GOM

Gesellschaft für Optische Meßtechnik

STL file format

Version 1
GOM mbH, Februar 2000

This document describes the ASCII and binary STL file format as it is commonly used in the world.

1 STL ASCII-format

BNF:

```
<STL file> := "solid" <name> <nl>
              <facet 1> <nl>
              <facet 2> <nl>
              ...
              <facet n> <nl>
              "endsolid" <name> <nl>
<facet>    := "facet" <normal> <nl>
              "outer loop" <nl>
              <vertex 1> <nl>
              <vertex 2> <nl>
              <vertex 3> <nl>
              "endloop" <nl>
              "endfacet" <nl>
<normal>   := "normal" Nx Ny Nz
<vertex>   := "vertex" X Y Z
<name>     := Name of the file
<nl>       := Newline
```

Notes:

- The length of the normal vector is 1
- The vertices follow the right hand rule
- The numbers are float values

Example:

```
solid /users/sascha/test.stl
facet normal -0.006623 -0.026361 0.999631
 outer loop
    vertex -25.624990 50.786594 -17.745050
    vertex -24.960028 50.800739 -17.740273
    vertex -25.595644 51.446274 -17.727461
 endloop
endfacet
facet normal -0.002423 -0.215967 0.976398
 outer loop
    vertex -25.624990 50.786594 -17.745050
    vertex -25.613110 50.155865 -17.884531
    vertex -24.960028 50.800739 -17.740273
 endloop
```

```
endfacet
facet normal 0.024105 -0.241428 0.970119
 outer loop
    vertex -24.942366 50.173779 -17.896738
    vertex -24.960028 50.800739 -17.740273
    vertex -25.613110 50.155865 -17.884531
 endloop
endfacet
endsolid /users/sascha/test.stl
```

2 STL binary format

BNF:

```
<STL file>     := <name> <facet number> <facet 1> <facet 2> ... <facet n>
<name>         := 80 bytes file name, filled with blank
<facet number> := 4 bytes long int integer
<facet>        := <normal> <vertex 1> <vertex 2> <vertex 3> <fill-bytes>
<normal>       := Nx, Ny, Nz
<vertex>       := X Y Z
<fill-bytes>   := 2 fill bytes
```

Notes:

- The length of the normal vector is 1
- The vertices follow the right hand rule
- The numbers are stored as float values (32 bit)

Example:

. . . I think you do not want to read this.