**Working Group Meeting - MCF Standardization**

**>>> Minutes <<<**

#### 

#### on Dec 10. 2020, 9:00am – 12:10pm

#### Webex Meeting -

## Participation

* Nikolaos Economidis (Beta CAE Systems SA)
* Dr. Carsten Franke (PROSTEP AG)
* Dr. Karin Tröndle (VW)
* Dr. Halvar Schmidt (BMW)
* Michael Sauer (Dassault)
* Luc Feuvrier (Dassault)
* Wolfgang Hübsch (Magna ECS)
* Dr. Michael Hack (Siemens)
* Timothy Guirguis (Altair)
* Dr. Ulrich Fox (Ford)
* Dr. Matthias Weinert (Ford)
* Lars Eilers (GNS)
* Dr. Stephan Vervoort (HBK)
* Kosmas Gourgounis (Beta CAE Systems SA)
* Dr. Max Ungerer (ProStep AG)
* Michael Tryfonidis (Beta CAE Systems SA)

## 

## TOP 0 – Introduction

* Slightly modified agenda was discussed and agreed.

## TOP 1 – Version 3.1.1 Proposals

* Matthias Weinert presented the items a small working group has elaborated. All enhancements and modifications have been added to the cMCF Version V3.1.1 which is not published yet but available to the team via GitHub.  
  The enhancements and modifications are:
  + *Bug fix for <femdata>.*  
    Schema file did not allow <femdata> on root level, but the doc did; it is no correted in the schema file; please note that the correct fixed schema file is only available on GitHub
  + *Clarification on need for use cases for <femdata>* *usage across tools*.  
    It was suggested & agreed that <femdata> is predominantly intended to be used only within one individual tool; if it is planned to be used between tools/vendors than the vendors have to define their interaction strategy;  
    No use cases will be defined, additional explanations have been added to the document version 3.1.1
  + *Distinction between weld nut and clinch nut.*There are already attributes available which allow the distinction between welded and clinched nuts. “fixed\_to” refers to projection welded nuts and “clipped\_to” refers to clinched nuts
  + *Intermittent welds.*A description of a connection line with intermittent connection segments has been developed and shared with the complete team. So far, the option is only intended for seam welds. There are two different types of intermittent weld lines,
    - one with the definition of a <segment\_list> in which each individual weld segment is defined by start and end point in curve parameter coordinates and
    - a second one where a regular pattern of weld segment *length*s and *spacing*s. In this 2nd option, it is also possible to use individual spacing the start and end of the connection line (first\_spacing, last\_spacing). A keep parameter is defined to control compensations when individual parameters and overall polygon length are not fully compatible.

The attached powerpoint presentation (Att A01) explains the parameter definitions

## TOP 2 - Software Implementation Status of MCF Standard

* ***ANSA/MetaPost***
  + Most of the connection types are implemented (some only for input, details in the attached Beta presentation)
  + Current developments: intermittent welds; scripting, <femdata>
  + <femdata> will only be outputted
  + Pls see attached presentation material
* **Altair (A03)**
  + Incremental enhancements (e.g. GUI); all V3.1 features can be inputted
  + <femdata> not supported (yet)
* **Magna / FEMFAT**
  + Development ongoing
  + Move from using <appdata> towards <custom\_attributes>
  + Export of cMCF enabled
* **HBK / DesignLife**
  + No incremental progress since last meeting; cMCF topic remains important
* **Siemens / LMS (A04)**
  + Overview presentation on how connection data management is planned to be handled in PLM / CAD2CAE environment
  + High level development plan shown
  + Pls see attached presentation material
* **Dassault / CATIA/3DS**
  + No change vs last meeting; topic remains important for Dassault; ISO consideration seen as key

## TOP 3 – Conversion of cMCF into ISO Standard

* Matthias Weinert & Max Ungerer gave feedback on the recent steps towards the conversion of the cMCF into an ISO standard (pls see Att A01 & A02)
* The cMCF standard and the related conversion request was again presented to the ISO TC184/SC4 on May 10, 2021. It has been proposed to convert cMCF into a PAS (Publicly Available Standard) as a first step. This allows to avoid or minimize the re-formatting of the standard. The life cycle of such a PAS is 3 years with the option to extend it another 3 years. After the 6 years in total the standard would need to be converted into an International Standard (IS).
* The audience pointed out that alignment and compliance to the STEP standard is crucial. During the PAS period, cMCF would be used in a federated way. It is required to incorporate references into cMCF to cross-reference related items and terms in STEP and cMCF. In addition, standard clauses have to be added to cMCF in order to meet ISO Quality System Standards.
* The timeline for creating and publishing the PAS has been proposed to May 31, 2022.
* The first step, however, before the actual work can start is the successful pass of the ballot which has been kicked off and takes approximately 2 months. We need 5 P-members of the ISO Committee who support the actual work.
* Some lobbying support from our side may be required. What we need, are interested companies in the P-member countries who support our project and would indicate this to the National ISO standard body (e.g. SIS in Sweden, DIN in Germany). The countries that are P-members and the related contacts are shown on page 11 of the attached working document of the ISO plenary session from May 10 (Attachment A05).
* It is recommended to develop a strawman for the contact letter in order to ease the work for the supporting experts from the various countries (M. Weinert will set up one and rotate through the team via email. Feedback and improvement proposals are highly appreciated.) - ***Strawman sent out along with these minutes***

## TOP 4 – Further Enhancements of xMCF

* **Attribute “tangential\_direction”**
  + So far, the attribute tangential direction <tangential\_direction> has been defined along with <normal\_direction> for 0D connection elements but only used for robscans. It was observed that rivets can also be non-axisymmetric and hence it was requested to enable both attributes for all 0D connection types.
  + It was agreed by the working group.
  + Carsten Franke requested to put this as an issue into GitHub in order to allow structured work planning and resolution processes.
* **Introduction of connection ID’s**
  + Beta has raised the request to enable a numerical (integer) ID for connection. This would be required for efficient handling of the connections within the CAE tools. Currently, there is only the attribute label which is alphanumeric and not sufficient. The request is to add an attribute “id” which is purely Integer.
  + There was no clear outcome. On one hand, there was no objection to add this attribute “id”, on the other hand it was emphasized again, that we consciously decided that cMCF was set up as a standard for ”Engineering Information”. That was also the reason why we introduced <femdata> as a separate block only for FEA and tool internal usage.
  + However, there was no clear objection to add the attribute “id”as an additional optional attribute. The item shall be discussed in the small group and a proposal shall be prepared for the next Working Group meeting.

## AOB

* **GitHub Usage:**
  + During a side discussion it was again requested to use GitHub to create “Issues” for requests like the ones above in order to enable a robust knowledge share and workflow. Email Chains are not reliable due to changing memberships etc.
  + It was also proposed to create a GitHub account for cMCF and move content from Nick Economidis’ personal account to the new one.

**Assignment Summary:**

* Read modifications in the Standard document (V3.1.1) on GitHib and feedback any concern regarding the modifications described in TOP 1. – **All** (time: until next WG meeting)
* Prepare a Strawman for a Contact letter to the National Standard Bodies – **Matthias Weinert (time: 4.6.)**
* Review Strawman and feedback suggestions – **All (time 10.6., agree in small group meeting)**
* Create GitHub Issues for above mentioned enhancement requests (TOP 4) – **Michael Tryfonidis / Halvar Schmidt (time: 10.6.)**

**Next Meetings:**

* 21.10. 2021 (webex) -- entire Working Group
* 10.06.2021 (webex) -- small group working on individual items
* 01.07.2021 (webex) -- small group working on individual items