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Export parameters by CAD format

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Hugues Delorme edited this page on Feb 7, 2022 · 3 revisions

STEP

Long name of this format is *STEP(ISO 10303)*.
Writting files of this format is provided by class `Mayo::IO::OccStepWriter`

Schema

Key	Type	Default value
schema	Enumeration	AP214_IS

Version of schema used for the output STEP file

List of enumerated values:

- ☐ AP214_CD
- ☐ AP214_DIS
- ☐ AP203
- ☐ AP214_IS
- ☐ AP242_DIS

Length Unit

Key	Type	Default value
lengthUnit	Enumeration	Millimeter

Defines a unit in which the STEP file should be written. If set to unit other than millimeter, the model is converted to these units during the translation

List of enumerated values:

- ☐ Undefined
- ☐ Micrometer
- ☐ Millimeter
- ☐ Centimeter

☐ Meter

☐ Kilometer

☐ Inch

☐ Foot

☐ Mile

Assembly Mode

Key	Type	Default value
assemblyMode	Enumeration	Auto

No description

List of enumerated values:

☐ Skip

☐ Write

☐ Auto

Mode for Free Vertices

Key	Type	Default value
freeVertexMode	Enumeration	Compound

Parameter to write all free vertices in one SDR (name and style of vertex are lost) or each vertex in its own SDR (name and style of vertex are exported)

List of enumerated values:

☐ `Compound` - All free vertices are united into one compound and exported in one shape definition representation (vertex name and style are lost)

☐ `Single` - Each vertex is exported in its own `SHAPE DEFINITION REPRESENTATION` (vertex name and style are not lost, but the STEP file size increases)

Write Parametric Curves

Key	Type	Default value
writeParametericCurves	Bool	true

Indicates whether parametric curves (curves in parametric space of surface) should be written into the STEP file. It can be disabled in order to minimize the size of the resulting file.

Write Names of sub Shapes

Key	Type	Default value
writeSubShapesNames	Bool	false

Indicates whether to write sub-shape names to 'Name' attributes of STEP Representation Items

Author(header)

Key	Type	Default value
headerAuthor	String	

Author attribute in STEP header

Organization(header)

Key	Type	Default value
headerOrganization	String	

Organization(of author) attribute in STEP header

Originating system(header)

Key	Type	Default value
headerOriginatingSystem	String	Open CASCADE 7.6

Originating system attribute in STEP header

Description(header)

Key	Type	Default value
headerDescription	String	OpenCascade Model

Description attribute in STEP header

IGES

Long name of this format is *IGES(ASME Y14.26M)*.
Writting files of this format is provided by class `Mayo::IO::OccIgesWriter`

BRep Mode

Key	Type	Default value
brepMode	Enumeration	Faces

No description

List of enumerated values:

- ☐ `Faces` - OpenCascade TopoDS_Faces will be translated into IGES 144 (Trimmed Surface) entities, no BRep entities will be written to the IGES file
- ☐ `BRep` - OpenCascade TopoDS_Faces will be translated into IGES 510 (Face) entities, the IGES file will contain BRep entities

Plane Mode

Key	Type	Default value
planeMode	Enumeration	Plane

Indicates if planes should be saved as Bsplines or Planes (type 108). Writing p-curves on planes is disabled

List of enumerated values:

- ☐ Plane
- ☐ BSpline

Length Unit

Key	Type	Default value
lengthUnit	Enumeration	Millimeter

No description

List of enumerated values:

- ☐ Undefined
- ☐ Micrometer
- ☐ Millimeter
- ☐ Centimeter
- ☐ Meter
- ☐ Kilometer
- ☐ Inch
- ☐ Foot
- ☐ Mile

STL

Long name of this format is *STL(STereo-Lithography)*.
Writting files of this format is provided by class `Mayo::IO::OccStlWriter`

Target Format

Key	Type	Default value
targetFormat	Enumeration	Binary

No description

List of enumerated values:

- ☐ Ascii
- ☐ Binary

VRML

Long name of this format is *VRML(ISO/CEI 14772-2)*.
Writting files of this format is provided by class `Mayo::IO::OccVrmlWriter`

Shape Representation

Key	Type	Default value
shapeRepresentation	Enumeration	BothRepresentation

No description

List of enumerated values:

- ☐ ShadedRepresentation
- ☐ WireFrameRepresentation
- ☐ BothRepresentation

GLTF

Long name of this format is *glTF(GL Transmission Format)*.
Writting files of this format is provided by class `Mayo::IO::OccGltfWriter`

Coordinates Converter

Key	Type	Default value
coordinatesConverter	Enumeration	negZfwd_posYup

Coordinate system transformation from OpenCascade to glTF

List of enumerated values:

- ☐ Undefined
- ☐ posYfwd_posZup
- ☐ negZfwd_posYup

Transformation Format

Key	Type	Default value
transformationFormat	Enumeration	Compact

Preferred transformation format for writing into glTF file

List of enumerated values:

- ☐ Compact - Automatically choose most compact representation between Mat4 and TRS
- ☐ Mat4 - 4x4 transformation matrix
- ☐ TRS - Transformation decomposed into Translation vector, Rotation quaternion and Scale factor(T * R * S)

Format

Key	Type	Default value
format	Enumeration	Binary

No description

List of enumerated values:

- ☐ Json
- ☐ Binary

Force UV Export

Key	Type	Default value
forceExportUV	Bool	false

Export UV coordinates even if there is no mapped texture

Node Name Format

Key	Type	Default value
nodeNameFormat	Enumeration	ProductOrInstance

Name format for exporting nodes

List of enumerated values:

- ☐ Empty
- ☐ Product
- ☐ Instance
- ☐ InstanceOrProduct
- ☐ ProductOrInstance
- ☐ ProductAndInstance

Mesh Name Format

Key	Type	Default value
meshNameFormat	Enumeration	Product

Name format for exporting meshes

List of enumerated values:

- ☐ Empty
- ☐ Product
- ☐ Instance
- ☐ InstanceOrProduct
- ☐ ProductOrInstance
- ☐ ProductAndInstance

Embed Textures

Key	Type	Default value
embedTextures	Bool	true

Write image textures into target file.

If set to `false` then texture images will be written as separate files.

Applicable only if option `Format` is set to `Binary`

Merge Faces

Key	Type	Default value
mergeFaces	Bool	false

Merge faces within a single part.

May reduce JSON size thanks to smaller number of primitive arrays

Keep 16bit Indices

Key	Type	Default value
keepIndices16b	Bool	false

Prefer keeping 16-bit indexes while merging face.

May reduce binary data size thanks to smaller triangle indexes.

Applicable only if option `Merge Faces` is on

OBJ

Long name of this format is *Wavefront OBJ*.
Writting files of this format is provided by class `Mayo::IO::OccObjWriter`

Coordinates Converter

Key	Type	Default value
coordinatesConverter	Enumeration	negZfwd_posYup

Coordinate system transformation from OpenCascade to OBJ

List of enumerated values:

- ☐ Undefined
- ☐ posYfwd_posZup
- ☐ negZfwd_posYup

AMF

Long name of this format is *Additive manufacturing file format(ISO/ASTM 52915:2016)*.
Writting files of this format is provided by class `Mayo::IO::GmioAmfWriter`

64bit Float Format

Key	Type	Default value
float64Format	Enumeration	Decimal

Format used when writting `double` values as strings

List of enumerated values:

- ☐ `Decimal` - Decimal floating point(ex: 392.65)
- ☐ `Scientific` - Scientific notation(ex: 3.9265E+2)
- ☐ `Shortest` - Use the shortest representation: decimal or scientific

64bit Float Precision

Key	Type	Default value
float64Precision	Int	16

Maximum number of significant digits when writting `double` values

Create ZIP Archive

Key	Type	Default value
createZipArchive	Bool	false

Write AMF document in ZIP archive containing one file entry

ZIP Entry Filename

Key	Type	Default value
zipEntryFilename	String	

Filename of the single AMF entry within the ZIP archive. Only applicable if option `Create ZIP Archive` is on

Use ZIP64 extensions

Key	Type	Default value
useZip64	Bool	true

Use the ZIP64 format extensions. Only applicable if option `Create ZIP Archive` is on

Image

Writting files of this format is provided by class `Mayo::IO::ImageWriter`

Width

Key	Type	Default value
width	Int	128

Image width in pixels

Height

Key	Type	Default value
height	Int	128

Image height in pixels

Background Color

Key	Type	Default value
backgroundColor	RGB Color	#000000

No description

Camera Orientation

Key	Type	Default value
cameraOrientation	3D Vector	1, -1, 1

Camera orientation expressed in Z-up convention as a unit vector

Camera Projection

Key	Type	Default value
cameraProjection	Enumeration	Orthographic

No description

List of enumerated values:

- ☐ Perspective
- ☐ Orthographic

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