

VMAP: A new Interface Standard for Integrated Virtual Material Modelling in Manufacturing Industry

Material Data Exchange Interface Standard Community
Face-to-Face meeting Frankfurt

23 October 2019 at 10:00 (CET)

Summary of Meeting

Place: Sheraton Frankfurt Airport Hotel & Conference Centre, Frankfurt, Germany.

Attendees: Anders Winkler (Dassault Systemes), André Haufe (DYNAmore, VMAP), Christine Weinhold (SIGMA Engineering GmbH), Darius Friedemann (HTW Berlin), Davide Di Stefano (Granta Design Ltd.), Dirk Rensink (:em engineering methods AG), Enrique Escobar (ANSYS DE), Georg Schmitz (ACCESS e.V. / EMMC), Gino Duffett (NAFEMS GmbH, VMAP), Joachim Strauch (Robert Bosch, VMAP), Jochen Boy (ProSTEP ivip Association), Johannes Fieres (Volume Graphics GmbH), Jörg Rademann (HTW Berlin), Klaus Wolf (Fraunhofer SCAI, VMAP), Konstantinos Kiouptsidis (BETA CAE, VMAP), Kristof Vanclooster (SIEMENS), Lambert Russcher (Reden, VMAP), Laurence Gaston (Transvalor), Liyona Bonakdar (Simcon), Martin Hohberg (Simutence GmbH), Matteo Gazzin (ESTECO SpA), Priyanka Gulati (Fraunhofer SCAI, VMAP), Tim Morris (NAFEMS UK, VMAP),

Apologies: Andreas Junghanns (Qtronic / FMI), Christoph Kloss (DCS Computing), Christian Bertsch (Robert Bosch / FMI), Constantin Krauss (Karlsruhe Institute of Technology (KIT)), Sebastian Muller (ESI), Timo Gebauer (SIGMA Engineering GmbH)

Summary: 23 people in total (VMAP Project 8, External 15)
20 entities in total (VMAP Project 6, External 14)

Documents attached:

- [1] "ITEA-VMAP_SC_20191023_Agenda" contains the Agenda distributed at the meeting.
- [2] "ITEA-VMAP_SC_20191023_Presentations" the non-confidential presentations made at the meeting.

1. KlausW welcomed all attendees and outlined the Agenda. GinoD's flight was delayed.
2. KlausW then presented an overview of the project to date; see [2] pages 1-8.

2. PriyankaG presented the current Interface Standard v0.3; see [2] pages 9-17.
Points for discussion:
 - Test cases should be ready by the end of 2019
 - User defined options exist in the IO library
 - There is interest in storing data pointwise (possible) using a grid type definition for efficiency (lines and spacing instead of defining all point coordinates).
 - There are only basic ontologies in VMAP but these will be extended if the following project is funded.

3. Further VMAP implementation presentations were made by
 - AndreH of DYNAmore, see [2] pages 18-26.
 - KonstantinosK of BETA-CAE, see [2] pages 27-54.
 - PriyankaG on behalf of SebastianM of ESI, presentation not included in presentation file.
 - LaurenceG from Transvalor, company external to VMAP project, see [2] pages 55-63.

Points for discussion:

 - Temperature dependent variables can be included; temperatures are defined at nodes.
 - ESI links to VMAP via their ERF format (also HDF5) that is common to all their software products.
 - material data interoperability should be looked at in the future. This is difficult and is being considered but may be more important in the next VMAP project if it is funded.

Action: KlausW to consider.

 - Transvalor proposed defining an external use case

Action: KlausW, GinoD to contact LaurenceG.

4. A round the table presentation and quick comment of the usefulness of VMAP to all attendees was held. Most attendees, external to the current VMAP project, were positive regarding the usefulness of VMAP. Some particular points:
 - Could be used in and applied as part of PLM and SDM as well.
 - Simcon have implemented VMAP in CADMOULD their flagship software.
 - Volume Graphics could consider VMAP for tomography image transfer.
 - SIGMA customers would be interested in VMAP for their software products.
 - Additive Manufacturing would possibly require more material data to be included within VMAP.
 - VMAP would help in university and R&D projects on modelling languages where data passing is essential.
 - Simulia would discuss VMAP with potential to use, linking to their .sim format used within its simulation platform.
 - ESTECO could consider VMAP standards for use with their process and optimization products.

Action: KlausW, GinoD and OTHERS to establish contact regarding collaborations.

5. VMAP use cases were presented to provide information to attendees on how VMAP has been implemented within these complex simulation processes.
 - JoachimS from Robert Bosch presented the additive manufacturing use case.
 - KlausW on behalf of ConstantinK from KIT, FAST presented an automotive composite use case.

These presentations are not included in the attached presentation file.

6. GinoD then presented some basic issues and concepts regarding the creation of the VMAP Standards Community (VMAP-SC), see [2] pages 64-66.
KlausW on behalf of AndreasJ of Qtronic/FMI and ChristianB (Robert Bosch/FMI) presented some recommendations to create a successful community, see [2] pages 67-73.
Points for discussion:
 - Autodesk-Moldflow and The Manufacturing Technology Centre (UK) are discussing use cases external to the VMAP project with the help of VMAP project partners.
 - Basic ideas behind creating the VMAP-SC seem correct.
 - By laws, Licences are all in draft form but need to be agreed at project level before being distributed.
 - The VMAP IP will be maintained and will remain with the VMAP Standards Community.
 - FMI recommends "Quality before Time"; sort out the technical issues before rushing to release.

7. In the discussion on VMAP collaboration the following presentations were made:
 - GeorgS of ACCESS/EMMC presented their work on material modelling at molecular and micro levels and the EMMO and EMMC community experiences, see [2] pages 74-108.
 - JochenB from ProSTEP presented their standards and organizational experiences, see [2] pages 109-121.Points for discussion:
 - VMAP and EMMC have points for collaboration on molecular and electronic models feeding data to engineering models.
 - Much work on ontologies needs to be done.
 - ProSTEP have large community base and a good user-implementer-standards structure.
8. To end the meeting GinoD present some next steps, see [2] pages 122-123, where he highlighted:
 - All parties should confirm their interest in VMAP community. Please Invite others.
 - Insert names on database to receive information,
 - Confirmation so that emailing can be opened and create more interaction within the community.
 - Confirmation to insert company logo+link on the VMAP webpage.
 - Please join the VMFA LinkedIn Group via request.

Action: ALL to confirm their participation in the VMAP community, etc.
9. GinoD made a special note of the VMAP International Conference on CAE Interoperability 2020:
 - 13-14 May 2020 in Bamberg, Germany
 - About 1 day long, starting just after lunch
 - Small overlap with NAFEMS DACH conference
 - Call for papers will be published next week.
10. GinoD and KlausW thanked everybody for their active participation and closed the meeting.

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