

calnt 0017 - Why is my study stuck in the 'Processing' status hours after I deployed it

Question: Study stuck in the 'Processing' status hours after I deployed it?

Topic: calIntegrator usage

Release: all versions

Date entered: 2/22/2012

Details About the Question

When you deploy a study, you may find its status showing as 'Processing' on the 'Manage Studies' page hours or even days later (see screenshot below with study status highlighted in red). The status may remain stuck like this indefinitely, regardless of how fast your calIntegrator server is.

Manage Studies				
View studies and click Edit to modify or click Delete .				
Name	Description	Last Modified By	Status	Deployment Start Date
Heap Space Test	Test of heap space error	ncimanager	 Processing	2012/02/21 17:55:59

Answer

The most common cause of this problem is an out of memory error caused by limited heap space in the Java Virtual Machine on the JBoss server instance running calIntegrator. If a study deployment fails due to this error, calIntegrator does not notify the user explicitly and instead logs the error in the server.log file located at the following path:

`[MATKC:installation root]\calintegrator2\jboss-4.0.5.GA\server\default\log`

Note that the study's status will continue to show as 'Processing' on the 'Manage Studies' page even after the deployment has failed and the error has been logged.



Note

Studies may show a Status error indicating a timeout after 48 hours when in fact the study is still properly deploying. As a result, a study showing a timeout error should not be deleted or edited. In such a case, the server log correctly indicates that no error or failure has occurred.



Warning

calIntegrator is not able to deploy studies using Affymetrix CEL files. calIntegrator is able to deploy studies using Affymetrix CHP files loaded as parsed data in caArray or Affymetrix TXT files loaded as imported (not parsed) data in caArray.

In Windows, the heap size is set in the 'run.bat' file located at the following path:

`[MATKC:installation root]\calintegrator2\jboss-4.0.5.GA\bin`

In Linux, the heap size is set in the 'run.conf' file located at the following path:

`[MATKC:installation root]\calintegrator2\jboss-4.0.5.GA\bin`

By default, the heap size, which is dynamically allocated, is set at a minimum of 256 MB and a maximum of 512 MB, which is not nearly enough when deploying studies with large datasets. For instructions on how to modify the heap size by editing 'run.bat', please refer to the following page from the calIntegrator local installation guide:

<https://wiki.nci.nih.gov/display/calIntegrator/calIntegrator+1.3+Local+Installation+Guide#calIntegrator1.3LocalInstallationGuide-ConfiguringJBoss>

The minimum heap space should be set to 4096 MB (4 GB), assuming that your calIntegrator server has this amount of physical memory available.

The recommended heap size varies greatly depending on the size of your dataset and the amount of available physical memory on your calIntegrator server. For reference, for a dataset containing 500 Affymetrix CEL files that are approximately 16GB in combined size, the minimum heap size required for the study deployment to complete successfully is 15 GB.

Ideally, calIntegrator should be run on a dedicated server, with the heap size set as close as possible to the amount of available physical memory without destabilizing the underlying operating system.

The tables below shows the results of extensive testing of calIntegrator study deployments on different hardware configurations with varying amounts of heap space.

REFERENCE INFORMATION:

- Trials #1 and #2 were performed on a Dell Optiplex 755 workstation running Windows XP Professional
- The workstation runs on an Intel Core2 Quad Q6600 processor at 2.40 Ghz
- The total installed physical memory is 3.25 GB, with approximately 1.75 GB available at the time of testing before launching calIntegrator

Trial #1 (The heap space setting as specified in run.bat is -Xms256m -Xmx512m)

# of samples mapped	Total size of samples (MB, uncompressed)	Deployment Status	Time to deploy or fail (minutes:seconds)	
1	2	SUCCESS	1:00	* time not exact
2	4	SUCCESS	0:47	* time not exact
4	7.8	SUCCESS	1:15	* time not exact
8	15.5	SUCCESS	1:50	* time not exact
16	31.2	SUCCESS	3:15	
64	124.8	SUCCESS	13:55	
128	249.6	FAIL	21:16	
192	374.4	FAIL	23:47	
224	436.8	FAIL	25:44	
256	499.2	FAIL	1h 5:02	

Trial # 2 (The heap space setting as specified in run.bat is -Xms256m -Xmx1024m)

# of samples mapped	Total size of samples (MB, uncompressed)	Deployment Status	Time to deploy or fail (minutes:seconds)
1	2	SUCCESS	0:10
4	7.8	SUCCESS	0:21
16	31.2	SUCCESS	1:08
64	124.8	SUCCESS	5:12
128	249.6	SUCCESS	12:48
192	374.4	SUCCESS	21:35
224	436.8	FAIL	27:59
256	499.2	FAIL	34:08

- Trial #3 was performed on a Dell Poweredge server running Linux
- The server runs on a quad-core 2.33 Ghz Intel(R) Xeon(R) 5148 CPU
- The total installed physical memory is 16 GB

Trial #3 (The heap space setting as specified in run.bat is -Xms2048m -Xmx2048m)

# of samples mapped	Total size of samples (MB, uncompressed)	Deployment Status	Time to deploy or fail (minutes:seconds)
192	374.4	SUCCESS	18:12
208	405.6	SUCCESS	41:16
224	436.8	SUCCESS	27:21
256	499.2	SUCCESS	33:13
512	998.4	FAIL	4h 47:23

Have a comment?

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