

DOLFIN HPC - Bug #78

VTK saving does not make sense for high order and discontinuous elements

04/20/2013 09:15 pm - Murtazo Nazarov

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|--|---------------|------------------------|-------------------------------------|
| Status: | In Progress | Start date: | 11/05/2013 |
| Priority: | Normal | Due date: | |
| Assignee: | Kaspar Müller | % Done: | 0% |
| Category: | | Estimated time: | 0.00 hour |
| Target version: | 0.9.0-hpc | | |
| Description | | | |
| <p>The current implementation of the VTK files either considers that the function is P1 or interpolates it into P1, which does not make sense for Pk elements.</p> <p>One (ugly) suggestion could be if F_P2 \in Mesh_1 a P2 function do the following:</p> <ul style="list-style-type: none">- create Mesh_2 = refine(Mesh_1), define F_P1 \in Mesh_2- interpolate F_P2 into F_P1- save F_P1. | | | |
| Subtasks: | | | |
| Bug # 114: VTK saving does not make sense for high order elements | | | New |
| Related issues: | | | |
| Related to DOLFIN HPC - Bug # 122: Review request [dolfin-hpc]commit:00c4566d... | | Closed | 12/02/2013 02/07/2014 |

History

#1 - 04/22/2013 08:42 am - Niclas Jansson

Murtazo Nazarov wrote:

The current implementation of the VTK files either considers that the function is P1 or interpolates it into P1, which does not make sense for Pk elements.

One (ugly) suggestion could be if F_P2 \in Mesh_1 a P2 function do the following:

- create Mesh_2 = refine(Mesh_1), define F_P1 \in Mesh_2
- interpolate F_P2 into F_P1
- save F_P1.

True, P1 elements has been one of VTK's limitation for a while. However, they have recently added support for non-linear scalar and vector-fields. It is not a general implementation, and I think it only supports up to 4th or 6th order elements at the moment.

Implementing this should be easy, but we need to dig out some documentation. As we all know, VTK is notoriously poor at documenting its fileformat.

#2 - 04/26/2013 12:28 am - Aurélien Larcher

- File *SHOEVTK.pdf* added

Apparently the job was done by Sandia.

Attached is a techreport from 2004.

#3 - 10/23/2013 05:49 pm - Aurélien Larcher

- Assignee set to Kaspar Müller

- Target version set to 0.9.0-hpc

#4 - 10/24/2013 06:32 pm - Aurélien Larcher

- Subject changed from *VTK saving does not make sense for Pk elements to VTK saving does not make sense for Pk and discontinuous elements*

#5 - 10/24/2013 06:33 pm - Aurélien Larcher

- Subject changed from *VTK saving does not make sense for Pk and discontinuous elements* to *VTK saving does not make sense for high order and discontinuous elements*

#6 - 11/05/2013 09:50 am - Kaspar Müller

- Status changed from *New* to *Closed*

#7 - 11/09/2013 03:03 pm - Aurélien Larcher

- Status changed from *Closed* to *In Progress*

The proposed patch does not allow compatibility with UFC 1.x and has slight issues with code style compliance.

I propose the fix to be pushed to your own branch, open a code review and then I will merge it.

Best regards,

Aurelien

#8 - 04/23/2014 07:53 pm - Kaspar Müller

Aurélien Larcher wrote:

The proposed patch does not allow compatibility with UFC 1.x and has slight issues with code style compliance.

I propose the fix to be pushed to your own branch, open a code review and then I will merge it.

Best regards,

Aurelien

Are you referring for code style to:

<http://dryad.csc.kth.se/projects/dolphin-hpc/repository/revisions/master/entry/doc/misc/policy>

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Files

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|-------------|---------|------------|------------------|
| SHOEVTK.pdf | 1.05 MB | 04/25/2013 | Aurélien Larcher |
|-------------|---------|------------|------------------|