

FAQ for FLAME

December 8, 2009

1 FLAME

1.1 Random seeds

Controlling random seeds

Q1: How can I control the random seed in FLAME? How can I:

1. Launch two simulations with the same random seed (using different 0.xml files)
2. Launch two simulations with different random seeds (but using the same 0.xml file)

A1:

The seeding of the random number generator is controlled by the way `xparser` is invoked:

- Debug mode: Xparse using: `xparser` (without any flags) produces debugging code. The same random seed is then used for each run. When `xparser` produces debug code, it does not include any seeding of the RNG, so the random seed would be the default seed (usually based on the system time). Note that this only applies to serial code (in parallel there is no control over the seed, since the MPI library re-seeds at random points). Also, it only applies if the none of the agent functions manually seeds the RNG (by calling `srand()`).
- Production mode: Xparse using: `xparser -f` produces production code. The random seed is now re-initialized for each run/job by FLAME. The random seed is set at the moment of launching the job, based on the system time. If multiple jobs are launched at exactly the same moment through a batch script, the same random seed will be used. To circumvent this, the script should contain a `wait` command between launching the jobs.

1.2 Message filters

1.2.1 Sort tag

Message input can be pre-sorted by libmboard using the sort-tag:

```
<input>
  <messageName>MSG_NAME</messageName>
  <sort>
    <key>KEY</key>
    <order>[ascend, descend]</order>
  </sort>
</input>
```

1.2.2 Randomization tag

Since all information transfer between agents is through messages, message randomization is FLAME's method to simulate random interaction between the agents. By default, messages are not randomized. Message input can be randomized by libmboard using the randomize-tag:

```
<input>  
  <messageName>MSG_NAME</messageName>  
  <randomize>on</randomize>  
</input>
```