

Ruby - Feature #19785

Deprecate `RUBY\_GC\_HEAP\_INIT\_SLOTS`

07/25/2023 06:29 PM - peterzhu2118 (Peter Zhu)

Status:	Closed	
Priority:	Normal	
Assignee:		
Target version:		
Description GitHub PR: https://github.com/ruby/ruby/pull/8147 The RUBY_GC_HEAP_INIT_SLOTS environment variable is replaced by RUBY_GC_HEAP_INIT_SIZE_%d_SLOTS (introduced in commit 3ab3455), which allows for more fine-grained tuning of size pools. So it doesn't make sense to keep the environment variable RUBY_GC_HEAP_INIT_SLOTS. I'm proposing to deprecate RUBY_GC_HEAP_INIT_SLOTS and eventually remove it.		

Associated revisions

Revision 9ea9f992487711fa1a66637edcaf1327d0cd5099 - 08/26/2023 01:50 AM - peterzhu2118 (Peter Zhu)

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Revision 9ea9f992 - 08/26/2023 01:50 AM - peterzhu2118 (Peter Zhu)

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History

#1 - 07/25/2023 06:31 PM - peterzhu2118 (Peter Zhu)

- Subject changed from Deprecate `RUBY\_GC\_HEAP\_INIT\_SLOTS` to Deprecate `RUBY\_GC\_HEAP\_INIT\_SLOTS`

#2 - 08/04/2023 07:46 PM - peterzhu2118 (Peter Zhu)

- Description updated

#3 - 08/23/2023 01:11 AM - ko1 (Koichi Sasada)

Sorry I didn't know about RUBY_GC_HEAP_INIT_SIZE_%d_SLOTS

- How to know %d part?
- How to tune the value?
 - it seems difficult to set it compare with setting 1 init value.

Another idea is to introduce RUBY_GC_HEAP_INIT_PAGES for the global page pool. But I'm not sure there is global page pool yet. and not sure it will help for tuning.

#4 - 08/23/2023 01:44 AM - peterzhu2118 (Peter Zhu)

How to know %d part?

The %d part is the sizes returned from GC.stat_heap. On 64-bit systems, it's 40, 80, 160, 320, 640. On 32-bit systems it's 20, 40, 80, 160, 320.

How to tune the value?

You use RUBY_GC_HEAP_INIT_SIZE_40_SLOTS=4000000 to have 4M slots in the 40 byte size pool, for example.

it seems difficult to set it compare with setting 1 init value.

Yes, it is more difficult than setting one value, but users of this API should be aware of how the GC internals work if they want to use this.

Another idea is to introduce RUBY_GC_HEAP_INIT_PAGES for the global page pool.

The idea of RUBY_GC_HEAP_INIT_SIZE_%d_SLOTS is to set initial sizes for Rails apps so the GC doesn't need to warm up. RUBY_GC_HEAP_INIT_PAGES will allocate pages to size pools based on the distribution of objects at boot, and I worry that it will be a different distribution than serving requests.

#5 - 08/23/2023 08:28 AM - byroot (Jean Boussier)

RUBY_GC_HEAP_INIT_PAGES will allocate pages to size pools based on the distribution of objects at boot, and I worry that it will be a different distribution than serving requests.

Unless the GC become capable of reusing an empty page of one pool for another? Assuming you call GC.compact or Process.warmup at the end of boot, the difference becomes marginal, and a single value becomes indeed much simpler to configure and keep up to date.

But perhaps I'm missing something?

#6 - 08/26/2023 01:51 AM - peterzhu2118 (Peter Zhu)

- Status changed from Open to Closed

Applied in changeset [git|9ea9f992487711fa1a66637edcaf1327d0cd5099](https://github.com/ruby/ruby/commit/9ea9f992487711fa1a66637edcaf1327d0cd5099).

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