

# Instructions on isim 1.4.2

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## Abstract

This document describes how to use isim 1.4.2.

## 1 Introduction

### 1.1 Notation

In this document, a sentence starting with `$` describes a command line in a shell of your system, such as

```
$ echo this is a command line.
```

## 2 Platform information

isim is available only on Mac OS X 10.5(Leopard) or higher because it uses the bundled version of Open MPI 1.2 for parallel computation: <http://developer.apple.com/library/mac/#DOCUMENTATION/Darwin/Reference/ManPages/man3/OpenMPI.3.html>

## 3 Running isim

isim is a command line tool which allows you to run a simulation. Its simplest usage is like:

```
$ isim -I -f model.isml -l 10 -s 0.001 -E -P
```

which will execute a simulation of ISML model “model.isml” using the Euler method as a first-order numerical procedure where time duration is 10 with time step 0.001, and prints its result to the file named “result\_0.dat” in the current working directory. You may see log/statistics information at its standard error.

If you want to use 4 CPU cores for the same simulation, then:

```
$ mpirun -np 4 isim -I -f model.isml -l 10 -s 0.001 -E -P
```

which result in corresponding 4 files named “`result_0.dat`”, “`result_1.dat`”, “`result_2.dat`” and “`result_3.dat`”, each of them differs on variables, i.e., contains the multivariate data of its own variable set.

## 4 Simulation Options

You can use 4th Runge-Kutta method by option `-R` instead of `-E`. Specifying `-d` with a level ranging from 0 to 9, you can get several debug information during simulation.

For more details on available options for `isim`, run

```
$ isim --help
```

## 5 Limitation

`isim` has the following known limitation:

- Time options `-l` and `-s` do not support time unit; their values are treated in the units specified in the target model.
- `isim`'s implementation of parallel simulation is still in development; a result of parallel simulation may varies from its single-core one.