

**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/>.