

CGNS Steering Committee
Telecon Minutes
10 September 2008

1. The meeting was called to order at 11:00 AM eastern time. There were 9 attendees, listed in [Attachment 1](#).
2. The minutes of the 2 July 2008 meeting were approved as posted on the web site.
3. Discussion of HDF-5 array ordering
 - (a) Summary of problem: HDF-5 uses C-index ordering for its arrays, but CGNS uses Fortran indexing. So if anyone (in Version 2.5 or earlier) wrote an HDF-5 file with CGNS, it would have its indexing incorrect. This did not hurt if one only used CGNS API to read/write the file (i.e. it was internally consistent), but it would be incorrect if one tried to use other software to read the HDF-5 CGNS file. Also, partial read/writes in the CGNS software did not work.
 - (b) Wedan fixed this for Version 3. He added new “HDF5 Version” node. If detected, then the software knows the indexing is already correct. If not detected, then the software automatically corrects the faulty indexing.
 - (c) Poinot to try Version 3 fix for HDF-5 indexing problem, and make sure it works for his applications.
 - (d) There was also discussion about whether to put the fix in Version 2.x. If we do, we lose forward compatibility (if try to open new file with older software, it will fail).
Consensus: to NOT put fix in Version 2.x. This means that Version 2.x and earlier will have this known problem: HDF-5 indexing is backward. We should recommend that only V3 and above be used in conjunction with HDF-5.
 - (e) Rumsey to add disclaimer about HDF-5 incorrect index ordering in Version 2.x to website.
 - (f) Towne to add disclaimer about HDF-5 incorrect index ordering in Version 2.x in MLL documentation.
4. Other discussion related to HDF-5
 - (a) Poinot tested HDF-5 1st level compression. Works well, but very slow. Easy to put in MLL — only 5–10 lines of code. Uses “chunk” storage. Chunk feature has a “magic” value that sets size of the chunk.
 - (b) We need to decide how to put compression in at the API level.
 - (c) Consensus was that `cg_configure` would be an appropriate place to bring this capability in. Can make it so it only compresses when greater than a certain number of bytes.
 - (d) Poinot to send Wedan his coding and other information related to HDF-5 compression.
 - (e) Wedan to incorporate compression capability into Version 3 MLL.
 - (f) Hauser asked if there are any changes needed in SIDS-to-HDF5 document?
 - i. Added this to “to-do” list for HDF-5 switchover (attachment 2)

5. Status of previous action items

- (a) Wedan and Hauser to look into improving documentation and build instructions for V3.0.
 - i. Not done yet — action carries.
- (b) Rumsey to e-mail committee to remind them to comment on new extensions.
 - i. Done: mail sent to all CGNSTalk, but no responses received. Rumsey to email committee and ask for vote on two existing proposals and collect responses.
- (c) Hauser to remove instructions regarding XML output from configure script in V3.0.
 - i. Not done yet — action carries.
- (d) Hauser to make HDF-5 part of V3.0's tar file distribution, and set up makefile appropriately.
 - i. Not done yet — action carries.
- (e) Hauser to contact vendors regarding testing V3.0 prior to release if possible and report back to committee.
 - i. Almost ready for V3 release. Action deleted.
- (f) Hauser will add HDF-5 parallel code to SourceForge and will let users know when it is available.
 - i. Tabled until after Version 3 release — action carries.
- (g) Rumsey to email Towne and Wedan about the issue of node ordering for NGON_n.
 - i. Done. There was a lot of discussion on the outcome of this.
 - ii. One issue: if one uses NGON + NFACE to describe arbitrary polyhedra, you need additional “winding” information. As pointed out in email by Feldman, this can be done by making NFACE + or - (+ indicates pointing outward from the cell matching the NGON right hand rule definition, and - pointing inward). You also need to prohibit faces that are not attached to a volume element — other than at boundaries.
 - iii. Second issue: the draft documentation currently allows TWO methods: NGON + NFACE, and also NGON + parent data. Having two methods is confusing, and can put too big a burden on external software readers. Allmaras pointed out that his original proposal a long time ago involved use of parent data, but the group had decided to go with NGON + NFACE because it was already coded and it did not involve additional descriptive nodes. In today's discussion, consensus was to only document the NGON + NFACE method (including NFACE + or - for winding information).
 - iv. Towne to modify NGON+NFACE documentation for V3 to include Feldman's suggestions, and to remove NGON + parent data as an option.
- (h) Paul, Bussoletti, and Allmaras to continue to look into finding manpower development (particularly for MLL implementation) resources at Boeing.
 - i. Ongoing. Seeds have been planted. Action carries.
- (i) Duque and Hauser to continue to develop proposal for handling sprays of unconnected points.
 - i. Not done yet — action carries.

- (j) Rumsey to look at posting a specific checklist on the website on what to put in a proposal for extension.
 - i. Done.
- (k) Duque and Hauser to continue to pursue NSF funding and look into idea of a fundraising collaborative.
 - i. Not done yet — action carries.
- (l) Rumsey will contact EUCASS 2009 conference organizers about possibility of having CGNS sessions and/or tutorial.
 - i. Done. They are interested. Conference is in June 2009 in Versailles, France. They are looking into providing a room for CGNS's use for 1–2 days. We can perhaps hold a tutorial session and a series of talks or panel discussions, much like we did in San Francisco in 2006. Poinot has become our new point-of-contact for this.
 - ii. Poinot to forward a draft proposal on CGNS activities for EUCASS to Hauser & Rumsey that will eventually go to the EUCASS organizers.
- (m) Hauser and Rumsey to consider writing abstract on CGNS progress for AIAA summer 2009 conference.
 - i. This conference would conflict with EUCASS, so action cancelled.
- (n) Hauser to merge Poinot's changes related to HDF-5 linking into V3.0.
 - i. Done. Currently in CVS.
- (o) Hauser to look into methods on SourceForge for getting Poinot developer access: switch from CVS to SVN? or use SSL?
 - i. Done. Poinot now has check-out access. Cannot currently check-in because of ONERA's firewall.
- (p) Hauser to speak to Koziol at HDF-5 Group about issues related to developers and funding.
 - i. Done. HDF-5 has become some sort of non-profit. They have about 20 employees, and have long-term support. They are willing to help us look into taking the same route, and they are also willing to collaborate.
 - ii. Wedan mentioned the "donate" button on SourceForge, if we have a place to put the money.
 - iii. Rumsey asked about accounting and tax-filing issues (and who would do it) if we tried to go the non-profit route.
 - iv. Hauser to attend an upcoming HDF-5 meeting in Colorado, and find out more about what it means to become a non-profit like HDF-5 and how it would affect things.
- (q) Wedan to investigate issue of MLL deleting the entire node even though its new dimensions are the same.
 - i. Not done yet. May be good idea for certain nodes. Action carries.
- (r) Hauser will take control of *cgns.org* domain name and will consider possibility of moving website to Utah State site.
 - i. Not done yet — action carries.
- (s) Hauser to contact Hunten about ISO/STEP and ask the best way for us to comment.

- i. Not done yet — action carries.
- 6. CGNSTalk issues
 - (a) Wedan to look into issue brought up by Miller (10/19/07) to write info one element at a time to save memory. (This issue is also on list of open items)
 - (b) Miller: address issue of possible need for “long” instead of “int” to avoid signed 2 Gig limit (This issue is also on list of open items)
 - i. no change of status
 - (c) Shenoy: error in CGNSTools file (08/28/08)
 - i. Already fixed in CVS version.
 - (d) Gibeling: Problem with 64-bit `cg_goto_of` (08/29/08)
 - i. this issue added to list of open items
 - (e) Ahlman: question on status of parallel implementation (09/03/08)
 - i. Hauser will respond to Ahlman CGNSTalk question about status of parallel implementation.
 - (f) Bussoletti: excessive memory usage by MLL (09/04/08)
 - i. Bussoletti to send patch fixing excessive memory usage by MLL to Wedan, and Wedan to implement.
- 7. 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.
 - (c) Need for official certification process (test for compliance)
 - (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)
 - (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_of` (Gibeling 08/29/08 CGNSTalk)
- 8. Hauser plans to have face-to-face meeting at the AIAA meeting in Orlando in January 2009. Tentatively set for Wednesday evening of the conference. Rumsey to email Hauser information on how to reserve a room for AIAA conference.
- 9. Meeting was adjourned at 1:00 PM Eastern. Next Telecon is tentatively set for November 5, 2008.
- 10. Summary of **action items**:
 - (a) Pointot to try Version 3 fix for HDF-5 indexing problem, and make sure it works for his applications.
 - (b) Rumsey to add disclaimer about HDF-5 incorrect index ordering in Version 2.x to website.
 - (c) Towne to add disclaimer about HDF-5 incorrect index ordering in Version 2.x in MLL documentation.

- (d) Poinot to send Wedan his coding and other information related to HDF-5 compression.
- (e) Wedan to incorporate compression capability into Version 3 MLL.
- (f) Wedan and Hauser to look into improving documentation and build instructions for V3.0.
- (g) Rumsey to email committee and ask for vote on two existing proposals and collect responses.
- (h) Hauser to remove instructions regarding XML output from configure script in V3.0.
- (i) Hauser to make HDF-5 part of V3.0's tar file distribution, and set up makefile appropriately.
- (j) Hauser will add HDF-5 parallel code to SourceForge and will let users know when it is available.
- (k) Towne to modify NGON+NFACE documentation for V3 to include Feldman's suggestions, and to remove NGON + parent data as an option.
- (l) Paul, Bussoletti, and Allmaras to continue to look into finding manpower development (particularly for MLL implementation) resources at Boeing.
- (m) Duque and Hauser to continue to develop proposal for handling sprays of unconnected points.
- (n) Duque and Hauser to continue to pursue NSF funding and look into idea of a fundraising collaborative.
- (o) Poinot to forward a draft proposal on CGNS activities for EUCASS to Hauser & Rumsey that will eventually go to the EUCASS organizers.
- (p) Hauser to attend an upcoming HDF-5 meeting in Colorado, and find out more about what it means to become a non-profit like HDF-5 and how it would affect things.
- (q) Wedan to investigate issue of MLL deleting the entire node even though its new dimensions are the same.
- (r) Hauser will take control of *cgns.org* domain name and will consider possibility of moving website to Utah State site.
- (s) Hauser to contact Hunten about ISO/STEP and ask the best way for us to comment.
- (t) Wedan to look into issue brought up by Miller (10/19/07) to write info one element at a time to save memory.
- (u) Wedan to implement patch sent to him by Bussoletti to fix excessive memory usage by MLL.
- (v) Rumsey to email Hauser information on how to reserve a room for AIAA conference.

Attachment 1: Attendees

Steve Allmaras	Boeing Commercial
John Bussioletti	Pointwise
Richard Hann	ANSYS / CFX
Thomas Hauser	Utah State
Kevin Mack	CD-ADAPCO
Marc Poinot	Onera
Chris Rumsey	NASA Langley
Charlie Towne	NASA Glenn
Bruce Wedan	unaffiliated

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 Poinot — 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?