CGNS Steering Committee
Telecon Minutes
10 September 2008

1. The meeting was called to order at 11:05 AM eastern time. There were 5 attendees, listed in
   Attachment 1.

2. The minutes of the 10 September 2008 meeting were approved as posted on the web site.

3. Status of previous action items

   (a) Poinot to try Version 3 fix for HDF-5 indexing problem, and make sure it works for his
       applications.
       i. Not done yet, but there was also some discussion on this point. The index ordering
          for HDF-5 is now fixed in Version 3.0, but this is for people who use the MLL.
          The question arises whether one of Marc's HDF-5 files, if given to someone else
          who uses MLL to read it, will be successful or not. I.e., if a user like Marc does
          not use MLL, it is up to them to order the indices correctly. If they do not, then the
          file will not transfer correctly to other users who use MLL. 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.
   (b) Rumsey to add disclaimer about HDF-5 incorrect index ordering in Version 2.x to
       website.
       i. Done. Change can be seen at: http://cgns.sourceforge.net/hdf5.html.
   (c) Towne to add disclaimer about HDF-5 incorrect index ordering in Version 2.x in MLL
       documentation.
       i. Done. Changes can be seen at:
          http://www.grc.nasa.gov/WWW/cgns/midlevel/grid.html#gridcoordinates
          http://www.grc.nasa.gov/WWW/cgns/midlevel/grid.html#elements
          http://www.grc.nasa.gov/WWW/cgns/midlevel/solution.html#flowsolution
   (d) Poinot to send Wedan his coding and other information related to HDF-5 compression.
       i. Done.
   (e) Wedan to incorporate compression capability into Version 3 MLL.
       i. Not done yet. Action item carries.
   (f) Wedan and Hauser to look into improving documentation and build instructions for
       V3.0.
       i. Not done yet. This action item will be combined with (h) and (i) to make a new
          action item associated with the upcoming release of V3.0. 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. This was also added to HDF-5
          "to-do" list (Attachment 2).

(g) Rumsey to email committee and ask for vote on two existing proposals and collect responses.

    i. Done. Allmaras' General SIDS Improvement extension is ready to go, but Poinot's Rigid Motion Improvement needs some specific examples added, and a renewed consensus. Rumsey also brought up that we need to start to tackle some of the accepted proposals "awaiting implementation." <u>Rumsey to move Allmaras' proposal to "Awaiting implementation" column. Poinot to work with Power and others to bring Rigid Motion Improvement proposal to completion, including specific examples. Rumsey to compile list of potential programmers who might help to implement some of the outstanding proposals.</u>

(h) Hauser to remove instructions regarding XML output from configure script in V3.0.

    i. Not done yet. Combined to make a new action item.

(i) Hauser to make HDF-5 part of V3.0's tar file distribution, and set up makefile appropriately.

    i. Not done yet. Combined to make a new action item.

(j) Hauser will add HDF-5 parallel code to SourceForge and will let users know when it is available.

    i. Not done yet. <u>Action item carries.</u>

(k) Towne to modify `NGON+NFACE` documentation for V3 to include Feldman's suggestions, and to remove `NGON` + parent data as an option.

    i. Done. Changes can be seen at:
http://www.grc.nasa.gov/WWW/cgns/beta/sids/gridflow.html#Elements
http://www.grc.nasa.gov/WWW/cgns/beta/sids/gridflow.html#ex:elements2

(l) Paul, Bussoletti, and Allmaras to continue to look into finding manpower development (particularly for MLL implementation) resources at Boeing.

    i. Not done yet. <u>Action item carries.</u> There was also discussion about NSF Industry Centers, which require a collaboration of several groups each contributing about 25K per year. Feldman also brought up the HPC Consortium, which is trying to tie multi-physics codes together... there is the question whether CGNS has something to offer to this group and possibly could join or contribute. Allmaras pointed out that if CGNS could gain the consortium's support, that it might help CGNS to gain more support from Boeing. <u>Hauser to contact members of the HPC Consortium to explore possibility of CGNS contributing to their effort.</u>

(m) Duque and Hauser to continue to develop proposal for handling sprays of unconnected points.

    i. Not done yet. <u>Action item carries.</u>

(n) Duque and Hauser to continue to pursue NSF funding and look into idea of a fundraising collaborative.

    i. Hauser has applied for NSF funding, including parallel development for CGNS, but there is probably only a very small chance that it will go through.

(o) Poinot to forward a draft proposal on CGNS activities for EUCASS to Hauser & Rumsey that will eventually go to the EUCASS organizers.

    i. Done. Poinot has forwarded the request 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.

    i. Done. Hauser gave a talk at the HDF-5 meeting and spoke to members of that group. He found out that they may be interested in attending the EUCASS meeting in July 2009 and contributing or participating in the CGNS activities there. Regarding becoming non-profit, HDF-5 was helped considerably by the fact that it has a long-term investment by NASA's earth observatory mission. Another thing learned: In HDF-5, if there are a very large number of zones, there are still performance issues, but HDF-5 has a method to "fix" this, using a different interface to HDF-5, which improves performance. 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.

(q) Wedan to investigate issue of MLL deleting the entire node even though its new dimensions are the same.

    i. Not done yet. Action item carries.

(r) Hauser will take control of *cgns.org* domain name and will consider possibility of moving website to Utah State site.

    i. Not successful in obtaining an invoice from Ansys yet. Action item carries.

(s) Hauser to contact Hunten about ISO/STEP and ask the best way for us to comment.

    i. Not done. Decided to delete this action item and instead keep this as an open item.

(t) 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. Action item carries.

(u) Wedan to implement patch sent to him by Bussoletti to fix excessive memory usage by MLL.

    i. Not done yet. Action item carries.

(v) Rumsey to email Hauser information on how to reserve a room for AIAA conference.

    i. Done.

4. 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_f` (Gibeling 08/29/08 CGNSTalk)

5. 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, January 7 at 7:00 PM. Hauser will ask for telecon capability in case anyone is interested in calling in.

6. Meeting was adjourned at 12:30 PM Eastern. Next Telecon date will be set at the AIAA meeting in Orlando.

7. Summary of **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.

   (b) Wedan to incorporate compression capability into Version 3 MLL.

   (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.

   (d) Rumsey to move Allmaras' proposal to "Awaiting implementation" column.

   (e) Poinot to work with Power and others to bring Rigid Motion Improvement proposal to completion, including specific examples.

   (f) Rumsey to compile list of potential programmers who might help to implement some of the outstanding proposals.

   (g) Hauser will add HDF-5 parallel code to SourceForge and will let users know when it is available.

   (h) Paul, Bussoletti, and Allmaras to continue to look into finding manpower development (particularly for MLL implementation) resources at Boeing.

   (i) Hauser to contact members of the HPC Consortium to explore possibility of CGNS contributing to their effort.

   (j) Duque and Hauser to continue to develop proposal for handling sprays of unconnected points.

   (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.

   (l) Wedan to investigate issue of MLL deleting the entire node even though its new dimensions are the same.

   (m) Hauser will take control of *cgns.org* domain name and will consider possibility of moving website to Utah State site.

   (n) Wedan to look into issue brought up by Miller (10/19/07) to write info one element at a time to save memory.

   (o) Wedan to implement patch sent to him by Bussoletti to fix excessive memory usage by MLL.

Attachment 1: Attendees

Steve Allmaras   Boeing Commercial
Mark Anderson   Concepts NREC
Steve Feldman   CD-ADAPCO
Thomas Hauser   Utah State
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 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?
- Improve build capability of V3.0.