

CGNS Steering Committee
Telecon Minutes
4 October 2006
11:00 AM Eastern Time

1. The meeting was called to order at 11:05 AM. There were 11 attendees, listed in [Attachment 1](#).
2. The minutes of the 2 August 2006 meeting were approved as posted on the web site.
3. Steering Committee Membership changes and updates
 - (a) Scott Imaly from Tecplot introduced himself, and expressed an interest in joining the Steering Committee. Tecplot has supported CGNS for quite some time. The committee approved the Tecplot membership.
 - (b) Towne will update the Steering Committee Charter to add Tecplot, and Rumsey will update the website.
 - (c) Specific member changes: Earl Duque now POC for IL, Ankur Agarwal now POC for Fluent, Edwin van der Weide now POC for Stanford
 - (d) Committee chair position
 - i. Rumsey's 2-year term is ending in Jan 2007
 - ii. Thomas Hauser, current vice-chair, would like to extend the term for one more year, and delay being voted into this position until Jan 2008
 - iii. Committee members saw no problem with this; it will be voted on at January Reno meeting
4. Status of previous action items:
 - (a) Towne will update the Steering Committee Charter to raise the limit of members to 30, and to add TheroComp.
 - i. Done.
 - (b) Alonso will forward to Rumsey some preliminary ideas on levels of compliance for vendors, related to problems he has encountered.
 - i. Alonso no longer able to participate. Action item cancelled.
 - (c) Towne will e-mail AIAA again to check on the status of the Recommended Practice.
 - i. Done. Michele Ringrose said AIAA still needs to take some "process steps" to complete this. Towne will e-mail AIAA the latest version of the SIDS, to insure it is up-to-date.
 - (d) Hauser will send parallel version of CGNS with HDF-5 to Alonso, van der Weide, Poinot, and Wedan to try out.
 - i. Parallel version not quite finished ... still needs to resolve one issue with HDF-5 developers. Action item carries.
 - (e) Wedan and Rumsey will initiate a new proposal for extension, perhaps based on Sayre's existing proposal but also including structured grids, to try to deal with the need for writing data to smaller and/or possibly lower-order regions.

- i. Proposal developed and sent to CGNSTalk. It is based on current BC_t node structure, which apparently can handle a lot of what users want for functionality when writing “regions”, including arbitrary dimensionality. Rumsey will post new proposal for Regions on website and ask for comments.
- (f) Wedan will look at Poinot’s string definition header file and determine the best course of action.
 - i. Not done yet. May add this to distribution, but would not be linked by default. Wedan will contact Poinot and look into adding string definitions header file as part of the official CGNS distribution.
- (g) Wedan will look into the partial write problem (found by Allmaras).
 - i. Done. Problem fixed (see Software section).
- (h) Rumsey and Hauser will follow up with AIAA about the possibility of developing an AIAA short course.
 - i. Ball is now in our court. AIAA wants outline developed for course before they decide how to market it. Alabi volunteered to help Hauser prepare the outline / course. Rumsey will send Alabi information about what AIAA needs to get the ball rolling on a possible AIAA short course for CGNS. Hauser and Alabi will pursue this effort. Wedan, Rumsey, and Poinot are also interested in possibly helping.
- (i) Hann will look at the documentation and recommend changes to make it more explicit on the fact that the number of cells in Zone_t should be the number of highest order elements.
 - i. Done, doc changes implemented early September.
- (j) Wedan will make the fix recommended by Montreuil in cgnstools for IRIX64.
 - i. Not done yet. Action item carries.
- (k) Poinot will test the HDF5 external link capability.
 - i. In process. He has built HDF-5 version with links extension, but is not sure how to apply them to his problem yet. Action item carries.
- (l) Allmaras will head up a task force to resolve the issue of the face-based storage method. Members are: Allmaras, Fisher, Poinot, Hann, Weber, Feldman, Rumsey, Wedan, Imaly). They will hold a mini-telecon in early-September.
 - i. Done. Telecon held (see minutes in [Attachment 3](#)). Allmaras will send revised proposal to Rumsey for posting on website.

5. Open Items (see number 14 below):

- (a) Brief discussion:
 - i. HDF-5 “to-do” list maybe not a high priority now, because we decided to actively and indefinitely support both ADF and HDF-5 (with HDF-5 the “officially recommended” method). But it is probably important to continue to keep the items on the list in the back of our minds.
 - ii. ISO/STEP effort is pretty much independent from us now, but we still need to remember to try to keep up with it.

- iii. Issue of need for certification process often comes up at meetings, so we need to keep this in the back of our minds also. A checker currently comes bundled in with the tools, and can be used stand-alone or in conjunction with advviewer.
- iv. Need to add missing PYRA element, but this will lose backward compatibility, so we have to wait until version 3.0 before putting it in. General feeling at this time was that we should hold off on 3.0: perhaps want to first add capability for accessing HDF-5 or ADF at run time rather than at compile time.
- v. It would be “nice” at some point to update the User’s Guide, especially with more unstructured examples.

6. ISO/STEP

- (a) Nothing new to report.

7. Documentation

- (a) Documentation has been updated: (1) changes to charter as mentioned above, (2) changes to MLL and SIDS regarding # of cells in Zone_t being the number of “highest order” elements, (3) changes to charter to add steering committee member responsibilities, (4) changes for FaceCenter connectivity (recently-adopted proposal).

8. Software

- (a) Wedan has made many changes, including:
 - i. In particular, he fixed the partial read/write problem. Now in write or modify mode, MLL never deletes the node ... you must specifically delete it, or overwrite the node entirely. As a result of all the fixes, there are some new MLL routines, and some are no longer needed.
 - ii. Also added a capability to search for links
 - iii. Also modified cg_goto function to add more capabilities (such as searching by name)
- (b) Wedan will cut a new point release (2.5) soon, to include all of the new capabilities.
- (c) Wedan will write MLL documentation on all the recent changes related to 2.5 and send to Towne for posting. (No changes are required in the SIDS.)

9. HDF-5

- (a) Nothing new to report.

10. Extensions

- (a) As a result of voting as well as discussions during 2 August 2006 Telecon, four proposals were “processed”:
 - i. multiple zone connectivities for time dependent accepted, awaiting implementation
 - ii. averaging interfaces & grid connectivity put on hold (conflicts with the way others already handle this — better to do as UserDefined for now until agreement can be reached)

- iii. face center connectivity accepted, implemented (Doc only)
- iv. FSI with deformable boundaries put on hold (apparently can be handled using current capabilities)

11. Other issues:

- (a) Wedan noted that anyone interested in contributing as a developer to CGNS can be given developer access to the SourceForge repository. Please contact Wedan or Rumsey if you are interested!
- (b) Hauser to attend NOAA oceanographic workshop in Boulder Colorado in mid-October and discuss CGNS.
- (c) Next Steering Committee telecon will be held either in late November, or else we will wait until we hold the Reno meeting in early January (Wed PM). Decision will be made in early November.

12. Meeting was adjourned at 12:05 PM.

13. Summary of **action items**:

- (a) Towne will update the Steering Committee Charter to add Tecplot, and Rumsey will update the website.
- (b) Towne will e-mail AIAA the latest version of the SIDS, to insure it is up-to-date.
- (c) Hauser will send parallel version of CGNS with HDF-5 to van der Weide, Poinot, and Wedan to try out.
- (d) Rumsey will post new proposal for Regions on website and ask for comments.
- (e) Wedan will contact Poinot and look into adding string definitions header file as part of the official CGNS distribution.
- (f) Rumsey will send Alabi information about what AIAA needs to get the ball rolling on a possible AIAA short course for CGNS.
- (g) Hauser and Alabi will pursue AIAA short course effort, with possible help from Wedan, Rumsey, and Poinot.
- (h) Wedan will make the fix recommended by Montreuil in cgnstools for IRIX64.
- (i) Poinot will test the HDF5 external link capability.
- (j) Allmaras will send revised proposal to Rumsey for posting on website.
- (k) Wedan will cut a new point release (2.5) soon, to include all of the new capabilities.
- (l) Wedan will write MLL documentation on all the recent changes related to 2.5 and send to Towne for posting.

14. Summary of **open items** from prior meetings (these are different from action items, in that they are open or unresolved issues that we want to keep track of, but there are no specific actions required of anyone at this point in time):

- (a) Keep track of/resolve HDF-5 “to-do” list ([Attachment 2](#)).
- (b) Keep track of progress with ISO/STEP.
- (c) Need for official certification process (test for compliance)
- (d) Need to add Karman’s additional PYRA element type to allowed list (in software and in SIDS)

(e) Need to upgrade/update *User's Guide* as appropriate (such as additional specific examples)

Attachment 1: Attendees

Ken Alabi	Thaerocomp
Steven Allmaras	Boeing Commercial
Bob Bush	Pratt & Whitney
Armen Darian	Pratt & Whitney
Dan Einstein	Pacific NW National Laboratory
Scott Imlay	Tecplot
Chris Rumsey	NASA Langley
Renaud Sauvage	Airbus
Charlie Towne	NASA Glenn
Bruce Wedan	ANSYS/ICEM CFD
Edwin van der Weide	Stanford University

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

- Complete and test parallel implementation
- Complete and test API capability to automatically detect and switch between ADF and HDF-5 (transparent to user?)
- Assess/minimize impact on software vendors using CGNS
- Make changes recommended by HDF-5 to improve usability with HDF-5 (e.g., character strings as opposed to character arrays)
- Assess compression capability of HDF-5
- CGNS configure scripts will need to be modified to check for availability of appropriate HDF-5 libraries.
- 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 (beta implementation of “external links” is in the works — likely complete in early 2006?)

Attachment 3:

Minutes of Mini-telecon concerning Face-based storage proposal

Attendees:

Allmaras, Feldman, Fisher, Hann, Imlay, Rumsey, Weber, Wedan

Discussion centered around whether or not to allow (encourage / make official) face-based connectivity method in CGNS files. (Currently, connectivity is officially done via element-based, also known as cell-based or volume-based.) It turns out that the mechanisms for allowing face-based are largely already in place. Allmaras presented pros and cons for allowing the new approach.

The consensus was to allow face-based as an option. A given zone will be allowed to use either element-based OR face-based, but not both. A new flag will be defined at the `Zone_t` level to indicate what storage method is being used. If this new flag is not present, then the default is element-based. The data in the `Zone_t` node will still contain vertex size and cell size etc, as usual.

The current method for lumping the interior and boundary elements together will remain (there was some discussion for use of a new `BoundaryElements_t` label, but it was felt that there is already a lot of investment in the current method, and adding a new label would mostly complicate things at this point).

There was also a discussion about a possible need to allow `FlowSolutions` etc to be stored at face-centers and edges. Currently, for unstructured zones, such storage is only allowed at `Vertex` or `CellCenter`. This appears to be do-able, but is independent of the face-based connectivity proposal, and therefore will be treated as a separate proposal in the future.

Thus, for the current proposal, there will be not only some documentation changes, but also some (minor) coding changes required to implement this proposal, in order to accommodate the new flag. It was also mentioned that one of the CGNS “checkers” may need to be modified, because cell size in `Zone_t` will no longer match up with number of elements when they are face-based.

ACTIONS from mini-telecon:

Allmaras will revise his proposed changes to the SIDS and will send to the group. Rumsey will subsequently post this to the website under “Proposals for Extension”.