CGNS Steering CommitteeTeleconference Meeting Minutes

16 March 2000, 14h-15h20 E.S.T.

1. Roll Call: The meeting was held via teleconference at 2:00pm Eastern Standard Time. The attendees are listed in Appendix A.

2. Bob Bush reviewed the minutes from the January meeting, noting that they have been posted on the web. Having no comments, the minutes were approved as posted. Bob also noted that following the January meeting, a presentation was made to the AIAA CFD Committee on Standards proposing to affiliate with that organization. The proposal was accepted, and we are now a sub-committee of this organization.

3. A round-table discussion of the current implementation and usage status of CGNS in various organizations was held to familiarize the Committee with current activities. The high points are summarized here.

- Intelligent Light – Dave Edwards – IL is planning to release a CGNS reader for their primary product in the July time frame. During this effort, they will assess performance and identify areas for improvement. One area is likely to be incorporation of their 'Data Guide' technology to speed access to large data sets. During the installation process they also anticipate needing additional utilities. They hope to provide these utilities to the CGNS community. This led to some discussion of how to provide and support additional utilities. This will need to be explored further. Steve Legensky also offered to help with a web list of CGNS contacts. See the viewgraph presented by Dave Edwards in attachment.

- ADAPCO – Scott Ochs – ADAPCO is in the process of transitioning to CGNS, and can currently read and write grids and solutions (structured and unstructured). Their next step is to utilize the mixed element capability, and store time accurate data. The capability is already in beta release, with a more complete release planned in a couple of months. They expressed an interest in obtaining 'sample' codes to help in the transition. This led to a discussion of the possibility of creating a place on the web where sample code can be posted. Scott (and Steve Feldman) also raised a problem they were having with the cg_goto function on IBM systems. Others on the line who had used IBM systems have not experienced similar problems. They will continue to try and identify the problem.

- AMTEC – Diane Poirier noted that Tecplot now has a CGNS reader. Release date is unknown.

- Fluent – Barb Hutchings – Barb noted that Fluent has downloaded the documentation, and assigned a programmer to begin implementation. They anticipate a release of the ability to read and write information in V5.5, which should occur in the third quarter of 2000.

- NUMECA - Michel Delanaye – NUMECA is adopting CGNS for all their products. They currently have a full implementation in their grid generator, with the exception of the boundary condition information. The structured code also uses it for the solution (but again not coupling information yet. They would like to include unsteady data as soon as the capability is available. They would also like the ability to store planes of solution data (they were referred to the Boeing discussion to come). They anticipate a March release to their user base. NUMECA has also been active convincing various consortia to adopt CGNS as the data exchange standard. New capabilities required include new element types (e.g. hanging nodes) and potentially octree information. See Appendix C for more details.

- Lockheed – Steve Karman – Also mentioned the need for hanging node information.

- Boeing – Todd Michal – Boeing has a structured grid implementation of CGNS in a pre-release version of Wind. They anticipate including unstructured grid capability, utilities and post processing capability this year, and a release to NPARC user community next year. Boeing is also bringing in Overflow and CFL3D versions, which utilize CGNS. They have made a proposal for storing boundary planes, which will be distributed for discussion as an extension proposal.

- RocketDyne – Armen Darien – RocketDyne has converted a rotating machinery post-processor to use CGNS.

- Vircinity – Andreas Wierse – We introduced Andreas Wierse who gave an overview of Vircinity, a visualization and post-processing capability with emphasis on virtual reality. They are looking at CGNS, and should decide on a development plan soon, and assign a CGNS contact point. They also have contacts with the EU and will bring CGNS to their attention.

4. Extension Status – Diane Poirier –

- The unstructured grid element ordering extension has been implemented and is on the web. Documentation is underway. ADAPCO is utilizing already.

- The moving grid proposal is finished and ready for implementation.

- The chemistry proposal is still stalled. Suggested to finalize as is, and extend in the future if a more comprehensive standard is required.

- Diane also brought up the need for a documentation focal point. Anyone interested please contact Diane or Bob Bush.

- Steve Legensky offered to take on some of the testing on multiple platforms to relieve Diane of this aspect of the development.

5. June Meeting – There was a brief discussion of the June meeting, and it was decided to coordinate with the AIAA CFD CoS with the CGNS team meeting first, and reporting out at the CoS meeting. (Subsequent contact with Ray Cosner has identified that our meeting night will be Tuesday, with the CoS meeting on Wednesday night. Please plan accordingly!)

Appendix A: Attendees

1)	Robert Bush:	UTRC
2)	Stuart Ochs:	ADAPCO
3)	Steve Feldman:	ADAPCO
4)	Dan Dominik:	Boeing Rocketdyne
5)	Armen Darian:	Boeing Rocketdyne
6)	Barb Hutching:	Fluent Inc.
7)	Michel Delanaye:	NUMECA
8)	Bill Thompson:	?
9)	David Kenwright:	NASA Ames
10)	Steve Karman:	Lockeed
11)	David Edwards:	Intelligent Light
12)	Steve Legensky:	Intelligent Light
13)	Mark Fisher:	Boeing St-Louis
14)	Ray Cosner:	Boeing St-Louis
15)	Todd Michael:	Boeing St-Louis
16)	Mori Mani:	Boeing St-Louis
17)	Andreas Wierse:	Vircinity
18)	Diane Poirier:	ICEM CFD Engineering

Appendix B: Viewgraph presented by Dave Edwards (Intelligent Light)

Intelligent Light's CGNS Effort

- Develop CGNS reader for Fieldview (Version 7, Sept 2000)
  - Testing with CGNS files generated from various solvers
    - Creation of matrix of CGNS data sets generated from from various CFD solvers and grid generation tools
  - Assessment of performance
  - Identification of areas of improvement
    - Integration with Fieldview Data Guide
- Develop Deskdrawer CGNS Utilities
  - Utility for output of header information (tell user what's in the file)
  - Utility to determine if CGNS file can be used for pre-processing, solver or post-processing
  - Utility to convert CGNS to Fieldview Unstructured File Format
  - Others (TBD)

Appendix C: Report from NUMECA

Subject: NUMECA input

Bob,

I thought you would be interested to get something written about what I said during the last teleconference. So, NUMECA is adopting the CGNS format as the only data transfer system between its different products, IGG (multi-block structured grid generation), Euranus (multi-block structured flow solver), CFView (postprocessing, visualization).

So far, the grid coordinates are written in the data base, the topology is still stored in our own format, but we are progressively changing to CGNS for the complete set of information, connectivity, boundary conditions, etc. This should be completed fairly soon. The flow solver outputs solutions in the CGNS database, and the database can be read by CFView. For unsteady computations, solutions at different time steps are stored for the moment in a different file. The CGNS will be part of the next release of these products, i.e. end of March.

We have proposed the use of CGNS in two European research projects. The CGNS format has been adopted in the first one, HPNURSA, to study unsteady flows in turbomachinery. Partners in this project are TaskFlow, SIMULOG which is writing a CGNS reader for Ensight, SEP, HYRDO-Vevay, EPFL and Ecole Centrale de Lyon. In the second one, ESTEDI, we proposed to test the CGNS format as a possible way to store data in a very large data base which is intended for data posttreatment (data mining) for large scientific computations (Climate modeling, Cosmology, Satellite tracking, LES, etc).

I mentioned some problems regarding speed. Further investigation on our side has highlighted some bad usage which has been corrected since. I also mentioned our wish to be able to store quantities on block boundaries. The Boeing proposal will most propably meet our expectations. The last comment was about the ability to store our hierarchal hexahedral unstructured grids. On this matter, I am going to investigate different possibilities and probably contact Diane with some propositions.

Hope this will help,

-Michel

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