameter 'switch'.

[Fixed in version 4.7a]

bug090518:

Memory leak in evaluation of filters on expressions.

[Fixed in version 4.7a]

bug090519:

Problems in tabulated algorithms for BDD.

[Fixed in version 4.7a]



bug090525:

Infinite loop in the collection of singularity points.
[Fixed in version 4.7a]



Aralia Version 4 Delivery 8

What's new in Version 4 Delivery 8

Aralia Version 4 Delivery 8 is a major version. First, it is synchronized with Dassault Systemes official releases. Second, the code has been revisited to fulfill DASSAULT SYSTEMES Quality Standards. Third, a number of important features regarding Probability Distributions, XML support or Command Shell are made officially available (for some of them, test versions have been provided in previous releases).

Probability Distributions

XML Support

Known issues

bug081211b:

No algorithm to compute importance factors of gates from Sums-of-Products.

bug090504:

The command 'print "hello world\n" > "empty.txt";' outputs 'true'. The parser reads it as 'print' expression "'hello world\n" > "empty.txt"' and prints the results.

Troubleshooting

bug091002a:

Problem with the option "set display-time-sums on;" when printing results at XML format.
[Fixed in version 4.8a]

bug091002b:

No variable in the result of the command « display orders root(*) ;» when printing results at XML format.
[Fixed in version 4.8a]

bug091002c:

No XML output for commands 'approximate product-number', 'display size', 'display product-number' and 'display maximum-order'.
[Fixed in version 4.8a]