

NAME

control - control a system of communicating machines

SYNOPSIS

control [*option ...*] [*scm-file*]

DESCRIPTION

The **control** tool reads the model given in the specified *scm-file*, and performs a control algorithm during the execution (simulation) of the model. If *scm-file* is omitted, the model is read from the standard input.

The model contains the description of a system of communicating machines along with, optionally, the specification of a set of bad configurations. See scm(5) for a description of the scm input language.

At each step of the simulation, **control** displays the transitions that may be taken and asks the user to choose one. If the number provided by the user is not a possible transitions, the simulation ends. If the simulation is automatic (see the options), it ends after a given number of execution steps.

OPTIONS**Main Options**

-k *param*

Specifies the value of the extrapolation parameter. This parameter tunes the precision of the state estimates. A greater *param* gives more precision but the execution time exponentially increases as well. The *param* must be a nonnegative integer. The default is 1.

-limit *limit*

Limit the number of execution steps of the automatic simulation to *limit*. The *limit* must be a nonnegative integer. The default is 100.

-statistics

Upon succesful termination, **control** displays detailed statistics about execution time and memory consumption.

Supervisory Control Options

-simulation-mode *mode*

Specifies whether the simulation is automatic or not.

manual At each step of the simulation, the user must choose one transition among the possible ones. This is the default.

auto At each step of the simulation, one transition among the possible ones is randomly chosen.

-display-estimate

Displays the symbolic representation (QDDs) of the state estimates. By default, **control** does not display the state estimates, but give their size (number of QDD nodes).

-simulation-only

Simulates a run of the system and computes the state estimates, but does not control it.

Logging Options**-columns** *width*

Use *width* columns for pretty-printing. In other words, set the value of the pretty-printer's right margin to *width* (in characters). The default is the value of the environment variable COLUMNS if set, or 78 otherwise.

-box-depth *depth*

Set the pretty-printer's box depth to *depth*. Boxes nested deeper than *depth* are printed as an ellipsis. OCaml's `max_int` is used by default.

SEE ALSO

`verify(1)`, `scm(5)`

AUTHORS

The **control** tool is mainly written, maintained and tested by:

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See the *AUTHORS* file in the source distribution for the full list of contributors.

Web site: <http://altarica.labri.fr/forge/projects/mcscm/wiki>

CAVEATS

Numerical values held by messages or local variables are currently ignored by **control**.

- Conditions in transitions and bad configurations are discarded and assumed to be **true**.
- Assignments in transitions are ignored.

These rules guarantee that the reachability analyses performed by **control** are “correct”.

BUGS

Please visit the following page for bug reports and feature requests:

<http://altarica.labri.fr/forge/projects/mcscm/issues>

ACKNOWLEDGEMENTS

The **control** tool is programmed in *Objective Caml* and uses several 3rd-party libraries:

- *Camllib*, *Fixpoint*, *LatticeAutomata*, and *Scm*. By Bertrand Jeannet and Tristan Le Gall. Licensed under the LGPL. Web site: <http://gforge.inria.fr/projects/bjeannet/>.