Kepler - Bug #3586

COMAD traces should be reproducible when there is limited concurrency

10/30/2008 01:41 PM - Timothy McPhillips

Status:	Resolved	**Start date:**	10/30/2008
Priority:	Normal	**Due date:**	
Assignee:	Timothy McPhillips	**% Done:**	0%
Category:	general	**Estimated time:**	0.00 hour
Target version:	3.X.Y	**Spent time:**	0.00 hour
Bugzilla-Id:	3586		

Description

The ComadTest actor is roughly the COMAD equivalent of Ptolemy's NonStrictTest. It records the stream of data it receives during a run. In training mode it stores an XML representation (similar to a trace file) of this stream in a parameter value. In test mode it throws an exception if the received stream doesn't match the previously stored value of this parameter.

This works fine currently if the showDetails parameter is set to false, hiding all token and object IDs in the stored XML representation. However, this makes it impossible to verify that the provenance records are correct because the dep attribute is hidden (the value of the dep attribute is a list of the ids of tokens on which a new item depends). However, if the IDs are recorded then the ComadTest actor almost always reports a mismatch because, e.g., the IDs in the dep attribute are not guaranteed to be in a particular order, IDs are assigned asynchronously in different actors, etc.

We do not expect traces for multiple runs of COMAD workflows to be exactly reproducible in general due to concurrency. Each actor runs in its own thread and token IDs are pulled from a common pool. But in a simple, three-actor test workflow (CollectionComposer -> ActorToBeTested -> ComadTest), I believe reproducibility to be both possible and desirable.

History

#1 - 04/21/2009 05:55 PM - Timothy McPhillips

I am going to add to the base class of all actors that render COMAD collections (including ComadTest) the ability to reassign locally the IDs given to collection elements according to their order in the stream (the real IDs are assigned in chronological order as the elements are created which may not be reproducible across runs). This should make COMAD workflow traces (and tests) reproducible even when provenance records are included in the trace and when there is any amount of concurrency at run time.

#2 - 04/24/2009 02:27 PM - Timothy McPhillips

This feature is now complete. Traces rendered by CollectionDisplay, TraceWriter, and ComadTest now can produce repeatable output.

#3 - 03/27/2013 02:23 PM - Redmine Admin

Original Bugzilla ID was 3586