**SWASI rules:**

* Every assembly and every component must have a ref. frame starting with “SWASI\_Origin\_”
* Ref. frames, ref. points, ref. axis, ref. planes and constraints that are relevant for SWASI should start with “SWASI\_”
* “SWASI\_” tag should not be exported to the json
* Ref. axis should only be defined by two ref. points that are tagged with SWASI
* Ref. planes should only be defined by three points or one point + perpendicular axis that are tagged with SWASI
* If an assembly has consists of multiple of the same components the name and the guid in the components list should be the same
* Jsons only for unique components

**Json structures**

**Assembly**:

* name (name of assembly)
* description (empty)
* guid
* type (“assembly”)
* saveDate (currentDate/date of export)
* cad\_path (path to the stl file of the whole assembly. Stl should be exported with the SWASI\_Origin as origin; relative path from save\_path)
* document\_units(“mm”)
* mounting\_description
  + components
    - 1.
      * name (name of assembly/component)
      * guid
      * type (assembly/component)
      * transformation (transformation from assembly “SWASI\_Origin” to assembly/component SWASI\_Origin
    - 2.
      * Name (name of assembly/component)
      * guid
      * type (assembly/component)
      * transformation (transformation from assembly “SWASI\_Origin” to assembly/component SWASI\_Origin
  + assembly\_constraints (here all constraints of the assembly document that are tagged with swasi are listed; note that only constrains that are defined by two ref\_planes are valid)
    - component/assembly\_1 (This must be one of the ones listed in components)
    - component/assembly\_2 (This must be one of the ones listed in components)
    - description
      * name (rn not defined how this name is extracted from solidworks)
      * plane\_match\_1
        + plane\_name\_component\_1 (note that this plane must be defined inside the component/assembly\_2 document)
        + plane\_name\_component\_2 (note that this plane must be defined inside the component/assembly\_2 document)
        + plane\_offset
        + inv\_normal\_vector (bool)
  + mounting\_references
    - spawning\_origin: (name of the origin of the assembly)
    - ref\_frames (Here all ref frames and all ref points of the assembly are listed)
      * name
      * parent\_frame (is always name of SWASI\_Origin)
      * transformation from assembly “SWASI\_Origin” to this ref frame (if ref\_frame is a ref point default quaternions are inserted)
      * constraints(to be discussed)
    - ref\_axis (Here all ref axis in the assembly document are listed)
      * name
      * ref\_frame\_names (list of the names of the two ref\_frames corresponding to this axis; exported only if axis is defined by two swasi ref\_frames
    - ref\_planes (here all ref axis in the assembly document are listed)
      * name
      * ref\_frame\_names (list of the names of the three ref\_frames)
      * ref\_axis\_names(list of the names of the axis; should only contain zero or one name at the moment)

**Component**:

* name (name of component)
* description (empty)
* guid
* type (“component”)
* saveDate (currentDate/date of export)
* cad\_path (path to the stl file. Stl should be exported with the SWASI\_Origin as origin)
* document\_units(“mm”)
* mounting\_references
  + spawning\_origin: (name of the origin of the component)
  + ref\_frames (Here all ref frames and all ref points of the assembly are listed)
    - name
    - type (frame/point)
    - parent\_frame (is always name of SWASI\_Origin of component)
    - transformation from component “SWASI\_Origin” to this ref frame (if ref\_frame is a ref point default quaternions are inserted)
    - constraints(to be discussed)
  + ref\_axis (Here all ref axis in the component document are listed)
    - name
    - ref\_frame\_names (list of the names of the two ref\_frames corresponding to this axis; exported only if axis is defined by two swasi ref\_frames)
    - ref\_frame\_name\_1
    - ref\_frame\_name\_2
  + ref\_planes (here all ref planes in the component document are listed)
    - name
    - ref\_frame\_names (list of the names of the three ref\_frames)
    - ref\_axis\_names (list of the names of the axis; should only contain zero or one name at the moment)
    - inverted\_normal\_vector (bool)