2020-1-28 Meeting notes

Date

28 Jan 2020

Participants

- Scot Breitenfeld
- Koen Hillewaert
- Mickael PHILIT
- Gregory Sjaardema
- Thomas Hauser
- Vicky Moschou
- Tony Garratt
- Stephen Wood (NASA) accompanies Christopher Rumsey
- stephen.guzik@colostate.edu
- Christopher Rumsey
- Marc Poinot
- Pierre-Jacques Legay
- Patrick Baker
- Tobias Leicht

Steering Committee Issues

- [ ] Scot Breitenfeld will follow-up with contacts at P&W about new representative for the committee, vote to drop P&W at next meeting if none found.

Discussion topics

Time (Approximate)	Item	Presenter	Notes
1min	Approve 11 Dec 2019 minutes.	Scot Breitenfeld	[ ] post last meeting's minutes to CGNS webpage.

5min	CGNS version number specification	Scot Breitenfeld Vangelis Skaperdas	- [ ] Beta-cae will summarize the issue and the proposed solution to the version issue - [ ] Koen Hillewaert will send out the Beta-cae document to the entire committee for discussion, and to follow-up with a vote as to whether to increase the CGNS version to 4.0, or to continue with the 3.x series and to just provide a graceful exit fix. The issue will also be raised on CGNStalk after the committee discussion. A poll was taken after the meeting, Resolve issue with release's 3.4.0 version compatibility, the 4.0.0 release, and forward compatibility. A majority of the committee decided on option 2: - [ ] Due 31 Jan 2020: Scot Breitenfeld will release a patched version, v.3.4.0-patch0, with CPEX0043 removed. Commits after CPEX0041 commit can remain if they do not depend on CPEX0041. - [ ] Due 31 Jan 2020: Scot Breitenfeld or Mickael PHILIT will release v4.0.0, which was essentially the 3.4.0 release. - [ ] v 4.1.0 can be released shortly thereafter with new fixes committed after the 3.4.0 release. After discussion during the meeting, it was decided that forward compatibility will be maintained in a major release as before - [ ] Koen Hillewaert will check whether this forward compatibility has to be described in more detail. Basically should result in graceful exit if data present in “extended” version of older datastructures
15min	prioritization, review and attribution of JIRA bugs/issues	Tony Garratt David Gutzwiller	**Platform proposals** Drop SunOS, Windows 7 and 8 and AIX? Windows is under-tested. Suggest Test C and Fortran serial and parallel on Windows 10 x64 as a bare minimum Do we test both 32bit (legacy) and 64bit API? It's a minor point, but it would a good idea to add 32bit to at least one Linux and Windows Bug list: **CGNS-176** - Openmpi issues for large meshes fails TO DO **A priority of bugs to fix in next release** #1 **CGNS-135** - Windows fails VS17, large files > 2GB TO DO **Crucial to Ansys.** Although most HPC is Linux, project set-up often was done on Windows and import/export/sharing of mesh/solution done on Windows, while most runs performed on Linux clusters #2 **CGNS-141** - cg_open fails after calling cgp_open in serial TO DO #3 **CGNS-116** - Parallel CGNS causes invalid free with MPI Window object TO DO - important to have parallel working #4 **CGNS-166** - Keep CGNS file compatible with HDF5-1.8 TO DO #5

CGNS-55 - Add new fortran and C examples to CMake
TO DO

#6

CGNS-55 - Add new fortran and C examples to CMake
TO DO

CGNS-38 - 64bit support should be determined from configure
TO DO

CGNS-162 - Remove the use of configure.bat
TO DO

CGNS-113 - configure --help duplicate/wrong message
TO DO

CGNS-147 - src/configure issues with tcl, tk, and mpi
IN PROGRESS

Conflicting bugs - are we supporting configure or not? Very confusing to end-users

Overall comments from Ansys

- Configure much easier to use than cmake. Ansys would prefer we drop cmake and move back to configure - but see above - are we moving to cmake only or not??
- Make LFS the default - 2Gb is tiny by today's standards. Introduce LFS=off or SFS option for backward compatibility

https://cgnsorg.atlassian.net/browse/CGNS-184

During the meeting, this was marked as having the highest priority for ansys

- Add large file test cases >4Gb serial and parallel *both platforms*
- Overall needs of Ansys - these items and bug fixes important to use, not any of the new enhancements right now.

Overall comments from NUMECA

I generally agree with the comments from ANSYS / Tony Garrett. I will second a few points based on NUMECA's needs:

Highest priority bugs:

CGNS-109 - Too many communicators
TO DO This issue has highest priority for numeca. DG says the parallel interface is actually unusable and therefore disabled in numeca tools

CGNS-141 - cg_open fails after calling cgp_open in serial
TO DO

CGNS-176 - Openmpi issues for large meshes fails
TO DO

We have disabled parallel CGNS in our release packages until CGNS 176 and CGNS 109 are fixed, it became a problem for our support engineers.

I agree with the comments on configure vs CMAKE. Our internal library maintenance system is built on configure, and it would be nice to maintain support if possible.

David Gutzwiller Tony Garratt will update the issues mentioned to be scheduled for the next release in JIRA.

			• There is no current plan to drop Autotools support.
5min	high-level editing tools for the documentation page	Marc Poinot Christopher Rumsey	Raw html is not an ideal format to maintain documentation, the latex version seemed easier. It was mentioned to maybe go back to using latex, but the latex version is now out of date compared to the html version. Some committee members were uncertain whether the latex format was the right way to go when compared to other documentation methods (Markdown, Readthedocs, etc…). Either way, it will involve some effort to move from the html versions. ☑ Marc Poinot will look into latex state of documentation and will look into alternatives to raw HTML. • Marc Poinot has prototype w/ REST (used for the readthedocs web site). It supports equations and images and should therefore be sufficient. It is implemented / available in dedicated branch (documentation_migration). Needs feedback before continueing • action for all: check result and the actual rest code. Main concern: simplicity of edition - to be checked by all in the source in a dedicated branch ☐ Marc Poinot push last edits in prototype on branch ☐ Marc Poinot provide tarball with resulting html
5min	cgnstalk: maintain or to be replaced by an alternative discussion group		• main issue is that it is a NASA tool and getting older less flexibility • currently it's main advantage is visibility / following • if replaced, best within the current tools (jira/confluence) for archival; probably as close as possible to bug tracking ☐ Christopher Rumsey will look into the current usage of cgnstalk
2min	Status of Accepted CPEX 0040 **CGNS-87** - CPEX 40 Rind Plane Indexing **DONE**		
5min	Status of Accepted CPEX 0041 **CGNS-121** - CPEX 0041 issues wth MIXED/NFACES **DONE**		
5min	Status of Accepted CPEX 0042 **CGNS-149** - CPEX#42: Storing the Bounding Box of a grid **DONE**		
5min	Status of Accepted CPEX 0043 **CGNS-180** - CPEX 0043: Family Hierarchy as a Tree **DONE**		

2min	Status of Future CPEX 0044 **CGNS-181** - CPEX 0044: Encoding sets of functions in generic variables TO DO		
2min	Status of Accepted CPEX 0045 **CGNS-182** - CPEX 0045: Polynomial Data and Curved Grid Elements IN PROGRESS	Koen Hillewaert	Koen Hillewaert prototype implementation working and interfaced in inhouse code. ☐ Koen Hillewaert make sure branch available for other testers
2min	Status of Future CPEX 0046 **CGNS-183** - CPEX 0046: Particle Data TO DO	Thomas Hauser	Thomas Hauser will organise a meeting before the next committee meeting; probably even this week.

Action items from last meetings

- ☑ Tony Garratt David Gutzwiller Scot Breitenfeld continue to review outstanding and prioritization of JIRA items/tasks
- ☑ stephen.guzik@colostate.edu documentation of **CGNS-87** - CPEX 40 Rind Plane Indexing DONE
- ☑ Scot Breitenfeld add Gutzwilers large unstructured multi-block regression test suite and reproduce issues
- ☐ Koen Hillewaert Marc Poinot ZJ Wang Karman – a decision on CAD classification

postponed

- ☐ Scot Breitenfeld Update documentation for intel compilers (KH)
- ☐ Thomas Hauser organization of off-line meetings for addressing review of **CGNS-183** - CPEX 0046: Particle Data TO DO
- ☐ Koen Hillewaert ZJ Wang Matthias Möller organization of off-line meetings for finalizing **CGNS-181** - CPEX 0044: Encoding sets of functions in generic variables TO DO postponed
- ☐ Scot Breitenfeld will remove the cgio_read_data, cgio_read_all_data, cgio_read_block APIs in the next release, and update the documentation listing the alternative APIs which should be used in their place.

done, but not merged yet

Decisions

New Business

Any new CGNS funding proposal opportunities?

may be part of a EuroHPC proposal (Joint undertaking in H2020) on soft- and middleware on exascale currently no calls announced, one passed in january

small work package on scalability with in house code by Cenaero in PRACE 6IP code development project

all cpex except for 41 and 45 will be in patched version; CPEX0041 in first release of v4

Schedule next meeting

10:00 AM EST (US), 28 Apr 2020

Adjourn