

CGNS Steering Committee
Meeting Minutes
11 January 2006
7:30 PM Pacific Time

1. The meeting was called to order at 7:35 PM. There were 16 attendees, listed in [Attachment 1](#).
2. The minutes of the 4 October 2005 meeting were approved as posted on the web site.
3. Rumsey presented steering committee membership changes and updates (based on contacting all current members and asking for commitment)
 - (a) Removal of NUMECA and NASA Ames
 - (b) Addition of Pratt & Whitney - Rocketdyne (represented by Darian)
 - (c) Boeing - Rocketdyne changed to Boeing - IDS/PW (represented by Dominik)
 - (d) Rumsey to contact Towne to update Charter with above changes.
 - (e) Personnel changes: Benyo replaced by Towne for NASA Glenn; Stuckert replaced by Gupta for Fluent
 - (f) Committee approved the above changes
 - (g) It was suggested to ask Aftsomis from NASA Ames. Rumsey will contact him about possible participation.
4. Status of previous action items:
 - (a) Rumsey will contact all current steering committee members and ask for commitment.
 - i. Done.
 - (b) Allmaras will write explicit documentation, for addition to SIDS, describing face-based storage and providing explicit examples for using the method, and will send to Rumsey and Michal for review.
 - i. Not done yet. Action item carries.
 - (c) Rumsey, Poinot, and Hauser to coordinate CGNS Panel Discussion and possible tutorial for AIAAs June 2006 meeting in San Francisco.
 - i. Underway. See number 5 below for detailed status.
 - (d) Wedan will write documentation for SIDS and MLL as appropriate on Rind-for-unstructured and send to Rumsey, Norris, and Towne.
 - i. Not done yet. Action item carries.
 - (e) Rumsey will contact Koziol to learn status of HDF-5 beta implementation of external links for helping to solve link of links problem.
 - i. Koziol contacted. His response was as follows: “made progress toward implementing external links and the extensions to the library necessary for supporting ‘creation order index’ access to objects in groups ... estimate a beta release before the end of 2005 and a real 1.8.0 release sometime in first quarter of 2006.”
 - (f) Rumsey will review the HDF-5 to-do list and revise if necessary.

- i. Done. One item added (link of links). See [Attachment 2](#).
- (g) Poinot will update the PyCGNS website with regard to the XML compliance tool.
 - i. In process. Also, the document “CGNS component specification guidelines” will be made available to CGNS steering committee soon.
- (h) Rumsey will update Elements and Documentation section of CGNS Overview and Entry-Level document to reflect option of using HDF-5, and send to Towne to post.
 - i. Done.
- (i) Wedan to look into issue of memory allocation for `cg_descriptor_read` (related to use of `malloc`).
 - i. Not done yet. Action item carries.
- (j) Wedan to post HDF-5 policy statement on website, and include link to HDF-5 site.
 - i. Will do soon. Action item carries. Also, Wedan will try to give Rumsey access to the CGNS website.
- (k) Rumsey will look into the issue of having `InterpolantsDonor` be an optional node for `GridConnectivity`, and will respond to the committee about it.
 - i. Done. See discussion under number 11 below.
- (l) Poinot will send Rumsey a copy of his tree to show how he handled source terms for internal BCs
 - i. Done. Rumsey will summarize and pass on to others through CGNSTalk.
- (m) Poinot will e-mail a copy of his paper to Towne for posting.
 - i. Done.

5. Planning for San Francisco AIAA meeting

- (a) Two major CGNS events planned: Panel discussion and evening tutorial session
- (b) Panel discussion will be “CGNS Practical Applications in CFD”, under auspices of Fluid Dynamics TC. We currently have 5 potential panel members: Cayre (SNECMA), Sudre (Eurocopter), Poinot (ONERA), Hann (Ansys-CFX), Allmaras or Mani (Boeing). Rumsey and Stuckert will try to identify an additional 1 or 2 panelists by end of January. Bob Bush and Bruce Wedan said they may be able to participate if we need them. Rumsey to send Stuckert and Bush a copy of invitation letter for reference.
- (c) Discussion held about evening tutorial.
 - i. Van der Weide volunteered to help teach (specifically something on basic usage of CGNS for unstructured).
 - ii. Committee felt the tutorial should be in 2 parts: basic and advanced, with break between.
 - iii. Intro should be longer, and give a sort of crash course, and include justification for CGNS, and possibly demonstrate Plot3d vs. CGNS side-by-side, and include discussion of dimensional/nondimensional.
 - iv. Rumsey, Wedan, Van der Weide to focus on basic tutorial; Hauser and Poinot to focus on more advanced topics (such as HDF-5, parallel, PyCGNS, XML). These volunteers will coordinate with each other, but will be responsible to develop their “section” independently.
 - v. Committee decided NOT to force attendees to sign up in advance.

- vi. Rumsey suggested having the tutorial in lieu of the regular steering committee meeting.
 - vii. Rumsey to look into advertising the tutorial: through AIAA website? Aerospace America? the CGNS website? mass mailing? CGNSTalk?
6. Open items (see number 15 below)
- (a) Reviewed by committee; no change
7. ISO/STEP
- (a) No updates available prior to meeting, but the following received from Hunten afterward:
 - i. The modularization and allocation of data to modules for AP209E2 has been updated to better reflect the CFD specific data. One of the four new STEP Integrated Resource (IR) documents necessary for the addition of the CGNS work has been published, work is progressing on the second. These two IR documents provide the integration of the CGNS work with the rest of STEP. The work is just starting on the other two CFD specific IR documents. Work has begun creating the module that provides the link of analysis to product shared with the Systems Engineering AP233 program. A workshop was held at NCSA to refine the definition of an HDF5 standard mapping for EXPRESS that will provide a binary capability. In addition strategies for API definition were discussed.
8. Documentation
- (a) The latest SIDS has passed the AIAA voting process, and an updated Recommended Practice document will be published by AIAA soon.
 - (b) There have been minor updates to documentation — see website for details.
9. Software
- (a) UsersGuideCode has been updated to include C routines (on SourceForge - CVS and as new release)
 - (b) `InwardNormalList` problem (lines 1877-1878 in *cgns_internal.c*). Wedan will investigate.
10. HDF-5
- (a) Hauser's student is almost ready with a beta release for parallel HDF-5, probably by end of January
 - i. unstructured not included
 - ii. for now will be released as a separate entity on SourceForge
 - iii. Alonso and van der Weide plan to get it and try it out.
11. Extensions
- (a) Issue of mismatched/abutting interfaces

- i. In previous e-mail voting, steering committee members voted 8-0 to change the SIDS so as to make `CellList+InterpolantsDonor` (under `GridConnectivity`) optional rather than required.
 - ii. This change requires changes to the MLL API (likely needs new `cg_conn_write_short` call). Wedan will look into this.
 - iii. Rumsey will make changes to the SIDS and will pass on to Towne. The doc changes will need to be coordinated to correspond with the release in which the MLL changes will be made.
- (b) Issue of possible need for source terms for internal BCs
 - i. There may be a need to eventually propose a new extension to handle this cleanly. See action item (l) above.
- (c) Issue of `ZoneGridConnectivity` for time-dependent data
 - i. This brought up by Leich at Intelligent Light
 - ii. It is likely that we will need to modify the SIDS & MLL to allow for multiple `ZoneGridConnectivity`'s for time-dependent data (and also need to store pointers to these under `BaseIterativeData`). This is so can save moving `OversetHoles` in a time-dependent dataset, for example. Rumsey and Bush will look at this and put together a preliminary proposal.

12. Other issues

- (a) The committee may want to consider developing “levels of compliance” for vendors. For example, “level 1” may mean a code can read a CGS file with grid and connectivity information. “Level 2” may include BCs and reference data. Alonso will forward to Rumsey some preliminary ideas on this, related to problems he has encountered.

13. Meeting was adjourned at 9:10 PM.

14. Summary of **action items**:

- (a) Rumsey and Towne to update Charter with changes to committee membership.
- (b) Rumsey will contact Aftosmis about possible participation on committee.
- (c) Allmaras will write explicit documentation, for addition to SIDS, describing face-based storage and providing explicit examples for using the method, and will send to Rumsey and Michal for review.
- (d) Wedan will write documentation for SIDS and MLL as appropriate on Rind-for-unstructured and send to Rumsey, Norris, and Towne.
- (e) Wedan to look into issue of memory allocation for `cg_descriptor_read` (related to use of `malloc`).
- (f) Wedan to post HDF-5 policy statement on website, and include link to HDF-5 site. Also Wedan will try to give Rumsey access to the CGNS website.
- (g) Rumsey will summarize Poinot's handling of source terms for internal BCs, and pass on to others through CGNSTalk.
- (h) Rumsey to send Stuckert and Bush a copy of invitation letter to panelists for reference.
- (i) Rumsey to look into advertising the tutorial session to be held in San Francisco.
- (j) Wedan will investigate `InwardNormalList` problem (lines 1877-1878 in `cgns_internal.c`).

- (k) Wedan will look into MLL changes associated with making CellList+InterpolantsDonor (under GridConnectivity) optional rather than required.
 - (l) Rumsey will make SIDS doc changes associated with making CellList+InterpolantsDonor (under GridConnectivity) optional rather than required.
 - (m) Rumsey and Bush will look at need for multiple ZoneGridConnectivity's for time-dependent data and will put together a preliminary proposal.
 - (n) Alonso will forward to Rumsey some preliminary ideas on levels of compliance for vendors, related to problems he has encountered.
15. 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

Steven Allmaras	Boeing Commercial
Juan Alonso	Stanford
Ed Ascoli	Pratt & Whitney - Rocketdyne
Steve Barson	Pratt & Whitney - Rocketdyne
Bob Bush	Pratt & Whitney
Carolyn Dear	Pointwise
Earl Duque	Intelligent Light
Dan Dominik	Boeing - IDS/PW
Thomas Hauser	Utah State
Todd Michal	Boeing - IDS/St. Louis
Chris Nelson	ITAC
Christopher Reed	Lockheed Martin Aero
Chris Rumsey	NASA Langley
Greg Stuckert	Fluent
Edwin Van der Weide	Stanford
Bruce Wedan	ANSYS / ICEM CFD

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?)