

CGNS Steering Committee
Telecon Minutes
7 January 2009
11:00 AM Eastern Time

1. The face-to-face meeting was called to order at 7:05 PM eastern time, in Orlando FL at the AIAA ASM Conference. There were 8 attendees, listed in [Attachment 1](#) (including 3 telephone call-ins).
2. The minutes of the 5 November 2008 meeting were approved as posted on the web site.
3. Status of previous action items
 - (a) Hauser and Poinot will work together to resolve the issue of the HDF-5 indexing problem, both to make sure the fix in V3 works for Poinot and to check consistency of files generated without MLL.
 - i. Poinot considered adding a new flag to file, to indicate what the ordering inside the file is, but others at the meeting felt that this gives too many options and complicates the reading. The problem is that a bug was discovered in the software last year, so Poinot's group has many CGNS HDF-5 files with the incorrect index ordering (written before the bug was fixed). General consensus at the meeting was to enforce C-ordering in HDF-5 files. I.e., corrupted files will need to be fixed via some external utility; there should be no additional flag or node added in the file.
 - (b) Wedan to incorporate compression capability into Version 3 MLL.
 - i. Hauser believes this was done (in CVS version), but it needs testing. Hauser to test Version 3 compression capability prior to release.
 - (c) Hauser and Wedan to improve documentation and build instructions for V3.0, remove instructions regarding XML output from configure script, make HDF-5 part of V3.0's tar file distribution, and generally upgrade the build capability prior to release of V3.0. Tentative plans to release V3.0 in January 2009.
 - i. Significant progress made on this front by Hauser and his student. They plan to use cmake (similar to autoconf & automake) — there were no objections to this from the other attendees. They also added a patch to fix HDF-5 for large number of zones (it used to be slower than ADF, but now is typically a little bit faster). They are essentially on schedule for a release of V3.0 within the next month. Hauser & Wedan to complete and release V3.0.
 - (d) Rumsey to move Allmaras' proposal to "Awaiting implementation" column.
 - i. Done.
 - (e) Poinot to work with Power and others to bring Rigid Motion Improvement proposal to completion, including specific examples.
 - i. Not done yet. Examples still needed. Power wants to be sure standard does not have too many options; i.e., make it as simple as possible.
 - (f) Rumsey to compile list of potential programmers who might help to implement some of the outstanding proposals.

- i. Attempted. The only positive response came from Poinot. The 3 outstanding accepted proposals for extension are still awaiting MLL implementation, so this issue of developer support for the MLL still remains one of the CGNS Team's biggest bottlenecks.
- (g) Hauser will add HDF-5 parallel code to SourceForge and will let users know when it is available.
 - i. Not done yet.
- (h) Paul, Bussoletti, and Allmaras to continue to look into finding manpower development (particularly for MLL implementation) resources at Boeing.
 - i. Still no progress on this front. Does not appear likely, so action item deleted.
- (i) Hauser to contact members of the HPC Consortium to explore possibility of CGNS contributing to their effort.
 - i. Not done yet.
- (j) Duque and Hauser to continue to develop proposal for handling sprays of unconnected points.
 - i. Not done yet.
- (k) Hauser to send information on interface "fix" to improve performance of HDF-5 when there are many zones to Wedan, Poinot, and anyone else interested.
 - i. Done, see item c above.
- (l) Wedan to investigate issue of MLL deleting the entire node even though its new dimensions are the same.
 - i. Not done yet.
- (m) Hauser will take control of cgns.org domain name and will consider possibility of moving website to Utah State site.
 - i. Not done yet. There is some urgency on this now because the domain no longer works, but Hauser has been unable to get an invoice from ANSYS for the transfer. Periera and Rumsey will try to help follow up on this with Dave Davis at ANSYS
- (n) Wedan to look into issue brought up by Miller (10/19/07) to write info one element at a time to save memory.
 - i. Not done yet.
- (o) Wedan to implement patch sent to him by Bussoletti to fix excessive memory usage by MLL.
 - i. Not done yet.

4. Committee membership

- (a) At his request, Dan Einstein (Pacific Northwest Labs) asked to be replaced on the committee by Xiangmin (Jim) Jiao (Stony Brook University). Jim has created a Matlab/Octave interface for CGNS, which will soon be available for download. He is interested to become an active contributor and push for CGNS's usage for Octave and MATLAB users and also for multiphysics codes. The committee approved the change in membership from Pacific Northwest Labs to Stony Brook University.

- (b) Hauser mentioned that Alonso (Stanford) may be interested in re-establishing a seat on the committee. Hauser will contact Alonso to see if he is interested in rejoining the CGNS steering committee.
5. Open Items (purpose of these is to not lose track of long-term issues that come up)
- (a) Keep track of/resolve HDF-5 “to-do” list ([Attachment 2](#)).
 - i. Many of these items are now completed for V3.0.
 - (b) Keep track of progress with ISO/STEP.
 - i. Rumsey will ping Hunten to find out the current status of the ISO/STEP effort. [This was done shortly after the meeting. Hunten responded immediately via email, (see [Attachment 3](#)), and included an updated version of an overview document of AP209E2 (see [Attachment 4](#) (PDF, 5 pages, 80K)).
 - (c) Need for official certification process (test for compliance)
 - i. There was some discussion on this. Power will provide some high-level routines for reading/writing CGNS that may be useful, for inclusion on the website.
 - (d) Develop method to write info one element at a time to save memory via something like `cg_section_partialwrite` (Miller 10/19/07 CGNSTalk)
 - i. No progress.
 - (e) Address issue of possible need for “long” instead of “int” to avoid signed 2 Gig limit (Miller 10/19/07 CGNSTalk).
 - (f) Problem with 64-bit `cg_goto_f` (Gibeling 08/29/08 CGNSTalk)
 - i. Hauser will investigate both the “long” vs “int” issue as well as the problem with the 64-bit `cg_goto_f`, and report back.
6. There was also some discussion regarding decision by Drag Prediction Workshop (DPW) committee to move toward CGNS as the official format for their grids, particularly as part of their mesh quality evaluation. There may be opportunities for CGNS discussions/talks at the AIAA San Antonio meeting in June or at next January’s ASM in Orlando, as part of DPW meetings and/or as part of a workshop effort by Jack Benek. Hauser and Rumsey also mentioned that the CGNS tutorial session has a green light for the EUCASS meeting in France in July 2009. Currently it is not known whether it will be a half-day or full-day event. Rumsey will notify people via CGNSTalk about the upcoming CGNS activities at the EUCASS meeting in France.
7. Meeting was adjourned at 8:15 PM Eastern. Next Telecon date is TBD.
8. Summary of **action items**:
- (a) Hauser to test Version 3 compression capability prior to release.
 - (b) Hauser & Wedan to complete and release V3.0.
 - (c) Pointot to work with Power and others to bring Rigid Motion Improvement proposal to completion, including specific examples.
 - (d) Hauser will add HDF-5 parallel code to SourceForge and will let users know when it is available.

- (e) Hauser to contact members of the HPC Consortium to explore possibility of CGNS contributing to their effort.
- (f) Duque and Hauser to continue to develop proposal for handling sprays of unconnected points.
- (g) Wedan to investigate issue of MLL deleting the entire node even though its new dimensions are the same.
- (h) Hauser will take control of cgns.org domain name and will consider possibility of moving website to Utah State site.
- (i) Wedan to look into issue brought up by Miller (10/19/07) to write info one element at a time to save memory.
- (j) Wedan to implement patch sent to him by Bussoletti to fix excessive memory usage by MLL.
- (k) Hauser will contact Alonso to see if he is interested in rejoining the CGNS steering committee.
- (l) Rumsey will ping Hunten to find out the current status of the ISO/STEP effort.
- (m) Power will provide some high-level routines for reading/writing CGNS that may be useful, for inclusion on the website.
- (n) Hauser will investigate both the “long” vs “int” issue as well as the problem with the 64-bit `cg_goto_of`, and report back.
- (o) Rumsey will notify people via CGNSTalk about the upcoming CGNS activities at the EUCASS meeting in France.

Attachment 1: Attendees

Steve Allmaras	Boeing Commercial
Andrew Cary	Boeing Integrated Defense Systems
Thomas Hauser	Utah State
Steve Karman	U. Tennessee Chattanooga
Joe Morrison	NASA Langley
Simon Pereira	ANSYS / ICEM CFD
Greg Power	USAF/AEDC
Chris Rumsey	NASA Langley

Attachment 2: Tentative to-do list in association with HDF-5 switchover

- Complete and test parallel implementation
 - under development
- Complete and test API capability to automatically detect and switch between ADF and HDF-5 (transparent to user?)
 - done in V3.0
- Assess/minimize impact on software vendors using CGNS
 - under development (success with automatic detection transparent to user will minimize impact)
- Make changes recommended by HDF-5 to improve usability with HDF-5 (e.g., character strings as opposed to character arrays)
 - done
- Assess compression capability of HDF-5
 - done by Pointot — capability will be added to V3 MLL
- CGNS configure scripts will need to be modified to check for availability of appropriate HDF-5 libraries.
 - done in V3.0
- Possibly add flag-based options when opening CGNS files. For example: “follow links” vs. “don’t follow links”; “use ADF” vs. “use HDF-5”; “translate file automatically” vs. “leave the file as-is”; “compress” vs. “don’t compress”.
- Look into eliminating need for ID’s from MLL
- Resolve “link-of-links” problem: will require HDF-5 fix by NCSA under development (1.8.0 beta)
 - done in V3.0 in combination with HDF-5 V1.8
- Are any changes needed in SIDS-to-HDF5 document? Or is it up-to-date?
- Improve build capability of V3.0.

Attachment 3: Email from Keith Hunten to Chris Rumsey on status of ISO/STEP effort

Chris -

Well, for once I have some good, concrete news! The three standards documents that comprise the integration of CGNS with ISO/STEP have just been approved for their next level of ballot (a Draft International Standard). These are Part 10303-52 Mesh Based Topology, Part 10303-53 Numerical Analysis, and Part 10303-110 Mesh-based computational fluid dynamics.

I apologize for the lateness on these, but since Boeing pulled out their resources this has been a spare time effort on many peoples part (many thanks to David Leal and Ray Goult in the UK on Parts 52 and 110, and Darla Nettles of PDES, Inc on Parts 53 and 209), and a low level of effort here at LM Aero and the PDES, Inc consortium.

The second edition of AP209 (10303-209E2) is very near completion. It has been renamed to "Multidisciplinary analysis and design" to reflect the additional scope beyond traditional finite element analysis. The composite material shape and definition modules have been balloted and completed with the AP203E2 project (though this does not affect you). The modules that reflect the new analysis capabilities in the above mentioned documents have been completed and are in their last stages of editorial revision. The overall AP209E2 document is also in that stage. With luck we may have it ready to go out for review in a couple of months.

Once the new AP209E2 document is completed I would like to propose some kind of review process with your committee to ensure that we are up to date. There will be an ISO TC184/SC4 meeting in Vancouver May 18-22 where we could do a formal review and walk-through.

I have included an updated version of an overview document of AP209E2 [see [Attachment 4](#) (PDF, 5 pages, 80K)] that may be useful for you and your committee members.

Regards,

Keith