

QGIS Application - Feature request #2037

Enable multi-threaded rendering in QGIS

2009-10-27 04:02 PM - Tim Sutton

Status: Closed	
Priority: Normal	
Assignee:	
Category: Map Canvas	
Pull Request or Patch supplied:	Resolution:
Easy fix?: No	Copied to github as #: 12097
Description	
<p>User story 1: Joe has a multicore processor but when QGIS is rendering a map, one of the cores is heavily utilised whilst the rest remain idle.</p> <p>User story 2: Pam wishes she didnt need to wait so long for maps to draw as each layer draw carries out a long running query against a database backend.</p> <p>Qt4 includes QThread which makes writing multithreaded cross platform libraries fairly easily. Thus it would be good to start thinking about how we can make QGIS take advantage of this.</p> <p>In my mind there are two main areas of work required:</p> <ul style="list-style-type: none">- making map layers inherit from QThread and adding in sufficient foundation for them to be able to render in a thread (pretty much covered in the attached patch).- Updating qgsmrenderer.cpp to orchestrate the threaded rendering of map layers and the composition of the results. <p>For the second (renderer part) we will need to split the render process into three parts I think:</p> <ul style="list-style-type: none">- a setup phase which sets the render context for each maplayer (which would need to become a member of qgsmrenderer) and then calls the run() method to launch the thread- a slot to listen for when each thread is done and tally up when all the rendering work is completed- a finalise method to end the render process with label and acetate rendering and perform final compositing from layer render cache images.	
Related issues:	
Related to QGIS Application - Bug report # 8889: Slow "selection" of features	Closed 2013-10-17

History

#1 - 2009-10-29 12:58 AM - Marco Hugentobler

Hi Tim

Please also consider the `[[QtConcurrent]]` (<http://doc.trolltech.com/4.5/threads.html#qtconcurrent>) framework as an option. The advantage over inheritance from QThread is that the number of created threads automatically adapts depending on the number of cores. Furthermore it is more high-level and therefore simpler to use. And it does not require api changes in `[[QgsMapLayer]]`.

The Qt doc about `[[QtConcurrent]]` is not as good as the usual Qt docs. I once wrote an example to render a tiled raster in threads with `[[QtConcurrent]]`. We may look at this next week.

cheers,
Marco

#2 - 2009-11-03 02:26 AM - Martin Dobias

I'd like to second Marco's suggestion. Inheriting map layers from QThread looks like a bad design decision...

#3 - 2010-06-11 11:16 PM - Paolo Cavallini

There is an ongoing Summer of Code project dealing with this. Hopefully we'll see the results in a couple of months

#4 - 2011-11-23 06:01 PM - Aren Cambre

- Assignee deleted (nobody -)
- Operating System deleted (Debian)
- Pull Request or Patch supplied set to No

Has anything come of this?

#5 - 2011-12-16 01:58 PM - Giovanni Manghi

- Target version changed from Version 1.7.0 to Version 1.7.4

#6 - 2012-01-11 07:32 PM - Aren Cambre

Oh, wow, this will really come with 1.7.4?

#7 - 2012-01-11 07:36 PM - Nathan Woodrow

- Target version changed from Version 1.7.4 to Version 2.0.0

No. I would say that last update was a mistake.

2.0 would be the best target as I haven't seen much work on this in a while.

#8 - 2012-01-11 07:36 PM - Aren Cambre

OK, thanks. This would be an exciting improvement. Is "low" priority really correct?

#9 - 2012-10-06 02:23 AM - Pirmin Kalberer

- Target version changed from Version 2.0.0 to Future Release - Nice to have

#10 - 2013-06-28 02:54 PM - Aren Cambre

I'm surprised this remains low priority. This would be a huge benefit for complex maps.

#11 - 2013-06-28 04:10 PM - Nathan Woodrow

It's not really low as Martin is planning to work on it after 2.0.

#12 - 2013-06-28 06:57 PM - Aren Cambre

- *Priority changed from Low to Normal*

#13 - 2014-02-13 05:50 PM - Tim Sutton

- *Status changed from Open to Closed*

I'm closing this out - Martin Dobias has an implementation in a branch which will be merged post QGIS 2.2

Files

qgis_threaded_render.v1.diff	4.55 KB	2009-10-27	Tim Sutton
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