



30  
years of  
excellence

Standardization of JT/STEP

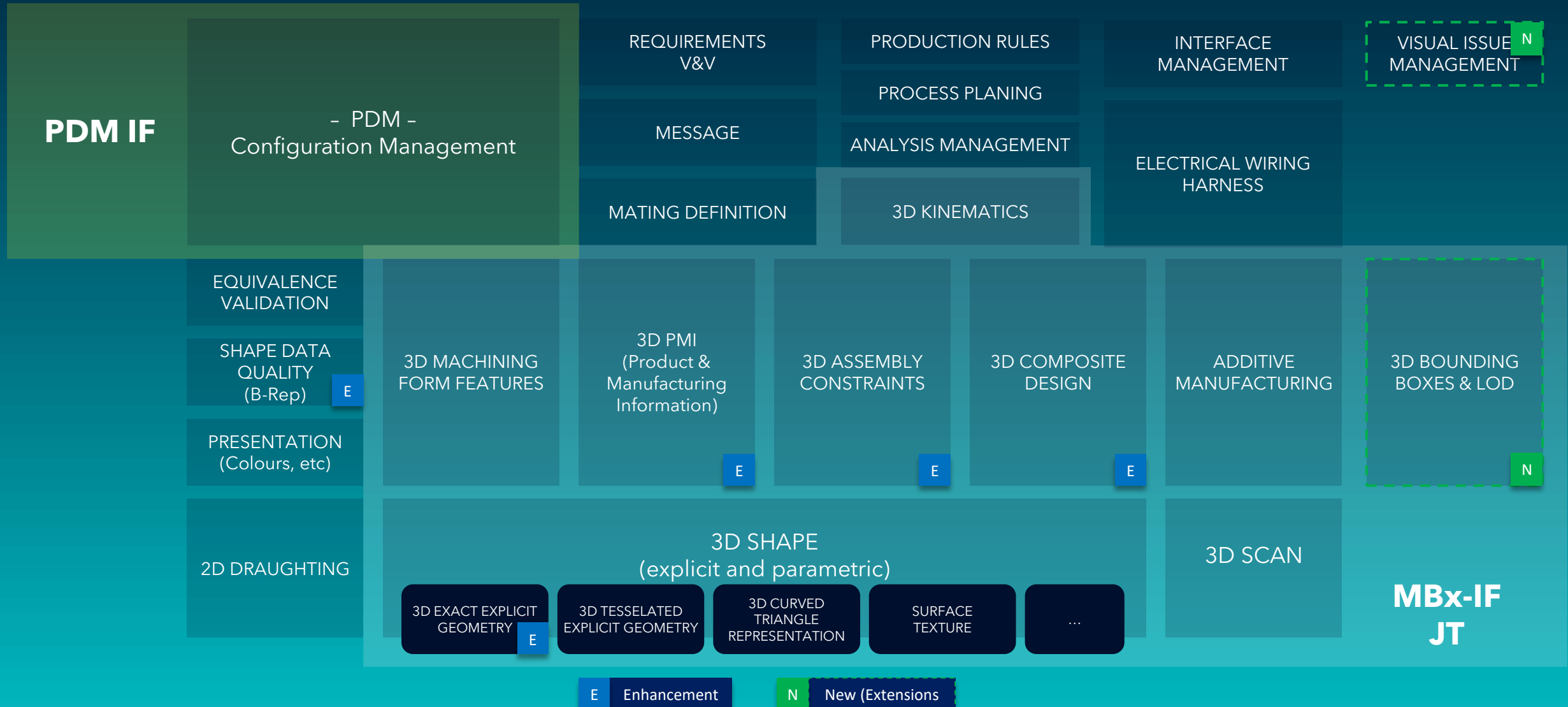
04 October 2023

## AGENDA

- 3D Model-Based Initiatives with prostep ivip Association
- Driving JT for the Digital Enterprise
- Standardization of JT and STEP AP 242
- Summary and Wrap-Up

# Model-Based Representation with JT and AP242 Edition 4

## Scope within prostep ivip technical program



JT application  
Benchmark

Driving JT ISO 14306 and  
JT DIN SPEC 91383 – JT  
Industrial Application  
Package

ISO 10303 STEP AP 242  
Maintenance of  
functional scope and  
elimination of errors

Comprehensive collection of  
JT Use Cases and JT Content  
Harmonization

**JT AS  
PROCESS  
FORMAT**  
*for the digital enterprise*

JT Workflow  
and Implemen-  
tor Forum

MBX-  
Interoperability  
Forum

Current and future  
requirements to the  
application of JT

PDM  
interoperability  
recommended  
practices

implementation  
and testing of the  
STEP AP242  
standard

# AP242 Edition 4 Standardisation – Extensions and Enhancements

ISO 10303 STEP AP 242 Maintenance of functional scope and elimination of errors

## ***Extensions for***

*Visual Issue Management (VIM)  
Domain Model PMI  
External Element References (EERs)  
and persistent Global UUIDs (GUIDs) to  
support lifecycle traceability  
Hybrid Modeling / Polyhedral B-Rep  
Isogeometry*

## ***Enhancements for***

*Assembly PMI  
Further PMI features  
Part 59 (PDQ) ed3 incorporation  
Composite Material  
Wire harness (EWIS)  
PDM-IF issues  
Mappings to the core model  
Bounding boxes and Level Of Details  
(LODs)*

### **Status**

1<sup>st</sup> Change Request under ballot with  
focus Visual Issue Management,  
(Assembly) PMI, PDM-IF issues

### **Roadmap**

DIS ballot to start Mid of December  
2023 and ISO publication planned for  
Q2/2024

Requests from various stakeholders: prostep ivip, VDA, JAMA, NIST, CAX-IF, EWIS-IF, ...

# ISO 14306 Standardisation – Multipart Standard

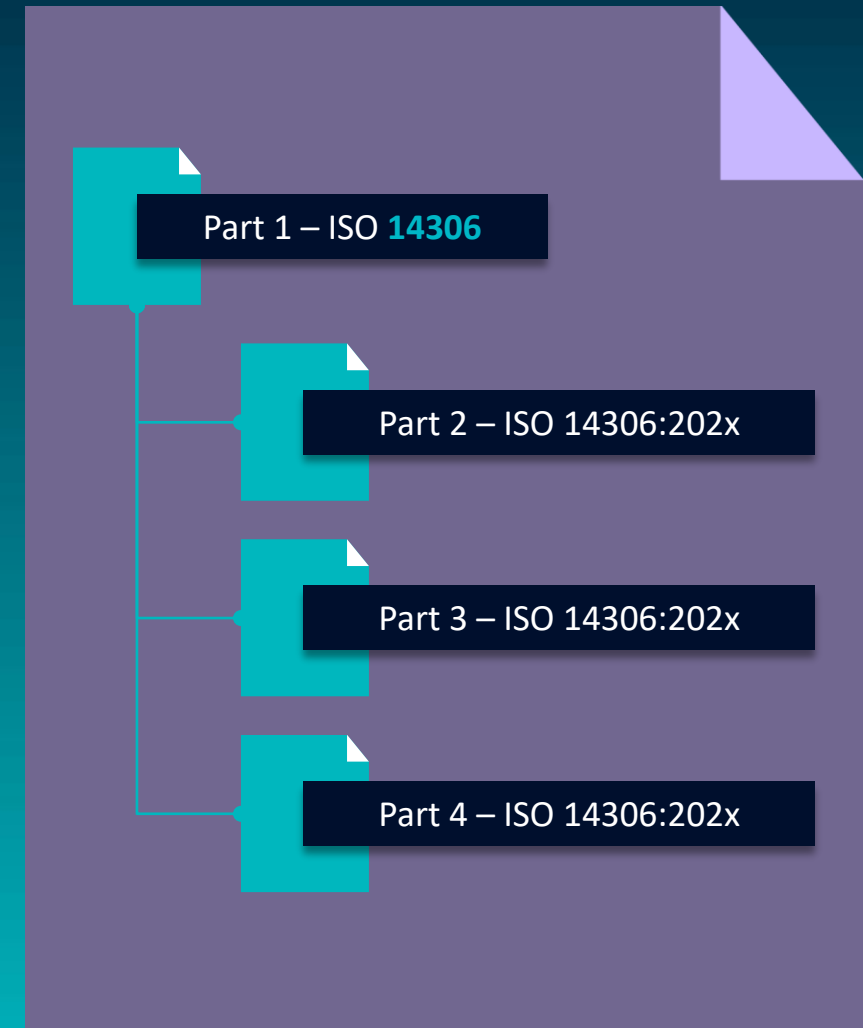
Driving JT ISO 14306 and JT DIN SPEC 91383 – JT Industrial Application Package

New document describing the [ISO 14306 multipart standard overview](#) and [fundamental principles](#).

ISO 14306 [Vocabulary](#) – This document will be created in the future.

Existing ISO 14306:2017 standard, essentially a name change to Part 3 instead of Ed2. Content includes unchanged data descriptions and scope, remains consistent with the JT 9.5 format specification with no loss of [ISO 14306:2017 Edition 2](#) content.

Improvements to the data description found in Part 3, including compression updates and additional data segments consistent with the [JT 10.5 format](#) specification. No change to scope of Edition 2 data with the exception of content superseded by updates and removal of deprecated features.



# DIN SPEC 91383 Standardisation – Material Data Extensions

## Use Case Digital PPAP for materials: Step 1 - Part information in JT

### VDA recommendation 231-300:

Defined set of attributes for material and surface references.

MAT\_00\_VERSION\_DATA  
MAT\_01\_SPECIFICATION\_IDENTIFIER  
MAT\_02\_REGULATION\_TYPE  
MAT\_03\_REGULATION\_NUMBER  
MAT\_04\_LEGAL\_AUTHORITY\_REGULATION  
MAT\_05\_ISSUE\_DATE\_REGUALTION  
MAT\_06\_SHORT\_NAME  
MAT\_07\_FEATURES\_ACCORDING\_TO\_REGULATION  
MAT\_08ADDITIONAL INFORMATION  
MAT\_09\_DEVIATION\_REGULATION  
MAT\_10\_DEVIATION\_REGULATION\_CODE  
MAT\_11\_FURTHER\_REGULATIONS

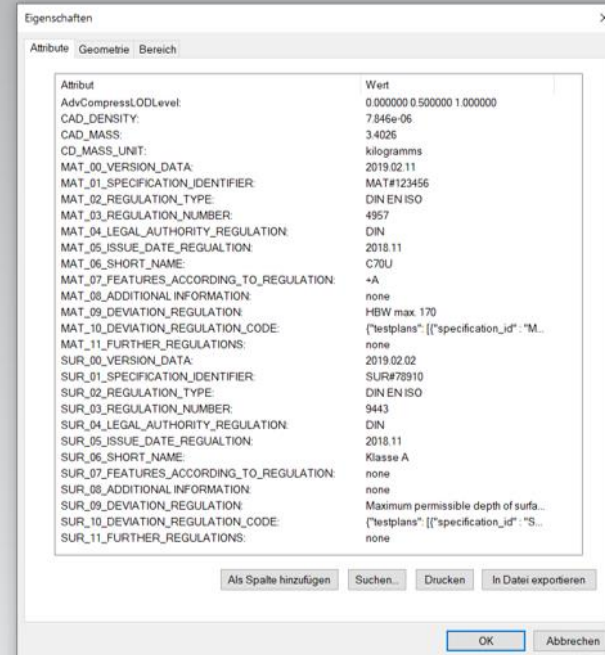
SUR\_00\_VERSION\_DATA  
SUR\_01\_SPECIFICATION\_IDENTIFIER  
SUR\_02\_REGULATION\_TYPE  
SUR\_03\_REGULATION\_NUMBER  
SUR\_04\_LEGAL\_AUTHORITY\_REGULATION  
SUR\_05\_ISSUE\_DATE\_REGUALTION  
SUR\_06\_SHORT\_NAME  
SUR\_07\_FEATURES\_ACCORDING\_TO\_REGULATION  
SUR\_08\_ADDITIONAL INFORMATION  
SUR\_09\_DEVIATION\_REGULATION  
SUR\_10\_DEVIATION\_REGULATION\_CODE  
SUR\_11\_FURTHER\_REGULATIONS

CAD\_DENSITY

### VDA cuboid as visualization example:

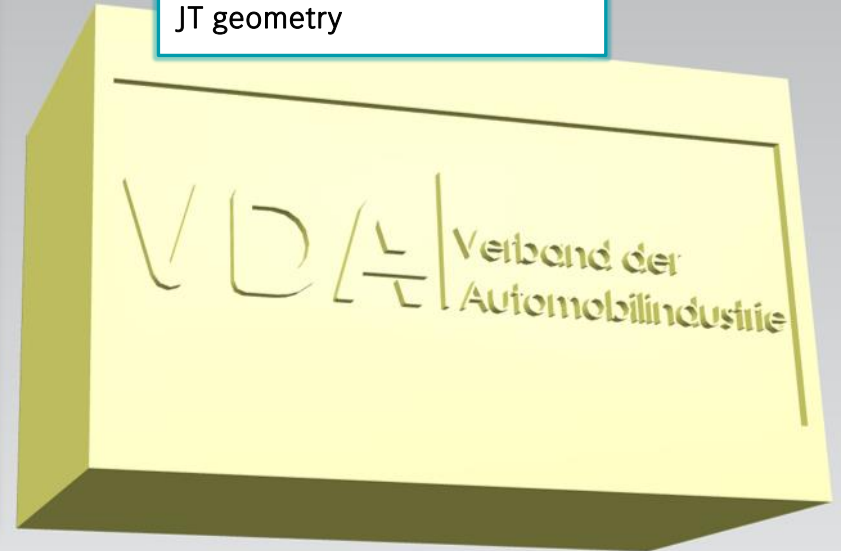
Common language: Use attributes for material and surface references in 3D

#### Properties on body level in JT



Attribut	Wert
AdvCompressLODLevel:	0.000000 0.500000 1.000000
CAD_DENSITY:	7.846e-06
CAD_MASS:	3.4026
CD_MASS_UNIT:	kilogramms
MAT_00_VERSION_DATA:	2019 02 11
MAT_01_SPECIFICATION_IDENTIFIER:	MAT#123456
MAT_02_REGULATION_TYPE:	DIN EN ISO
MAT_03_REGULATION_NUMBER:	4957
MAT_04_LEGAL_AUTHORITY_REGULATION:	DIN
MAT_05_ISSUE_DATE_REGUALTION:	2018 11
MAT_06_SHORT_NAME:	C70U
MAT_07_FEATURES_ACCORDING_TO_REGULATION:	-A
MAT_08_ADDITIONAL INFORMATION:	none
MAT_09_DEVIATION_REGULATION:	HBW max. 170
MAT_10_DEVIATION_REGULATION_CODE:	["testplans": [{"specification_id": "M...
MAT_11_FURTHER_REGULATIONS:	none
SUR_00_VERSION_DATA:	2019 02 02
SUR_01_SPECIFICATION_IDENTIFIER:	SUR#78910
SUR_02_REGULATION_TYPE:	DIN EN ISO
SUR_03_REGULATION_NUMBER:	9443
SUR_04_LEGAL_AUTHORITY_REGULATION:	DIN
SUR_05_ISSUE_DATE_REGUALTION:	2018 11
SUR_06_SHORT_NAME:	Klasse A
SUR_07_FEATURES_ACCORDING_TO_REGULATION:	none
SUR_08_ADDITIONAL INFORMATION:	none
SUR_09_DEVIATION_REGULATION:	Maximum permissible depth of surfa...
SUR_10_DEVIATION_REGULATION_CODE:	["testplans": [{"specification_id": "S...
SUR_11_FURTHER_REGULATIONS:	none

For the PPAP process,  
digital specifications need to  
be matched with the material  
information provided by the  
JT geometry

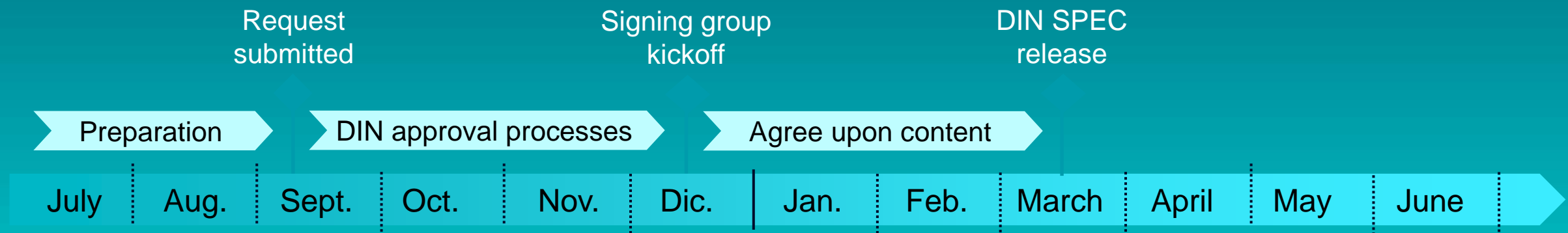


Digital PPAP driven by VDA project and „AK Werkstoffausschuss“ drives DIN SPEC Update

# DIN SPEC 91383 Standardisation – Timeline and Status

## Driving JT DIN SPEC 91383 – JT Industrial Application Package

- Material data extensions shall be standardized via DIN SPEC
  - Request for DIN SPEC Update officially submitted by Prostep ivip on 12<sup>th</sup> of September
  - Signing group staffed and supported by:
    - Prostep ivip association
    - Continental AG
    - Mercedes-Benz AG
    - BMW Group
    - Volkswagen AG
    - Brose
- Good mixture of
- OEM and supplier
  - JT WF and VDA project members



# Management Summary

Getting JT and STEP AP242 standardised is important.

It requires a sustained effort at multiple points to add value for users and software houses by supporting the increasingly important issues of truly global collaboration.

This can only be achieved through appropriate container formats around the convergence of industries and topics (such as digitalization, software, autonomous systems and AR) and the associated interoperability interfaces.

Networking  
People

**Join us!**

Success  
for you -  
and your  
company

# PSI14-1 Update as part of DIN SPEC 91383 Update

prostep ivip  
Recommendation

PSI 14, Part 1, V 3

## JT Industrial Application Package

### Edition 3

JT file format specification

Version 3.0, 10.06.2021

Status: Final



13 Common Data Conventions and Constructs .....	185
13.1 Late-Loading Data .....	185
13.2 TOC Segment Location .....	185
13.3 Bit Fields .....	185
13.4 Empty Field .....	185
13.5 Local version numbers .....	185
13.5.1 Version numbers .....	186
13.6 Hash Value .....	186
13.7 Scene graph construction .....	186
13.8 Metadata Conventions .....	187
13.8.1 Property Key Naming Conventions .....	187
13.8.2 PMI Properties .....	188
13.8.3 CAD Properties .....	188
13.8.4 Tessellation Properties .....	188
13.8.5 Miscellaneous Properties .....	188
13.8.6 The SUBNODE property .....	188
13.9 LSG Attribute Accumulation .....	188
13.10 LSG Part Structure .....	188
13.11 Range LOD Node Alternative Rep Selection .....	197
13.12 B-Rep Face Group Associations .....	197
13.13 Watermark Image .....	198
13.14 State Flags .....	199
Annex A Object Type Identifiers .....	200

➤ Add reference to **MAT** and **SUR** properties due to VDA 231-300 recommendation to chap. 13, Metadata Conventions.

# PSI14-2 Update as part of DIN SPEC 91383 Update

prostep IVIP

Recommendation



Comprehensive Collection of Industrial JT Use Cases

prostep ivip PSI 14-2 Recommendation V2.1

JT Recommendation

Comprehensive Collection of Industrial JT Use Cases

## Table of Contents

### 1 Introduction

- 1.1 Brief history: from proprietary format
- 1.2 Collaboration with other communities
- 1.3 Many good reasons for neutral format
- 1.4 Data model

### 2 Use Cases

- 2.1 Structure of the use case descriptions
- 2.2 JT for 3D Measurement and -Analysis
- 2.3 JT for Archiving
- 2.4 JT for Bidding and Inquiry
- 2.5 JT for Digital Factory Building Planning
- 2.6 JT for Digital Factory Manufacturing P
- 2.7 JT for Digital Factory Material Handling
- 2.8 JT for Digital Factory Plant developme
- 2.9 JT for Drawingless Manufacturing
- 2.10 JT for ECAD/MCAD Collaboration
- 2.11 JT for Factory DMU
- 2.12 JT for Finite Element Analysis (FEA)
- 2.13 JT for high-end Visualization
- 2.14 JT for hybrid Design in Context
- 2.15 JT for Identification of Location Base
- 2.16 JT for Identification of Part/Assembly
- 2.17 JT for Installation Feasibility
- 2.18 JT for Material Specification
- 2.19 JT for Multibody Simulation (MBS)
- 2.20 JT for Multimedia Annotations
- 2.21 JT for non-hybrid Design in Context
- 2.22 JT for Packaging
- 2.23 JT for Pre-Series Aeroacoustics Modeling
- 2.24 JT for Pressline Simulation
- 2.25 JT for Supplier Integration (Customer to Supplier)
- 2.26 JT f
- 2.27 JT f
- 2.28 JT f
- 2.29 JT f
- 2.30 JT f
- 2.31 JT f
- 2.32 JT f
- 2.33 Mai
- 2.34 Sim
- 2.35 JT a
- 2.36 AP2
- 2.37 Vali
- 2.38 JT i
- 2.39 JT f
- 2.40 Additive Manufacturing
- 2.41 JT for hybrid Design in Context for inhouse usage

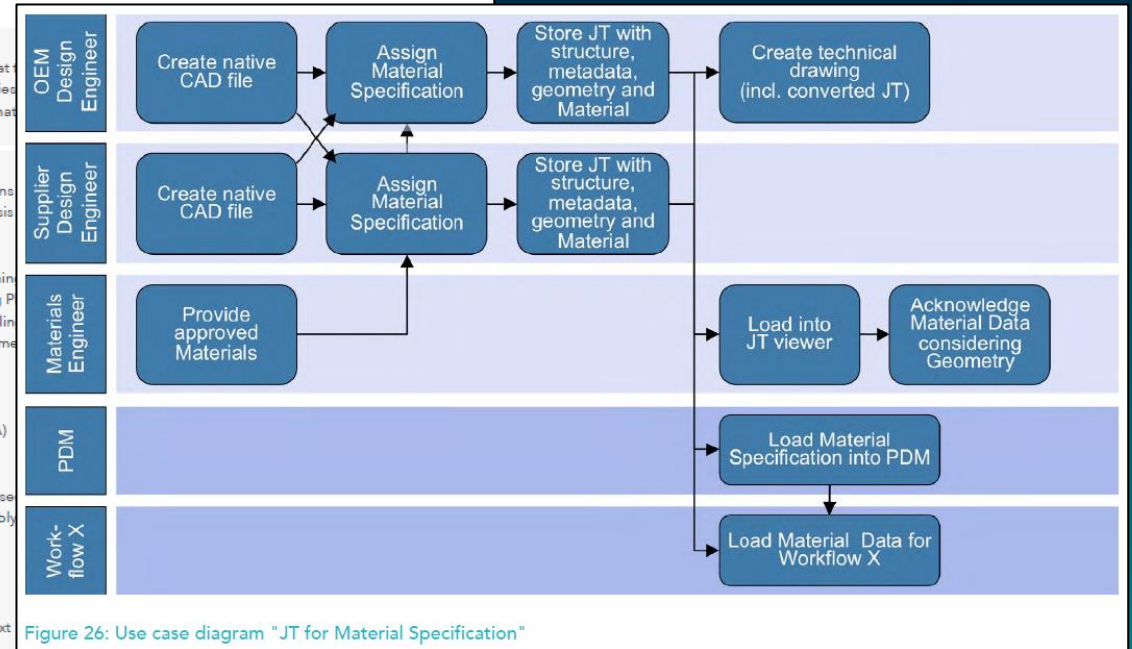


Figure 26: Use case diagram "JT for Material Specification"

- 2.41 JT for hybrid Design in Context for inhouse usage  
⇒ **new since DIN 91383:2021**
- 2.18 JT for Material Specification  
⇒ **to be updated according to VDA 321-300**