

dxflib

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# Chapter 1

## Todo List

**Member `DL_Dxf::addAttribute (DL_CreationInterface *creationInterface)`**

add attrib instead of normal text

**Member `DL_Dxf::getStrippedLine (std::string &s, unsigned int size, FILE *stream, bool stripSpace=true)`**

Change function to use safer FreeBSD `strl*` functions

Is it a problem if line is blank (i.e., newline only)? Then, when function returns, (`s==NULL`).

**Class `DL_Writer`**

Add error checking for string/entry length.

**Class `DL_WriterA`**

What if `fname` is NULL? Or `fname` can't be opened for another reason?



## Chapter 2

# Hierarchical Index

## 2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

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## Chapter 3

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## Chapter 5

# Class Documentation

### 5.1 DL\_ArcAlignedTextData Struct Reference

Arc Aligned Text Data.

```
#include <dl_entities.h>
```

#### Public Attributes

- std::string [text](#)
- std::string [font](#)
- std::string [style](#)
- double [cx](#)
- double [cy](#)
- double [cz](#)
- double [radius](#)
- double [xScaleFactor](#)
- double [height](#)
- double [spacing](#)
- double [offset](#)
- double [rightOffset](#)
- double [leftOffset](#)
- double [startAngle](#)
- double [endAngle](#)
- bool [reversedCharacterOrder](#)
- int [direction](#)
- int [alignment](#)
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- bool [bold](#)
- bool [italic](#)
- bool [underline](#)
- int [characerSet](#)
- int [pitch](#)
- bool [shxFont](#)
- bool [wizard](#)
- int [arcHandle](#)

### 5.1.1 Detailed Description

Arc Aligned Text Data.

### 5.1.2 Member Data Documentation

#### 5.1.2.1 alignment

```
int DL_ArcAlignedTextData::alignment
```

Alignment: 1: fit 2: left 3: right 4: center

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.2 arcHandle

```
int DL_ArcAlignedTextData::arcHandle
```

Arc handle/ID

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.3 bold

```
bool DL_ArcAlignedTextData::bold
```

Bold flag

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.4 characerSet

```
int DL_ArcAlignedTextData::characerSet
```

Character set value. Windows character set identifier.

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).



#### 5.1.2.5 cx

```
double DL_ArcAlignedTextData::cx
```

X coordinate of arc center point.

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.6 cy

```
double DL_ArcAlignedTextData::cy
```

Y coordinate of arc center point.

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.7 cz

```
double DL_ArcAlignedTextData::cz
```

Z coordinate of arc center point.

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.8 direction

```
int DL_ArcAlignedTextData::direction
```

Direction 1: outward from center 2: inward from center

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.9 endAngle

```
double DL_ArcAlignedTextData::endAngle
```

End angle (radians)

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.10 font

```
std::string DL_ArcAlignedTextData::font
```

Font name

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.11 height

```
double DL_ArcAlignedTextData::height
```

Text height

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.12 italic

```
bool DL_ArcAlignedTextData::italic
```

Italic flag

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.13 leftOffset

```
double DL_ArcAlignedTextData::leftOffset
```

Left offset

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.14 offset

```
double DL_ArcAlignedTextData::offset
```

Offset from arc

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.15 pitch

```
int DL_ArcAlignedTextData::pitch
```

Pitch and family value. Windows pitch and character family identifier.

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.16 radius

```
double DL_ArcAlignedTextData::radius
```

Arc radius.

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.17 reversedCharacterOrder

```
bool DL_ArcAlignedTextData::reversedCharacterOrder
```

Reversed character order: false: normal true: reversed

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.18 rightOffset

```
double DL_ArcAlignedTextData::rightOffset
```

Right offset

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.19 shxFont

```
bool DL_ArcAlignedTextData::shxFont
```

Font type: false: TTF true: SHX

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.20 side

```
int DL_ArcAlignedTextData::side
```

Side 1: convex 2: concave

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.21 spacing

```
double DL_ArcAlignedTextData::spacing
```

Character spacing

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.22 startAngle

```
double DL_ArcAlignedTextData::startAngle
```

Start angle (radians)

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.23 style

```
std::string DL_ArcAlignedTextData::style
```

Style

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.24 text

```
std::string DL_ArcAlignedTextData::text
```

Text string

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.25 underline

```
bool DL_ArcAlignedTextData::underline
```

Underline flag

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.26 wizard

```
bool DL_ArcAlignedTextData::wizard
```

Wizard flag

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.1.2.27 xScaleFactor

```
double DL_ArcAlignedTextData::xScaleFactor
```

Relative X scale factor.

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.2 DL\_ArcData Struct Reference

Arc Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_ArcData](#) (double acx, double acy, double acz, double aRadius, double aAngle1, double aAngle2)  
*Constructor.*

### Public Attributes

- double [cx](#)
- double [cy](#)
- double [cz](#)
- double [radius](#)
- double [angle1](#)
- double [angle2](#)

## 5.2.1 Detailed Description

Arc Data.

## 5.2.2 Constructor & Destructor Documentation

### 5.2.2.1 DL\_ArcData()

```
DL_ArcData::DL_ArcData (
    double acx,
    double acy,
    double acz,
    double aRadius,
    double aAngle1,
    double aAngle2 ) [inline]
```

Constructor.

Parameters: see member variables.

## 5.2.3 Member Data Documentation

### 5.2.3.1 angle1

```
double DL_ArcData::angle1
```

Startangle of arc in degrees.

Referenced by [DL\\_Dxf::writeArc\(\)](#).

### 5.2.3.2 angle2

```
double DL_ArcData::angle2
```

Endangle of arc in degrees.

Referenced by [DL\\_Dxf::writeArc\(\)](#).

#### 5.2.3.3 cx

```
double DL_ArcData::cx
```

X Coordinate of center point.

Referenced by [DL\\_Dxf::writeArc\(\)](#).

#### 5.2.3.4 cy

```
double DL_ArcData::cy
```

Y Coordinate of center point.

Referenced by [DL\\_Dxf::writeArc\(\)](#).

#### 5.2.3.5 cz

```
double DL_ArcData::cz
```

Z Coordinate of center point.

Referenced by [DL\\_Dxf::writeArc\(\)](#).

#### 5.2.3.6 radius

```
double DL_ArcData::radius
```

Radius of arc.

Referenced by [DL\\_Dxf::writeArc\(\)](#).

The documentation for this struct was generated from the following file:

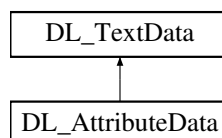
- src/dl\_entities.h

## 5.3 DL\_AttributeData Struct Reference

Block attribute data.

```
#include <dl_entities.h>
```

Inheritance diagram for DL\_AttributeData:



## Public Member Functions

- **DL\_AttributeData** (const [DL\\_TextData](#) &tData, const std::string &tag)
- **DL\_AttributeData** (double [ipx](#), double [ipy](#), double [ipz](#), double [apx](#), double [apy](#), double [apz](#), double [height](#), double [xScaleFactor](#), int [textGenerationFlags](#), int [hJustification](#), int [vJustification](#), const std::string &tag, const std::string &text, const std::string &style, double [angle](#))

*Constructor.*

## Public Attributes

- std::string [tag](#)

### 5.3.1 Detailed Description

Block attribute data.

### 5.3.2 Constructor & Destructor Documentation

#### 5.3.2.1 DL\_AttributeData()

```
DL_AttributeData::DL_AttributeData (  
    double ipx,  
    double ipy,  
    double ipz,  
    double apx,  
    double apy,  
    double apz,  
    double height,  
    double xScaleFactor,  
    int textGenerationFlags,  
    int hJustification,  
    int vJustification,  
    const std::string & tag,  
    const std::string & text,  
    const std::string & style,  
    double angle ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.3.3 Member Data Documentation



### 5.3.3.1 tag

```
std::string DL_AttributeData::tag
```

Tag.

The documentation for this struct was generated from the following file:

- src/dl\_entities.h

## 5.4 DL\_Attributes Class Reference

Storing and passing around attributes.

```
#include <dl_attributes.h>
```

### Public Member Functions

- **DL\_Attributes** ()  
*Default constructor.*
- **DL\_Attributes** (const std::string &layer, int color, int width, const std::string &linetype, double linetypeScale)  
*Constructor for DXF attributes.*
- **DL\_Attributes** (const std::string &layer, int color, int color24, int width, const std::string &linetype, int handle=-1)  
*Constructor for DXF attributes.*
- void **setLayer** (const std::string &layer)  
*Sets the layer.*
- std::string **getLayer** () const
- void **setColor** (int color)  
*Sets the color.*
- void **setColor24** (int color)  
*Sets the 24bit color.*
- int **getColor** () const
- int **getColor24** () const
- void **setWidth** (int width)  
*Sets the width.*
- int **getWidth** () const
- void **setLinetype** (const std::string &linetype)  
*Sets the line type.*
- void **setLinetypeScale** (double linetypeScale)  
*Sets the entity specific line type scale.*
- double **getLinetypeScale** () const
- std::string **getLinetype** () const
- void **setHandle** (int h)
- int **getHandle** () const
- void **setInPaperSpace** (bool on)
- bool **isInPaperSpace** () const

### 5.4.1 Detailed Description

Storing and passing around attributes.

Attributes are the layer name, color, width and line type.

Author

Andrew Mustun

### 5.4.2 Constructor & Destructor Documentation

#### 5.4.2.1 DL\_Attributes() [1/2]

```
DL_Attributes::DL_Attributes (
    const std::string & layer,
    int color,
    int width,
    const std::string & linetype,
    double linetypeScale ) [inline]
```

Constructor for DXF attributes.

Parameters

|                 |   |
|-----------------|---|
| <i>layer</i>    | Layer name for this entity or NULL for no layer (every entity should be on a named layer!). |
| <i>color</i>    | Color number (0..256). 0 = BYBLOCK, 256 = BYLAYER.  |
| <i>width</i>    | Line thickness. Defaults to zero. -1 = BYLAYER, -2 = BYBLOCK, -3 = default width            |
| <i>linetype</i> | Line type name or "BYLAYER" or "BYBLOCK". Defaults to "BYLAYER"                             |

#### 5.4.2.2 DL\_Attributes() [2/2]

```
DL_Attributes::DL_Attributes (
    const std::string & layer,
    int color,
    int color24,
    int width,
    const std::string & linetype,
    int handle = -1 ) [inline]
```

Constructor for DXF attributes.

Parameters

|              |   |
|--------------|---|
| <i>layer</i> | Layer name for this entity or NULL for no layer (every entity should be on a named layer!). |
| <i>color</i> | Color number (0..256). 0 = BYBLOCK, 256 = BYLAYER.  |

## Parameters

|                 |  |
|-----------------|--|
| <i>color24</i>  | 24 bit color (0x00RRGGBB, see DXF reference).                                    |
| <i>width</i>    | Line thickness. Defaults to zero. -1 = BYLAYER, -2 = BYBLOCK, -3 = default width |
| <i>linetype</i> | Line type name or "BYLAYER" or "BYBLOCK". Defaults to "BYLAYER"                  |

### 5.4.3 Member Function Documentation

#### 5.4.3.1 getColor()

```
int DL_Attributes::getColor ( ) const [inline]
```

## Returns

Color.

## See also

[DL\\_Codes](#), [dxfColors](#)

Referenced by [DL\\_Dxf::addLayer\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), and [DL\\_Dxf::writeLayer\(\)](#).

#### 5.4.3.2 getColor24()

```
int DL_Attributes::getColor24 ( ) const [inline]
```

## Returns

24 bit color or -1 if no 24bit color is defined.

## See also

[DL\\_Codes](#), [dxfColors](#)

Referenced by [DL\\_Writer::entityAttributes\(\)](#), and [DL\\_Dxf::writeLayer\(\)](#).

#### 5.4.3.3 `getLayer()`

```
std::string DL_Attributes::getLayer ( ) const [inline]
```

##### Returns

Layer name.

Referenced by [DL\\_Writer::entityAttributes\(\)](#), and [DL\\_Dxf::writePolyline\(\)](#).

#### 5.4.3.4 `getLinetype()`

```
std::string DL_Attributes::getLinetype ( ) const [inline]
```

##### Returns

Line type.

Referenced by [DL\\_Dxf::addLayer\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), and [DL\\_Dxf::writeLayer\(\)](#).

#### 5.4.3.5 `getWidth()`

```
int DL_Attributes::getWidth ( ) const [inline]
```

##### Returns

Width.

Referenced by [DL\\_Dxf::addLayer\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), and [DL\\_Dxf::writeLayer\(\)](#).

#### 5.4.3.6 `setColor()`

```
void DL_Attributes::setColor (
    int color ) [inline]
```

Sets the color.

##### See also

[DL\\_Codes](#), [dxfColors](#)

Referenced by [DL\\_Dxf::addLayer\(\)](#).

#### 5.4.3.7 setColor24()

```
void DL_Attributes::setColor24 (
    int color ) [inline]
```

Sets the 24bit color.

See also

[DL\\_Codes](#), [dxfColors](#)

#### 5.4.3.8 setLayer()

```
void DL_Attributes::setLayer (
    const std::string & layer ) [inline]
```

Sets the layer.

If the given pointer points to NULL, the new layer name will be an empty but valid string.

#### 5.4.3.9 setLinetype()

```
void DL_Attributes::setLinetype (
    const std::string & linetype ) [inline]
```

Sets the line type.

This can be any string and is not checked to be a valid line type.

Referenced by [DL\\_Dxf::addLayer\(\)](#).

The documentation for this class was generated from the following file:

- [src/dl\\_attributes.h](#)

## 5.5 DL\_BlockData Struct Reference

Block Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_BlockData](#) (const std::string &bName, int bFlags, double bbpx, double bbpy, double bbpz)  
*Constructor.*

## Public Attributes

- `std::string name`  
*Block name.*
- `int flags`  
*Block flags.*
- `double bpx`  
*X Coordinate of base point.*
- `double bpy`  
*Y Coordinate of base point.*
- `double bpz`  
*Z Coordinate of base point.*

### 5.5.1 Detailed Description

Block Data.

### 5.5.2 Constructor & Destructor Documentation

#### 5.5.2.1 DL\_BlockData()

```
DL_BlockData::DL_BlockData (
    const std::string & bName,
    int bFlags,
    double bbpx,
    double bbpy,
    double bbpz ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.5.3 Member Data Documentation

#### 5.5.3.1 flags

```
int DL_BlockData::flags
```

Block flags.

(not used currently)

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.6 DL\_CircleData Struct Reference

Circle Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_CircleData](#) (double acx, double acy, double acz, double aRadius)  
*Constructor.*

### Public Attributes

- double [cx](#)
- double [cy](#)
- double [cz](#)
- double [radius](#)

#### 5.6.1 Detailed Description

Circle Data.

#### 5.6.2 Constructor & Destructor Documentation

##### 5.6.2.1 DL\_CircleData()

```
DL_CircleData::DL_CircleData (
    double acx,
    double acy,
    double acz,
    double aRadius ) [inline]
```

Constructor.

Parameters: see member variables.

#### 5.6.3 Member Data Documentation

#### 5.6.3.1 cx

```
double DL_CircleData::cx
```

X Coordinate of center point.

Referenced by [DL\\_Dxf::writeCircle\(\)](#).

#### 5.6.3.2 cy

```
double DL_CircleData::cy
```

Y Coordinate of center point.

Referenced by [DL\\_Dxf::writeCircle\(\)](#).

#### 5.6.3.3 cz

```
double DL_CircleData::cz
```

Z Coordinate of center point.

Referenced by [DL\\_Dxf::writeCircle\(\)](#).

#### 5.6.3.4 radius

```
double DL_CircleData::radius
```

Radius of arc.

Referenced by [DL\\_Dxf::writeCircle\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.7 DL\_Codes Class Reference

Codes for colors and DXF versions.

```
#include <dl_codes.h>
```



## Public Types

- enum [color](#) {  
    **black** = 250 , **green** = 3 , **red** = 1 , **brown** = 15 ,  
    **yellow** = 2 , **cyan** = 4 , **magenta** = 6 , **gray** = 8 ,  
    **blue** = 5 , **l\_blue** = 163 , **l\_green** = 121 , **l\_cyan** = 131 ,  
    **l\_red** = 23 , **l\_magenta** = 221 , **l\_gray** = 252 , **white** = 7 ,  
    **bylayer** = 256 , **byblock** = 0 }  
    *Standard DXF colors.*
- enum [version](#) {  
    **AC1009\_MIN** , **AC1009** , **AC1012** , **AC1014** ,  
    **AC1015** }  
    *Version numbers for the DXF Format.*

### 5.7.1 Detailed Description

Codes for colors and DXF versions.

The documentation for this class was generated from the following file:

- `src/dl_codes.h`

## 5.8 DL\_ControlPointData Struct Reference

Spline control point data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_ControlPointData](#) (double px, double py, double pz, double weight)  
    *Constructor.*

### Public Attributes

- double [x](#)
- double [y](#)
- double [z](#)
- double [w](#)

### 5.8.1 Detailed Description

Spline control point data.

### 5.8.2 Constructor & Destructor Documentation

### 5.8.2.1 DL\_ControlPointData()

```
DL_ControlPointData::DL_ControlPointData (
    double px,
    double py,
    double pz,
    double weight ) [inline]
```

Constructor.

Parameters: see member variables.

## 5.8.3 Member Data Documentation

### 5.8.3.1 w

```
double DL_ControlPointData::w
```

Weight of control point.

### 5.8.3.2 x

```
double DL_ControlPointData::x
```

X coordinate of the control point.

Referenced by [DL\\_Dxf::writeControlPoint\(\)](#).

### 5.8.3.3 y

```
double DL_ControlPointData::y
```

Y coordinate of the control point.

Referenced by [DL\\_Dxf::writeControlPoint\(\)](#).

### 5.8.3.4 z

```
double DL_ControlPointData::z
```

Z coordinate of the control point.

Referenced by [DL\\_Dxf::writeControlPoint\(\)](#).

The documentation for this struct was generated from the following file:

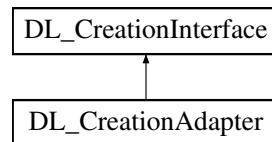
- `src/dl_entities.h`

## 5.9 DL\_CreationAdapter Class Reference

An abstract adapter class for receiving DXF events when a DXF file is being read.

```
#include <dl_creationadapter.h>
```

Inheritance diagram for DL\_CreationAdapter:



### Public Member Functions

- virtual void [processCodeValuePair](#) (unsigned int, const std::string &)  
*Called for every code / value tuple of the DXF file.*
- virtual void [endSection](#) ()  
*Called when a section (entity, table entry, etc.) is finished.*
- virtual void [addLayer](#) (const [DL\\_LayerData](#) &)  
*Called for every layer.*
- virtual void [addLinetype](#) (const [DL\\_LinetypeData](#) &)  
*Called for every linetype.*
- virtual void [addLinetypeDash](#) (double)  
*Called for every dash in linetype pattern.*
- virtual void [addBlock](#) (const [DL\\_BlockData](#) &)  
*Called for every block.*
- virtual void [endBlock](#) ()  
*Called to end the current block.*
- virtual void [addTextStyle](#) (const [DL\\_StyleData](#) &)  
*Called for every text style.*
- virtual void [addPoint](#) (const [DL\\_PointData](#) &)  
*Called for every point.*
- virtual void [addLine](#) (const [DL\\_LineData](#) &)  
*Called for every line.*
- virtual void [addXLine](#) (const [DL\\_XLineData](#) &)  
*Called for every xline.*
- virtual void [addRay](#) (const [DL\\_RayData](#) &)  
*Called for every ray.*
- virtual void [addArc](#) (const [DL\\_ArcData](#) &)  
*Called for every arc.*
- virtual void [addCircle](#) (const [DL\\_CircleData](#) &)  
*Called for every circle.*
- virtual void [addEllipse](#) (const [DL\\_EllipseData](#) &)  
*Called for every ellipse.*
- virtual void [addPolyline](#) (const [DL\\_PolylineData](#) &)  
*Called for every polyline start.*
- virtual void [addVertex](#) (const [DL\\_VertexData](#) &)  
*Called for every polyline vertex.*

- virtual void [addSpline](#) (const [DL\\_SplineData](#) &)  
*Called for every spline.*
- virtual void [addControlPoint](#) (const [DL\\_ControlPointData](#) &)  
*Called for every spline control point.*
- virtual void [addFitPoint](#) (const [DL\\_FitPointData](#) &)  
*Called for every spline fit point.*
- virtual void [addKnot](#) (const [DL\\_KnotData](#) &)  
*Called for every spline knot value.*
- virtual void [addInsert](#) (const [DL\\_InsertData](#) &)  
*Called for every insert.*
- virtual void [addMText](#) (const [DL\\_MTextData](#) &)  
*Called for every multi Text entity.*
- virtual void [addMTextChunk](#) (const std::string &)  
*Called for additional text chunks for MTEXT entities.*
- virtual void [addText](#) (const [DL\\_TextData](#) &)  
*Called for every text entity.*
- virtual void [addArcAlignedText](#) (const [DL\\_ArcAlignedTextData](#) &)  
*Called for every arc aligned text entity.*
- virtual void [addAttribute](#) (const [DL\\_AttributeData](#) &)  
*Called for every block Attribute entity.*
- virtual void [addDimAlign](#) (const [DL\\_DimensionData](#) &, const [DL\\_DimAlignedData](#) &)  
*Called for every aligned dimension entity.*
- virtual void [addDimLinear](#) (const [DL\\_DimensionData](#) &, const [DL\\_DimLinearData](#) &)  
*Called for every linear or rotated dimension entity.*
- virtual void [addDimRadial](#) (const [DL\\_DimensionData](#) &, const [DL\\_DimRadialData](#) &)  
*Called for every radial dimension entity.*
- virtual void [addDimDiametric](#) (const [DL\\_DimensionData](#) &, const [DL\\_DimDiametricData](#) &)  
*Called for every diametric dimension entity.*
- virtual void [addDimAngular](#) (const [DL\\_DimensionData](#) &, const [DL\\_DimAngular2LData](#) &)  
*Called for every angular dimension (2 lines version) entity.*
- virtual void [addDimAngular3P](#) (const [DL\\_DimensionData](#) &, const [DL\\_DimAngular3PData](#) &)  
*Called for every angular dimension (3 points version) entity.*
- virtual void [addDimOrdinate](#) (const [DL\\_DimensionData](#) &, const [DL\\_DimOrdinateData](#) &)  
*Called for every ordinate dimension entity.*
- virtual void [addLeader](#) (const [DL\\_LeaderData](#) &)  
*Called for every leader start.*
- virtual void [addLeaderVertex](#) (const [DL\\_LeaderVertexData](#) &)  
*Called for every leader vertex.*
- virtual void [addHatch](#) (const [DL\\_HatchData](#) &)  
*Called for every hatch entity.*
- virtual void [addTrace](#) (const [DL\\_TraceData](#) &)  
*Called for every trace start.*
- virtual void [add3dFace](#) (const [DL\\_3dFaceData](#) &)  
*Called for every 3dface start.*
- virtual void [addSolid](#) (const [DL\\_SolidData](#) &)  
*Called for every solid start.*
- virtual void [addImage](#) (const [DL\\_ImageData](#) &)  
*Called for every image entity.*
- virtual void [linkImage](#) (const [DL\\_ImageDefData](#) &)  
*Called for every image definition.*
- virtual void [addHatchLoop](#) (const [DL\\_HatchLoopData](#) &)

- Called for every hatch loop.*

  - virtual void [addHatchEdge](#) (const [DL\\_HatchEdgeData](#) &)
- Called for every hatch edge entity.*

  - virtual void [addXRecord](#) (const std::string &)
- Called for every XRecord with the given handle.*

  - virtual void [addXRecordString](#) (int, const std::string &)
- Called for XRecords of type string.*

  - virtual void [addXRecordReal](#) (int, double)
- Called for XRecords of type double.*

  - virtual void [addXRecordInt](#) (int, int)
- Called for XRecords of type int.*

  - virtual void [addXRecordBool](#) (int, bool)
- Called for XRecords of type bool.*

  - virtual void [addXDataApp](#) (const std::string &)
- Called for every beginning of an XData section of the given application.*

  - virtual void [addXDataString](#) (int, const std::string &)
- Called for XData tuples.*

  - virtual void [addXDataReal](#) (int, double)
- Called for XData tuples.*

  - virtual void [addXDataInt](#) (int, int)
- Called for XData tuples.*

  - virtual void [addDictionary](#) (const [DL\\_DictionaryData](#) &)
- Called for dictionary objects.*

  - virtual void [addDictionaryEntry](#) (const [DL\\_DictionaryEntryData](#) &)
- Called for dictionary entries.*

  - virtual void [endEntity](#) ()
- Called after an entity has been completed.*

  - virtual void [addComment](#) (const std::string &)
- Called for every comment in the DXF file (code 999).*

  - virtual void [setVariableVector](#) (const std::string &, double, double, double, int)
- Called for every vector variable in the DXF file (e.g.*

  - virtual void [setVariableString](#) (const std::string &, const std::string &, int)
- Called for every string variable in the DXF file (e.g.*

  - virtual void [setVariableInt](#) (const std::string &, int, int)
- Called for every int variable in the DXF file (e.g.*

  - virtual void [setVariableDouble](#) (const std::string &, double, int)
- Called for every double variable in the DXF file (e.g.*

  - virtual void [endSequence](#) ()
- Called when a SEQEND occurs (when a POLYLINE or ATTRIB is done)*

## Additional Inherited Members

### 5.9.1 Detailed Description

An abstract adapter class for receiving DXF events when a DXF file is being read.

The methods in this class are empty. This class exists as convenience for creating listener objects.

Author

Andrew Mustun

## 5.9.2 Member Function Documentation

### 5.9.2.1 add3dFace()

```
virtual void DL_CreationAdapter::add3dFace (  
    const DL_3dFaceData & data ) [inline], [virtual]
```

Called for every 3dface start.

Implements [DL\\_CreationInterface](#).

### 5.9.2.2 addArc()

```
virtual void DL_CreationAdapter::addArc (  
    const DL_ArcData & data ) [inline], [virtual]
```

Called for every arc.

Implements [DL\\_CreationInterface](#).

### 5.9.2.3 addArcAlignedText()

```
virtual void DL_CreationAdapter::addArcAlignedText (  
    const DL_ArcAlignedTextData & data ) [inline], [virtual]
```

Called for every arc aligned text entity.

Implements [DL\\_CreationInterface](#).

### 5.9.2.4 addAttribute()

```
virtual void DL_CreationAdapter::addAttribute (  
    const DL_AttributeData & data ) [inline], [virtual]
```

Called for every block Attribute entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.5 addBlock()

```
virtual void DL_CreationAdapter::addBlock (
    const DL_BlockData & data ) [inline], [virtual]
```

Called for every block.

Note: all entities added after this command go into this block until [endBlock\(\)](#) is called.

See also

[endBlock\(\)](#)

Implements [DL\\_CreationInterface](#).

#### 5.9.2.6 addCircle()

```
virtual void DL_CreationAdapter::addCircle (
    const DL_CircleData & data ) [inline], [virtual]
```

Called for every circle.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.7 addComment()

```
virtual void DL_CreationAdapter::addComment (
    const std::string & comment ) [inline], [virtual]
```

Called for every comment in the DXF file (code 999).

Implements [DL\\_CreationInterface](#).

#### 5.9.2.8 addControlPoint()

```
virtual void DL_CreationAdapter::addControlPoint (
    const DL_ControlPointData & data ) [inline], [virtual]
```

Called for every spline control point.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.9 addDictionary()

```
virtual void DL_CreationAdapter::addDictionary (
    const DL_DictionaryData & data ) [inline], [virtual]
```

Called for dictionary objects.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.10 addDictionaryEntry()

```
virtual void DL_CreationAdapter::addDictionaryEntry (
    const DL_DictionaryEntryData & data ) [inline], [virtual]
```

Called for dictionary entries.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.11 addDimAlign()

```
virtual void DL_CreationAdapter::addDimAlign (
    const DL_DimensionData & data,
    const DL_DimAlignedData & edata ) [inline], [virtual]
```

Called for every aligned dimension entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.12 addDimAngular()

```
virtual void DL_CreationAdapter::addDimAngular (
    const DL_DimensionData & data,
    const DL_DimAngular2LData & edata ) [inline], [virtual]
```

Called for every angular dimension (2 lines version) entity.

Implements [DL\\_CreationInterface](#).



#### 5.9.2.13 addDimAngular3P()

```
virtual void DL_CreationAdapter::addDimAngular3P (
    const DL_DimensionData & data,
    const DL_DimAngular3PData & edata ) [inline], [virtual]
```

Called for every angular dimension (3 points version) entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.14 addDimDiametric()

```
virtual void DL_CreationAdapter::addDimDiametric (
    const DL_DimensionData & data,
    const DL_DimDiametricData & edata ) [inline], [virtual]
```

Called for every diametric dimension entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.15 addDimLinear()

```
virtual void DL_CreationAdapter::addDimLinear (
    const DL_DimensionData & data,
    const DL_DimLinearData & edata ) [inline], [virtual]
```

Called for every linear or rotated dimension entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.16 addDimOrdinate()

```
virtual void DL_CreationAdapter::addDimOrdinate (
    const DL_DimensionData & data,
    const DL_DimOrdinateData & edata ) [inline], [virtual]
```

Called for every ordinate dimension entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.17 addDimRadial()

```
virtual void DL_CreationAdapter::addDimRadial (
    const DL_DimensionData & data,
    const DL_DimRadialData & edata ) [inline], [virtual]
```

Called for every radial dimension entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.18 addEllipse()

```
virtual void DL_CreationAdapter::addEllipse (
    const DL_EllipseData & data ) [inline], [virtual]
```

Called for every ellipse.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.19 addFitPoint()

```
virtual void DL_CreationAdapter::addFitPoint (
    const DL_FitPointData & data ) [inline], [virtual]
```

Called for every spline fit point.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.20 addHatch()

```
virtual void DL_CreationAdapter::addHatch (
    const DL_HatchData & data ) [inline], [virtual]
```

Called for every hatch entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.21 addHatchEdge()

```
virtual void DL_CreationAdapter::addHatchEdge (
    const DL_HatchEdgeData & data ) [inline], [virtual]
```

Called for every hatch edge entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.22 addHatchLoop()

```
virtual void DL_CreationAdapter::addHatchLoop (
    const DL_HatchLoopData & data ) [inline], [virtual]
```

Called for every hatch loop.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.23 addImage()

```
virtual void DL_CreationAdapter::addImage (
    const DL_ImageData & data ) [inline], [virtual]
```

Called for every image entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.24 addInsert()

```
virtual void DL_CreationAdapter::addInsert (
    const DL_InsertData & data ) [inline], [virtual]
```

Called for every insert.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.25 addKnot()

```
virtual void DL_CreationAdapter::addKnot (
    const DL_KnotData & data ) [inline], [virtual]
```

Called for every spline knot value.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.26 addLayer()

```
virtual void DL_CreationAdapter::addLayer (
    const DL_LayerData & data ) [inline], [virtual]
```

Called for every layer.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.27 addLeader()

```
virtual void DL_CreationAdapter::addLeader (
    const DL_LeaderData & data ) [inline], [virtual]
```

Called for every leader start.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.28 addLeaderVertex()

```
virtual void DL_CreationAdapter::addLeaderVertex (
    const DL_LeaderVertexData & data ) [inline], [virtual]
```

Called for every leader vertex.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.29 addLine()

```
virtual void DL_CreationAdapter::addLine (
    const DL_LineData & data ) [inline], [virtual]
```

Called for every line.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.30 addLinetype()

```
virtual void DL_CreationAdapter::addLinetype (
    const DL_LinetypeData & data ) [inline], [virtual]
```

Called for every linetype.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.31 addLinetypeDash()

```
virtual void DL_CreationAdapter::addLinetypeDash (
    double length ) [inline], [virtual]
```

Called for every dash in linetype pattern.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.32 addMText()

```
virtual void DL_CreationAdapter::addMText (
    const DL_MTextData & data ) [inline], [virtual]
```

Called for every multi Text entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.33 addMTextChunk()

```
virtual void DL_CreationAdapter::addMTextChunk (
    const std::string & text ) [inline], [virtual]
```

Called for additional text chunks for MTEXT entities.

The chunks come at 250 character in size each. Note that those chunks come **before** the actual MTEXT entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.34 addPoint()

```
virtual void DL_CreationAdapter::addPoint (
    const DL_PointData & data ) [inline], [virtual]
```

Called for every point.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.35 addPolyline()

```
virtual void DL_CreationAdapter::addPolyline (
    const DL_PolylineData & data ) [inline], [virtual]
```

Called for every polyline start.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.36 addRay()

```
virtual void DL_CreationAdapter::addRay (
    const DL_RayData & data ) [inline], [virtual]
```

Called for every ray.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.37 addSolid()

```
virtual void DL_CreationAdapter::addSolid (
    const DL_SolidData & data ) [inline], [virtual]
```

Called for every solid start.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.38 addSpline()

```
virtual void DL_CreationAdapter::addSpline (
    const DL_SplineData & data ) [inline], [virtual]
```

Called for every spline.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.39 addText()

```
virtual void DL_CreationAdapter::addText (
    const DL_TextData & data ) [inline], [virtual]
```

Called for every text entity.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.40 addTextStyle()

```
virtual void DL_CreationAdapter::addTextStyle (
    const DL_StyleData & data ) [inline], [virtual]
```

Called for every text style.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.41 addTrace()

```
virtual void DL_CreationAdapter::addTrace (
    const DL_TraceData & data ) [inline], [virtual]
```

Called for every trace start.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.42 addVertex()

```
virtual void DL_CreationAdapter::addVertex (
    const DL_VertexData & data ) [inline], [virtual]
```

Called for every polyline vertex.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.43 addXDataApp()

```
virtual void DL_CreationAdapter::addXDataApp (
    const std::string & appId ) [inline], [virtual]
```

Called for every beginning of an XData section of the given application.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.44 addXDataInt()

```
virtual void DL_CreationAdapter::addXDataInt (
    int code,
    int value ) [inline], [virtual]
```

Called for XData tuples.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.45 addXDataReal()

```
virtual void DL_CreationAdapter::addXDataReal (
    int code,
    double value ) [inline], [virtual]
```

Called for XData tuples.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.46 addXDataString()

```
virtual void DL_CreationAdapter::addXDataString (
    int code,
    const std::string & value ) [inline], [virtual]
```

Called for XData tuples.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.47 addXLine()

```
virtual void DL_CreationAdapter::addXLine (
    const DL\_XLineData & data ) [inline], [virtual]
```

Called for every xline.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.48 addXRecord()

```
virtual void DL_CreationAdapter::addXRecord (
    const std::string & handle ) [inline], [virtual]
```

Called for every XRecord with the given handle.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.49 addXRecordBool()

```
virtual void DL_CreationAdapter::addXRecordBool (
    int code,
    bool value ) [inline], [virtual]
```

Called for XRecords of type bool.

Implements [DL\\_CreationInterface](#).



#### 5.9.2.50 addXRecordInt()

```
virtual void DL_CreationAdapter::addXRecordInt (
    int code,
    int value ) [inline], [virtual]
```

Called for XRecords of type int.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.51 addXRecordReal()

```
virtual void DL_CreationAdapter::addXRecordReal (
    int code,
    double value ) [inline], [virtual]
```

Called for XRecords of type double.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.52 addXRecordString()

```
virtual void DL_CreationAdapter::addXRecordString (
    int code,
    const std::string & value ) [inline], [virtual]
```

Called for XRecords of type string.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.53 endBlock()

```
virtual void DL_CreationAdapter::endBlock ( ) [inline], [virtual]
```

Called to end the current block.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.54 endEntity()

```
virtual void DL_CreationAdapter::endEntity ( ) [inline], [virtual]
```

Called after an entity has been completed.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.55 endSection()

```
virtual void DL_CreationAdapter::endSection ( ) [inline], [virtual]
```

Called when a section (entity, table entry, etc.) is finished.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.56 endSequence()

```
virtual void DL_CreationAdapter::endSequence ( ) [inline], [virtual]
```

Called when a SEQEND occurs (when a POLYLINE or ATTRIB is done)

Implements [DL\\_CreationInterface](#).

#### 5.9.2.57 linkImage()

```
virtual void DL_CreationAdapter::linkImage (
    const DL_ImageDefData & data ) [inline], [virtual]
```

Called for every image definition.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.58 processCodeValuePair()

```
virtual void DL_CreationAdapter::processCodeValuePair (
    unsigned int groupCode,
    const std::string & groupValue ) [inline], [virtual]
```

Called for every code / value tuple of the DXF file.

The complete DXF file contents can be handled by the implementation of this function.

Implements [DL\\_CreationInterface](#).

#### 5.9.2.59 setVariableDouble()

```
virtual void DL_CreationAdapter::setVariableDouble (
    const std::string & key,
    double value,
    int code ) [inline], [virtual]
```

Called for every double variable in the DXF file (e.g.

"\$DIMEXO").

Implements [DL\\_CreationInterface](#).

#### 5.9.2.60 setVariableInt()

```
virtual void DL_CreationAdapter::setVariableInt (
    const std::string & key,
    int value,
    int code ) [inline], [virtual]
```

Called for every int variable in the DXF file (e.g.

"\$ACADMAINTVER").

Implements [DL\\_CreationInterface](#).

#### 5.9.2.61 setVariableString()

```
virtual void DL_CreationAdapter::setVariableString (
    const std::string & key,
    const std::string & value,
    int code ) [inline], [virtual]
```

Called for every string variable in the DXF file (e.g.

"\$ACADVER").

Implements [DL\\_CreationInterface](#).

### 5.9.2.62 setVariableVector()

```
virtual void DL_CreationAdapter::setVariableVector (
    const std::string & key,
    double v1,
    double v2,
    double v3,
    int code ) [inline], [virtual]
```

Called for every vector variable in the DXF file (e.g.

"\$EXTMIN").

Implements [DL\\_CreationInterface](#).

The documentation for this class was generated from the following file:

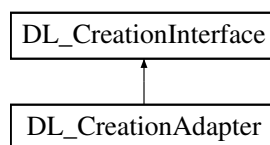
- src/dl\_creationadapter.h

## 5.10 DL\_CreationInterface Class Reference

Abstract class (interface) for the creation of new entities.

```
#include <dl_creationinterface.h>
```

Inheritance diagram for DL\_CreationInterface:



### Public Member Functions

- virtual void [processCodeValuePair](#) (unsigned int groupCode, const std::string &groupValue)=0  
*Called for every code / value tuple of the DXF file.*
- virtual void [endSection](#) ()=0  
*Called when a section (entity, table entry, etc.) is finished.*
- virtual void [addLayer](#) (const [DL\\_LayerData](#) &data)=0  
*Called for every layer.*
- virtual void [addLinetype](#) (const [DL\\_LinetypeData](#) &data)=0  
*Called for every linetype.*
- virtual void [addLinetypeDash](#) (double length)=0  
*Called for every dash in linetype pattern.*
- virtual void [addBlock](#) (const [DL\\_BlockData](#) &data)=0  
*Called for every block.*
- virtual void [endBlock](#) ()=0  
*Called to end the current block.*
- virtual void [addTextStyle](#) (const [DL\\_StyleData](#) &data)=0

- Called for every text style.*

  - virtual void [addPoint](#) (const [DL\\_PointData](#) &data)=0
- Called for every point.*

  - virtual void [addLine](#) (const [DL\\_LineData](#) &data)=0
- Called for every line.*

  - virtual void [addXLine](#) (const [DL\\_XLineData](#) &data)=0
- Called for every xline.*

  - virtual void [addRay](#) (const [DL\\_RayData](#) &data)=0
- Called for every ray.*

  - virtual void [addArc](#) (const [DL\\_ArcData](#) &data)=0
- Called for every arc.*

  - virtual void [addCircle](#) (const [DL\\_CircleData](#) &data)=0
- Called for every circle.*

  - virtual void [addEllipse](#) (const [DL\\_EllipseData](#) &data)=0
- Called for every ellipse.*

  - virtual void [addPolyline](#) (const [DL\\_PolylineData](#) &data)=0
- Called for every polyline start.*

  - virtual void [addVertex](#) (const [DL\\_VertexData](#) &data)=0
- Called for every polyline vertex.*

  - virtual void [addSpline](#) (const [DL\\_SplineData](#) &data)=0
- Called for every spline.*

  - virtual void [addControlPoint](#) (const [DL\\_ControlPointData](#) &data)=0
- Called for every spline control point.*

  - virtual void [addFitPoint](#) (const [DL\\_FitPointData](#) &data)=0
- Called for every spline fit point.*

  - virtual void [addKnot](#) (const [DL\\_KnotData](#) &data)=0
- Called for every spline knot value.*

  - virtual void [addInsert](#) (const [DL\\_InsertData](#) &data)=0
- Called for every insert.*

  - virtual void [addTrace](#) (const [DL\\_TraceData](#) &data)=0
- Called for every trace start.*

  - virtual void [add3dFace](#) (const [DL\\_3dFaceData](#) &data)=0
- Called for every 3dface start.*

  - virtual void [addSolid](#) (const [DL\\_SolidData](#) &data)=0
- Called for every solid start.*

  - virtual void [addMText](#) (const [DL\\_MTextData](#) &data)=0
- Called for every multi Text entity.*

  - virtual void [addMTextChunk](#) (const std::string &text)=0
- Called for additional text chunks for MTEXT entities.*

  - virtual void [addText](#) (const [DL\\_TextData](#) &data)=0
- Called for every text entity.*

  - virtual void [addArcAlignedText](#) (const [DL\\_ArcAlignedTextData](#) &data)=0
- Called for every arc aligned text entity.*

  - virtual void [addAttribute](#) (const [DL\\_AttributeData](#) &data)=0
- Called for every block Attribute entity.*

  - virtual void [addDimAlign](#) (const [DL\\_DimensionData](#) &data, const [DL\\_DimAlignedData](#) &edata)=0
- Called for every aligned dimension entity.*

  - virtual void [addDimLinear](#) (const [DL\\_DimensionData](#) &data, const [DL\\_DimLinearData](#) &edata)=0
- Called for every linear or rotated dimension entity.*

  - virtual void [addDimRadial](#) (const [DL\\_DimensionData](#) &data, const [DL\\_DimRadialData](#) &edata)=0
- Called for every radial dimension entity.*

- virtual void `addDimDiametric` (const `DL_DimensionData` &data, const `DL_DimDiametricData` &edata)=0  
*Called for every diametric dimension entity.*
- virtual void `addDimAngular` (const `DL_DimensionData` &data, const `DL_DimAngular2LData` &edata)=0  
*Called for every angular dimension (2 lines version) entity.*
- virtual void `addDimAngular3P` (const `DL_DimensionData` &data, const `DL_DimAngular3PData` &edata)=0  
*Called for every angular dimension (3 points version) entity.*
- virtual void `addDimOrdinate` (const `DL_DimensionData` &data, const `DL_DimOrdinateData` &edata)=0  
*Called for every ordinate dimension entity.*
- virtual void `addLeader` (const `DL_LeaderData` &data)=0  
*Called for every leader start.*
- virtual void `addLeaderVertex` (const `DL_LeaderVertexData` &data)=0  
*Called for every leader vertex.*
- virtual void `addHatch` (const `DL_HatchData` &data)=0  
*Called for every hatch entity.*
- virtual void `addImage` (const `DL_ImageData` &data)=0  
*Called for every image entity.*
- virtual void `linkImage` (const `DL_ImageDefData` &data)=0  
*Called for every image definition.*
- virtual void `addHatchLoop` (const `DL_HatchLoopData` &data)=0  
*Called for every hatch loop.*
- virtual void `addHatchEdge` (const `DL_HatchEdgeData` &data)=0  
*Called for every hatch edge entity.*
- virtual void `addXRecord` (const std::string &handle)=0  
*Called for every XRecord with the given handle.*
- virtual void `addXRecordString` (int code, const std::string &value)=0  
*Called for XRecords of type string.*
- virtual void `addXRecordReal` (int code, double value)=0  
*Called for XRecords of type double.*
- virtual void `addXRecordInt` (int code, int value)=0  
*Called for XRecords of type int.*
- virtual void `addXRecordBool` (int code, bool value)=0  
*Called for XRecords of type bool.*
- virtual void `addXDataApp` (const std::string &appId)=0  
*Called for every beginning of an XData section of the given application.*
- virtual void `addXDataString` (int code, const std::string &value)=0  
*Called for XData tuples.*
- virtual void `addXDataReal` (int code, double value)=0  
*Called for XData tuples.*
- virtual void `addXDataInt` (int code, int value)=0  
*Called for XData tuples.*
- virtual void `addDictionary` (const `DL_DictionaryData` &data)=0  
*Called for dictionary objects.*
- virtual void `addDictionaryEntry` (const `DL_DictionaryEntryData` &data)=0  
*Called for dictionary entries.*
- virtual void `endEntity` ()=0  
*Called after an entity has been completed.*
- virtual void `addComment` (const std::string &comment)=0  
*Called for every comment in the DXF file (code 999).*
- virtual void `setVariableVector` (const std::string &key, double v1, double v2, double v3, int code)=0  
*Called for every vector variable in the DXF file (e.g.*
- virtual void `setVariableString` (const std::string &key, const std::string &value, int code)=0

- Called for every string variable in the DXF file (e.g.*
  - virtual void [setVariableInt](#) (const std::string &key, int value, int code)=0
- Called for every int variable in the DXF file (e.g.*
  - virtual void [setVariableDouble](#) (const std::string &key, double value, int code)=0
- Called for every double variable in the DXF file (e.g.*
  - virtual void [endSequence](#) ()=0
- Called when a SEQEND occurs (when a POLYLINE or ATTRIB is done)*
  - void [setAttributes](#) (const [DL\\_Attributes](#) &attrib)
- Sets the current attributes for entities.*
  - [DL\\_Attributes](#) [getAttributes](#) ()
- void [setExtrusion](#) (double dx, double dy, double dz, double elevation)
- Sets the current attributes for entities.*
  - [DL\\_Extrusion](#) \* [getExtrusion](#) ()

## Protected Attributes

- [DL\\_Attributes](#) **attributes**
- [DL\\_Extrusion](#) \* **extrusion**

### 5.10.1 Detailed Description

Abstract class (interface) for the creation of new entities.

Inherit your class which takes care of the entities in the processed DXF file from this interface.

Double arrays passed to your implementation contain 3 double values for x, y, z coordinates unless stated differently.

Author

Andrew Mustun

### 5.10.2 Member Function Documentation

#### 5.10.2.1 add3dFace()

```
virtual void DL_CreationInterface::add3dFace (
    const DL\_3dFaceData & data ) [pure virtual]
```

Called for every 3dface start.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::add3dFace\(\)](#).

#### 5.10.2.2 addArc()

```
virtual void DL_CreationInterface::addArc (
    const DL_ArcData & data ) [pure virtual]
```

Called for every arc.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addArc\(\)](#).

#### 5.10.2.3 addArcAlignedText()

```
virtual void DL_CreationInterface::addArcAlignedText (
    const DL_ArcAlignedTextData & data ) [pure virtual]
```

Called for every arc aligned text entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addArcAlignedText\(\)](#).

#### 5.10.2.4 addAttribute()

```
virtual void DL_CreationInterface::addAttribute (
    const DL_AttributeData & data ) [pure virtual]
```

Called for every block Attribute entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addAttribute\(\)](#).

#### 5.10.2.5 addBlock()

```
virtual void DL_CreationInterface::addBlock (
    const DL_BlockData & data ) [pure virtual]
```

Called for every block.

Note: all entities added after this command go into this block until [endBlock\(\)](#) is called.

See also

[endBlock\(\)](#)

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addBlock\(\)](#).



#### 5.10.2.6 addCircle()

```
virtual void DL_CreationInterface::addCircle (
    const DL_CircleData & data ) [pure virtual]
```

Called for every circle.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addCircle\(\)](#).

#### 5.10.2.7 addComment()

```
virtual void DL_CreationInterface::addComment (
    const std::string & comment ) [pure virtual]
```

Called for every comment in the DXF file (code 999).

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addComment\(\)](#).

#### 5.10.2.8 addControlPoint()

```
virtual void DL_CreationInterface::addControlPoint (
    const DL_ControlPointData & data ) [pure virtual]
```

Called for every spline control point.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addSpline\(\)](#).

#### 5.10.2.9 addDictionary()

```
virtual void DL_CreationInterface::addDictionary (
    const DL_DictionaryData & data ) [pure virtual]
```

Called for dictionary objects.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleDictionaryData\(\)](#).

#### 5.10.2.10 addDictionaryEntry()

```
virtual void DL_CreationInterface::addDictionaryEntry (
    const DL_DictionaryEntryData & data ) [pure virtual]
```

Called for dictionary entries.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleDictionaryData\(\)](#).

#### 5.10.2.11 addDimAlign()

```
virtual void DL_CreationInterface::addDimAlign (
    const DL_DimensionData & data,
    const DL_DimAlignedData & edata ) [pure virtual]
```

Called for every aligned dimension entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addDimAligned\(\)](#).

#### 5.10.2.12 addDimAngular()

```
virtual void DL_CreationInterface::addDimAngular (
    const DL_DimensionData & data,
    const DL_DimAngular2LData & edata ) [pure virtual]
```

Called for every angular dimension (2 lines version) entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addDimAngular\(\)](#).

#### 5.10.2.13 addDimAngular3P()

```
virtual void DL_CreationInterface::addDimAngular3P (
    const DL_DimensionData & data,
    const DL_DimAngular3PData & edata ) [pure virtual]
```

Called for every angular dimension (3 points version) entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addDimAngular3P\(\)](#).

#### 5.10.2.14 addDimDiametric()

```
virtual void DL_CreationInterface::addDimDiametric (
    const DL_DimensionData & data,
    const DL_DimDiametricData & edata ) [pure virtual]
```

Called for every diametric dimension entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addDimDiametric\(\)](#).

#### 5.10.2.15 addDimLinear()

```
virtual void DL_CreationInterface::addDimLinear (
    const DL_DimensionData & data,
    const DL_DimLinearData & edata ) [pure virtual]
```

Called for every linear or rotated dimension entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addDimLinear\(\)](#).

#### 5.10.2.16 addDimOrdinate()

```
virtual void DL_CreationInterface::addDimOrdinate (
    const DL_DimensionData & data,
    const DL_DimOrdinateData & edata ) [pure virtual]
```

Called for every ordinate dimension entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addDimOrdinate\(\)](#).

#### 5.10.2.17 addDimRadial()

```
virtual void DL_CreationInterface::addDimRadial (
    const DL_DimensionData & data,
    const DL_DimRadialData & edata ) [pure virtual]
```

Called for every radial dimension entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addDimRadial\(\)](#).

#### 5.10.2.18 addEllipse()

```
virtual void DL_CreationInterface::addEllipse (
    const DL_EllipseData & data ) [pure virtual]
```

Called for every ellipse.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addEllipse\(\)](#).

#### 5.10.2.19 addFitPoint()

```
virtual void DL_CreationInterface::addFitPoint (
    const DL_FitPointData & data ) [pure virtual]
```

Called for every spline fit point.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addSpline\(\)](#).

#### 5.10.2.20 addHatch()

```
virtual void DL_CreationInterface::addHatch (
    const DL_HatchData & data ) [pure virtual]
```

Called for every hatch entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addHatch\(\)](#).

#### 5.10.2.21 addHatchEdge()

```
virtual void DL_CreationInterface::addHatchEdge (
    const DL_HatchEdgeData & data ) [pure virtual]
```

Called for every hatch edge entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addHatch\(\)](#).

#### 5.10.2.22 addHatchLoop()

```
virtual void DL_CreationInterface::addHatchLoop (
    const DL_HatchLoopData & data ) [pure virtual]
```

Called for every hatch loop.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addHatch\(\)](#).

#### 5.10.2.23 addImage()

```
virtual void DL_CreationInterface::addImage (
    const DL_ImageData & data ) [pure virtual]
```

Called for every image entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addImage\(\)](#).

#### 5.10.2.24 addInsert()

```
virtual void DL_CreationInterface::addInsert (
    const DL_InsertData & data ) [pure virtual]
```

Called for every insert.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addInsert\(\)](#).

#### 5.10.2.25 addKnot()

```
virtual void DL_CreationInterface::addKnot (
    const DL_KnotData & data ) [pure virtual]
```

Called for every spline knot value.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addSpline\(\)](#).

#### 5.10.2.26 addLayer()

```
virtual void DL_CreationInterface::addLayer (
    const DL_LayerData & data ) [pure virtual]
```

Called for every layer.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addLayer\(\)](#).

#### 5.10.2.27 addLeader()

```
virtual void DL_CreationInterface::addLeader (
    const DL_LeaderData & data ) [pure virtual]
```

Called for every leader start.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addLeader\(\)](#).

#### 5.10.2.28 addLeaderVertex()

```
virtual void DL_CreationInterface::addLeaderVertex (
    const DL_LeaderVertexData & data ) [pure virtual]
```

Called for every leader vertex.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addLeader\(\)](#).

#### 5.10.2.29 addLine()

```
virtual void DL_CreationInterface::addLine (
    const DL_LineData & data ) [pure virtual]
```

Called for every line.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addLine\(\)](#).

#### 5.10.2.30 addLinetype()

```
virtual void DL_CreationInterface::addLinetype (
    const DL_LinetypeData & data ) [pure virtual]
```

Called for every linetype.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addLinetype\(\)](#).

#### 5.10.2.31 addLinetypeDash()

```
virtual void DL_CreationInterface::addLinetypeDash (
    double length ) [pure virtual]
```

Called for every dash in linetype pattern.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleLinetypeData\(\)](#).

#### 5.10.2.32 addMText()

```
virtual void DL_CreationInterface::addMText (
    const DL_MTextData & data ) [pure virtual]
```

Called for every multi Text entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addMText\(\)](#).

#### 5.10.2.33 addMTextChunk()

```
virtual void DL_CreationInterface::addMTextChunk (
    const std::string & text ) [pure virtual]
```

Called for additional text chunks for MTEXT entities.

The chunks come at 250 character in size each. Note that those chunks come **before** the actual MTEXT entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleMTextData\(\)](#).

#### 5.10.2.34 addPoint()

```
virtual void DL_CreationInterface::addPoint (
    const DL_PointData & data ) [pure virtual]
```

Called for every point.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addPoint\(\)](#).

#### 5.10.2.35 addPolyline()

```
virtual void DL_CreationInterface::addPolyline (
    const DL_PolylineData & data ) [pure virtual]
```

Called for every polyline start.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addPolyline\(\)](#).

#### 5.10.2.36 addRay()

```
virtual void DL_CreationInterface::addRay (
    const DL_RayData & data ) [pure virtual]
```

Called for every ray.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addRay\(\)](#).

#### 5.10.2.37 addSolid()

```
virtual void DL_CreationInterface::addSolid (
    const DL_SolidData & data ) [pure virtual]
```

Called for every solid start.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addSolid\(\)](#).



### 5.10.2.38 addSpline()

```
virtual void DL_CreationInterface::addSpline (
    const DL_SplineData & data ) [pure virtual]
```

Called for every spline.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addSpline\(\)](#).

### 5.10.2.39 addText()

```
virtual void DL_CreationInterface::addText (
    const DL_TextData & data ) [pure virtual]
```

Called for every text entity.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addText\(\)](#).

### 5.10.2.40 addTextStyle()

```
virtual void DL_CreationInterface::addTextStyle (
    const DL_StyleData & data ) [pure virtual]
```

Called for every text style.

Implemented in [DL\\_CreationAdapter](#).

### 5.10.2.41 addTrace()

```
virtual void DL_CreationInterface::addTrace (
    const DL_TraceData & data ) [pure virtual]
```

Called for every trace start.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addTrace\(\)](#).

#### 5.10.2.42 addVertex()

```
virtual void DL_CreationInterface::addVertex (
    const DL_VertexData & data ) [pure virtual]
```

Called for every polyline vertex.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addPolyline\(\)](#), and [DL\\_Dxf::addVertex\(\)](#).

#### 5.10.2.43 addXDataApp()

```
virtual void DL_CreationInterface::addXDataApp (
    const std::string & appId ) [pure virtual]
```

Called for every beginning of an XData section of the given application.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleXData\(\)](#).

#### 5.10.2.44 addXDataInt()

```
virtual void DL_CreationInterface::addXDataInt (
    int code,
    int value ) [pure virtual]
```

Called for XData tuples.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleXData\(\)](#).

#### 5.10.2.45 addXDataReal()

```
virtual void DL_CreationInterface::addXDataReal (
    int code,
    double value ) [pure virtual]
```

Called for XData tuples.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleXData\(\)](#).

#### 5.10.2.46 addXDataString()

```
virtual void DL_CreationInterface::addXDataString (
    int code,
    const std::string & value ) [pure virtual]
```

Called for XData tuples.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleXData\(\)](#).

#### 5.10.2.47 addXLine()

```
virtual void DL_CreationInterface::addXLine (
    const DL_XLineData & data ) [pure virtual]
```

Called for every xline.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addXLine\(\)](#).

#### 5.10.2.48 addXRecord()

```
virtual void DL_CreationInterface::addXRecord (
    const std::string & handle ) [pure virtual]
```

Called for every XRecord with the given handle.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleXRecordData\(\)](#).

#### 5.10.2.49 addXRecordBool()

```
virtual void DL_CreationInterface::addXRecordBool (
    int code,
    bool value ) [pure virtual]
```

Called for XRecords of type bool.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleXRecordData\(\)](#).

#### 5.10.2.50 addXRecordInt()

```
virtual void DL_CreationInterface::addXRecordInt (
    int code,
    int value ) [pure virtual]
```

Called for XRecords of type int.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleXRecordData\(\)](#).

#### 5.10.2.51 addXRecordReal()

```
virtual void DL_CreationInterface::addXRecordReal (
    int code,
    double value ) [pure virtual]
```

Called for XRecords of type double.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleXRecordData\(\)](#).

#### 5.10.2.52 addXRecordString()

```
virtual void DL_CreationInterface::addXRecordString (
    int code,
    const std::string & value ) [pure virtual]
```

Called for XRecords of type string.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::handleXRecordData\(\)](#).

#### 5.10.2.53 endBlock()

```
virtual void DL_CreationInterface::endBlock ( ) [pure virtual]
```

Called to end the current block.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::endBlock\(\)](#).

#### 5.10.2.54 endEntity()

```
virtual void DL_CreationInterface::endEntity ( ) [pure virtual]
```

Called after an entity has been completed.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addHatch\(\)](#), [DL\\_Dxf::addImage\(\)](#), [DL\\_Dxf::addImageDef\(\)](#), [DL\\_Dxf::addLeader\(\)](#), [DL\\_Dxf::addPolyline\(\)](#), [DL\\_Dxf::addSpline\(\)](#), and [DL\\_Dxf::endEntity\(\)](#).

#### 5.10.2.55 endSection()

```
virtual void DL_CreationInterface::endSection ( ) [pure virtual]
```

Called when a section (entity, table entry, etc.) is finished.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::processDXFGroup\(\)](#).

#### 5.10.2.56 endSequence()

```
virtual void DL_CreationInterface::endSequence ( ) [pure virtual]
```

Called when a SEQEND occurs (when a POLYLINE or ATTRIB is done)

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::endSequence\(\)](#).

#### 5.10.2.57 getAttributes()

```
DL_Attributes DL_CreationInterface::getAttributes ( ) [inline]
```

##### Returns

the current attributes used for new entities.

Referenced by [DL\\_Dxf::addLayer\(\)](#).

#### 5.10.2.58 `getExtrusion()`

```
DL_Extrusion * DL_CreationInterface::getExtrusion ( ) [inline]
```

##### Returns

the current attributes used for new entities.

#### 5.10.2.59 `linkImage()`

```
virtual void DL_CreationInterface::linkImage (
    const DL_ImageDefData & data ) [pure virtual]
```

Called for every image definition.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addImageDef\(\)](#).

#### 5.10.2.60 `processCodeValuePair()`

```
virtual void DL_CreationInterface::processCodeValuePair (
    unsigned int groupCode,
    const std::string & groupValue ) [pure virtual]
```

Called for every code / value tuple of the DXF file.

The complete DXF file contents can be handled by the implementation of this function.

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::readDxfGroups\(\)](#).

#### 5.10.2.61 `setVariableDouble()`

```
virtual void DL_CreationInterface::setVariableDouble (
    const std::string & key,
    double value,
    int code ) [pure virtual]
```

Called for every double variable in the DXF file (e.g.

"\$DIMEXO").

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addSetting\(\)](#).

#### 5.10.2.62 setVariableInt()

```
virtual void DL_CreationInterface::setVariableInt (
    const std::string & key,
    int value,
    int code ) [pure virtual]
```

Called for every int variable in the DXF file (e.g.

"\$ACADMAINTVER").

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addSetting\(\)](#).

#### 5.10.2.63 setVariableString()

```
virtual void DL_CreationInterface::setVariableString (
    const std::string & key,
    const std::string & value,
    int code ) [pure virtual]
```

Called for every string variable in the DXF file (e.g.

"\$ACADVER").

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addSetting\(\)](#).

#### 5.10.2.64 setVariableVector()

```
virtual void DL_CreationInterface::setVariableVector (
    const std::string & key,
    double v1,
    double v2,
    double v3,
    int code ) [pure virtual]
```

Called for every vector variable in the DXF file (e.g.

"\$EXTMIN").

Implemented in [DL\\_CreationAdapter](#).

Referenced by [DL\\_Dxf::addSetting\(\)](#).

The documentation for this class was generated from the following file:

- `src/dl_creationinterface.h`

## 5.11 DL\_DictionaryData Struct Reference

Dictionary data.

```
#include <dl_entities.h>
```

### Public Member Functions

- **DL\_DictionaryData** (const std::string &handle)

### Public Attributes

- std::string **handle**

#### 5.11.1 Detailed Description

Dictionary data.

The documentation for this struct was generated from the following file:

- src/dl\_entities.h

## 5.12 DL\_DictionaryEntryData Struct Reference

Dictionary entry data.

```
#include <dl_entities.h>
```

### Public Member Functions

- **DL\_DictionaryEntryData** (const std::string &name, const std::string &handle)

### Public Attributes

- std::string **name**
- std::string **handle**

#### 5.12.1 Detailed Description

Dictionary entry data.

The documentation for this struct was generated from the following file:

- src/dl\_entities.h



## 5.13 DL\_DimAlignedData Struct Reference

Aligned Dimension Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_DimAlignedData](#) (double depx1, double depy1, double depz1, double depx2, double depy2, double depz2)

*Constructor.*

### Public Attributes

- double [epx1](#)
- double [epy1](#)
- double [epz1](#)
- double [epx2](#)
- double [epy2](#)
- double [epz2](#)

#### 5.13.1 Detailed Description

Aligned Dimension Data.

#### 5.13.2 Constructor & Destructor Documentation

##### 5.13.2.1 DL\_DimAlignedData()

```
DL_DimAlignedData::DL_DimAlignedData (
    double depx1,
    double depy1,
    double depz1,
    double depx2,
    double depy2,
    double depz2 ) [inline]
```

Constructor.

Parameters: see member variables.

#### 5.13.3 Member Data Documentation

**5.13.3.1 ep<sub>x</sub>1**

```
double DL_DimAlignedData::epx1
```

X Coordinate of Extension point 1.

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#).

**5.13.3.2 ep<sub>x</sub>2**

```
double DL_DimAlignedData::epx2
```

X Coordinate of Extension point 2.

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#).

**5.13.3.3 ep<sub>y</sub>1**

```
double DL_DimAlignedData::epy1
```

Y Coordinate of Extension point 1.

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#).

**5.13.3.4 ep<sub>y</sub>2**

```
double DL_DimAlignedData::epy2
```

Y Coordinate of Extension point 2.

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#).

**5.13.3.5 ep<sub>z</sub>1**

```
double DL_DimAlignedData::epz1
```

Z Coordinate of Extension point 1.

### 5.13.3.6 epz2

```
double DL_DimAlignedData::epz2
```

Z Coordinate of Extension point 2.

The documentation for this struct was generated from the following file:

- src/dl\_entities.h

## 5.14 DL\_DimAngular2LData Struct Reference

Angular Dimension Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_DimAngular2LData](#) (double ddp<sub>x</sub>1, double ddp<sub>y</sub>1, double ddp<sub>z</sub>1, double ddp<sub>x</sub>2, double ddp<sub>y</sub>2, double ddp<sub>z</sub>2, double ddp<sub>x</sub>3, double ddp<sub>y</sub>3, double ddp<sub>z</sub>3, double ddp<sub>x</sub>4, double ddp<sub>y</sub>4, double ddp<sub>z</sub>4)

*Constructor.*

### Public Attributes

- double [dpx1](#)
- double [dpy1](#)
- double [dpz1](#)
- double [dpx2](#)
- double [dpy2](#)
- double [dpz2](#)
- double [dpx3](#)
- double [dpy3](#)
- double [dpz3](#)
- double [dpx4](#)
- double [dpy4](#)
- double [dpz4](#)

#### 5.14.1 Detailed Description

Angular Dimension Data.

#### 5.14.2 Constructor & Destructor Documentation

#### 5.14.2.1 DL\_DimAngular2LData()

```
DL_DimAngular2LData::DL_DimAngular2LData (
    double ddpx1,
    double ddpy1,
    double ddpz1,
    double ddpx2,
    double ddpy2,
    double ddpz2,
    double ddpx3,
    double ddpy3,
    double ddpz3,
    double ddpx4,
    double ddpy4,
    double ddpz4 ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.14.3 Member Data Documentation

#### 5.14.3.1 dpx1

```
double DL_DimAngular2LData::dpx1
```

X Coordinate of definition point 1.

Referenced by [DL\\_Dxf::writeDimAngular2L\(\)](#).

#### 5.14.3.2 dpx2

```
double DL_DimAngular2LData::dpx2
```

X Coordinate of definition point 2.

Referenced by [DL\\_Dxf::writeDimAngular2L\(\)](#).

#### 5.14.3.3 dpx3

```
double DL_DimAngular2LData::dpx3
```

X Coordinate of definition point 3.

Referenced by [DL\\_Dxf::writeDimAngular2L\(\)](#).

#### 5.14.3.4 dpx4

```
double DL_DimAngular2LData::dpx4
```

X Coordinate of definition point 4.

Referenced by [DL\\_Dxf::writeDimAngular2L\(\)](#).

#### 5.14.3.5 dpy1

```
double DL_DimAngular2LData::dpy1
```

Y Coordinate of definition point 1.

Referenced by [DL\\_Dxf::writeDimAngular2L\(\)](#).

#### 5.14.3.6 dpy2

```
double DL_DimAngular2LData::dpy2
```

Y Coordinate of definition point 2.

Referenced by [DL\\_Dxf::writeDimAngular2L\(\)](#).

#### 5.14.3.7 dpy3

```
double DL_DimAngular2LData::dpy3
```

Y Coordinate of definition point 3.

Referenced by [DL\\_Dxf::writeDimAngular2L\(\)](#).

#### 5.14.3.8 dpy4

```
double DL_DimAngular2LData::dpy4
```

Y Coordinate of definition point 4.

Referenced by [DL\\_Dxf::writeDimAngular2L\(\)](#).

#### 5.14.3.9 dpz1

```
double DL_DimAngular2LData::dpz1
```

Z Coordinate of definition point 1.

#### 5.14.3.10 dpz2

```
double DL_DimAngular2LData::dpz2
```

Z Coordinate of definition point 2.

#### 5.14.3.11 dpz3

```
double DL_DimAngular2LData::dpz3
```

Z Coordinate of definition point 3.

#### 5.14.3.12 dpz4

```
double DL_DimAngular2LData::dpz4
```

Z Coordinate of definition point 4.

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.15 DL\_DimAngular3PData Struct Reference

Angular Dimension Data (3 points version).

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_DimAngular3PData](#) (double ddp<sub>x</sub>1, double ddp<sub>y</sub>1, double ddp<sub>z</sub>1, double ddp<sub>x</sub>2, double ddp<sub>y</sub>2, double ddp<sub>z</sub>2, double ddp<sub>x</sub>3, double ddp<sub>y</sub>3, double ddp<sub>z</sub>3)

*Constructor.*

### Public Attributes

- double [dp<sub>x</sub>1](#)
- double [dp<sub>y</sub>1](#)
- double [dp<sub>z</sub>1](#)
- double [dp<sub>x</sub>2](#)
- double [dp<sub>y</sub>2](#)
- double [dp<sub>z</sub>2](#)
- double [dp<sub>x</sub>3](#)
- double [dp<sub>y</sub>3](#)
- double [dp<sub>z</sub>3](#)

### 5.15.1 Detailed Description

Angular Dimension Data (3 points version).

### 5.15.2 Constructor & Destructor Documentation

#### 5.15.2.1 DL\_DimAngular3PData()

```
DL_DimAngular3PData::DL_DimAngular3PData (
    double ddpx1,
    double ddpy1,
    double ddpz1,
    double ddpx2,
    double ddpy2,
    double ddpz2,
    double ddpx3,
    double ddpy3,
    double ddpz3 ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.15.3 Member Data Documentation

#### 5.15.3.1 dpx1

```
double DL_DimAngular3PData::dpx1
```

X Coordinate of definition point 1 (extension line 1 end).

Referenced by [DL\\_Dxf::writeDimAngular3P\(\)](#).

#### 5.15.3.2 dpx2

```
double DL_DimAngular3PData::dpx2
```

X Coordinate of definition point 2 (extension line 2 end).

Referenced by [DL\\_Dxf::writeDimAngular3P\(\)](#).

#### 5.15.3.3 dpx3

```
double DL_DimAngular3PData::dpx3
```

X Coordinate of definition point 3 (center).

Referenced by [DL\\_Dxf::writeDimAngular3P\(\)](#).

#### 5.15.3.4 dpy1

```
double DL_DimAngular3PData::dpy1
```

Y Coordinate of definition point 1.

Referenced by [DL\\_Dxf::writeDimAngular3P\(\)](#).

#### 5.15.3.5 dpy2

```
double DL_DimAngular3PData::dpy2
```

Y Coordinate of definition point 2.

Referenced by [DL\\_Dxf::writeDimAngular3P\(\)](#).

#### 5.15.3.6 dpy3

```
double DL_DimAngular3PData::dpy3
```

Y Coordinate of definition point 3.

Referenced by [DL\\_Dxf::writeDimAngular3P\(\)](#).

#### 5.15.3.7 dpz1

```
double DL_DimAngular3PData::dpz1
```

Z Coordinate of definition point 1.

#### 5.15.3.8 dpz2

```
double DL_DimAngular3PData::dpz2
```

Z Coordinate of definition point 2.



### 5.15.3.9 dpz3

```
double DL_DimAngular3PData::dpz3
```

Z Coordinate of definition point 3.

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.16 DL\_DimDiametricData Struct Reference

Diametric Dimension Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_DimDiametricData](#) (double ddp<sub>x</sub>, double ddp<sub>y</sub>, double ddp<sub>z</sub>, double dleader)  
*Constructor.*

### Public Attributes

- double [dpx](#)
- double [dpy](#)
- double [dpz](#)
- double [leader](#)

### 5.16.1 Detailed Description

Diametric Dimension Data.

### 5.16.2 Constructor & Destructor Documentation

#### 5.16.2.1 DL\_DimDiametricData()

```
DL_DimDiametricData::DL_DimDiametricData (
    double ddpx,
    double ddpy,
    double ddpz,
    double dleader ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.16.3 Member Data Documentation

#### 5.16.3.1 dpx

```
double DL_DimDiametricData::dpx
```

X Coordinate of definition point (DXF 15).

Referenced by [DL\\_Dxf::writeDimDiametric\(\)](#).

#### 5.16.3.2 dpy

```
double DL_DimDiametricData::dpy
```

Y Coordinate of definition point (DXF 25).

Referenced by [DL\\_Dxf::writeDimDiametric\(\)](#).

#### 5.16.3.3 dpz

```
double DL_DimDiametricData::dpz
```

Z Coordinate of definition point (DXF 35).

#### 5.16.3.4 leader

```
double DL_DimDiametricData::leader
```

Leader length

Referenced by [DL\\_Dxf::writeDimDiametric\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.17 DL\_DimensionData Struct Reference

Generic Dimension Data.

```
#include <dl_entities.h>
```

## Public Member Functions

- [DL\\_DimensionData](#) (double [dpx](#), double [dpy](#), double [dpz](#), double [mpx](#), double [mpy](#), double [mpz](#), int [type](#), int [attachmentPoint](#), int [lineSpacingStyle](#), double [lineSpacingFactor](#), const std::string &[text](#), const std::string &[style](#), double [angle](#), double [linearFactor](#)=1.0, double [dimScale](#)=1.0)

*Constructor.*

## Public Attributes

- double [dpx](#)
- double [dpy](#)
- double [dpz](#)
- double [mpx](#)
- double [mpy](#)
- double [mpz](#)
- int [type](#)  
*Dimension type.*
- int [attachmentPoint](#)  
*Attachment point.*
- int [lineSpacingStyle](#)  
*Line spacing style.*
- double [lineSpacingFactor](#)  
*Line spacing factor.*
- std::string [text](#)  
*Text string.*
- std::string [style](#)
- double **angle**  
*Rotation angle of dimension text away from default orientation.*
- double **linearFactor**  
*Linear factor style override.*
- double **dimScale**  
*Dimension scale (dimscale) style override.*
- bool **arrow1Flipped**
- bool **arrow2Flipped**

### 5.17.1 Detailed Description

Generic Dimension Data.

### 5.17.2 Constructor & Destructor Documentation

### 5.17.2.1 DL\_DimensionData()

```
DL_DimensionData::DL_DimensionData (
    double dpx,
    double dpy,
    double dpz,
    double mpx,
    double mpy,
    double mpz,
    int type,
    int attachmentPoint,
    int lineSpacingStyle,
    double lineSpacingFactor,
    const std::string & text,
    const std::string & style,
    double angle,
    double linearFactor = 1.0,
    double dimScale = 1.0 ) [inline]
```

Constructor.

Parameters: see member variables.

## 5.17.3 Member Data Documentation

### 5.17.3.1 attachmentPoint

```
int DL_DimensionData::attachmentPoint
```

Attachment point.

1 = Top left, 2 = Top center, 3 = Top right, 4 = Middle left, 5 = Middle center, 6 = Middle right, 7 = Bottom left, 8 = Bottom center, 9 = Bottom right,

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), and [DL\\_Dxf::writeDimRadial\(\)](#).

### 5.17.3.2 dpx

```
double DL_DimensionData::dpx
```

X Coordinate of definition point.

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), and [DL\\_Dxf::writeDimRadial\(\)](#).

### 5.17.3.3 dpy

```
double DL_DimensionData::dpy
```

Y Coordinate of definition point.

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), and [DL\\_Dxf::writeDimRadial\(\)](#).

### 5.17.3.4 dpz

```
double DL_DimensionData::dpz
```

Z Coordinate of definition point.

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), and [DL\\_Dxf::writeDimRadial\(\)](#).

### 5.17.3.5 lineSpacingFactor

```
double DL_DimensionData::lineSpacingFactor
```

Line spacing factor.

0.25 .. 4.0

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), and [DL\\_Dxf::writeDimRadial\(\)](#).

### 5.17.3.6 lineSpacingStyle

```
int DL_DimensionData::lineSpacingStyle
```

Line spacing style.

1 = at least, 2 = exact

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), and [DL\\_Dxf::writeDimRadial\(\)](#).

### 5.17.3.7 mpx

```
double DL_DimensionData::mpx
```

X Coordinate of middle point of the text.

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), and [DL\\_Dxf::writeDimRadial\(\)](#).

### 5.17.3.8 mpy

```
double DL_DimensionData::mpy
```

Y Coordinate of middle point of the text.

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), and [DL\\_Dxf::writeDimRadial\(\)](#).

### 5.17.3.9 mpz

```
double DL_DimensionData::mpz
```

Z Coordinate of middle point of the text.

### 5.17.3.10 style

```
std::string DL_DimensionData::style
```

Dimension style (font name).

### 5.17.3.11 text

```
std::string DL_DimensionData::text
```

Text string.

Text string entered explicitly by user or null or "<>" for the actual measurement or " " (one blank space). for supressing the text.

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), and [DL\\_Dxf::writeDimRadial\(\)](#).

## 5.17.3.12 type

```
int DL_DimensionData::type
```

Dimension type.

0 Rotated, horizontal, or vertical

1 Aligned

2 Angular

3 Diametric

4 Radius

5 Angular 3-point

6 Ordinate

64 Ordinate type. This is a bit value (bit 7) used only with integer value 6. If set, ordinate is X-type; if not set, ordinate is Y-type

128 This is a bit value (bit 8) added to the other group 70 values if the dimension text has been positioned at a user-defined location rather than at the default location

Referenced by [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), and [DL\\_Dxf::writeDimRadial\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.18 DL\_DimLinearData Struct Reference

Linear (rotated) Dimension Data.

```
#include <dl_entities.h>
```

## Public Member Functions

- [DL\\_DimLinearData](#) (double ddp<sub>x</sub>1, double ddp<sub>y</sub>1, double ddp<sub>z</sub>1, double ddp<sub>x</sub>2, double ddp<sub>y</sub>2, double ddp<sub>z</sub>2, double dAngle, double dOblique)  
*Constructor.*

## Public Attributes

- double [dpx1](#)
- double [dpy1](#)
- double [dpz1](#)
- double [dpx2](#)
- double [dpy2](#)
- double [dpz2](#)
- double [angle](#)
- double [oblique](#)

### 5.18.1 Detailed Description

Linear (rotated) Dimension Data.

### 5.18.2 Constructor & Destructor Documentation

#### 5.18.2.1 DL\_DimLinearData()

```
DL_DimLinearData::DL_DimLinearData (
    double ddpx1,
    double ddpy1,
    double ddpz1,
    double ddpx2,
    double ddpy2,
    double ddpz2,
    double dAngle,
    double dOblique ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.18.3 Member Data Documentation

#### 5.18.3.1 angle

```
double DL_DimLinearData::angle
```

Rotation angle (angle of dimension line) in degrees.

Referenced by [DL\\_Dxf::writeDimLinear\(\)](#).

#### 5.18.3.2 dpx1

```
double DL_DimLinearData::dpx1
```

X Coordinate of Extension point 1.

Referenced by [DL\\_Dxf::writeDimLinear\(\)](#).



### 5.18.3.3 dpx2

```
double DL_DimLinearData::dpx2
```

X Coordinate of Extension point 2.

Referenced by [DL\\_Dxf::writeDimLinear\(\)](#).

### 5.18.3.4 dpy1

```
double DL_DimLinearData::dpy1
```

Y Coordinate of Extension point 1.

Referenced by [DL\\_Dxf::writeDimLinear\(\)](#).

### 5.18.3.5 dpy2

```
double DL_DimLinearData::dpy2
```

Y Coordinate of Extension point 2.

Referenced by [DL\\_Dxf::writeDimLinear\(\)](#).

### 5.18.3.6 dpz1

```
double DL_DimLinearData::dpz1
```

Z Coordinate of Extension point 1.

### 5.18.3.7 dpz2

```
double DL_DimLinearData::dpz2
```

Z Coordinate of Extension point 2.

### 5.18.3.8 oblique

```
double DL_DimLinearData::oblique
```

Oblique angle in degrees.

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.19 DL\_DimOrdinateData Struct Reference

Ordinate Dimension Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_DimOrdinateData](#) (double ddp<sub>x</sub>1, double ddp<sub>y</sub>1, double ddp<sub>z</sub>1, double ddp<sub>x</sub>2, double ddp<sub>y</sub>2, double ddp<sub>z</sub>2, bool dx<sub>type</sub>)

*Constructor.*

### Public Attributes

- double [dp<sub>x</sub>1](#)
- double [dp<sub>y</sub>1](#)
- double [dp<sub>z</sub>1](#)
- double [dp<sub>x</sub>2](#)
- double [dp<sub>y</sub>2](#)
- double [dp<sub>z</sub>2](#)
- bool [x<sub>type</sub>](#)

### 5.19.1 Detailed Description

Ordinate Dimension Data.

### 5.19.2 Constructor & Destructor Documentation

#### 5.19.2.1 DL\_DimOrdinateData()

```
DL_DimOrdinateData::DL_DimOrdinateData (
    double ddpx1,
    double ddpy1,
    double ddpz1,
    double ddpx2,
    double ddpy2,
    double ddpz2,
    bool dxtype ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.19.3 Member Data Documentation

#### 5.19.3.1 dpx1

```
double DL_DimOrdinateData::dpx1
```

X Coordinate of definition point 1.

Referenced by [DL\\_Dxf::writeDimOrdinate\(\)](#).

#### 5.19.3.2 dpx2

```
double DL_DimOrdinateData::dpx2
```

X Coordinate of definition point 2.

Referenced by [DL\\_Dxf::writeDimOrdinate\(\)](#).

#### 5.19.3.3 dpy1

```
double DL_DimOrdinateData::dpy1
```

Y Coordinate of definition point 1.

Referenced by [DL\\_Dxf::writeDimOrdinate\(\)](#).

#### 5.19.3.4 dpy2

```
double DL_DimOrdinateData::dpy2
```

Y Coordinate of definition point 2.

Referenced by [DL\\_Dxf::writeDimOrdinate\(\)](#).

#### 5.19.3.5 dpz1

```
double DL_DimOrdinateData::dpz1
```

Z Coordinate of definition point 1.

#### 5.19.3.6 dpz2

```
double DL_DimOrdinateData::dpz2
```

Z Coordinate of definition point 2.

### 5.19.3.7 xtype

```
bool DL_DimOrdinateData::xtype
```

True if the dimension indicates the X-value, false for Y-value

Referenced by [DL\\_Dxf::writeDimOrdinate\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.20 DL\_DimRadialData Struct Reference

Radial Dimension Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_DimRadialData](#) (double ddp<sub>x</sub>, double ddp<sub>y</sub>, double ddp<sub>z</sub>, double dleader)  
*Constructor.*

### Public Attributes

- double [dp<sub>x</sub>](#)
- double [dp<sub>y</sub>](#)
- double [dp<sub>z</sub>](#)
- double [leader](#)

### 5.20.1 Detailed Description

Radial Dimension Data.

### 5.20.2 Constructor & Destructor Documentation

#### 5.20.2.1 DL\_DimRadialData()

```
DL_DimRadialData::DL_DimRadialData (
    double ddpx,
    double ddpy,
    double ddpz,
    double dleader ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.20.3 Member Data Documentation

#### 5.20.3.1 dpx

```
double DL_DimRadialData::dpx
```

X Coordinate of definition point.

Referenced by [DL\\_Dxf::writeDimRadial\(\)](#).

#### 5.20.3.2 dpy

```
double DL_DimRadialData::dpy
```

Y Coordinate of definition point.

Referenced by [DL\\_Dxf::writeDimRadial\(\)](#).

#### 5.20.3.3 dpz

```
double DL_DimRadialData::dpz
```

Z Coordinate of definition point.

#### 5.20.3.4 leader

```
double DL_DimRadialData::leader
```

Leader length

Referenced by [DL\\_Dxf::writeDimRadial\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.21 DL\_Dxf Class Reference

Reading and writing of DXF files.

```
#include <dl_dxf.h>
```

## Public Member Functions

- **DL\_Dxf ()**  
*Default constructor.*
- **~DL\_Dxf ()**  
*Destructor.*
- **bool in** (const std::string &file, [DL\\_CreationInterface](#) \*creationInterface)  
*Reads the given file and calls the appropriate functions in the given creation interface for every entity found in the file.*
- **bool readDxfGroups** (FILE \*fp, [DL\\_CreationInterface](#) \*creationInterface)  
*Reads a group couplet from a DXF file.*
- **bool readDxfGroups** (std::istream &stream, [DL\\_CreationInterface](#) \*creationInterface)  
*Same as above but for input streams.*
- **bool in** (std::istream &stream, [DL\\_CreationInterface](#) \*creationInterface)  
*Reads a DXF file from an existing stream.*
- **bool processDXFGroup** ([DL\\_CreationInterface](#) \*creationInterface, int groupCode, const std::string &group↵  
Value)  
*Processes a group (pair of group code and value).*
- **void addSetting** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds a variable from the DXF file.*
- **void addLayer** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds a layer that was read from the file via the creation interface.*
- **void addLinetype** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds a linetype that was read from the file via the creation interface.*
- **void addBlock** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds a block that was read from the file via the creation interface.*
- **void endBlock** ([DL\\_CreationInterface](#) \*creationInterface)  
*Ends a block that was read from the file via the creation interface.*
- **void addTextStyle** ([DL\\_CreationInterface](#) \*creationInterface)
- **void addPoint** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds a point entity that was read from the file via the creation interface.*
- **void addLine** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds a line entity that was read from the file via the creation interface.*
- **void addXLine** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds an xline entity that was read from the file via the creation interface.*
- **void addRay** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds a ray entity that was read from the file via the creation interface.*
- **void addPolyline** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds a polyline entity that was read from the file via the creation interface.*
- **void addVertex** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds a polyline vertex entity that was read from the file via the creation interface.*
- **void addSpline** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds a spline entity that was read from the file via the creation interface.*
- **void addArc** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds an arc entity that was read from the file via the creation interface.*
- **void addCircle** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds a circle entity that was read from the file via the creation interface.*
- **void addEllipse** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds an ellipse entity that was read from the file via the creation interface.*
- **void addInsert** ([DL\\_CreationInterface](#) \*creationInterface)  
*Adds an insert entity that was read from the file via the creation interface.*
- **void addTrace** ([DL\\_CreationInterface](#) \*creationInterface)

- Adds a trace entity (4 edge closed polyline) that was read from the file via the creation interface.*

  - void **add3dFace** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds a 3dface entity that was read from the file via the creation interface.*

- void **addSolid** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds a solid entity (filled trace) that was read from the file via the creation interface.*

- void **addMText** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds an MText entity that was read from the file via the creation interface.*

- void **addText** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds an text entity that was read from the file via the creation interface.*

- void **addArcAlignedText** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds an arc aligned text entity that was read from the file via the creation interface.*

- void **addAttribute** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds an attrib entity that was read from the file via the creation interface.*

- [DL\\_DimensionData](#) **getDimData** ()
- void **addDimLinear** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds a linear dimension entity that was read from the file via the creation interface.*

- void **addDimAligned** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds an aligned dimension entity that was read from the file via the creation interface.*

- void **addDimRadial** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds a radial dimension entity that was read from the file via the creation interface.*

- void **addDimDiametric** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds a diametric dimension entity that was read from the file via the creation interface.*

- void **addDimAngular** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds an angular dimension entity that was read from the file via the creation interface.*

- void **addDimAngular3P** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds an angular dimension entity that was read from the file via the creation interface.*

- void **addDimOrdinate** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds an ordinate dimension entity that was read from the file via the creation interface.*

- void **addLeader** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds a leader entity that was read from the file via the creation interface.*

- void **addHatch** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds a hatch entity that was read from the file via the creation interface.*

- void **addHatchLoop** ()
- void **addHatchEdge** ()
- bool **handleHatchData** ([DL\\_CreationInterface](#) \*creationInterface)

*Handles all hatch data.*

- void **addImage** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds an image entity that was read from the file via the creation interface.*

- void **addImageDef** ([DL\\_CreationInterface](#) \*creationInterface)

*Adds an image definition that was read from the file via the creation interface.*

- void **addComment** ([DL\\_CreationInterface](#) \*creationInterface, const std::string &comment)

*Adds a comment from the DXF file.*

- void **addDictionary** ([DL\\_CreationInterface](#) \*creationInterface)
- void **addDictionaryEntry** ([DL\\_CreationInterface](#) \*creationInterface)
- bool **handleXRecordData** ([DL\\_CreationInterface](#) \*creationInterface)

*Handles all XRecord data.*

- bool **handleDictionaryData** ([DL\\_CreationInterface](#) \*creationInterface)

*Handles all dictionary data.*

- bool **handleXData** ([DL\\_CreationInterface](#) \*creationInterface)

*Handles XData for all object types.*

- bool **handleMTextData** ([DL\\_CreationInterface](#) \*creationInterface)

- Handles additional MText data.*

  - bool **handleLWPolylineData** ([DL\\_CreationInterface](#) \*creationInterface)

*Handles additional polyline data.*
- bool **handleSplineData** ([DL\\_CreationInterface](#) \*creationInterface)

*Handles additional spline data.*
- bool **handleLeaderData** ([DL\\_CreationInterface](#) \*creationInterface)

*Handles additional leader data.*
- bool **handleLinetypeData** ([DL\\_CreationInterface](#) \*creationInterface)

*Handles all dashes in linetype pattern.*
- void **endEntity** ([DL\\_CreationInterface](#) \*creationInterface)

*Ends some special entities like hatches or old style polylines.*
- void **endSequence** ([DL\\_CreationInterface](#) \*creationInterface)

*Ends a sequence and notifies the creation interface.*
- [DL\\_WriterA](#) \* **out** (const char \*file, [DL\\_Codes::version](#) version=DL\_VERSION\_2000)

*Converts the given string into an int.*
- void **writeHeader** ([DL\\_WriterA](#) &dw)

*Writes a DXF header to the file currently opened by the given DXF writer object.*
- void **writePoint** ([DL\\_WriterA](#) &dw, const [DL\\_PointData](#) &data, const [DL\\_Attributes](#) &attrib)

*Writes a point entity to the file.*
- void **writeLine** ([DL\\_WriterA](#) &dw, const [DL\\_LineData](#) &data, const [DL\\_Attributes](#) &attrib)

*Writes a line entity to the file.*
- void **writeXLine** ([DL\\_WriterA](#) &dw, const [DL\\_XLineData](#) &data, const [DL\\_Attributes](#) &attrib)

*Writes an x line entity to the file.*
- void **writeRay** ([DL\\_WriterA](#) &dw, const [DL\\_RayData](#) &data, const [DL\\_Attributes](#) &attrib)

*Writes a ray entity to the file.*
- void **writePolyline** ([DL\\_WriterA](#) &dw, const [DL\\_PolylineData](#) &data, const [DL\\_Attributes](#) &attrib)

*Writes a polyline entity to the file.*
- void **writeVertex** ([DL\\_WriterA](#) &dw, const [DL\\_VertexData](#) &data)

*Writes a single vertex of a polyline to the file.*
- void **writePolylineEnd** ([DL\\_WriterA](#) &dw)

*Writes the polyline end.*
- void **writeSpline** ([DL\\_WriterA](#) &dw, const [DL\\_SplineData](#) &data, const [DL\\_Attributes](#) &attrib)

*Writes a spline entity to the file.*
- void **writeControlPoint** ([DL\\_WriterA](#) &dw, const [DL\\_ControlPointData](#) &data)

*Writes a single control point of a spline to the file.*
- void **writeFitPoint** ([DL\\_WriterA](#) &dw, const [DL\\_FitPointData](#) &data)

*Writes a single fit point of a spline to the file.*
- void **writeKnot** ([DL\\_WriterA](#) &dw, const [DL\\_KnotData](#) &data)

*Writes a single knot of a spline to the file.*
- void **writeCircle** ([DL\\_WriterA](#) &dw, const [DL\\_CircleData](#) &data, const [DL\\_Attributes](#) &attrib)

*Writes a circle entity to the file.*
- void **writeArc** ([DL\\_WriterA](#) &dw, const [DL\\_ArcData](#) &data, const [DL\\_Attributes](#) &attrib)

*Writes an arc entity to the file.*
- void **writeEllipse** ([DL\\_WriterA](#) &dw, const [DL\\_EllipseData](#) &data, const [DL\\_Attributes](#) &attrib)

*Writes an ellipse entity to the file.*
- void **writeSolid** ([DL\\_WriterA](#) &dw, const [DL\\_SolidData](#) &data, const [DL\\_Attributes](#) &attrib)

*Writes a solid entity to the file.*
- void **writeTrace** ([DL\\_WriterA](#) &dw, const [DL\\_TraceData](#) &data, const [DL\\_Attributes](#) &attrib)

*Writes a trace entity to the file.*
- void **write3dFace** ([DL\\_WriterA](#) &dw, const [DL\\_3dFaceData](#) &data, const [DL\\_Attributes](#) &attrib)

*Writes a 3d face entity to the file.*



- void **writeInsert** (DL\_WriterA &dw, const DL\_InsertData &data, const DL\_Attributes &attrib)  
*Writes an insert to the file.*
- void **writeMText** (DL\_WriterA &dw, const DL\_MTextData &data, const DL\_Attributes &attrib)  
*Writes a multi text entity to the file.*
- void **writeText** (DL\_WriterA &dw, const DL\_TextData &data, const DL\_Attributes &attrib)  
*Writes a text entity to the file.*
- void **writeAttribute** (DL\_WriterA &dw, const DL\_AttributeData &data, const DL\_Attributes &attrib)
- void **writeDimStyleOverrides** (DL\_WriterA &dw, const DL\_DimensionData &data)
- void **writeDimAligned** (DL\_WriterA &dw, const DL\_DimensionData &data, const DL\_DimAlignedData &edata, const DL\_Attributes &attrib)  
*Writes an aligned dimension entity to the file.*
- void **writeDimLinear** (DL\_WriterA &dw, const DL\_DimensionData &data, const DL\_DimLinearData &edata, const DL\_Attributes &attrib)  
*Writes a linear dimension entity to the file.*
- void **writeDimRadial** (DL\_WriterA &dw, const DL\_DimensionData &data, const DL\_DimRadialData &edata, const DL\_Attributes &attrib)  
*Writes a radial dimension entity to the file.*
- void **writeDimDiametric** (DL\_WriterA &dw, const DL\_DimensionData &data, const DL\_DimDiametricData &edata, const DL\_Attributes &attrib)  
*Writes a diametric dimension entity to the file.*
- void **writeDimAngular2L** (DL\_WriterA &dw, const DL\_DimensionData &data, const DL\_DimAngular2LData &edata, const DL\_Attributes &attrib)  
*Writes an angular dimension entity to the file.*
- void **writeDimAngular3P** (DL\_WriterA &dw, const DL\_DimensionData &data, const DL\_DimAngular3PData &edata, const DL\_Attributes &attrib)  
*Writes an angular dimension entity (3 points version) to the file.*
- void **writeDimOrdinate** (DL\_WriterA &dw, const DL\_DimensionData &data, const DL\_DimOrdinateData &edata, const DL\_Attributes &attrib)  
*Writes an ordinate dimension entity to the file.*
- void **writeLeader** (DL\_WriterA &dw, const DL\_LeaderData &data, const DL\_Attributes &attrib)  
*Writes a leader entity to the file.*
- void **writeLeaderVertex** (DL\_WriterA &dw, const DL\_LeaderVertexData &data)  
*Writes a single vertex of a leader to the file.*
- void **writeLeaderEnd** (DL\_WriterA &dw, const DL\_LeaderData &data)
- void **writeHatch1** (DL\_WriterA &dw, const DL\_HatchData &data, const DL\_Attributes &attrib)  
*Writes the beginning of a hatch entity to the file.*
- void **writeHatch2** (DL\_WriterA &dw, const DL\_HatchData &data, const DL\_Attributes &attrib)  
*Writes the end of a hatch entity to the file.*
- void **writeHatchLoop1** (DL\_WriterA &dw, const DL\_HatchLoopData &data)  
*Writes the beginning of a hatch loop to the file.*
- void **writeHatchLoop2** (DL\_WriterA &dw, const DL\_HatchLoopData &data)  
*Writes the end of a hatch loop to the file.*
- void **writeHatchEdge** (DL\_WriterA &dw, const DL\_HatchEdgeData &data)  
*Writes the beginning of a hatch entity to the file.*
- unsigned long **writeImage** (DL\_WriterA &dw, const DL\_ImageData &data, const DL\_Attributes &attrib)  
*Writes an image entity.*
- void **writeImageDef** (DL\_WriterA &dw, int handle, const DL\_ImageData &data)  
*Writes an image definition entity.*
- void **writeLayer** (DL\_WriterA &dw, const DL\_LayerData &data, const DL\_Attributes &attrib)  
*Writes a layer to the file.*
- void **writeLinetype** (DL\_WriterA &dw, const DL\_LinetypeData &data)  
*Writes a line type to the file.*

- void **writeAppid** ([DL\\_WriterA](#) &dw, const std::string &name)  
*Writes the APPID section to the DXF file.*
- void **writeBlock** ([DL\\_WriterA](#) &dw, const [DL\\_BlockData](#) &data)  
*Writes a block's definition (no entities) to the DXF file.*
- void **writeEndBlock** ([DL\\_WriterA](#) &dw, const std::string &name)  
*Writes a block end.*
- void **writeVPort** ([DL\\_WriterA](#) &dw)  
*Writes a viewport section.*
- void **writeStyle** ([DL\\_WriterA](#) &dw, const [DL\\_StyleData](#) &style)  
*Writes a style section.*
- void **writeView** ([DL\\_WriterA](#) &dw)  
*Writes a view section.*
- void **writeUcs** ([DL\\_WriterA](#) &dw)  
*Writes a ucs section.*
- void **writeDimStyle** ([DL\\_WriterA](#) &dw, double dimasz, double dimexe, double dimexo, double dimgap, double dimtxt)  
*Writes a dimstyle section.*
- void **writeBlockRecord** ([DL\\_WriterA](#) &dw)  
*Writes a blockrecord section.*
- void **writeBlockRecord** ([DL\\_WriterA](#) &dw, const std::string &name)  
*Writes a single block record with the given name.*
- void **writeObjects** ([DL\\_WriterA](#) &dw, const std::string &appDictionaryName="")  
*Writes a objects section.*
- void **writeAppDictionary** ([DL\\_WriterA](#) &dw)
- unsigned long **writeDictionaryEntry** ([DL\\_WriterA](#) &dw, const std::string &name)
- void **writeXRecord** ([DL\\_WriterA](#) &dw, int handle, int value)
- void **writeXRecord** ([DL\\_WriterA](#) &dw, int handle, double value)
- void **writeXRecord** ([DL\\_WriterA](#) &dw, int handle, bool value)
- void **writeXRecord** ([DL\\_WriterA](#) &dw, int handle, const std::string &value)
- void **writeObjectsEnd** ([DL\\_WriterA](#) &dw)  
*Writes the end of the objects section.*
- void **writeComment** ([DL\\_WriterA](#) &dw, const std::string &comment)  
*Writes a comment to the DXF file.*
- [DL\\_Codes::version](#) **getVersion** ()
- int **getLibVersion** (const std::string &str)
- bool **hasValue** (int code)
- int **getIntValue** (int code, int def)
- int **toInt** (const std::string &str)
- int **getInt16Value** (int code, int def)
- int **toInt16** (const std::string &str)
- bool **toBool** (const std::string &str)
- std::string **getStringValue** (int code, const std::string &def)
- double **getRealValue** (int code, double def)
- double **toReal** (const std::string &str)

## Static Public Member Functions

- static bool [getStrippedLine](#) (std::string &s, unsigned int size, FILE \*stream, bool stripSpace=true)  
*Reads line from file & strips whitespace at start and newline at end.*
- static bool [getStrippedLine](#) (std::string &s, unsigned int size, std::istream &stream, bool stripSpace=true)  
*Same as above but for input streams.*
- static bool [stripWhiteSpace](#) (char \*\*s, bool stripSpaces=true)  
*Strips leading whitespace and trailing Carriage Return (CR) and Line Feed (LF) from NULL terminated string.*
- static bool [checkVariable](#) (const char \*var, [DL\\_Codes::version](#) version)  
*Converts the given string into a double or returns the given default valud (def) if value is NULL or empty.*
- static void [test](#) ()  
*Converts the given string into a double or returns the given default valud (def) if value is NULL or empty.*

### 5.21.1 Detailed Description

Reading and writing of DXF files.

This class can read in a DXF file and calls methods from the interface DL\_EntityContainer to add the entities to the container provided by the user of the library.

It can also be used to write DXF files to a certain extent.

When saving entities, special values for colors and linetypes can be used:

Special colors are 0 (=BYBLOCK) and 256 (=BYLAYER). Special linetypes are "BYLAYER" and "BYBLOCK".

Author

Andrew Mustun

### 5.21.2 Member Function Documentation

#### 5.21.2.1 addAttribute()

```
void DL_Dxf::addAttribute (
    DL_CreationInterface * creationInterface )
```

Adds an attrib entity that was read from the file via the creation interface.

**Todo** add attrib instead of normal text

References [DL\\_CreationInterface::addAttribute\(\)](#).

Referenced by [processDXFGroup\(\)](#).

### 5.21.2.2 addSolid()

```
void DL_Dxf::addSolid (
    DL_CreationInterface * creationInterface )
```

Adds a solid entity (filled trace) that was read from the file via the creation interface.

#### Author

AHM

References [DL\\_CreationInterface::addSolid\(\)](#), and [DL\\_TraceData::x](#).

Referenced by [processDXFGroup\(\)](#).

### 5.21.2.3 addTrace()

```
void DL_Dxf::addTrace (
    DL_CreationInterface * creationInterface )
```

Adds a trace entity (4 edge closed polyline) that was read from the file via the creation interface.

#### Author

AHM

References [DL\\_CreationInterface::addTrace\(\)](#), and [DL\\_TraceData::x](#).

Referenced by [processDXFGroup\(\)](#).

### 5.21.2.4 checkVariable()

```
bool DL_Dxf::checkVariable (
    const char * var,
    DL_Codes::version version ) [static]
```

Converts the given string into a double or returns the given default valud (def) if value is NULL or empty.

Checks if the given variable is known by the given DXF version.

Converts the given string into an int or returns the given default valud (def) if value is NULL or empty. Converts the given string into a string or returns the given default valud (def) if value is NULL or empty.

### 5.21.2.5 getDimData()

```
DL_DimensionData DL_Dxf::getDimData ( )
```

#### Returns

dimension data from current values.

Referenced by [addDimAligned\(\)](#), [addDimAngular\(\)](#), [addDimAngular3P\(\)](#), [addDimDiametric\(\)](#), [addDimLinear\(\)](#), [addDimOrdinate\(\)](#), and [addDimRadial\(\)](#).

### 5.21.2.6 getLibVersion()

```
int DL_Dxf::getLibVersion (
    const std::string & str )
```

#### Returns

the library version as int (4 bytes, each byte one version number). e.g. if str = "2.0.2.0" getLibVersion returns 0x02000200

Referenced by [processDXFGroup\(\)](#).

### 5.21.2.7 getStrippedLine()

```
bool DL_Dxf::getStrippedLine (
    std::string & s,
    unsigned int size,
    FILE * fp,
    bool stripSpace = true ) [static]
```

Reads line from file & strips whitespace at start and newline at end.

#### Parameters

|             |   |
|-------------|---|
| <i>s</i>    | Output<br>Pointer to character array that chopped line will be returned in. |
| <i>size</i> | Size of <i>s</i> . (Including space for NULL.)                              |
| <i>fp</i>   | Input<br>Handle of input file.  |

#### Return values

|              |  |
|--------------|--|
| <i>true</i>  | if line could be read                  |
| <i>false</i> | if <i>fp</i> is already at end of file |

**Todo** Change function to use safer FreeBSD `strl*` functions

Is it a problem if line is blank (i.e., newline only)? Then, when function returns, (`s==NULL`).

References [stripWhiteSpace\(\)](#).

Referenced by [readDxfGroups\(\)](#).

#### 5.21.2.8 `in()` [1/2]

```
bool DL_Dxf::in (
    const std::string & file,
    DL_CreationInterface * creationInterface )
```

Reads the given file and calls the appropriate functions in the given creation interface for every entity found in the file.

##### Parameters

|                          |  |
|--------------------------|--|
| <i>file</i>              | Input Path and name of file to read                                |
| <i>creationInterface</i> | Pointer to the class which takes care of the entities in the file. |

##### Return values

|              |   |
|--------------|---|
| <i>true</i>  | If <code>file</code> could be opened.     |
| <i>false</i> | If <code>file</code> could not be opened. |

References [readDxfGroups\(\)](#).

#### 5.21.2.9 `in()` [2/2]

```
bool DL_Dxf::in (
    std::istream & stream,
    DL_CreationInterface * creationInterface )
```

Reads a DXF file from an existing stream.

##### Parameters

|                          |  |
|--------------------------|--|
| <i>stream</i>            | The input stream.  |
| <i>creationInterface</i> | Pointer to the class which takes care of the entities in the file. |

##### Return values

|              |   |
|--------------|---|
| <i>true</i>  | If <code>file</code> could be opened.     |
| <i>false</i> | If <code>file</code> could not be opened. |

References [readDxfGroups\(\)](#).

#### 5.21.2.10 out()

```
DL_WriterA * DL_Dxf::out (
    const char * file,
    DL_Codes::version version = DL_VERSION_2000 )
```

Converts the given string into an int.

ok is set to false if there was an error.

Opens the given file for writing and returns a pointer to the dxf writer. This pointer needs to be passed on to other writing functions.

##### Parameters

|             |                                |
|-------------|--------------------------------|
| <i>file</i> | Full path of the file to open. |
|-------------|--------------------------------|

##### Returns

Pointer to an ascii dxf writer object.

References [DL\\_WriterA::openFailed\(\)](#).

#### 5.21.2.11 processDXFGroup()

```
bool DL_Dxf::processDXFGroup (
    DL_CreationInterface * creationInterface,
    int groupCode,
    const std::string & groupValue )
```

Processes a group (pair of group code and value).

##### Parameters

|                          |   |
|--------------------------|---|
| <i>creationInterface</i> | Handle to class that creates entities and other CAD data from DXF group codes |
| <i>groupCode</i>         | Constant indicating the data type of the group.                               |
| <i>groupValue</i>        | The data value.   |

##### Return values

|              |  |
|--------------|--|
| <i>true</i>  | if done processing current entity and new entity begun |
| <i>false</i> | if not done processing current entity                  |

References [add3dFace\(\)](#), [addArc\(\)](#), [addArcAlignedText\(\)](#), [addAttribute\(\)](#), [addBlock\(\)](#), [addCircle\(\)](#), [addComment\(\)](#), [addDimAligned\(\)](#), [addDimAngular\(\)](#), [addDimAngular3P\(\)](#), [addDimDiametric\(\)](#), [addDimLinear\(\)](#), [addDimOrdinate\(\)](#), [addDimRadial\(\)](#), [addEllipse\(\)](#), [addImage\(\)](#), [addImageDef\(\)](#), [addInsert\(\)](#), [addLayer\(\)](#), [addLeader\(\)](#), [addLine\(\)](#), [addLinetype\(\)](#), [addMText\(\)](#), [addPoint\(\)](#), [addPolyline\(\)](#), [addRay\(\)](#), [addSetting\(\)](#), [addSolid\(\)](#), [addSpline\(\)](#), [addText\(\)](#), [addTrace\(\)](#), [addVertex\(\)](#), [addXLine\(\)](#), [endBlock\(\)](#), [endEntity\(\)](#), [DL\\_CreationInterface::endSection\(\)](#), [endSequence\(\)](#), [getLibVersion\(\)](#), [handleDictionaryData\(\)](#), [handleHatchData\(\)](#), [handleLeaderData\(\)](#), [handleLinetypeData\(\)](#), [handleLWPPolylineData\(\)](#), [handleMTextData\(\)](#), [handleSplineData\(\)](#), [handleXData\(\)](#), [handleXRecordData\(\)](#), [DL\\_CreationInterface::setAttributes\(\)](#), [DL\\_CreationInterface::setExtrusion\(\)](#), and [DL\\_Attributes::setLinetypeScale\(\)](#).

Referenced by [readDxfGroups\(\)](#).

#### 5.21.2.12 readDxfGroups()

```
bool DL_Dxf::readDxfGroups (
    FILE * fp,
    DL_CreationInterface * creationInterface )
```

Reads a group couplet from a DXF file.

Calls another function to process it.

A group couplet consists of two lines that represent a single piece of data. An integer constant on the first line indicates the type of data. The value is on the next line.

This function reads a couplet, determines the type of data, and passes the value to the the appropriate handler function of `creationInterface`.

`fp` is advanced so that the next call to `readDXFGroups()` reads the next couplet in the file.

##### Parameters

|                          |  |
|--------------------------|--|
| <i>fp</i>                | Handle of input file                                 |
| <i>creationInterface</i> | Handle of class which processes entities in the file |

##### Return values

|              |                     |
|--------------|---------------------|
| <i>true</i>  | If EOF not reached. |
| <i>false</i> | If EOF reached.     |

References [getStrippedLine\(\)](#), [DL\\_CreationInterface::processCodeValuePair\(\)](#), and [processDXFGroup\(\)](#).

Referenced by [in\(\)](#).

#### 5.21.2.13 stripWhiteSpace()

```
bool DL_Dxf::stripWhiteSpace (
    char ** s,
    bool stripSpace = true ) [static]
```

Strips leading whitespace and trailing Carriage Return (CR) and Line Feed (LF) from NULL terminated string.



## Parameters

|          |   |
|----------|---|
| <i>s</i> | Input and output. NULL terminates string. |
|----------|---|

## Return values

|              |                         |
|--------------|-------------------------|
| <i>true</i>  | if <i>s</i> is non-NULL |
| <i>false</i> | if <i>s</i> is NULL     |

Referenced by [getStrippedLine\(\)](#), and [test\(\)](#).

**5.21.2.14 test()**

```
void DL_Dxf::test ( ) [static]
```

Converts the given string into a double or returns the given default valud (def) if value is NULL or empty.

Some test routines.

References [stripWhiteSpace\(\)](#).

**5.21.2.15 write3dFace()**

```
void DL_Dxf::write3dFace (
    DL_WriterA & dw,
    const DL_3dFaceData & data,
    const DL_Attributes & attrib )
```

Writes a 3d face entity to the file.

## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), and [DL\\_TraceData::x](#).

**5.21.2.16 writeAppid()**

```
void DL_Dxf::writeAppid (
    DL_WriterA & dw,
    const std::string & name )
```

Writes the APPID section to the DXF file.

## Parameters

|             |                  |
|-------------|------------------|
| <i>name</i> | Application name |
|-------------|------------------|

References [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxfString\(\)](#), and [DL\\_Writer::tableAppidEntry\(\)](#).

**5.21.2.17 writeArc()**

```
void DL_Dxf::writeArc (
    DL_WriterA & dw,
    const DL_ArcData & data,
    const DL_Attributes & attrib )
```

Writes an arc entity to the file.

## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_ArcData::angle1](#), [DL\\_ArcData::angle2](#), [DL\\_ArcData::cx](#), [DL\\_ArcData::cy](#), [DL\\_ArcData::cz](#), [DL\\_WriterA::dxfReal\(\)](#), [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), and [DL\\_ArcData::radius](#).

**5.21.2.18 writeBlockRecord()**

```
void DL_Dxf::writeBlockRecord (
    DL_WriterA & dw )
```

Writes a blockrecord section.

This section is needed in DL\_VERSION\_R13. Note that this method currently only writes a faked BLOCKRECORD section to make the file readable by Aut\*cad.

References [DL\\_WriterA::dxfHex\(\)](#), [DL\\_WriterA::dxflnt\(\)](#), and [DL\\_WriterA::dxfString\(\)](#).

**5.21.2.19 writeCircle()**

```
void DL_Dxf::writeCircle (
    DL_WriterA & dw,
    const DL_CircleData & data,
    const DL_Attributes & attrib )
```

Writes a circle entity to the file.

## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_CircleData::cx](#), [DL\\_CircleData::cy](#), [DL\\_CircleData::cz](#), [DL\\_WriterA::dxfReal\(\)](#), [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), and [DL\\_CircleData::radius](#).

**5.21.2.20 writeControlPoint()**

```
void DL_Dxf::writeControlPoint (
    DL_WriterA & dw,
    const DL_ControlPointData & data )
```

Writes a single control point of a spline to the file.

## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_WriterA::dxfReal\(\)](#), [DL\\_ControlPointData::x](#), [DL\\_ControlPointData::y](#), and [DL\\_ControlPointData::z](#).

**5.21.2.21 writeDimAligned()**

```
void DL_Dxf::writeDimAligned (
    DL_WriterA & dw,
    const DL_DimensionData & data,
    const DL_DimAlignedData & edata,
    const DL_Attributes & attrib )
```

Writes an aligned dimension entity to the file.

## Parameters

|               |   |
|---------------|---|
| <i>dw</i>     | DXF writer                                    |
| <i>data</i>   | Generic dimension data for from the file      |
| <i>data</i>   | Specific aligned dimension data from the file |
| <i>attrib</i> | Attributes                                    |

References [DL\\_DimensionData::angle](#), [DL\\_DimensionData::attachmentPoint](#), [DL\\_DimensionData::dpx](#), [DL\\_DimensionData::dpy](#), [DL\\_DimensionData::dpz](#), [DL\\_WriterA::dxfInt\(\)](#), [DL\\_WriterA::dxfReal\(\)](#), [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_DimAlignedData::epx1](#), [DL\\_DimAlignedData::epx2](#), [DL\\_DimAlignedData::epy1](#),

[DL\\_DimAlignedData::epy2](#), [DL\\_DimensionData::lineSpacingFactor](#), [DL\\_DimensionData::lineSpacingStyle](#), [DL\\_DimensionData::mpx](#), [DL\\_DimensionData::mpy](#), [DL\\_DimensionData::text](#), and [DL\\_DimensionData::type](#).

#### 5.21.2.22 writeDimAngular2L()

```
void DL_Dxf::writeDimAngular2L (
    DL_WriterA & dw,
    const DL_DimensionData & data,
    const DL_DimAngular2LData & edata,
    const DL_Attributes & attrib )
```

Writes an angular dimension entity to the file.

##### Parameters

|               |   |
|---------------|---|
| <i>dw</i>     | DXF writer                                    |
| <i>data</i>   | Generic dimension data for from the file      |
| <i>data</i>   | Specific angular dimension data from the file |
| <i>attrib</i> | Attributes                                    |

References [DL\\_DimensionData::angle](#), [DL\\_DimensionData::attachmentPoint](#), [DL\\_DimensionData::dpx](#), [DL\\_DimAngular2LData::dpx1](#), [DL\\_DimAngular2LData::dpx2](#), [DL\\_DimAngular2LData::dpx3](#), [DL\\_DimAngular2LData::dpx4](#), [DL\\_DimensionData::dpy](#), [DL\\_DimAngular2LData::dpy1](#), [DL\\_DimAngular2LData::dpy2](#), [DL\\_DimAngular2LData::dpy3](#), [DL\\_DimAngular2LData::dpy4](#), [DL\\_DimensionData::dpz](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflReal\(\)](#), [DL\\_WriterA::dxflString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_DimensionData::lineSpacingFactor](#), [DL\\_DimensionData::lineSpacingStyle](#), [DL\\_DimensionData::mpx](#), [DL\\_DimensionData::mpy](#), [DL\\_DimensionData::text](#), and [DL\\_DimensionData::type](#).

#### 5.21.2.23 writeDimAngular3P()

```
void DL_Dxf::writeDimAngular3P (
    DL_WriterA & dw,
    const DL_DimensionData & data,
    const DL_DimAngular3PData & edata,
    const DL_Attributes & attrib )
```

Writes an angular dimension entity (3 points version) to the file.

##### Parameters

|               |   |
|---------------|---|
| <i>dw</i>     | DXF writer                                    |
| <i>data</i>   | Generic dimension data for from the file      |
| <i>data</i>   | Specific angular dimension data from the file |
| <i>attrib</i> | Attributes                                    |

References [DL\\_DimensionData::angle](#), [DL\\_DimensionData::attachmentPoint](#), [DL\\_DimensionData::dpx](#), [DL\\_DimAngular3PData::dpx1](#), [DL\\_DimAngular3PData::dpx2](#), [DL\\_DimAngular3PData::dpx3](#), [DL\\_DimensionData::dpy](#), [DL\\_DimAngular3PData::dpy1](#), [DL\\_DimAngular3PData::dpy2](#), [DL\\_DimAngular3PData::dpy3](#), [DL\\_DimensionData::dpz](#), [DL\\_WriterA::dxflnt\(\)](#),

[DL\\_WriterA::dxfReal\(\)](#), [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_DimensionData::lineSpacingFactor\(\)](#), [DL\\_DimensionData::lineSpacingStyle\(\)](#), [DL\\_DimensionData::mpx\(\)](#), [DL\\_DimensionData::mpy\(\)](#), [DL\\_DimensionData::text\(\)](#), and [DL\\_DimensionData::type\(\)](#).

#### 5.21.2.24 writeDimDiametric()

```
void DL_Dxf::writeDimDiametric (
    DL_WriterA & dw,
    const DL_DimensionData & data,
    const DL_DimDiametricData & edata,
    const DL_Attributes & attrib )
```

Writes a diametric dimension entity to the file.

##### Parameters

|               |   |
|---------------|---|
| <i>dw</i>     | DXF writer                                      |
| <i>data</i>   | Generic dimension data for from the file        |
| <i>data</i>   | Specific diametric dimension data from the file |
| <i>attrib</i> | Attributes                                      |

References [DL\\_DimensionData::angle\(\)](#), [DL\\_DimensionData::attachmentPoint\(\)](#), [DL\\_DimensionData::dpx\(\)](#), [DL\\_DimDiametricData::dpx\(\)](#), [DL\\_DimensionData::dpy\(\)](#), [DL\\_DimDiametricData::dpy\(\)](#), [DL\\_DimensionData::dpz\(\)](#), [DL\\_WriterA::dxfInt\(\)](#), [DL\\_WriterA::dxfReal\(\)](#), [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_DimDiametricData::leader\(\)](#), [DL\\_DimensionData::lineSpacingFactor\(\)](#), [DL\\_DimensionData::lineSpacingStyle\(\)](#), [DL\\_DimensionData::mpx\(\)](#), [DL\\_DimensionData::mpy\(\)](#), [DL\\_DimensionData::text\(\)](#), and [DL\\_DimensionData::type\(\)](#).

#### 5.21.2.25 writeDimLinear()

```
void DL_Dxf::writeDimLinear (
    DL_WriterA & dw,
    const DL_DimensionData & data,
    const DL_DimLinearData & edata,
    const DL_Attributes & attrib )
```

Writes a linear dimension entity to the file.

##### Parameters

|               |  |
|---------------|--|
| <i>dw</i>     | DXF writer                                   |
| <i>data</i>   | Generic dimension data for from the file     |
| <i>data</i>   | Specific linear dimension data from the file |
| <i>attrib</i> | Attributes                                   |

References [DL\\_DimensionData::angle\(\)](#), [DL\\_DimLinearData::angle\(\)](#), [DL\\_DimensionData::attachmentPoint\(\)](#), [DL\\_DimensionData::dpx\(\)](#), [DL\\_DimLinearData::dpx1\(\)](#), [DL\\_DimLinearData::dpx2\(\)](#), [DL\\_DimensionData::dpy\(\)](#), [DL\\_DimLinearData::dpy1\(\)](#), [DL\\_DimLinearData::dpy2\(\)](#), [DL\\_DimensionData::dpz\(\)](#), [DL\\_WriterA::dxfInt\(\)](#), [DL\\_WriterA::dxfReal\(\)](#), [DL\\_WriterA::dxfString\(\)](#),

[DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_DimensionData::lineSpacingFactor](#), [DL\\_DimensionData::lineSpacingStyle](#), [DL\\_DimensionData::mpx](#), [DL\\_DimensionData::mpy](#), [DL\\_DimensionData::text](#), and [DL\\_DimensionData::type](#).

#### 5.21.2.26 writeDimOrdinate()

```
void DL_Dxf::writeDimOrdinate (
    DL_WriterA & dw,
    const DL_DimensionData & data,
    const DL_DimOrdinateData & edata,
    const DL_Attributes & attrib )
```

Writes an ordinate dimension entity to the file.

##### Parameters

|               |  |
|---------------|--|
| <i>dw</i>     | DXF writer                                     |
| <i>data</i>   | Generic dimension data for from the file       |
| <i>data</i>   | Specific ordinate dimension data from the file |
| <i>attrib</i> | Attributes                                     |

References [DL\\_DimensionData::attachmentPoint](#), [DL\\_DimensionData::dpx](#), [DL\\_DimOrdinateData::dpx1](#), [DL\\_DimOrdinateData::dpx2](#), [DL\\_DimensionData::dpy](#), [DL\\_DimOrdinateData::dpy1](#), [DL\\_DimOrdinateData::dpy2](#), [DL\\_DimensionData::dpz](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflreal\(\)](#), [DL\\_WriterA::dxflstring\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_DimensionData::lineSpacingFactor](#), [DL\\_DimensionData::lineSpacingStyle](#), [DL\\_DimensionData::mpx](#), [DL\\_DimensionData::mpy](#), [DL\\_DimensionData::text](#), [DL\\_DimensionData::type](#), and [DL\\_DimOrdinateData::xtype](#).

#### 5.21.2.27 writeDimRadial()

```
void DL_Dxf::writeDimRadial (
    DL_WriterA & dw,
    const DL_DimensionData & data,
    const DL_DimRadialData & edata,
    const DL_Attributes & attrib )
```

Writes a radial dimension entity to the file.

##### Parameters

|               |  |
|---------------|--|
| <i>dw</i>     | DXF writer                                   |
| <i>data</i>   | Generic dimension data for from the file     |
| <i>data</i>   | Specific radial dimension data from the file |
| <i>attrib</i> | Attributes                                   |

References [DL\\_DimensionData::angle](#), [DL\\_DimensionData::attachmentPoint](#), [DL\\_DimensionData::dpx](#), [DL\\_DimRadialData::dpx](#), [DL\\_DimensionData::dpy](#), [DL\\_DimRadialData::dpy](#), [DL\\_DimensionData::dpz](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflreal\(\)](#), [DL\\_WriterA::dxflstring\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_DimRadialData::leader](#), [DL\\_DimensionData::lineSpacingFactor](#), [DL\\_DimensionData::lineSpacingStyle](#), [DL\\_DimensionData::mpx](#), [DL\\_DimensionData::mpy](#), [DL\\_DimensionData::text](#), [DL\\_DimensionData::type](#), and [DL\\_DimRadialData::xtype](#).

[DL\\_DimensionData::lineSpacingStyle](#), [DL\\_DimensionData::mpx](#), [DL\\_DimensionData::mpy](#), [DL\\_DimensionData::text](#), and [DL\\_DimensionData::type](#).

#### 5.21.2.28 writeDimStyle()

```
void DL_Dxf::writeDimStyle (
    DL_WriterA & dw,
    double dimasz,
    double dimexe,
    double dimexo,
    double dimgap,
    double dimtxt )
```

Writes a dimstyle section.

This section is needed in DL\_VERSION\_R13. Note that this method currently only writes a faked DIMSTYLE section to make the file readable by Aut\*cad.

References [DL\\_WriterA::dxfHex\(\)](#), [DL\\_WriterA::dxfInt\(\)](#), [DL\\_WriterA::dxfReal\(\)](#), and [DL\\_WriterA::dxfString\(\)](#).

#### 5.21.2.29 writeEllipse()

```
void DL_Dxf::writeEllipse (
    DL_WriterA & dw,
    const DL_EllipseData & data,
    const DL_Attributes & attrib )
```

Writes an ellipse entity to the file.

##### Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_EllipseData::angle1](#), [DL\\_EllipseData::angle2](#), [DL\\_EllipseData::cx](#), [DL\\_EllipseData::cy](#), [DL\\_EllipseData::cz](#), [DL\\_WriterA::dxfReal\(\)](#), [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_EllipseData::mx](#), [DL\\_EllipseData::my](#), [DL\\_EllipseData::mz](#), and [DL\\_EllipseData::ratio](#).

#### 5.21.2.30 writeEndBlock()

```
void DL_Dxf::writeEndBlock (
    DL_WriterA & dw,
    const std::string & name )
```

Writes a block end.

## Parameters

|             |            |
|-------------|------------|
| <i>name</i> | Block name |
|-------------|------------|

References [DL\\_Writer::sectionBlockEntryEnd\(\)](#).

**5.21.2.31 writeFitPoint()**

```
void DL_Dxf::writeFitPoint (
    DL_WriterA & dw,
    const DL_FitPointData & data )
```

Writes a single fit point of a spline to the file.

## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_WriterA::dxfReal\(\)](#), [DL\\_FitPointData::x](#), [DL\\_FitPointData::y](#), and [DL\\_FitPointData::z](#).

**5.21.2.32 writeHatch1()**

```
void DL_Dxf::writeHatch1 (
    DL_WriterA & dw,
    const DL_HatchData & data,
    const DL_Attributes & attrib )
```

Writes the beginning of a hatch entity to the file.

This must be followed by one or more [writeHatchLoop\(\)](#) calls and a [writeHatch2\(\)](#) call.

## Parameters

|               |              |
|---------------|--------------|
| <i>dw</i>     | DXF writer   |
| <i>data</i>   | Entity data. |
| <i>attrib</i> | Attributes   |

References [DL\\_WriterA::dxfInt\(\)](#), [DL\\_WriterA::dxfReal\(\)](#), [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_HatchData::numLoops](#), [DL\\_HatchData::pattern](#), and [DL\\_HatchData::solid](#).



**5.21.2.33 writeHatch2()**

```
void DL_Dxf::writeHatch2 (
    DL_WriterA & dw,
    const DL_HatchData & data,
    const DL_Attributes & attrib )
```

Writes the end of a hatch entity to the file.

**Parameters**

|               |              |
|---------------|--------------|
| <i>dw</i>     | DXF writer   |
| <i>data</i>   | Entity data. |
| <i>attrib</i> | Attributes   |

References [DL\\_HatchData::angle](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_HatchData::originX](#), [DL\\_HatchData::scale](#), and [DL\\_HatchData::solid](#).

**5.21.2.34 writeHatchEdge()**

```
void DL_Dxf::writeHatchEdge (
    DL_WriterA & dw,
    const DL_HatchEdgeData & data )
```

Writes the beginning of a hatch entity to the file.

**Parameters**

|               |              |
|---------------|--------------|
| <i>dw</i>     | DXF writer   |
| <i>data</i>   | Entity data. |
| <i>attrib</i> | Attributes   |

References [DL\\_HatchEdgeData::angle1](#), [DL\\_HatchEdgeData::angle2](#), [DL\\_HatchEdgeData::ccw](#), [DL\\_HatchEdgeData::cx](#), [DL\\_HatchEdgeData::cy](#), [DL\\_HatchEdgeData::degree](#), [DL\\_Writer::dxflnt\(\)](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_HatchEdgeData::mx](#), [DL\\_HatchEdgeData::my](#), [DL\\_HatchEdgeData::nControl](#), [DL\\_HatchEdgeData::nFit](#), [DL\\_HatchEdgeData::nKnots](#), [DL\\_HatchEdgeData::radius](#), [DL\\_HatchEdgeData::ratio](#), [DL\\_HatchEdgeData::type](#), [DL\\_HatchEdgeData::x1](#), [DL\\_HatchEdgeData::x2](#), [DL\\_HatchEdgeData::y1](#), and [DL\\_HatchEdgeData::y2](#).

**5.21.2.35 writeHatchLoop1()**

```
void DL_Dxf::writeHatchLoop1 (
    DL_WriterA & dw,
    const DL_HatchLoopData & data )
```

Writes the beginning of a hatch loop to the file.

This must happen after writing the beginning of a hatch entity.

## Parameters

|               |              |
|---------------|--------------|
| <i>dw</i>     | DXF writer   |
| <i>data</i>   | Entity data. |
| <i>attrib</i> | Attributes   |

References [DL\\_WriterA::dxflnt\(\)](#), and [DL\\_HatchLoopData::numEdges](#).

**5.21.2.36 writeHatchLoop2()**

```
void DL_Dxf::writeHatchLoop2 (
    DL_WriterA & dw,
    const DL_HatchLoopData & data )
```

Writes the end of a hatch loop to the file.

## Parameters

|               |              |
|---------------|--------------|
| <i>dw</i>     | DXF writer   |
| <i>data</i>   | Entity data. |
| <i>attrib</i> | Attributes   |

References [DL\\_WriterA::dxflnt\(\)](#).

**5.21.2.37 writeImage()**

```
unsigned long DL_Dxf::writeImage (
    DL_WriterA & dw,
    const DL_ImageData & data,
    const DL_Attributes & attrib )
```

Writes an image entity.

## Returns

IMAGEDEF handle. Needed for the IMAGEDEF counterpart.

References [DL\\_ImageData::brightness](#), [DL\\_ImageData::contrast](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflReal\(\)](#), [DL\\_WriterA::dxflString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_ImageData::fade](#), [DL\\_Writer::handle\(\)](#), [DL\\_ImageData::height](#), [DL\\_ImageData::ipx](#), [DL\\_ImageData::ipy](#), [DL\\_ImageData::ipz](#), [DL\\_ImageData::ux](#), [DL\\_ImageData::uy](#), [DL\\_ImageData::uz](#), [DL\\_ImageData::vx](#), [DL\\_ImageData::vy](#), [DL\\_ImageData::vz](#), and [DL\\_ImageData::width](#).

### 5.21.2.38 writeInsert()

```
void DL_Dxf::writeInsert (
    DL_WriterA & dw,
    const DL_InsertData & data,
    const DL_Attributes & attrib )
```

Writes an insert to the file.

## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_InsertData::angle](#), [DL\\_InsertData::cols](#), [DL\\_InsertData::colSp](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflReal\(\)](#), [DL\\_WriterA::dxflString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_InsertData::ipx](#), [DL\\_InsertData::ipy](#), [DL\\_InsertData::ipz](#), [DL\\_InsertData::name](#), [DL\\_InsertData::rows](#), [DL\\_InsertData::rowSp](#), [DL\\_InsertData::sx](#), and [DL\\_InsertData::sy](#).

**5.21.2.39 writeKnot()**

```
void DL_Dxf::writeKnot (
    DL_WriterA & dw,
    const DL_KnotData & data )
```

Writes a single knot of a spline to the file.

## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_WriterA::dxflReal\(\)](#), and [DL\\_KnotData::k](#).

**5.21.2.40 writeLayer()**

```
void DL_Dxf::writeLayer (
    DL_WriterA & dw,
    const DL_LayerData & data,
    const DL_Attributes & attrib )
```

Writes a layer to the file.

Layers are stored in the tables section of a DXF file.

## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_WriterA::dxflHex\(\)](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflString\(\)](#), [DL\\_LayerData::flags](#), [DL\\_Attributes::getColor\(\)](#),

[DL\\_Attributes::getColor24\(\)](#), [DL\\_Attributes::getLinetype\(\)](#), [DL\\_Attributes::getWidth\(\)](#), [DL\\_LayerData::name](#), [DL\\_LayerData::off](#), and [DL\\_Writer::tableLayerEntry\(\)](#).

#### 5.21.2.41 writeLeader()

```
void DL_Dxf::writeLeader (
    DL_WriterA & dw,
    const DL_LeaderData & data,
    const DL_Attributes & attrib )
```

Writes a leader entity to the file.

##### Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

##### See also

[writeVertex](#)

References [DL\\_LeaderData::arrowHeadFlag](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflReal\(\)](#), [DL\\_WriterA::dxflString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_LeaderData::hooklineDirectionFlag](#), [DL\\_LeaderData::hooklineFlag](#), [DL\\_LeaderData::leaderCreationFlag](#), [DL\\_LeaderData::leaderPathType](#), [DL\\_LeaderData::number](#), [DL\\_LeaderData::textAnnotationHeader](#), and [DL\\_LeaderData::textAnnotationWidth](#).

#### 5.21.2.42 writeLeaderVertex()

```
void DL_Dxf::writeLeaderVertex (
    DL_WriterA & dw,
    const DL_LeaderVertexData & data )
```

Writes a single vertex of a leader to the file.

##### Parameters

|             |             |
|-------------|-------------|
| <i>dw</i>   | DXF writer  |
| <i>data</i> | Entity data |

References [DL\\_WriterA::dxflReal\(\)](#), [DL\\_LeaderVertexData::x](#), and [DL\\_LeaderVertexData::y](#).

#### 5.21.2.43 writeLine()

```
void DL_Dxf::writeLine (
```



[DL\\_MTextData::ipx](#), [DL\\_MTextData::ipy](#), [DL\\_MTextData::ipz](#), [DL\\_MTextData::lineSpacingFactor](#), [DL\\_MTextData::lineSpacingStyle](#), [DL\\_MTextData::style](#), [DL\\_MTextData::text](#), and [DL\\_MTextData::width](#).

#### 5.21.2.46 writeObjects()

```
void DL_Dxf::writeObjects (
    DL_WriterA & dw,
    const std::string & appDictionaryName = "" )
```

Writes a objects section.

This section is needed in DL\_VERSION\_R13. Note that this method currently only writes a faked OBJECTS section to make the file readable by Aut\*cad.

References [DL\\_WriterA::dxfHex\(\)](#), [DL\\_WriterA::dxfInt\(\)](#), [DL\\_WriterA::dxfReal\(\)](#), [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::getNextHandle\(\)](#), and [DL\\_Writer::handle\(\)](#).

#### 5.21.2.47 writeObjectsEnd()

```
void DL_Dxf::writeObjectsEnd (
    DL_WriterA & dw )
```

Writes the end of the objects section.

This section is needed in DL\_VERSION\_R13. Note that this method currently only writes a faked OBJECTS section to make the file readable by Aut\*cad.

References [DL\\_WriterA::dxfString\(\)](#).

#### 5.21.2.48 writePoint()

```
void DL_Dxf::writePoint (
    DL_WriterA & dw,
    const DL_PointData & data,
    const DL_Attributes & attrib )
```

Writes a point entity to the file.

##### Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_PointData::x](#), [DL\\_PointData::y](#),

and [DL\\_PointData::z](#).

#### 5.21.2.49 writePolyline()

```
void DL_Dxf::writePolyline (
    DL_WriterA & dw,
    const DL_PolylineData & data,
    const DL_Attributes & attrib )
```

Writes a polyline entity to the file.

##### Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

##### See also

[writeVertex](#)

References [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_PolylineData::flags](#), [DL\\_Attributes::getLayer\(\)](#), and [DL\\_PolylineData::number](#).

#### 5.21.2.50 writePolylineEnd()

```
void DL_Dxf::writePolylineEnd (
    DL_WriterA & dw )
```

Writes the polyline end.

Only needed for DXF R12.

References [DL\\_Writer::entity\(\)](#).

#### 5.21.2.51 writeRay()

```
void DL_Dxf::writeRay (
    DL_WriterA & dw,
    const DL_RayData & data,
    const DL_Attributes & attrib )
```

Writes a ray entity to the file.



## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_RayData::bx](#), [DL\\_RayData::by](#), [DL\\_RayData::bz](#), [DL\\_RayData::dx](#), [DL\\_WriterA::dxfString\(\)](#), [DL\\_RayData::dy](#), [DL\\_RayData::dz](#), [DL\\_Writer::entity\(\)](#), and [DL\\_Writer::entityAttributes\(\)](#).

### 5.21.2.52 writeSolid()

```
void DL_Dxf::writeSolid (
    DL_WriterA & dw,
    const DL_SolidData & data,
    const DL_Attributes & attrib )
```

Writes a solid entity to the file.

## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_WriterA::dxfReal\(\)](#), [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_TraceData::thickness](#), and [DL\\_TraceData::x](#).

### 5.21.2.53 writeSpline()

```
void DL_Dxf::writeSpline (
    DL_WriterA & dw,
    const DL_SplineData & data,
    const DL_Attributes & attrib )
```

Writes a spline entity to the file.

## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

## See also

[writeControlPoint](#)

References [DL\\_SplineData::degree](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflntString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_SplineData::flags](#), [DL\\_SplineData::nControl](#), [DL\\_SplineData::nFit](#), and [DL\\_SplineData::nKnots](#).

#### 5.21.2.54 writeStyle()

```
void DL_Dxf::writeStyle (
    DL_WriterA & dw,
    const DL_StyleData & style )
```

Writes a style section.

This section is needed in DL\_VERSION\_R13.

References [DL\\_StyleData::bigFontFile](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflntReal\(\)](#), [DL\\_WriterA::dxflntString\(\)](#), [DL\\_StyleData::fixedTextHeight](#), [DL\\_StyleData::flags](#), [DL\\_Writer::handle\(\)](#), [DL\\_StyleData::lastHeightUsed](#), [DL\\_StyleData::name](#), [DL\\_StyleData::obliqueAngle](#), [DL\\_StyleData::primaryFontFile](#), [DL\\_StyleData::textGenerationFlags](#), and [DL\\_StyleData::widthFactor](#).

#### 5.21.2.55 writeText()

```
void DL_Dxf::writeText (
    DL_WriterA & dw,
    const DL_TextData & data,
    const DL_Attributes & attrib )
```

Writes a text entity to the file.

##### Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_TextData::angle](#), [DL\\_TextData::apx](#), [DL\\_TextData::apy](#), [DL\\_TextData::apz](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxflntReal\(\)](#), [DL\\_WriterA::dxflntString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_TextData::height](#), [DL\\_TextData::hJustification](#), [DL\\_TextData::ipx](#), [DL\\_TextData::ipy](#), [DL\\_TextData::ipz](#), [DL\\_TextData::style](#), [DL\\_TextData::text](#), [DL\\_TextData::textGenerationFlags](#), [DL\\_TextData::vJustification](#), and [DL\\_TextData::xScaleFactor](#).

#### 5.21.2.56 writeTrace()

```
void DL_Dxf::writeTrace (
    DL_WriterA & dw,
    const DL_TraceData & data,
    const DL_Attributes & attrib )
```

Writes a trace entity to the file.

## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_WriterA::dxfReal\(\)](#), [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_Writer::entityAttributes\(\)](#), [DL\\_TraceData::thickness](#), and [DL\\_TraceData::x](#).

**5.21.2.57 writeUcs()**

```
void DL_Dxf::writeUcs (
    DL_WriterA & dw )
```

Writes a ucs section.

This section is needed in DL\_VERSION\_R13. Note that this method currently only writes a faked UCS section to make the file readable by Aut\*cad.

References [DL\\_WriterA::dxfHex\(\)](#), [DL\\_WriterA::dxfInt\(\)](#), and [DL\\_WriterA::dxfString\(\)](#).

**5.21.2.58 writeVertex()**

```
void DL_Dxf::writeVertex (
    DL_WriterA & dw,
    const DL_VertexData & data )
```

Writes a single vertex of a polyline to the file.

## Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_VertexData::bulge](#), [DL\\_WriterA::dxfReal\(\)](#), [DL\\_WriterA::dxfString\(\)](#), [DL\\_Writer::entity\(\)](#), [DL\\_VertexData::x](#), [DL\\_VertexData::y](#), and [DL\\_VertexData::z](#).

**5.21.2.59 writeView()**

```
void DL_Dxf::writeView (
    DL_WriterA & dw )
```

Writes a view section.

This section is needed in DL\_VERSION\_R13. Note that this method currently only writes a faked VIEW section to make the file readable by Aut\*cad.

References [DL\\_WriterA::dxHex\(\)](#), [DL\\_WriterA::dxflnt\(\)](#), and [DL\\_WriterA::dxString\(\)](#).

#### 5.21.2.60 writeVPort()

```
void DL_Dxf::writeVPort (
    DL_WriterA & dw )
```

Writes a viewport section.

This section is needed in DL\_VERSION\_R13. Note that this method currently only writes a faked VPORT section to make the file readable by Aut\*cad.

References [DL\\_WriterA::dxHex\(\)](#), [DL\\_WriterA::dxflnt\(\)](#), [DL\\_WriterA::dxReal\(\)](#), [DL\\_WriterA::dxString\(\)](#), and [DL\\_Writer::handle\(\)](#).

#### 5.21.2.61 writeXLine()

```
void DL_Dxf::writeXLine (
    DL_WriterA & dw,
    const DL_XLineData & data,
    const DL_Attributes & attrib )
```

Writes an x line entity to the file.

##### Parameters

|               |                           |
|---------------|---------------------------|
| <i>dw</i>     | DXF writer                |
| <i>data</i>   | Entity data from the file |
| <i>attrib</i> | Attributes                |

References [DL\\_XLineData::bx](#), [DL\\_XLineData::by](#), [DL\\_XLineData::bz](#), [DL\\_XLineData::dx](#), [DL\\_WriterA::dxString\(\)](#), [DL\\_XLineData::dy](#), [DL\\_XLineData::dz](#), [DL\\_Writer::entity\(\)](#), and [DL\\_Writer::entityAttributes\(\)](#).

The documentation for this class was generated from the following files:

- src/dl\_dxf.h
- src/dl\_dxf.cpp

## 5.22 DL\_EllipseData Struct Reference

Ellipse Data.

```
#include <dl_entities.h>
```

## Public Member Functions

- [DL\\_EllipseData](#) (double [cx](#), double [cy](#), double [cz](#), double [mx](#), double [my](#), double [mz](#), double [ratio](#), double [angle1](#), double [angle2](#))

*Constructor.*

## Public Attributes

- double [cx](#)
- double [cy](#)
- double [cz](#)
- double [mx](#)
- double [my](#)
- double [mz](#)
- double [ratio](#)
- double [angle1](#)
- double [angle2](#)

### 5.22.1 Detailed Description

Ellipse Data.

### 5.22.2 Constructor & Destructor Documentation

#### 5.22.2.1 DL\_EllipseData()

```
DL_EllipseData::DL_EllipseData (
    double cx,
    double cy,
    double cz,
    double mx,
    double my,
    double mz,
    double ratio,
    double angle1,
    double angle2 ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.22.3 Member Data Documentation

### 5.22.3.1 angle1

```
double DL_EllipseData::angle1
```

Startangle of ellipse in rad.

Referenced by [DL\\_Dxf::writeEllipse\(\)](#).

### 5.22.3.2 angle2

```
double DL_EllipseData::angle2
```

Endangle of ellipse in rad.

Referenced by [DL\\_Dxf::writeEllipse\(\)](#).

### 5.22.3.3 cx

```
double DL_EllipseData::cx
```

X Coordinate of center point.

Referenced by [DL\\_Dxf::writeEllipse\(\)](#).

### 5.22.3.4 cy

```
double DL_EllipseData::cy
```

Y Coordinate of center point.

Referenced by [DL\\_Dxf::writeEllipse\(\)](#).

### 5.22.3.5 cz

```
double DL_EllipseData::cz
```

Z Coordinate of center point.

Referenced by [DL\\_Dxf::writeEllipse\(\)](#).

#### 5.22.3.6 mx

```
double DL_EllipseData::mx
```

X coordinate of the endpoint of the major axis.

Referenced by [DL\\_Dxf::writeEllipse\(\)](#).

#### 5.22.3.7 my

```
double DL_EllipseData::my
```

Y coordinate of the endpoint of the major axis.

Referenced by [DL\\_Dxf::writeEllipse\(\)](#).

#### 5.22.3.8 mz

```
double DL_EllipseData::mz
```

Z coordinate of the endpoint of the major axis.

Referenced by [DL\\_Dxf::writeEllipse\(\)](#).

#### 5.22.3.9 ratio

```
double DL_EllipseData::ratio
```

Ratio of minor axis to major axis..

Referenced by [DL\\_Dxf::writeEllipse\(\)](#).

The documentation for this struct was generated from the following file:

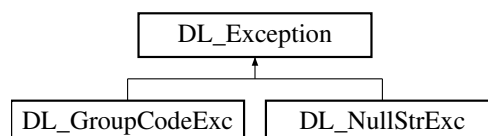
- src/dl\_entities.h

## 5.23 DL\_Exception Class Reference

Used for exception handling.

```
#include <dl_exception.h>
```

Inheritance diagram for DL\_Exception:



### 5.23.1 Detailed Description

Used for exception handling.

The documentation for this class was generated from the following file:

- `src/dl_exception.h`

## 5.24 DL\_Extrusion Class Reference

Extrusion direction.

```
#include <dl_extrusion.h>
```

### Public Member Functions

- **DL\_Extrusion** ()  
*Default constructor.*
- **~DL\_Extrusion** ()  
*Destructor.*
- **DL\_Extrusion** (double dx, double dy, double dz, double elevation)  
*Constructor for DXF extrusion.*
- void **setDirection** (double dx, double dy, double dz)  
*Sets the direction vector.*
- double \* **getDirection** () const
- void **getDirection** (double dir[]) const
- void **setElevation** (double elevation)  
*Sets the elevation.*
- double **getElevation** () const
- **DL\_Extrusion operator=** (const **DL\_Extrusion** &extru)  
*Copies extrusion (deep copies) from another extrusion object.*

### 5.24.1 Detailed Description

Extrusion direction.

Author

Andrew Mustun

### 5.24.2 Constructor & Destructor Documentation

#### 5.24.2.1 DL\_Extrusion()

```
DL_Extrusion::DL_Extrusion (
    double dx,
    double dy,
    double dz,
    double elevation ) [inline]
```

Constructor for DXF extrusion.



## Parameters

|                  |   |
|------------------|---|
| <i>direction</i> | Vector of axis along which the entity shall be extruded this is also the Z axis of the Entity coordinate system |
| <i>elevation</i> | Distance of the entities XY plane from the origin of the world coordinate system                                |

### 5.24.3 Member Function Documentation

#### 5.24.3.1 `getDirection()` [1/2]

```
double * DL_Extrusion::getDirection ( ) const [inline]
```

## Returns

direction vector.

#### 5.24.3.2 `getDirection()` [2/2]

```
void DL_Extrusion::getDirection (
    double dir[ ] ) const [inline]
```

## Returns

direction vector.

#### 5.24.3.3 `getElevation()`

```
double DL_Extrusion::getElevation ( ) const [inline]
```

## Returns

Elevation.

The documentation for this class was generated from the following file:

- `src/dl_extrusion.h`

## 5.25 DL\_FitPointData Struct Reference

Spline fit point data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_FitPointData](#) (double [x](#), double [y](#), double [z](#))  
*Constructor.*

### Public Attributes

- double [x](#)
- double [y](#)
- double [z](#)

#### 5.25.1 Detailed Description

Spline fit point data.

#### 5.25.2 Constructor & Destructor Documentation

##### 5.25.2.1 DL\_FitPointData()

```
DL_FitPointData::DL_FitPointData (
    double x,
    double y,
    double z ) [inline]
```

Constructor.

Parameters: see member variables.

#### 5.25.3 Member Data Documentation

##### 5.25.3.1 [x](#)

```
double DL_FitPointData::x
```

X coordinate of the fit point.

Referenced by [DL\\_Dxf::writeFitPoint\(\)](#).

### 5.25.3.2 y

```
double DL_FitPointData::y
```

Y coordinate of the fit point.

Referenced by [DL\\_Dxf::writeFitPoint\(\)](#).

### 5.25.3.3 z

```
double DL_FitPointData::z
```

Z coordinate of the fit point.

Referenced by [DL\\_Dxf::writeFitPoint\(\)](#).

The documentation for this struct was generated from the following file:

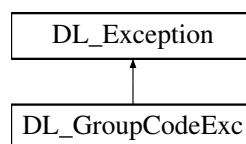
- `src/dl_entities.h`

## 5.26 DL\_GroupCodeExc Class Reference

Used for exception handling.

```
#include <dl_exception.h>
```

Inheritance diagram for DL\_GroupCodeExc:



### 5.26.1 Detailed Description

Used for exception handling.

The documentation for this class was generated from the following file:

- `src/dl_exception.h`

## 5.27 DL\_HatchData Struct Reference

Hatch data.

```
#include <dl_entities.h>
```

## Public Member Functions

- **DL\_HatchData** ()  
*Default constructor.*
- **DL\_HatchData** (int [numLoops](#), bool [solid](#), double [scale](#), double [angle](#), const std::string &[pattern](#), double [originX](#)=0.0, double [originY](#)=0.0)  
*Constructor.*

## Public Attributes

- int [numLoops](#)
- bool [solid](#)
- double [scale](#)
- double [angle](#)
- std::string [pattern](#)
- double [originX](#)
- double [originY](#)

### 5.27.1 Detailed Description

Hatch data.

### 5.27.2 Constructor & Destructor Documentation

#### 5.27.2.1 DL\_HatchData()

```
DL_HatchData::DL_HatchData (  
    int numLoops,  
    bool solid,  
    double scale,  
    double angle,  
    const std::string & pattern,  
    double originX = 0.0,  
    double originY = 0.0 ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.27.3 Member Data Documentation

### 5.27.3.1 angle

```
double DL_HatchData::angle
```

Pattern angle in degrees

Referenced by [DL\\_Dxf::writeHatch2\(\)](#).

### 5.27.3.2 numLoops

```
int DL_HatchData::numLoops
```

Number of boundary paths (loops).

Referenced by [DL\\_Dxf::writeHatch1\(\)](#).

### 5.27.3.3 originX

```
double DL_HatchData::originX
```

Pattern origin

Referenced by [DL\\_Dxf::writeHatch2\(\)](#).

### 5.27.3.4 pattern

```
std::string DL_HatchData::pattern
```

Pattern name.

Referenced by [DL\\_Dxf::writeHatch1\(\)](#).

### 5.27.3.5 scale

```
double DL_HatchData::scale
```

Pattern scale or spacing

Referenced by [DL\\_Dxf::writeHatch2\(\)](#).

### 5.27.3.6 solid

```
bool DL_HatchData::solid
```

Solid fill flag (true=solid, false=pattern).

Referenced by [DL\\_Dxf::writeHatch1\(\)](#), and [DL\\_Dxf::writeHatch2\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.28 DL\_HatchEdgeData Struct Reference

Hatch edge data.

```
#include <dl_entities.h>
```

### Public Member Functions

- **DL\_HatchEdgeData ()**  
*Default constructor.*
- **DL\_HatchEdgeData** (double [x1](#), double [y1](#), double [x2](#), double [y2](#))  
*Constructor for a line edge.*
- **DL\_HatchEdgeData** (double [cx](#), double [cy](#), double [radius](#), double [angle1](#), double [angle2](#), bool [ccw](#))  
*Constructor for an arc edge.*
- **DL\_HatchEdgeData** (double [cx](#), double [cy](#), double [mx](#), double [my](#), double [ratio](#), double [angle1](#), double [angle2](#), bool [ccw](#))  
*Constructor for an ellipse arc edge.*
- **DL\_HatchEdgeData** (unsigned int [degree](#), bool rational, bool periodic, unsigned int [nKnots](#), unsigned int [nControl](#), unsigned int [nFit](#), const std::vector< double > &knots, const std::vector< std::vector< double > > &controlPoints, const std::vector< std::vector< double > > &fitPoints, const std::vector< double > &weights, double startTangentX, double startTangentY, double endTangentX, double endTangentY)  
*Constructor for a spline edge.*

### Public Attributes

- bool **defined**  
*Set to true if this edge is fully defined.*
- int [type](#)  
*Edge type.*
- double [x1](#)
- double [y1](#)
- double [x2](#)
- double [y2](#)
- double [cx](#)
- double [cy](#)
- double [radius](#)
- double [angle1](#)

- double [angle2](#)
- bool [ccw](#)
- double [mx](#)
- double [my](#)
- double [ratio](#)
- unsigned int [degree](#)
- bool **rational**
- bool **periodic**
- unsigned int [nKnots](#)
- unsigned int [nControl](#)
- unsigned int [nFit](#)
- std::vector< std::vector< double > > **controlPoints**
- std::vector< double > **knots**
- std::vector< double > **weights**
- std::vector< std::vector< double > > **fitPoints**
- double **startTangentX**
- double **startTangentY**
- double **endTangentX**
- double **endTangentY**
- std::vector< std::vector< double > > **vertices**  
*Polyline boundary vertices (x y [bulge])*

### 5.28.1 Detailed Description

Hatch edge data.

### 5.28.2 Constructor & Destructor Documentation

#### 5.28.2.1 DL\_HatchEdgeData() [1/4]

```
DL_HatchEdgeData::DL_HatchEdgeData (
    double x1,
    double y1,
    double x2,
    double y2 ) [inline]
```

Constructor for a line edge.

Parameters: see member variables.

#### 5.28.2.2 DL\_HatchEdgeData() [2/4]

```
DL_HatchEdgeData::DL_HatchEdgeData (
    double cx,
    double cy,
    double radius,
    double angle1,
    double angle2,
    bool ccw ) [inline]
```

Constructor for an arc edge.

Parameters: see member variables.

### 5.28.2.3 DL\_HatchEdgeData() [3/4]

```
DL_HatchEdgeData::DL_HatchEdgeData (
    double cx,
    double cy,
    double mx,
    double my,
    double ratio,
    double angle1,
    double angle2,
    bool ccw ) [inline]
```

Constructor for an ellipse arc edge.

Parameters: see member variables.

### 5.28.2.4 DL\_HatchEdgeData() [4/4]

```
DL_HatchEdgeData::DL_HatchEdgeData (
    unsigned int degree,
    bool rational,
    bool periodic,
    unsigned int nKnots,
    unsigned int nControl,
    unsigned int nFit,
    const std::vector< double > & knots,
    const std::vector< std::vector< double > > & controlPoints,
    const std::vector< std::vector< double > > & fitPoints,
    const std::vector< double > & weights,
    double startTangentX,
    double startTangentY,
    double endTangentX,
    double endTangentY ) [inline]
```

Constructor for a spline edge.

Parameters: see member variables.

## 5.28.3 Member Data Documentation

### 5.28.3.1 angle1

```
double DL_HatchEdgeData::angle1
```

Start angle of arc or ellipse arc.

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).



### 5.28.3.2 angle2

```
double DL_HatchEdgeData::angle2
```

End angle of arc or ellipse arc.

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

### 5.28.3.3 ccw

```
bool DL_HatchEdgeData::ccw
```

Counterclockwise flag for arc or ellipse arc.

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

### 5.28.3.4 cx

```
double DL_HatchEdgeData::cx
```

Center point of arc or ellipse arc (X).

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

### 5.28.3.5 cy

```
double DL_HatchEdgeData::cy
```

Center point of arc or ellipse arc (Y).

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

### 5.28.3.6 degree

```
unsigned int DL_HatchEdgeData::degree
```

Spline degree

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

#### 5.28.3.7 mx

```
double DL_HatchEdgeData::mx
```

Major axis end point (X).

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

#### 5.28.3.8 my

```
double DL_HatchEdgeData::my
```

Major axis end point (Y).

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

#### 5.28.3.9 nControl

```
unsigned int DL_HatchEdgeData::nControl
```

Number of control points.

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

#### 5.28.3.10 nFit

```
unsigned int DL_HatchEdgeData::nFit
```

Number of fit points.

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

#### 5.28.3.11 nKnots

```
unsigned int DL_HatchEdgeData::nKnots
```

Number of knots.

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

### 5.28.3.12 radius

```
double DL_HatchEdgeData::radius
```

Arc radius.

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

### 5.28.3.13 ratio

```
double DL_HatchEdgeData::ratio
```

Axis ratio

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

### 5.28.3.14 type

```
int DL_HatchEdgeData::type
```

Edge type.

1=line, 2=arc, 3=elliptic arc, 4=spline.

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

### 5.28.3.15 x1

```
double DL_HatchEdgeData::x1
```

Start point (X).

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

### 5.28.3.16 x2

```
double DL_HatchEdgeData::x2
```

End point (X).

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

### 5.28.3.17 y1

```
double DL_HatchEdgeData::y1
```

Start point (Y).

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

### 5.28.3.18 y2

```
double DL_HatchEdgeData::y2
```

End point (Y).

Referenced by [DL\\_Dxf::handleHatchData\(\)](#), and [DL\\_Dxf::writeHatchEdge\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.29 DL\_HatchLoopData Struct Reference

Hatch boundary path (loop) data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_HatchLoopData](#) ()  
*Default constructor.*
- [DL\\_HatchLoopData](#) (int hNumEdges)  
*Constructor.*

### Public Attributes

- int [numEdges](#)

### 5.29.1 Detailed Description

Hatch boundary path (loop) data.

### 5.29.2 Constructor & Destructor Documentation

### 5.29.2.1 DL\_HatchLoopData()

```
DL_HatchLoopData::DL_HatchLoopData (
    int hNumEdges ) [inline]
```

Constructor.

Parameters: see member variables.

## 5.29.3 Member Data Documentation

### 5.29.3.1 numEdges

```
int DL_HatchLoopData::numEdges
```

Number of edges in this loop.

Referenced by [DL\\_Dxf::writeHatchLoop1\(\)](#).

The documentation for this struct was generated from the following file:

- [src/dl\\_entities.h](#)

## 5.30 DL\_ImageData Struct Reference

Image Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_ImageData](#) (const std::string &ref, double iipx, double iipy, double iipz, double iux, double iuy, double iuz, double ivx, double ivy, double ivz, int iwidth, int iheight, int ibrightness, int icontrast, int ifade)  
*Constructor.*

### Public Attributes

- std::string [ref](#)
- double [ipx](#)
- double [ipy](#)
- double [ipz](#)
- double [ux](#)
- double [uy](#)
- double [uz](#)
- double [vx](#)
- double [vy](#)
- double [vz](#)
- int [width](#)
- int [height](#)
- int [brightness](#)
- int [contrast](#)
- int [fade](#)

### 5.30.1 Detailed Description

Image Data.

### 5.30.2 Constructor & Destructor Documentation

#### 5.30.2.1 DL\_ImageData()

```
DL_ImageData::DL_ImageData (
    const std::string & iref,
    double iipx,
    double iipy,
    double iipz,
    double iux,
    double iuy,
    double iuz,
    double ivx,
    double ivy,
    double ivz,
    int iwidth,
    int iheight,
    int ibrightness,
    int icontrast,
    int ifade ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.30.3 Member Data Documentation

#### 5.30.3.1 brightness

```
int DL_ImageData::brightness
```

Brightness (0..100, default = 50).

Referenced by [DL\\_Dxf::writeImage\(\)](#).

### 5.30.3.2 contrast

```
int DL_ImageData::contrast
```

Contrast (0..100, default = 50).

Referenced by [DL\\_Dxf::writeImage\(\)](#).

### 5.30.3.3 fade

```
int DL_ImageData::fade
```

Fade (0..100, default = 0).

Referenced by [DL\\_Dxf::writeImage\(\)](#).

### 5.30.3.4 height

```
int DL_ImageData::height
```

Height of image in pixel.

Referenced by [DL\\_Dxf::writeImage\(\)](#), and [DL\\_Dxf::writeImageDef\(\)](#).

### 5.30.3.5 ipx

```
double DL_ImageData::ipx
```

X Coordinate of insertion point.

Referenced by [DL\\_Dxf::writeImage\(\)](#).

### 5.30.3.6 ipy

```
double DL_ImageData::ipy
```

Y Coordinate of insertion point.

Referenced by [DL\\_Dxf::writeImage\(\)](#).

### 5.30.3.7 ipz

```
double DL_ImageData::ipz
```

Z Coordinate of insertion point.

Referenced by [DL\\_Dxf::writeImage\(\)](#).

### 5.30.3.8 ref

```
std::string DL_ImageData::ref
```

Reference to the image file (unique, used to refer to the image def object).

Referenced by [DL\\_Dxf::writeImageDef\(\)](#).

### 5.30.3.9 ux

```
double DL_ImageData::ux
```

X Coordinate of u vector along bottom of image.

Referenced by [DL\\_Dxf::writeImage\(\)](#).

### 5.30.3.10 uy

```
double DL_ImageData::uy
```

Y Coordinate of u vector along bottom of image.

Referenced by [DL\\_Dxf::writeImage\(\)](#).

### 5.30.3.11 uz

```
double DL_ImageData::uz
```

Z Coordinate of u vector along bottom of image.

Referenced by [DL\\_Dxf::writeImage\(\)](#).



#### 5.30.3.12 vx

```
double DL_ImageData::vx
```

X Coordinate of v vector along left side of image.

Referenced by [DL\\_Dxf::writeImage\(\)](#).

#### 5.30.3.13 vy

```
double DL_ImageData::vy
```

Y Coordinate of v vector along left side of image.

Referenced by [DL\\_Dxf::writeImage\(\)](#).

#### 5.30.3.14 vz

```
double DL_ImageData::vz
```

Z Coordinate of v vector along left side of image.

Referenced by [DL\\_Dxf::writeImage\(\)](#).

#### 5.30.3.15 width

```
int DL_ImageData::width
```

Width of image in pixel.

Referenced by [DL\\_Dxf::writeImage\(\)](#), and [DL\\_Dxf::writeImageDef\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.31 DL\_ImageDefData Struct Reference

Image Definition Data.

```
#include <dl_entities.h>
```

## Public Member Functions

- [DL\\_ImageDefData](#) (const std::string &iref, const std::string &ifile)  
*Constructor.*

## Public Attributes

- std::string [ref](#)
- std::string [file](#)

### 5.31.1 Detailed Description

Image Definition Data.

### 5.31.2 Constructor & Destructor Documentation

#### 5.31.2.1 DL\_ImageDefData()

```
DL_ImageDefData::DL_ImageDefData (
    const std::string & iref,
    const std::string & ifile ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.31.3 Member Data Documentation

#### 5.31.3.1 file

```
std::string DL_ImageDefData::file
```

Image file

#### 5.31.3.2 ref

```
std::string DL_ImageDefData::ref
```

Reference to the image file (unique, used to refer to the image def object).

The documentation for this struct was generated from the following file:

- src/dl\_entities.h

## 5.32 DL\_InsertData Struct Reference

Insert Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_InsertData](#) (const std::string &[name](#), double [ipx](#), double [ipy](#), double [ipz](#), double [sx](#), double [sy](#), double [sz](#), double [angle](#), int [cols](#), int [rows](#), double [colSp](#), double [rowSp](#))  
*Constructor.*

### Public Attributes

- std::string [name](#)
- double [ipx](#)
- double [ipy](#)
- double [ipz](#)
- double [sx](#)
- double [sy](#)
- double [sz](#)
- double [angle](#)
- int [cols](#)
- int [rows](#)
- double [colSp](#)
- double [rowSp](#)

### 5.32.1 Detailed Description

Insert Data.

### 5.32.2 Constructor & Destructor Documentation

#### 5.32.2.1 DL\_InsertData()

```
DL_InsertData::DL_InsertData (  
    const std::string & name,  
    double ipx,  
    double ipy,  
    double ipz,  
    double sx,  
    double sy,  
    double sz,  
    double angle,  
    int cols,  
    int rows,  
    double colSp,  
    double rowSp ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.32.3 Member Data Documentation

#### 5.32.3.1 angle

```
double DL_InsertData::angle
```

Rotation angle in degrees.

Referenced by [DL\\_Dxf::writeInsert\(\)](#).

#### 5.32.3.2 cols

```
int DL_InsertData::cols
```

Number of columns if we insert an array of the block or 1.

Referenced by [DL\\_Dxf::writeInsert\(\)](#).

#### 5.32.3.3 colSp

```
double DL_InsertData::colSp
```

Values for the spacing between cols.

Referenced by [DL\\_Dxf::writeInsert\(\)](#).

#### 5.32.3.4 ipx

```
double DL_InsertData::ipx
```

X Coordinate of insertion point.

Referenced by [DL\\_Dxf::writeInsert\(\)](#).

#### 5.32.3.5 ipy

```
double DL_InsertData::ipy
```

Y Coordinate of insertion point.

Referenced by [DL\\_Dxf::writeInsert\(\)](#).

### 5.32.3.6 ipz

```
double DL_InsertData::ipz
```

Z Coordinate of insertion point.

Referenced by [DL\\_Dxf::writeInsert\(\)](#).

### 5.32.3.7 name

```
std::string DL_InsertData::name
```

Name of the referred block.

Referenced by [DL\\_Dxf::writeInsert\(\)](#).

### 5.32.3.8 rows

```
int DL_InsertData::rows
```

Number of rows if we insert an array of the block or 1.

Referenced by [DL\\_Dxf::writeInsert\(\)](#).

### 5.32.3.9 rowSp

```
double DL_InsertData::rowSp
```

Values for the spacing between rows.

Referenced by [DL\\_Dxf::writeInsert\(\)](#).

### 5.32.3.10 sx

```
double DL_InsertData::sx
```

X Scale factor.

Referenced by [DL\\_Dxf::writeInsert\(\)](#).

#### 5.32.3.11 sy

```
double DL_InsertData::sy
```

Y Scale factor.

Referenced by [DL\\_Dxf::writeInsert\(\)](#).

#### 5.32.3.12 sz

```
double DL_InsertData::sz
```

Z Scale factor.

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

### 5.33 DL\_KnotData Struct Reference

Spline knot data.

```
#include <dl_entities.h>
```

#### Public Member Functions

- [DL\\_KnotData](#) (double pk)  
*Constructor.*

#### Public Attributes

- double [k](#)

#### 5.33.1 Detailed Description

Spline knot data.

#### 5.33.2 Constructor & Destructor Documentation

### 5.33.2.1 DL\_KnotData()

```
DL_KnotData::DL_KnotData (
    double pk ) [inline]
```

Constructor.

Parameters: see member variables.

## 5.33.3 Member Data Documentation

### 5.33.3.1 k

```
double DL_KnotData::k
```

Knot value.

Referenced by [DL\\_Dxf::writeKnot\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.34 DL\_LayerData Struct Reference

Layer Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_LayerData](#) (const std::string &[name](#), int [flags](#), bool [off](#)=false)  
*Constructor.*

### Public Attributes

- std::string **name**  
*Layer name.*
- int [flags](#)  
*Layer flags.*
- bool **off**  
*Layer is off.*

### 5.34.1 Detailed Description

Layer Data.

### 5.34.2 Constructor & Destructor Documentation

#### 5.34.2.1 DL\_LayerData()

```
DL_LayerData::DL_LayerData (
    const std::string & name,
    int flags,
    bool off = false ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.34.3 Member Data Documentation

#### 5.34.3.1 flags

```
int DL_LayerData::flags
```

Layer flags.

(1 = frozen, 2 = frozen by default, 4 = locked)

Referenced by [DL\\_Dxf::writeLayer\(\)](#).

The documentation for this struct was generated from the following file:

- src/dl\_entities.h

## 5.35 DL\_LeaderData Struct Reference

Leader (arrow).

```
#include <dl_entities.h>
```



## Public Member Functions

- [DL\\_LeaderData](#) (int [arrowHeadFlag](#), int [leaderPathType](#), int [leaderCreationFlag](#), int [hooklineDirectionFlag](#), int [hooklineFlag](#), double [textAnnotationHeight](#), double [textAnnotationWidth](#), int [number](#), double [dimScale](#)=1.0)

*Constructor.*

## Public Attributes

- int [arrowHeadFlag](#)
- int [leaderPathType](#)
- int [leaderCreationFlag](#)
- int [hooklineDirectionFlag](#)
- int [hooklineFlag](#)
- double [textAnnotationHeight](#)
- double [textAnnotationWidth](#)
- int [number](#)
- double [dimScale](#)

### 5.35.1 Detailed Description

Leader (arrow).

### 5.35.2 Constructor & Destructor Documentation

#### 5.35.2.1 DL\_LeaderData()

```
DL_LeaderData::DL_LeaderData (
    int arrowHeadFlag,
    int leaderPathType,
    int leaderCreationFlag,
    int hooklineDirectionFlag,
    int hooklineFlag,
    double textAnnotationHeight,
    double textAnnotationWidth,
    int number,
    double dimScale = 1.0 ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.35.3 Member Data Documentation

#### 5.35.3.1 arrowHeadFlag

```
int DL_LeaderData::arrowHeadFlag
```

Arrow head flag (71).

Referenced by [DL\\_Dxf::writeLeader\(\)](#).

#### 5.35.3.2 dimScale

```
double DL_LeaderData::dimScale
```

Dimension scale (dimscale) style override.

#### 5.35.3.3 hooklineDirectionFlag

```
int DL_LeaderData::hooklineDirectionFlag
```

Hookline direction flag (74).

Referenced by [DL\\_Dxf::writeLeader\(\)](#).

#### 5.35.3.4 hooklineFlag

```
int DL_LeaderData::hooklineFlag
```

Hookline flag (75)

Referenced by [DL\\_Dxf::writeLeader\(\)](#).

#### 5.35.3.5 leaderCreationFlag

```
int DL_LeaderData::leaderCreationFlag
```

Leader creation flag (73).

Referenced by [DL\\_Dxf::writeLeader\(\)](#).

#### 5.35.3.6 leaderPathType

```
int DL_LeaderData::leaderPathType
```

Leader path type (72).

Referenced by [DL\\_Dxf::writeLeader\(\)](#).

#### 5.35.3.7 number

```
int DL_LeaderData::number
```

Number of vertices in leader (76).

Referenced by [DL\\_Dxf::writeLeader\(\)](#).

#### 5.35.3.8 textAnnotationHeight

```
double DL_LeaderData::textAnnotationHeight
```

Text annotation height (40).

Referenced by [DL\\_Dxf::writeLeader\(\)](#).

#### 5.35.3.9 textAnnotationWidth

```
double DL_LeaderData::textAnnotationWidth
```

Text annotation width (41)

Referenced by [DL\\_Dxf::writeLeader\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.36 DL\_LeaderVertexData Struct Reference

Leader Vertex Data.

```
#include <dl_entities.h>
```

## Public Member Functions

- [DL\\_LeaderVertexData](#) (double px=0.0, double py=0.0, double pz=0.0)  
*Constructor.*

## Public Attributes

- double [x](#)
- double [y](#)
- double [z](#)

### 5.36.1 Detailed Description

Leader Vertex Data.

### 5.36.2 Constructor & Destructor Documentation

#### 5.36.2.1 DL\_LeaderVertexData()

```
DL_LeaderVertexData::DL_LeaderVertexData (
    double px = 0.0,
    double py = 0.0,
    double pz = 0.0 ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.36.3 Member Data Documentation

#### 5.36.3.1 x

```
double DL_LeaderVertexData::x
```

X Coordinate of the vertex.

Referenced by [DL\\_Dxf::writeLeaderVertex\(\)](#).

### 5.36.3.2 y

```
double DL_LeaderVertexData::y
```

Y Coordinate of the vertex.

Referenced by [DL\\_Dxf::writeLeaderVertex\(\)](#).

### 5.36.3.3 z

```
double DL_LeaderVertexData::z
```

Z Coordinate of the vertex.

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.37 DL\_LineData Struct Reference

Line Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_LineData](#) (double lx1, double ly1, double lz1, double lx2, double ly2, double lz2)  
*Constructor.*

### Public Attributes

- double [x1](#)
- double [y1](#)
- double [z1](#)
- double [x2](#)
- double [y2](#)
- double [z2](#)

### 5.37.1 Detailed Description

Line Data.

### 5.37.2 Constructor & Destructor Documentation

### 5.37.2.1 DL\_LineData()

```
DL_LineData::DL_LineData (
    double lx1,
    double ly1,
    double lz1,
    double lx2,
    double ly2,
    double lz2 ) [inline]
```

Constructor.

Parameters: see member variables.

## 5.37.3 Member Data Documentation

### 5.37.3.1 x1

```
double DL_LineData::x1
```

X Start coordinate of the point.

Referenced by [DL\\_Dxf::writeLine\(\)](#).

### 5.37.3.2 x2

```
double DL_LineData::x2
```

X End coordinate of the point.

Referenced by [DL\\_Dxf::writeLine\(\)](#).

### 5.37.3.3 y1

```
double DL_LineData::y1
```

Y Start coordinate of the point.

Referenced by [DL\\_Dxf::writeLine\(\)](#).

#### 5.37.3.4 y2

```
double DL_LineData::y2
```

Y End coordinate of the point.

Referenced by [DL\\_Dxf::writeLine\(\)](#).

#### 5.37.3.5 z1

```
double DL_LineData::z1
```

Z Start coordinate of the point.

Referenced by [DL\\_Dxf::writeLine\(\)](#).

#### 5.37.3.6 z2

```
double DL_LineData::z2
```

Z End coordinate of the point.

Referenced by [DL\\_Dxf::writeLine\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.38 DL\_LinetypeData Struct Reference

Line Type Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_LinetypeData](#) (const std::string &[name](#), const std::string &[description](#), int [flags](#), int [numberOfDashes](#), double [patternLength](#), double \*[pattern](#)=NULL)

*Constructor.*

## Public Attributes

- `std::string name`  
*Linetype name.*
- `std::string description`  
*Linetype description.*
- `int flags`  
*Linetype flags.*
- `int numberOfDashes`  
*Number of dashes.*
- `double patternLength`  
*Pattern length.*
- `double * pattern`  
*Pattern.*

### 5.38.1 Detailed Description

Line Type Data.

### 5.38.2 Constructor & Destructor Documentation

#### 5.38.2.1 DL\_LinetypeData()

```
DL_LinetypeData::DL_LinetypeData (  
    const std::string & name,  
    const std::string & description,  
    int flags,  
    int numberOfDashes,  
    double patternLength,  
    double * pattern = NULL ) [inline]
```

Constructor.

Parameters: see member variables.

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.39 DL\_MTextData Struct Reference

MText Data.

```
#include <dl_entities.h>
```



## Public Member Functions

- [DL\\_MTextData](#) (double [ipx](#), double [ipy](#), double [ipz](#), double [dirx](#), double [diry](#), double [dirz](#), double [height](#), double [width](#), int [attachmentPoint](#), int [drawingDirection](#), int [lineSpacingStyle](#), double [lineSpacingFactor](#), const std::string &[text](#), const std::string &[style](#), double [angle](#))

*Constructor.*

## Public Attributes

- double [ipx](#)
- double [ipy](#)
- double [ipz](#)
- double [dirx](#)
- double [diry](#)
- double [dirz](#)
- double [height](#)
- double [width](#)
- int [attachmentPoint](#)  
*Attachment point.*
- int [drawingDirection](#)  
*Drawing direction.*
- int [lineSpacingStyle](#)  
*Line spacing style.*
- double [lineSpacingFactor](#)  
*Line spacing factor.*
- std::string [text](#)
- std::string [style](#)
- double [angle](#)

### 5.39.1 Detailed Description

MText Data.

### 5.39.2 Constructor & Destructor Documentation

#### 5.39.2.1 DL\_MTextData()

```
DL_MTextData::DL_MTextData (
    double ipx,
    double ipy,
    double ipz,
    double dirx,
    double diry,
    double dirz,
    double height,
    double width,
    int attachmentPoint,
```

```
int drawingDirection,  
int lineSpacingStyle,  
double lineSpacingFactor,  
const std::string & text,  
const std::string & style,  
double angle ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.39.3 Member Data Documentation

#### 5.39.3.1 *angle*

```
double DL_MTextData::angle
```

Rotation angle.

Referenced by [DL\\_Dxf::writeMText\(\)](#).

#### 5.39.3.2 *attachmentPoint*

```
int DL_MTextData::attachmentPoint
```

Attachment point.

1 = Top left, 2 = Top center, 3 = Top right, 4 = Middle left, 5 = Middle center, 6 = Middle right, 7 = Bottom left, 8 = Bottom center, 9 = Bottom right

Referenced by [DL\\_Dxf::writeMText\(\)](#).

#### 5.39.3.3 *dirx*

```
double DL_MTextData::dirx
```

X Coordinate of X direction vector.

#### 5.39.3.4 *diry*

```
double DL_MTextData::diry
```

Y Coordinate of X direction vector.

#### 5.39.3.5 dirz

```
double DL_MTextData::dirz
```

Z Coordinate of X direction vector.

#### 5.39.3.6 drawingDirection

```
int DL_MTextData::drawingDirection
```

Drawing direction.

1 = left to right, 3 = top to bottom, 5 = by style

Referenced by [DL\\_Dxf::writeMText\(\)](#).

#### 5.39.3.7 height

```
double DL_MTextData::height
```

Text height

Referenced by [DL\\_Dxf::writeMText\(\)](#).

#### 5.39.3.8 ipx

```
double DL_MTextData::ipx
```

X Coordinate of insertion point.

Referenced by [DL\\_Dxf::writeMText\(\)](#).

#### 5.39.3.9 ipy

```
double DL_MTextData::ipy
```

Y Coordinate of insertion point.

Referenced by [DL\\_Dxf::writeMText\(\)](#).

#### 5.39.3.10 ipz

```
double DL_MTextData::ipz
```

Z Coordinate of insertion point.

Referenced by [DL\\_Dxf::writeMText\(\)](#).

#### 5.39.3.11 lineSpacingFactor

```
double DL_MTextData::lineSpacingFactor
```

Line spacing factor.

0.25 .. 4.0

Referenced by [DL\\_Dxf::writeMText\(\)](#).

#### 5.39.3.12 lineSpacingStyle

```
int DL_MTextData::lineSpacingStyle
```

Line spacing style.

1 = at least, 2 = exact

Referenced by [DL\\_Dxf::writeMText\(\)](#).

#### 5.39.3.13 style

```
std::string DL_MTextData::style
```

Style string.

Referenced by [DL\\_Dxf::writeMText\(\)](#).

#### 5.39.3.14 text

```
std::string DL_MTextData::text
```

Text string.

Referenced by [DL\\_Dxf::writeMText\(\)](#).

### 5.39.3.15 width

```
double DL_MTextData::width
```

Width of the text box.

Referenced by [DL\\_Dxf::writeMText\(\)](#).

The documentation for this struct was generated from the following file:

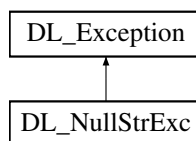
- `src/dl_entities.h`

## 5.40 DL\_NullStrExc Class Reference

Used for exception handling.

```
#include <dl_exception.h>
```

Inheritance diagram for DL\_NullStrExc:



### 5.40.1 Detailed Description

Used for exception handling.

The documentation for this class was generated from the following file:

- `src/dl_exception.h`

## 5.41 DL\_PointData Struct Reference

Point Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_PointData](#) (double px=0.0, double py=0.0, double pz=0.0)  
*Constructor.*

## Public Attributes

- double [x](#)
- double [y](#)
- double [z](#)

### 5.41.1 Detailed Description

Point Data.

### 5.41.2 Constructor & Destructor Documentation

#### 5.41.2.1 DL\_PointData()

```
DL_PointData::DL_PointData (
    double px = 0.0,
    double py = 0.0,
    double pz = 0.0 ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.41.3 Member Data Documentation

#### 5.41.3.1 x

```
double DL_PointData::x
```

X Coordinate of the point.

Referenced by [DL\\_Dxf::writePoint\(\)](#).

#### 5.41.3.2 y

```
double DL_PointData::y
```

Y Coordinate of the point.

Referenced by [DL\\_Dxf::writePoint\(\)](#).

### 5.41.3.3 z

```
double DL_PointData::z
```

Z Coordinate of the point.

Referenced by [DL\\_Dxf::writePoint\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.42 DL\_PolylineData Struct Reference

Polyline Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_PolylineData](#) (int pNumber, int pMVerteces, int pNVerteces, int pFlags, double pElevation=0.0)  
*Constructor.*

### Public Attributes

- unsigned int [number](#)
- unsigned int [m](#)
- unsigned int [n](#)
- double [elevation](#)
- int [flags](#)

### 5.42.1 Detailed Description

Polyline Data.

### 5.42.2 Constructor & Destructor Documentation

#### 5.42.2.1 DL\_PolylineData()

```
DL_PolylineData::DL_PolylineData (
    int pNumber,
    int pMVerteces,
    int pNVerteces,
    int pFlags,
    double pElevation = 0.0 ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.42.3 Member Data Documentation

#### 5.42.3.1 elevation

```
double DL_PolylineData::elevation
```

elevation of the polyline.

#### 5.42.3.2 flags

```
int DL_PolylineData::flags
```

Flags

Referenced by [DL\\_Dxf::writePolyline\(\)](#).

#### 5.42.3.3 m

```
unsigned int DL_PolylineData::m
```

Number of vertices in m direction if polyline is a polygon mesh.

#### 5.42.3.4 n

```
unsigned int DL_PolylineData::n
```

Number of vertices in n direction if polyline is a polygon mesh.

#### 5.42.3.5 number

```
unsigned int DL_PolylineData::number
```

Number of vertices in this polyline.

Referenced by [DL\\_Dxf::writePolyline\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`



## 5.43 DL\_RayData Struct Reference

Ray Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_RayData](#) (double [bx](#), double [by](#), double [bz](#), double [dx](#), double [dy](#), double [dz](#))  
*Constructor.*

### Public Attributes

- double [bx](#)
- double [by](#)
- double [bz](#)
- double [dx](#)
- double [dy](#)
- double [dz](#)

#### 5.43.1 Detailed Description

Ray Data.

#### 5.43.2 Constructor & Destructor Documentation

##### 5.43.2.1 DL\_RayData()

```
DL_RayData::DL_RayData (  
    double bx,  
    double by,  
    double bz,  
    double dx,  
    double dy,  
    double dz ) [inline]
```

Constructor.

Parameters: see member variables.

#### 5.43.3 Member Data Documentation

#### 5.43.3.1 bx

```
double DL_RayData::bx
```

X base point.

Referenced by [DL\\_Dxf::writeRay\(\)](#).

#### 5.43.3.2 by

```
double DL_RayData::by
```

Y base point.

Referenced by [DL\\_Dxf::writeRay\(\)](#).

#### 5.43.3.3 bz

```
double DL_RayData::bz
```

Z base point.

Referenced by [DL\\_Dxf::writeRay\(\)](#).

#### 5.43.3.4 dx

```
double DL_RayData::dx
```

X direction vector.

Referenced by [DL\\_Dxf::writeRay\(\)](#).

#### 5.43.3.5 dy

```
double DL_RayData::dy
```

Y direction vector.

Referenced by [DL\\_Dxf::writeRay\(\)](#).

#### 5.43.3.6 dz

```
double DL_RayData::dz
```

Z direction vector.

Referenced by [DL\\_Dxf::writeRay\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.44 DL\_SplineData Struct Reference

Spline Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_SplineData](#) (int [degree](#), int [nKnots](#), int [nControl](#), int [nFit](#), int [flags](#))  
*Constructor.*

### Public Attributes

- unsigned int [degree](#)
- unsigned int [nKnots](#)
- unsigned int [nControl](#)
- unsigned int [nFit](#)
- int [flags](#)
- double [tangentStartX](#)
- double [tangentStartY](#)
- double [tangentStartZ](#)
- double [tangentEndX](#)
- double [tangentEndY](#)
- double [tangentEndZ](#)

#### 5.44.1 Detailed Description

Spline Data.

#### 5.44.2 Constructor & Destructor Documentation

#### 5.44.2.1 DL\_SplineData()

```
DL_SplineData::DL_SplineData (
    int degree,
    int nKnots,
    int nControl,
    int nFit,
    int flags ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.44.3 Member Data Documentation

#### 5.44.3.1 degree

```
unsigned int DL_SplineData::degree
```

Degree of the spline curve.

Referenced by [DL\\_Dxf::writeSpline\(\)](#).

#### 5.44.3.2 flags

```
int DL_SplineData::flags
```

Flags

Referenced by [DL\\_Dxf::writeSpline\(\)](#).

#### 5.44.3.3 nControl

```
unsigned int DL_SplineData::nControl
```

Number of control points.

Referenced by [DL\\_Dxf::writeSpline\(\)](#).

#### 5.44.3.4 nFit

```
unsigned int DL_SplineData::nFit
```

Number of fit points.

Referenced by [DL\\_Dxf::writeSpline\(\)](#).

#### 5.44.3.5 nKnots

```
unsigned int DL_SplineData::nKnots
```

Number of knots.

Referenced by [DL\\_Dxf::writeSpline\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.45 DL\_StyleData Struct Reference

Text style data.

```
#include <dl_entities.h>
```

### Public Member Functions

- **DL\_StyleData** (const std::string &[name](#), int [flags](#), double [fixedTextHeight](#), double [widthFactor](#), double [obliqueAngle](#), int [textGenerationFlags](#), double [lastHeightUsed](#), const std::string &[primaryFontFile](#), const std::string &[bigFontFile](#))  
*Constructor Parameters: see member variables.*
- bool **operator==** (const [DL\\_StyleData](#) &other)

### Public Attributes

- std::string **name**  
*Style name.*
- int **flags**  
*Style flags.*
- double **fixedTextHeight**  
*Fixed text height or 0 for not fixed.*
- double **widthFactor**  
*Width factor.*
- double **obliqueAngle**  
*Oblique angle.*
- int **textGenerationFlags**  
*Text generation flags.*
- double **lastHeightUsed**  
*Last height used.*
- std::string **primaryFontFile**  
*Primary font file name.*
- std::string **bigFontFile**  
*Big font file name.*
- bool **bold**
- bool **italic**

### 5.45.1 Detailed Description

Text style data.

The documentation for this struct was generated from the following file:

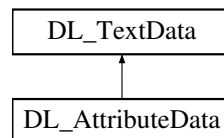
- src/dl\_entities.h

## 5.46 DL\_TextData Struct Reference

Text Data.

```
#include <dl_entities.h>
```

Inheritance diagram for DL\_TextData:



### Public Member Functions

- **DL\_TextData** (double [ipx](#), double [ipy](#), double [ipz](#), double [apx](#), double [apy](#), double [apz](#), double [height](#), double [xScaleFactor](#), int [textGenerationFlags](#), int [hJustification](#), int [vJustification](#), const std::string &[text](#), const std::string &[style](#), double [angle](#))

*Constructor.*

### Public Attributes

- double [ipx](#)
  - double [ipy](#)
  - double [ipz](#)
  - double [apx](#)
  - double [apy](#)
  - double [apz](#)
  - double [height](#)
  - double [xScaleFactor](#)
  - int [textGenerationFlags](#)
  - int [hJustification](#)
- Horizontal justification.*
- int [vJustification](#)
- Vertical justification.*
- std::string [text](#)
  - std::string [style](#)
  - double [angle](#)

### 5.46.1 Detailed Description

Text Data.

### 5.46.2 Constructor & Destructor Documentation

#### 5.46.2.1 DL\_TextData()

```
DL_TextData::DL_TextData (
    double ipx,
    double ipy,
    double ipz,
    double apx,
    double apy,
    double apz,
    double height,
    double xScaleFactor,
    int textGenerationFlags,
    int hJustification,
    int vJustification,
    const std::string & text,
    const std::string & style,
    double angle ) [inline]
```

Constructor.

Parameters: see member variables.

### 5.46.3 Member Data Documentation

#### 5.46.3.1 angle

```
double DL_TextData::angle
```

Rotation angle of dimension text away from default orientation.

Referenced by [DL\\_Dxf::writeText\(\)](#).

#### 5.46.3.2 apx

```
double DL_TextData::apx
```

X Coordinate of alignment point.

Referenced by [DL\\_Dxf::writeText\(\)](#).

#### 5.46.3.3 apy

```
double DL_TextData::apy
```

Y Coordinate of alignment point.

Referenced by [DL\\_Dxf::writeText\(\)](#).

#### 5.46.3.4 apz

```
double DL_TextData::apz
```

Z Coordinate of alignment point.

Referenced by [DL\\_Dxf::writeText\(\)](#).

#### 5.46.3.5 height

```
double DL_TextData::height
```

Text height

Referenced by [DL\\_Dxf::writeText\(\)](#).

#### 5.46.3.6 hJustification

```
int DL_TextData::hJustification
```

Horizontal justification.

0 = Left (default), 1 = Center, 2 = Right, 3 = Aligned, 4 = Middle, 5 = Fit For 3, 4, 5 the vertical alignment has to be 0.

Referenced by [DL\\_Dxf::writeText\(\)](#).

#### 5.46.3.7 ipx

```
double DL_TextData::ipx
```

X Coordinate of insertion point.

Referenced by [DL\\_Dxf::writeText\(\)](#).



#### 5.46.3.8 ipy

```
double DL_TextData::ipy
```

Y Coordinate of insertion point.

Referenced by [DL\\_Dxf::writeText\(\)](#).

#### 5.46.3.9 ipz

```
double DL_TextData::ipz
```

Z Coordinate of insertion point.

Referenced by [DL\\_Dxf::writeText\(\)](#).

#### 5.46.3.10 style

```
std::string DL_TextData::style
```

Style (font).

Referenced by [DL\\_Dxf::writeText\(\)](#).

#### 5.46.3.11 text

```
std::string DL_TextData::text
```

Text string.

Referenced by [DL\\_Dxf::writeText\(\)](#).

#### 5.46.3.12 textGenerationFlags

```
int DL_TextData::textGenerationFlags
```

0 = default, 2 = Backwards, 4 = Upside down

Referenced by [DL\\_Dxf::writeText\(\)](#).

### 5.46.3.13 vJustification

```
int DL_TextData::vJustification
```

Vertical justification.

0 = Baseline (default), 1 = Bottom, 2 = Middle, 3= Top

Referenced by [DL\\_Dxf::writeText\(\)](#).

### 5.46.3.14 xScaleFactor

```
double DL_TextData::xScaleFactor
```

Relative X scale factor.

Referenced by [DL\\_Dxf::writeText\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.47 DL\_TraceData Struct Reference

Trace Data / solid data / 3d face data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_TraceData](#) (double sx1, double sy1, double sz1, double sx2, double sy2, double sz2, double sx3, double sy3, double sz3, double sx4, double sy4, double sz4, double sthickness=0.0)

*Constructor.*

### Public Attributes

- double [thickness](#)
- double [x](#) [4]
- double [y](#) [4]
- double [z](#) [4]

#### 5.47.1 Detailed Description

Trace Data / solid data / 3d face data.

## 5.47.2 Constructor & Destructor Documentation

### 5.47.2.1 DL\_TraceData()

```
DL_TraceData::DL_TraceData (
    double sx1,
    double sy1,
    double sz1,
    double sx2,
    double sy2,
    double sz2,
    double sx3,
    double sy3,
    double sz3,
    double sx4,
    double sy4,
    double sz4,
    double sthickness = 0.0 ) [inline]
```

Constructor.

Parameters: see member variables.

## 5.47.3 Member Data Documentation

### 5.47.3.1 thickness

```
double DL_TraceData::thickness
```

Thickness

Referenced by [DL\\_Dxf::writeSolid\(\)](#), and [DL\\_Dxf::writeTrace\(\)](#).

### 5.47.3.2 x

```
double DL_TraceData::x[4]
```

Points

Referenced by [DL\\_Dxf::add3dFace\(\)](#), [DL\\_Dxf::addSolid\(\)](#), [DL\\_Dxf::addTrace\(\)](#), [DL\\_Dxf::write3dFace\(\)](#), [DL\\_Dxf::writeSolid\(\)](#), and [DL\\_Dxf::writeTrace\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## 5.48 DL\_VertexData Struct Reference

Vertex Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_VertexData](#) (double px=0.0, double py=0.0, double pz=0.0, double pBulge=0.0)  
*Constructor.*

### Public Attributes

- double [x](#)
- double [y](#)
- double [z](#)
- double [bulge](#)

#### 5.48.1 Detailed Description

Vertex Data.

#### 5.48.2 Constructor & Destructor Documentation

##### 5.48.2.1 DL\_VertexData()

```
DL_VertexData::DL_VertexData (
    double px = 0.0,
    double py = 0.0,
    double pz = 0.0,
    double pBulge = 0.0 ) [inline]
```

Constructor.

Parameters: see member variables.

#### 5.48.3 Member Data Documentation

### 5.48.3.1 bulge

```
double DL_VertexData::bulge
```

Bulge of vertex. (The tangent of 1/4 of the arc angle or 0 for lines)

Referenced by [DL\\_Dxf::writeVertex\(\)](#).

### 5.48.3.2 x

```
double DL_VertexData::x
```

X Coordinate of the vertex.

Referenced by [DL\\_Dxf::writeVertex\(\)](#).

### 5.48.3.3 y

```
double DL_VertexData::y
```

Y Coordinate of the vertex.

Referenced by [DL\\_Dxf::writeVertex\(\)](#).

### 5.48.3.4 z

```
double DL_VertexData::z
```

Z Coordinate of the vertex.

Referenced by [DL\\_Dxf::writeVertex\(\)](#).

The documentation for this struct was generated from the following file:

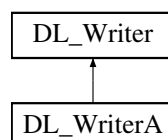
- src/dl\_entities.h

## 5.49 DL\_Writer Class Reference

Defines interface for writing low level DXF constructs to a file.

```
#include <dl_writer.h>
```

Inheritance diagram for DL\_Writer:



## Public Member Functions

- [DL\\_Writer](#) ([DL\\_Codes::version version](#))
- void [section](#) (const char \*name) const  
*Generic section for section 'name'.*
- void [sectionHeader](#) () const  
*Section HEADER.*
- void [sectionTables](#) () const  
*Section TABLES.*
- void [sectionBlocks](#) () const  
*Section BLOCKS.*
- void [sectionEntities](#) () const  
*Section ENTITIES.*
- void [sectionClasses](#) () const  
*Section CLASSES.*
- void [sectionObjects](#) () const  
*Section OBJECTS.*
- void [sectionEnd](#) () const  
*End of a section.*
- void [table](#) (const char \*name, int num, int h=0) const  
*Generic table for table 'name' with 'num' entries:*
- void [tableLayers](#) (int num) const  
*Table for layers.*
- void [tableLinetypes](#) (int num) const  
*Table for line types.*
- void [tableAppid](#) (int num) const  
*Table for application id.*
- void [tableStyle](#) (int num) const  
*Table for text style.*
- void [tableEnd](#) () const  
*End of a table.*
- void [dxfEOF](#) () const  
*End of the DXF file.*
- void [comment](#) (const char \*text) const  
*Comment.*
- void [entity](#) (const char \*entTypeName) const  
*Entity.*
- void [entityAttributes](#) (const [DL\\_Attributes](#) &attrib) const  
*Attributes of an entity.*
- void **subClass** (const char \*sub) const  
*Subclass.*
- void [tableLayerEntry](#) (unsigned long int h=0) const  
*Layer (must be in the TABLES section LAYER).*
- void [tableLinetypeEntry](#) (unsigned long int h=0) const  
*Line type (must be in the TABLES section LTYPE).*
- void [tableAppidEntry](#) (unsigned long int h=0) const  
*Appid (must be in the TABLES section APPID).*
- void [sectionBlockEntry](#) (unsigned long int h=0) const  
*Block (must be in the section BLOCKS).*
- void [sectionBlockEntryEnd](#) (unsigned long int h=0) const  
*End of Block (must be in the section BLOCKS).*

- void **color** (int col=256) const
- void **linetype** (const char \*lt) const
- void **linetypeScale** (double scale) const
- void **lineWeight** (int lw) const
- void **coord** (int gc, double x, double y, double z=0) const
- void **coordTriplet** (int gc, const double \*value) const
- void **resetHandle** () const
- unsigned long **handle** (int gc=5) const  
*Writes a unique handle and returns it.*
- unsigned long **getNextHandle** () const
- virtual void **dxReal** (int gc, double value) const =0  
*Must be overwritten by the implementing class to write a real value to the file.*
- virtual void **dxflnt** (int gc, int value) const =0  
*Must be overwritten by the implementing class to write an int value to the file.*
- virtual void **dxfBool** (int gc, bool value) const  
*Can be overwritten by the implementing class to write a bool value to the file.*
- virtual void **dxfHex** (int gc, int value) const =0  
*Must be overwritten by the implementing class to write an int value (hex) to the file.*
- virtual void **dxString** (int gc, const char \*value) const =0  
*Must be overwritten by the implementing class to write a string to the file.*
- virtual void **dxString** (int gc, const std::string &value) const =0  
*Must be overwritten by the implementing class to write a string to the file.*

## Protected Attributes

- unsigned long **m\_handle**
- unsigned long **modelSpaceHandle**
- unsigned long **paperSpaceHandle**
- unsigned long **paperSpace0Handle**
- **DL\_Codes::version** **version**  
*DXF version to be created.*

### 5.49.1 Detailed Description

Defines interface for writing low level DXF constructs to a file.

Implementation is defined in derived classes that write to binary or ASCII files.

Implements functions that write higher level constructs in terms of the low level ones.

**Todo** Add error checking for string/entry length.

### 5.49.2 Constructor & Destructor Documentation

#### 5.49.2.1 DL\_Writer()

```
DL_Writer::DL_Writer (
    DL_Codes::version version ) [inline]
```

## Parameters

|                |   |
|----------------|---|
| <i>version</i> | DXF version. Defaults to DL_VERSION_2002. |
|----------------|---|

### 5.49.3 Member Function Documentation

#### 5.49.3.1 comment()

```
void DL_Writer::comment (
    const char * text ) const [inline]
```

Comment.

```
999
text
```

Referenced by [DL\\_Dxf::writeHeader\(\)](#).

#### 5.49.3.2 dxfBool()

```
virtual void DL_Writer::dxfBool (
    int gc,
    bool value ) const [inline], [virtual]
```

Can be overwritten by the implementing class to write a bool value to the file.

## Parameters

|              |                 |
|--------------|-----------------|
| <i>gc</i>    | Group code.     |
| <i>value</i> | The bool value. |

Referenced by [DL\\_Dxf::writeHatchEdge\(\)](#).

#### 5.49.3.3 dxfEOF()

```
void DL_Writer::dxfEOF ( ) const [inline]
```

End of the DXF file.

```
0
EOF
```



#### 5.49.3.4 dxfHex()

```
virtual void DL_Writer::dxfHex (
    int gc,
    int value ) const [pure virtual]
```

Must be overwritten by the implementing class to write an int value (hex) to the file.

##### Parameters

|              |                |
|--------------|----------------|
| <i>gc</i>    | Group code.    |
| <i>value</i> | The int value. |

Implemented in [DL\\_WriterA](#).

#### 5.49.3.5 dxflnt()

```
virtual void DL_Writer::dxflnt (
    int gc,
    int value ) const [pure virtual]
```

Must be overwritten by the implementing class to write an int value to the file.

##### Parameters

|              |                |
|--------------|----------------|
| <i>gc</i>    | Group code.    |
| <i>value</i> | The int value. |

Implemented in [DL\\_WriterA](#).

#### 5.49.3.6 dxfReal()

```
virtual void DL_Writer::dxfReal (
    int gc,
    double value ) const [pure virtual]
```

Must be overwritten by the implementing class to write a real value to the file.

##### Parameters

|              |                 |
|--------------|-----------------|
| <i>gc</i>    | Group code.     |
| <i>value</i> | The real value. |

Implemented in [DL\\_WriterA](#).

**5.49.3.7 dxfString()** [1/2]

```
virtual void DL_Writer::dxfString (
    int gc,
    const char * value ) const [pure virtual]
```

Must be overwritten by the implementing class to write a string to the file.

**Parameters**

|              |             |
|--------------|-------------|
| <i>gc</i>    | Group code. |
| <i>value</i> | The string. |

Implemented in [DL\\_WriterA](#).

**5.49.3.8 dxfString()** [2/2]

```
virtual void DL_Writer::dxfString (
    int gc,
    const std::string & value ) const [pure virtual]
```

Must be overwritten by the implementing class to write a string to the file.

**Parameters**

|              |             |
|--------------|-------------|
| <i>gc</i>    | Group code. |
| <i>value</i> | The string. |

Implemented in [DL\\_WriterA](#).

**5.49.3.9 entity()**

```
void DL_Writer::entity (
    const char * entTypeName ) const [inline]
```

Entity.

```
0
entTypeName
```

**Returns**

Unique handle or 0.

Referenced by [DL\\_Dxf::write3dFace\(\)](#), [DL\\_Dxf::writeArc\(\)](#), [DL\\_Dxf::writeCircle\(\)](#), [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), [DL\\_Dxf::writeDimRadial\(\)](#), [DL\\_Dxf::writeEllipse\(\)](#), [DL\\_Dxf::writeHatch1\(\)](#), [DL\\_Dxf::writeImage\(\)](#), [DL\\_Dxf::writeInsert\(\)](#), [DL\\_Dxf::writeLeader\(\)](#), [DL\\_Dxf::writeLine\(\)](#), [DL\\_Dxf::writeMText\(\)](#), [DL\\_Dxf::writePoint\(\)](#), [DL\\_Dxf::writePolyline\(\)](#), [DL\\_Dxf::writePolylineEnd\(\)](#), [DL\\_Dxf::writeRay\(\)](#), [DL\\_Dxf::writeSolid\(\)](#), [DL\\_Dxf::writeSpline\(\)](#), [DL\\_Dxf::writeText\(\)](#), [DL\\_Dxf::writeTrace\(\)](#), [DL\\_Dxf::writeVertex\(\)](#), and [DL\\_Dxf::writeXLine\(\)](#).

**5.49.3.10 entityAttributes()**

```
void DL_Writer::entityAttributes (
    const DL_Attributes & attrib ) const [inline]
```

Attributes of an entity.

```
8
layer
62
color
39
width
6
linetype
```

References [DL\\_Attributes::getColor\(\)](#), [DL\\_Attributes::getColor24\(\)](#), [DL\\_Attributes::getLayer\(\)](#), [DL\\_Attributes::getLinetype\(\)](#), and [DL\\_Attributes::getWidth\(\)](#).

Referenced by [DL\\_Dxf::write3dFace\(\)](#), [DL\\_Dxf::writeArc\(\)](#), [DL\\_Dxf::writeCircle\(\)](#), [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), [DL\\_Dxf::writeDimRadial\(\)](#), [DL\\_Dxf::writeEllipse\(\)](#), [DL\\_Dxf::writeHatch1\(\)](#), [DL\\_Dxf::writeImage\(\)](#), [DL\\_Dxf::writeInsert\(\)](#), [DL\\_Dxf::writeLeader\(\)](#), [DL\\_Dxf::writeLine\(\)](#), [DL\\_Dxf::writeMText\(\)](#), [DL\\_Dxf::writePoint\(\)](#), [DL\\_Dxf::writePolyline\(\)](#), [DL\\_Dxf::writeRay\(\)](#), [DL\\_Dxf::writeSolid\(\)](#), [DL\\_Dxf::writeSpline\(\)](#), [DL\\_Dxf::writeText\(\)](#), [DL\\_Dxf::writeTrace\(\)](#), and [DL\\_Dxf::writeXLine\(\)](#).

**5.49.3.11 getNextHandle()**

```
unsigned long DL_Writer::getNextHandle ( ) const [inline]
```

**Returns**

Next handle that will be written.

Referenced by [DL\\_Dxf::writeObjects\(\)](#).

**5.49.3.12 section()**

```
void DL_Writer::section (
    const char * name ) const [inline]
```

Generic section for section 'name'.

```
0
SECTION
2
name
```

#### 5.49.3.13 sectionBlockEntry()

```
void DL_Writer::sectionBlockEntry (
    unsigned long int h = 0 ) const [inline]
```

Block (must be in the section BLOCKS).

```
0
BLOCK
```

Referenced by [DL\\_Dxf::writeBlock\(\)](#).

#### 5.49.3.14 sectionBlockEntryEnd()

```
void DL_Writer::sectionBlockEntryEnd (
    unsigned long int h = 0 ) const [inline]
```

End of Block (must be in the section BLOCKS).

```
0
ENDBLK
```

Referenced by [DL\\_Dxf::writeEndBlock\(\)](#).

#### 5.49.3.15 sectionBlocks()

```
void DL_Writer::sectionBlocks ( ) const [inline]
```

Section BLOCKS.

```
0
SECTION
2
BLOCKS
```

#### 5.49.3.16 sectionClasses()

```
void DL_Writer::sectionClasses ( ) const [inline]
```

Section CLASSES.

```
0
SECTION
2
CLASSES
```

#### 5.49.3.17 sectionEnd()

```
void DL_Writer::sectionEnd ( ) const [inline]
```

End of a section.

```
0  
ENDSEC
```

#### 5.49.3.18 sectionEntities()

```
void DL_Writer::sectionEntities ( ) const [inline]
```

Section ENTITIES.

```
0  
SECTION  
2  
ENTITIES
```

#### 5.49.3.19 sectionHeader()

```
void DL_Writer::sectionHeader ( ) const [inline]
```

Section HEADER.

```
0  
SECTION  
2  
HEADER
```

Referenced by [DL\\_Dxf::writeHeader\(\)](#).

#### 5.49.3.20 sectionObjects()

```
void DL_Writer::sectionObjects ( ) const [inline]
```

Section OBJECTS.

```
0  
SECTION  
2  
OBJECTS
```

### 5.49.3.21 sectionTables()

```
void DL_Writer::sectionTables ( ) const [inline]
```

Section TABLES.

```
0
SECTION
2
TABLES
```

### 5.49.3.22 table()

```
void DL_Writer::table (
    const char * name,
    int num,
    int h = 0 ) const [inline]
```

Generic table for table 'name' with 'num' entries:

```
0
TABLE
2
name
70
num
```

### 5.49.3.23 tableAppid()

```
void DL_Writer::tableAppid (
    int num ) const [inline]
```

Table for application id.

#### Parameters

|            |   |
|------------|---|
| <i>num</i> | Number of registered applications in total. |
|------------|---|

```
0
TABLE
2
APPID
70
num
```

#### 5.49.3.24 tableAppidEntry()

```
void DL_Writer::tableAppidEntry (
    unsigned long int h = 0 ) const [inline]
```

Appid (must be in the TABLES section APPID).

```
0
APPID
```

Referenced by [DL\\_Dxf::writeAppid\(\)](#).

#### 5.49.3.25 tableEnd()

```
void DL_Writer::tableEnd ( ) const [inline]
```

End of a table.

```
0
ENDTAB
```

#### 5.49.3.26 tableLayerEntry()

```
void DL_Writer::tableLayerEntry (
    unsigned long int h = 0 ) const [inline]
```

Layer (must be in the TABLES section LAYER).

```
0
LAYER
```

Referenced by [DL\\_Dxf::writeLayer\(\)](#).

#### 5.49.3.27 tableLayers()

```
void DL_Writer::tableLayers (
    int num ) const [inline]
```

Table for layers.

**Parameters**

|            |                            |
|------------|----------------------------|
| <i>num</i> | Number of layers in total. |
|------------|----------------------------|

```

0
TABLE
2
LAYER
70
    num

```

**5.49.3.28 tableLinetypeEntry()**

```

void DL_Writer::tableLinetypeEntry (
    unsigned long int h = 0 ) const    [inline]

```

Line type (must be in the TABLES section LTYPE).

```

0
LTYPE

```

Referenced by [DL\\_Dxf::writeLinetype\(\)](#).

**5.49.3.29 tableLinetypes()**

```

void DL_Writer::tableLinetypes (
    int num ) const    [inline]

```

Table for line types.

**Parameters**

|            |                                |
|------------|--------------------------------|
| <i>num</i> | Number of line types in total. |
|------------|--------------------------------|

```

0
TABLE
2
LTYPE
70
    num

```



### 5.49.3.30 tableStyle()

```
void DL_Writer::tableStyle (
    int num ) const [inline]
```

Table for text style.

#### Parameters

|            |                        |
|------------|------------------------|
| <i>num</i> | Number of text styles. |
|------------|------------------------|

```
0
TABLE
2
STYLE
70
    num
```

The documentation for this class was generated from the following file:

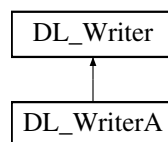
- src/dl\_writer.h

## 5.50 DL\_WriterA Class Reference

Implements functions defined in [DL\\_Writer](#) for writing low level DXF constructs to an ASCII format DXF file.

```
#include <dl_writer_ascii.h>
```

Inheritance diagram for DL\_WriterA:



### Public Member Functions

- **DL\_WriterA** (const char \*fname, [DL\\_Codes::version version](#)=DL\_VERSION\_2000)
- bool [openFailed](#) () const
- void **close** () const  
*Closes the output file.*
- void [dxfReal](#) (int gc, double value) const  
*Writes a real (double) variable to the DXF file.*
- void [dxfInt](#) (int gc, int value) const  
*Writes an int variable to the DXF file.*
- void [dxfHex](#) (int gc, int value) const  
*Writes a hex int variable to the DXF file.*
- void [dxfString](#) (int gc, const char \*value) const  
*Writes a string variable to the DXF file.*
- void [dxfString](#) (int gc, const std::string &value) const  
*Must be overwritten by the implementing class to write a string to the file.*

## Static Public Member Functions

- static void **strReplace** (char \*str, char src, char dest)  
*Replaces every occurence of src with dest in the null terminated str.*

## Additional Inherited Members

### 5.50.1 Detailed Description

Implements functions defined in [DL\\_Writer](#) for writing low level DXF constructs to an ASCII format DXF file.

@para fname File name of the file to be created. @para version DXF version. Defaults to DL\_VERSION\_2002.

**Todo** What if fname is NULL? Or fname can't be opened for another reason?

### 5.50.2 Member Function Documentation

#### 5.50.2.1 dxfHex()

```
void DL_WriterA::dxfHex (
    int gc,
    int value ) const [virtual]
```

Writes a hex int variable to the DXF file.

#### Parameters

|              |             |
|--------------|-------------|
| <i>gc</i>    | Group code. |
| <i>value</i> | Int value   |

Implements [DL\\_Writer](#).

References [dxfString\(\)](#).

Referenced by [DL\\_Dxf::writeBlockRecord\(\)](#), [DL\\_Dxf::writeDimStyle\(\)](#), [DL\\_Dxf::writeHeader\(\)](#), [DL\\_Dxf::writeImageDef\(\)](#), [DL\\_Dxf::writeLayer\(\)](#), [DL\\_Dxf::writeObjects\(\)](#), [DL\\_Dxf::writeUcs\(\)](#), [DL\\_Dxf::writeView\(\)](#), and [DL\\_Dxf::writeVPort\(\)](#).

#### 5.50.2.2 dxfInt()

```
void DL_WriterA::dxfInt (
    int gc,
    int value ) const [virtual]
```

Writes an int variable to the DXF file.

## Parameters

|              |             |
|--------------|-------------|
| <i>gc</i>    | Group code. |
| <i>value</i> | Int value   |

Implements [DL\\_Writer](#).

Referenced by [DL\\_Dxf::writeAppid\(\)](#), [DL\\_Dxf::writeBlock\(\)](#), [DL\\_Dxf::writeBlockRecord\(\)](#), [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), [DL\\_Dxf::writeDimRadial\(\)](#), [DL\\_Dxf::writeDimStyle\(\)](#), [DL\\_Dxf::writeHatch1\(\)](#), [DL\\_Dxf::writeHatch2\(\)](#), [DL\\_Dxf::writeHatchEdge\(\)](#), [DL\\_Dxf::writeHatchLoop1\(\)](#), [DL\\_Dxf::writeHatchLoop2\(\)](#), [DL\\_Dxf::writeImage\(\)](#), [DL\\_Dxf::writeImageDef\(\)](#), [DL\\_Dxf::writeInsert\(\)](#), [DL\\_Dxf::writeLayer\(\)](#), [DL\\_Dxf::writeLeader\(\)](#), [DL\\_Dxf::writeLinetype\(\)](#), [DL\\_Dxf::writeMText\(\)](#), [DL\\_Dxf::writeObjects\(\)](#), [DL\\_Dxf::writePolyline\(\)](#), [DL\\_Dxf::writeSpline\(\)](#), [DL\\_Dxf::writeStyle\(\)](#), [DL\\_Dxf::writeText\(\)](#), [DL\\_Dxf::writeUcs\(\)](#), [DL\\_Dxf::writeView\(\)](#), and [DL\\_Dxf::writeVPort\(\)](#).

### 5.50.2.3 dxfReal()

```
void DL_WriterA::dxfReal (
    int gc,
    double value ) const [virtual]
```

Writes a real (double) variable to the DXF file.

## Parameters

|              |              |
|--------------|--------------|
| <i>gc</i>    | Group code.  |
| <i>value</i> | Double value |

Implements [DL\\_Writer](#).

References [dxfString\(\)](#), [strReplace\(\)](#), and [DL\\_Writer::version](#).

Referenced by [DL\\_Dxf::writeArc\(\)](#), [DL\\_Dxf::writeCircle\(\)](#), [DL\\_Dxf::writeControlPoint\(\)](#), [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), [DL\\_Dxf::writeDimRadial\(\)](#), [DL\\_Dxf::writeDimStyle\(\)](#), [DL\\_Dxf::writeEllipse\(\)](#), [DL\\_Dxf::writeFitPoint\(\)](#), [DL\\_Dxf::writeHatch1\(\)](#), [DL\\_Dxf::writeHatch2\(\)](#), [DL\\_Dxf::writeHatchEdge\(\)](#), [DL\\_Dxf::writeImage\(\)](#), [DL\\_Dxf::writeImageDef\(\)](#), [DL\\_Dxf::writeInsert\(\)](#), [DL\\_Dxf::writeKnot\(\)](#), [DL\\_Dxf::writeLeader\(\)](#), [DL\\_Dxf::writeLeaderVertex\(\)](#), [DL\\_Dxf::writeLinetype\(\)](#), [DL\\_Dxf::writeMText\(\)](#), [DL\\_Dxf::writeObjects\(\)](#), [DL\\_Dxf::writeSolid\(\)](#), [DL\\_Dxf::writeStyle\(\)](#), [DL\\_Dxf::writeText\(\)](#), [DL\\_Dxf::writeTrace\(\)](#), [DL\\_Dxf::writeVertex\(\)](#), and [DL\\_Dxf::writeVPort\(\)](#).

### 5.50.2.4 dxfString() [1/2]

```
void DL_WriterA::dxfString (
    int gc,
    const char * value ) const [virtual]
```

Writes a string variable to the DXF file.

## Parameters

|              |             |
|--------------|-------------|
| <i>gc</i>    | Group code. |
| <i>value</i> | String      |

Implements [DL\\_Writer](#).

Referenced by [dxHex\(\)](#), [dxReal\(\)](#), [DL\\_Dxf::write3dFace\(\)](#), [DL\\_Dxf::writeAppid\(\)](#), [DL\\_Dxf::writeArc\(\)](#), [DL\\_Dxf::writeBlock\(\)](#), [DL\\_Dxf::writeBlockRecord\(\)](#), [DL\\_Dxf::writeCircle\(\)](#), [DL\\_Dxf::writeComment\(\)](#), [DL\\_Dxf::writeDimAligned\(\)](#), [DL\\_Dxf::writeDimAngular2L\(\)](#), [DL\\_Dxf::writeDimAngular3P\(\)](#), [DL\\_Dxf::writeDimDiametric\(\)](#), [DL\\_Dxf::writeDimLinear\(\)](#), [DL\\_Dxf::writeDimOrdinate\(\)](#), [DL\\_Dxf::writeDimRadial\(\)](#), [DL\\_Dxf::writeDimStyle\(\)](#), [DL\\_Dxf::writeEllipse\(\)](#), [DL\\_Dxf::writeHatch1\(\)](#), [DL\\_Dxf::writeHatch2\(\)](#), [DL\\_Dxf::writeHeader\(\)](#), [DL\\_Dxf::writeImage\(\)](#), [DL\\_Dxf::writeImageDef\(\)](#), [DL\\_Dxf::writeInsert\(\)](#), [DL\\_Dxf::writeLayer\(\)](#), [DL\\_Dxf::writeLeader\(\)](#), [DL\\_Dxf::writeLine\(\)](#), [DL\\_Dxf::writeLinetype\(\)](#), [DL\\_Dxf::writeMText\(\)](#), [DL\\_Dxf::writeObjects\(\)](#), [DL\\_Dxf::writeObjectsEnd\(\)](#), [DL\\_Dxf::writePoint\(\)](#), [DL\\_Dxf::writePolyline\(\)](#), [DL\\_Dxf::writeRay\(\)](#), [DL\\_Dxf::writeSolid\(\)](#), [DL\\_Dxf::writeSpline\(\)](#), [DL\\_Dxf::writeStyle\(\)](#), [DL\\_Dxf::writeText\(\)](#), [DL\\_Dxf::writeTrace\(\)](#), [DL\\_Dxf::writeUcs\(\)](#), [DL\\_Dxf::writeVertex\(\)](#), [DL\\_Dxf::writeView\(\)](#), [DL\\_Dxf::writeVPort\(\)](#), and [DL\\_Dxf::writeXLine\(\)](#).

### 5.50.2.5 dxString() [2/2]

```
void DL_WriterA::dxString (
    int gc,
    const std::string & value ) const [virtual]
```

Must be overwritten by the implementing class to write a string to the file.

## Parameters

|              |             |
|--------------|-------------|
| <i>gc</i>    | Group code. |
| <i>value</i> | The string. |

Implements [DL\\_Writer](#).

### 5.50.2.6 openFailed()

```
bool DL_WriterA::openFailed ( ) const
```

## Return values

|              |                          |
|--------------|--------------------------|
| <i>true</i>  | Opening file has failed. |
| <i>false</i> | Otherwise.               |

Referenced by [DL\\_Dxf::out\(\)](#).

The documentation for this class was generated from the following files:

- [src/dl\\_writer\\_ascii.h](#)
- [src/dl\\_writer\\_ascii.cpp](#)

## 5.51 DL\_XLineData Struct Reference

XLine Data.

```
#include <dl_entities.h>
```

### Public Member Functions

- [DL\\_XLineData](#) (double [bx](#), double [by](#), double [bz](#), double [dx](#), double [dy](#), double [dz](#))  
*Constructor.*

### Public Attributes

- double [bx](#)
- double [by](#)
- double [bz](#)
- double [dx](#)
- double [dy](#)
- double [dz](#)

#### 5.51.1 Detailed Description

XLine Data.

#### 5.51.2 Constructor & Destructor Documentation

##### 5.51.2.1 DL\_XLineData()

```
DL_XLineData::DL_XLineData (  
    double bx,  
    double by,  
    double bz,  
    double dx,  
    double dy,  
    double dz ) [inline]
```

Constructor.

Parameters: see member variables.

#### 5.51.3 Member Data Documentation

#### 5.51.3.1 bx

```
double DL_XLineData::bx
```

X base point.

Referenced by [DL\\_Dxf::writeXLine\(\)](#).

#### 5.51.3.2 by

```
double DL_XLineData::by
```

Y base point.

Referenced by [DL\\_Dxf::writeXLine\(\)](#).

#### 5.51.3.3 bz

```
double DL_XLineData::bz
```

Z base point.

Referenced by [DL\\_Dxf::writeXLine\(\)](#).

#### 5.51.3.4 dx

```
double DL_XLineData::dx
```

X direction vector.

Referenced by [DL\\_Dxf::writeXLine\(\)](#).

#### 5.51.3.5 dy

```
double DL_XLineData::dy
```

Y direction vector.

Referenced by [DL\\_Dxf::writeXLine\(\)](#).

#### 5.51.3.6 dz

```
double DL_XLineData::dz
```

Z direction vector.

Referenced by [DL\\_Dxf::writeXLine\(\)](#).

The documentation for this struct was generated from the following file:

- `src/dl_entities.h`

## Chapter 6

# File Documentation

### 6.1 dl\_attributes.h

```
1 /*****
2 ** Copyright (C) 2001-2013 RibbonSoft, GmbH. All rights reserved.
3 **
4 ** This file is part of the dxflib project.
5 **
6 ** This file is free software; you can redistribute it and/or modify
7 ** it under the terms of the GNU General Public License as published by
8 ** the Free Software Foundation; either version 2 of the License, or
9 ** (at your option) any later version.
10 **
11 ** Licensees holding valid dxflib Professional Edition licenses may use
12 ** this file in accordance with the dxflib Commercial License
13 ** Agreement provided with the Software.
14 **
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21 ** not clear to you.
22 **
23 *****/
24
25 #ifndef DL_ATTRIBUTES_H
26 #define DL_ATTRIBUTES_H
27
28 #include "dl_global.h"
29
30 #include <string>
31 #include <vector>
32
33 #include "dl_codes.h"
34
35 class DXFLIB_EXPORT DL_Attributes {
36 public:
37     DL_Attributes() :
38         layer(""),
39         color(0),
40         color24(-1),
41         width(0),
42         linetype("BYLAYER"),
43         linetypeScale(1.0),
44         handle(-1),
45         inPaperSpace(false) {
46     }
47
48     DL_Attributes(const std::string& layer,
49                 int color, int width,
50                 const std::string& linetype,
51                 double linetypeScale) :
52         layer(layer),
53         color(color),
54         color24(-1),
55         width(width),
56         linetype(linetype),
```

```

79         linetypeScale(linetypeScale),
80         handle(-1),
81         inPaperSpace(false) {
82     }
83 }
84
85 DL_Attributes(const std::string& layer,
86               int color, int color24, int width,
87               const std::string& linetype,
88               int handle=-1) :
89     layer(layer),
90     color(color),
91     color24(color24),
92     width(width),
93     linetype(linetype),
94     linetypeScale(1.0),
95     handle(handle),
96     inPaperSpace(false) {
97 }
98
99 void setLayer(const std::string& layer) {
100     this->layer = layer;
101 }
102
103 std::string getLayer() const {
104     return layer;
105 }
106
107 void setColor(int color) {
108     this->color = color;
109 }
110
111 void setColor24(int color) {
112     this->color24 = color;
113 }
114
115 int getColor() const {
116     return color;
117 }
118
119 int getColor24() const {
120     return color24;
121 }
122
123 void setWidth(int width) {
124     this->width = width;
125 }
126
127 int getWidth() const {
128     return width;
129 }
130
131 void setLinetype(const std::string& linetype) {
132     this->linetype = linetype;
133 }
134
135 void setLinetypeScale(double linetypeScale) {
136     this->linetypeScale = linetypeScale;
137 }
138
139 double getLinetypeScale() const {
140     return linetypeScale;
141 }
142
143 std::string getLinetype() const {
144     if (linetype.length()==0) {
145         return "BYLAYER";
146     } else {
147         return linetype;
148     }
149 }
150
151 void setHandle(int h) {
152     handle = h;
153 }
154
155 int getHandle() const {
156     return handle;
157 }
158
159 void setInPaperSpace(bool on) {
160     inPaperSpace = on;
161 }
162
163 bool isInPaperSpace() const {
164     return inPaperSpace;
165 }

```



```

221
222 private:
223     std::string layer;
224     int color;
225     int color24;
226     int width;
227     std::string linetype;
228     double linetypeScale;
229     int handle;
230
231     // DXF code 67 (true: entity in paper space, false: entity in model space (default):
232     bool inPaperSpace;
233 };
234
235 #endif
236
237 // EOF

```

## 6.2 dl\_codes.h

```

1  /*****
2  ** Copyright (C) 2001-2013 RibbonSoft, GmbH. All rights reserved.
3  ** Copyright (C) 2001 Robert J. Campbell Jr.
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20 **
21 ** Contact info@ribbonsoft.com if any conditions of this licensing are
22 ** not clear to you.
23 **
24 *****/
25
26 #ifndef DXF_CODES_H
27 #define DXF_CODES_H
28
29 #include "dl_global.h"
30
31 #if _MSC_VER > 1000
32 #pragma once
33 #endif // _MSC_VER > 1000
34
35 #if defined(__OS2__) || defined(__EMX__)
36 #define strcasecmp(s,t) stricmp(s,t)
37 #endif
38
39 #if defined(_WIN32)
40 #define strcasecmp(s,t) _stricmp(s,t)
41 #endif
42
43 #ifndef _WIN32
44 #undef M_PI
45 #define M_PI 3.14159265358979323846
46 #pragma warning(disable : 4800)
47 #endif
48
49 #ifndef M_PI
50 #define M_PI 3.1415926535897932384626433832795
51 #endif
52
53 #define DL_DXF_MAXLINE 1024
54 #define DL_DXF_MAXGROUPCODE 1100
55
56 // used to mark invalid vectors:
57 // #define DL_DXF_MAXDOUBLE 1.0E+10
58
59 class DXFLIB_EXPORT DL_Codes {
60 public:
61     enum color {
62         black = 250,

```

```

74     green = 3,
75     red = 1,
76     brown = 15,
77     yellow = 2,
78     cyan = 4,
79     magenta = 6,
80     gray = 8,
81     blue = 5,
82     l_blue = 163,
83     l_green = 121,
84     l_cyan = 131,
85     l_red = 23,
86     l_magenta = 221,
87     l_gray = 252,
88     white = 7,
89     bylayer = 256,
90     byblock = 0
91 };
92
93 enum version {
94     AC1009_MIN,      // R12, minimalistic
95     AC1009,          // R12
96     AC1012,
97     AC1014,
98     AC1015           // R2000
99 };
100 };
101
102 // Extended color palette:
103 // The first entry is only for direct indexing starting with [1]
104 // Color 1 is red (1,0,0)
105 const double dxfColors[][3] = {
106     {0,0,0},          // unused
107     {1,0,0},          // 1
108     {1,1,0},
109     {0,1,0},
110     {0,1,1},
111     {0,0,1},
112     {1,0,1},
113     {1,1,1},          // black or white
114     {0.5,0.5,0.5},
115     {0.75,0.75,0.75},
116     {1,0,0},          // 10
117     {1,0.5,0.5},
118     {0.65,0,0},
119     {0.65,0.325,0.325},
120     {0.5,0,0},
121     {0.5,0.25,0.25},
122     {0.3,0,0},
123     {0.3,0.15,0.15},
124     {0.15,0,0},
125     {0.15,0.075,0.075},
126     {1,0.25,0},        // 20
127     {1,0.625,0.5},
128     {0.65,0.1625,0},
129     {0.65,0.4063,0.325},
130     {0.5,0.125,0},
131     {0.5,0.3125,0.25},
132     {0.3,0.075,0},
133     {0.3,0.1875,0.15},
134     {0.15,0.0375,0},
135     {0.15,0.0938,0.075},
136     {1,0.5,0},          // 30
137     {1,0.75,0.5},
138     {0.65,0.325,0},
139     {0.65,0.4875,0.325},
140     {0.5,0.25,0},
141     {0.5,0.375,0.25},
142     {0.3,0.15,0},
143     {0.3,0.225,0.15},
144     {0.15,0.075,0},
145     {0.15,0.1125,0.075},
146     {1,0.75,0},          // 40
147     {1,0.875,0.5},
148     {0.65,0.4875,0},
149     {0.65,0.5688,0.325},
150     {0.5,0.375,0},
151     {0.5,0.4375,0.25},
152     {0.3,0.225,0},
153     {0.3,0.2625,0.15},
154     {0.15,0.1125,0},
155     {0.15,0.1313,0.075},
156     {1,1,0},           // 50
157     {1,1,0.5},
158     {0.65,0.65,0},
159     {0.65,0.65,0.325},
160
161
162
163

```

```

164         {0.5,0.5,0},
165         {0.5,0.5,0.25},
166         {0.3,0.3,0},
167         {0.3,0.3,0.15},
168         {0.15,0.15,0},
169         {0.15,0.15,0.075},
170         {0.75,1,0}, // 60
171         {0.875,1,0.5},
172         {0.4875,0.65,0},
173         {0.5688,0.65,0.325},
174         {0.375,0.5,0},
175         {0.4375,0.5,0.25},
176         {0.225,0.3,0},
177         {0.2625,0.3,0.15},
178         {0.1125,0.15,0},
179         {0.1313,0.15,0.075},
180         {0.5,1,0}, // 70
181         {0.75,1,0.5},
182         {0.325,0.65,0},
183         {0.4875,0.65,0.325},
184         {0.25,0.5,0},
185         {0.375,0.5,0.25},
186         {0.15,0.3,0},
187         {0.225,0.3,0.15},
188         {0.075,0.15,0},
189         {0.1125,0.15,0.075},
190         {0.25,1,0}, // 80
191         {0.625,1,0.5},
192         {0.1625,0.65,0},
193         {0.4063,0.65,0.325},
194         {0.125,0.5,0},
195         {0.3125,0.5,0.25},
196         {0.075,0.3,0},
197         {0.1875,0.3,0.15},
198         {0.0375,0.15,0},
199         {0.0938,0.15,0.075},
200         {0,1,0}, // 90
201         {0.5,1,0.5},
202         {0,0.65,0},
203         {0.325,0.65,0.325},
204         {0,0.5,0},
205         {0.25,0.5,0.25},
206         {0,0.3,0},
207         {0.15,0.3,0.15},
208         {0,0.15,0},
209         {0.075,0.15,0.075},
210         {0,1,0.25}, // 100
211         {0.5,1,0.625},
212         {0,0.65,0.1625},
213         {0.325,0.65,0.4063},
214         {0,0.5,0.125},
215         {0.25,0.5,0.3125},
216         {0,0.3,0.075},
217         {0.15,0.3,0.1875},
218         {0,0.15,0.0375},
219         {0.075,0.15,0.0938},
220         {0,1,0.5}, // 110
221         {0.5,1,0.75},
222         {0,0.65,0.325},
223         {0.325,0.65,0.4875},
224         {0,0.5,0.25},
225         {0.25,0.5,0.375},
226         {0,0.3,0.15},
227         {0.15,0.3,0.225},
228         {0,0.15,0.075},
229         {0.075,0.15,0.1125},
230         {0,1,0.75}, // 120
231         {0.5,1,0.875},
232         {0,0.65,0.4875},
233         {0.325,0.65,0.5688},
234         {0,0.5,0.375},
235         {0.25,0.5,0.4375},
236         {0,0.3,0.225},
237         {0.15,0.3,0.2625},
238         {0,0.15,0.1125},
239         {0.075,0.15,0.1313},
240         {0,1,1}, // 130
241         {0.5,1,1},
242         {0,0.65,0.65},
243         {0.325,0.65,0.65},
244         {0,0.5,0.5},
245         {0.25,0.5,0.5},
246         {0,0.3,0.3},
247         {0.15,0.3,0.3},
248         {0,0.15,0.15},
249         {0.075,0.15,0.15},
250         {0,0.75,1}, // 140

```

```
251         {0.5,0.875,1},
252         {0,0.4875,0.65},
253         {0.325,0.5688,0.65},
254         {0,0.375,0.5},
255         {0.25,0.4375,0.5},
256         {0,0.225,0.3},
257         {0.15,0.2625,0.3},
258         {0,0.1125,0.15},
259         {0.075,0.1313,0.15},
260         {0,0.5,1}, // 150
261         {0.5,0.75,1},
262         {0,0.325,0.65},
263         {0.325,0.4875,0.65},
264         {0,0.25,0.5},
265         {0.25,0.375,0.5},
266         {0,0.15,0.3},
267         {0.15,0.225,0.3},
268         {0,0.075,0.15},
269         {0.075,0.1125,0.15},
270         {0,0.25,1}, // 160
271         {0.5,0.625,1},
272         {0,0.1625,0.65},
273         {0.325,0.4063,0.65},
274         {0,0.125,0.5},
275         {0.25,0.3125,0.5},
276         {0,0.075,0.3},
277         {0.15,0.1875,0.3},
278         {0,0.0375,0.15},
279         {0.075,0.0938,0.15},
280         {0,0,1}, // 170
281         {0.5,0.5,1},
282         {0,0,0.65},
283         {0.325,0.325,0.65},
284         {0,0,0.5},
285         {0.25,0.25,0.5},
286         {0,0,0.3},
287         {0.15,0.15,0.3},
288         {0,0,0.15},
289         {0.075,0.075,0.15},
290         {0.25,0,1}, // 180
291         {0.625,0.5,1},
292         {0.1625,0,0.65},
293         {0.4063,0.325,0.65},
294         {0.125,0,0.5},
295         {0.3125,0.25,0.5},
296         {0.075,0,0.3},
297         {0.1875,0.15,0.3},
298         {0.0375,0,0.15},
299         {0.0938,0.075,0.15},
300         {0.5,0,1}, // 190
301         {0.75,0.5,1},
302         {0.325,0,0.65},
303         {0.4875,0.325,0.65},
304         {0.25,0,0.5},
305         {0.375,0.25,0.5},
306         {0.15,0,0.3},
307         {0.225,0.15,0.3},
308         {0.075,0,0.15},
309         {0.1125,0.075,0.15},
310         {0.75,0,1}, // 200
311         {0.875,0.5,1},
312         {0.4875,0,0.65},
313         {0.5688,0.325,0.65},
314         {0.375,0,0.5},
315         {0.4375,0.25,0.5},
316         {0.225,0,0.3},
317         {0.2625,0.15,0.3},
318         {0.1125,0,0.15},
319         {0.1313,0.075,0.15},
320         {1,0,1}, // 210
321         {1,0.5,1},
322         {0.65,0,0.65},
323         {0.65,0.325,0.65},
324         {0.5,0,0.5},
325         {0.5,0.25,0.5},
326         {0.3,0,0.3},
327         {0.3,0.15,0.3},
328         {0.15,0,0.15},
329         {0.15,0.075,0.15},
330         {1,0,0.75}, // 220
331         {1,0.5,0.875},
332         {0.65,0,0.4875},
333         {0.65,0.325,0.5688},
334         {0.5,0,0.375},
335         {0.5,0.25,0.4375},
336         {0.3,0,0.225},
337         {0.3,0.15,0.2625},
```

```

338         {0.15,0,0.1125},
339         {0.15,0.075,0.1313},
340         {1,0,0.5},           // 230
341         {1,0.5,0.75},
342         {0.65,0,0.325},
343         {0.65,0.325,0.4875},
344         {0.5,0,0.25},
345         {0.5,0.25,0.375},
346         {0.3,0,0.15},
347         {0.3,0.15,0.225},
348         {0.15,0,0.075},
349         {0.15,0.075,0.1125},
350         {1,0,0.25},           // 240
351         {1,0.5,0.625},
352         {0.65,0,0.1625},
353         {0.65,0.325,0.4063},
354         {0.5,0,0.125},
355         {0.5,0.25,0.3125},
356         {0.3,0,0.075},
357         {0.3,0.15,0.1875},
358         {0.15,0,0.0375},
359         {0.15,0.075,0.0938},
360         {0.33,0.33,0.33},     // 250
361         {0.464,0.464,0.464},
362         {0.598,0.598,0.598},
363         {0.732,0.732,0.732},
364         {0.866,0.866,0.866},
365         {1,1,1}               // 255
366     }
367 ;
368
369
370 // AutoCAD VERSION aliases
371 #define DL_VERSION_R12    DL_Codes::AC1009
372 #define DL_VERSION_LT2    DL_Codes::AC1009
373 #define DL_VERSION_R13    DL_Codes::AC1012 // not supported yet
374 #define DL_VERSION_LT95   DL_Codes::AC1012 // not supported yet
375 #define DL_VERSION_R14    DL_Codes::AC1014 // not supported yet
376 #define DL_VERSION_LT97   DL_Codes::AC1014 // not supported yet
377 #define DL_VERSION_LT98   DL_Codes::AC1014 // not supported yet
378 #define DL_VERSION_2000   DL_Codes::AC1015
379 #define DL_VERSION_2002   DL_Codes::AC1015
380
381
382 // DXF Group Codes:
383
384 // Strings
385 #define DL_STRGRP_START    0
386 #define DL_STRGRP_END      9
387
388 // Coordinates
389 #define DL_CRDGRP_START    10
390 #define DL_CRDGRP_END      19
391
392 // Real values
393 #define DL_RLGRP_START     38
394 #define DL_RLGRP_END       59
395
396 // Short integer values
397 #define DL_SHOGRP_START    60
398 #define DL_SHOGRP_END      79
399
400 // New in Release 13,
401 #define DL_SUBCLASS        100
402
403 // More coordinates
404 #define DL_CRD2GRP_START   210
405 #define DL_CRD2GRP_END     239
406
407 // Extended data strings
408 #define DL ESTRGRP_START 1000
409 #define DL ESTRGRP_END   1009
410
411 // Extended data reals
412 #define DL ERLGRP_START 1010
413 #define DL ERLGRP_END   1059
414
415
416 #define DL_Y8_COORD_CODE    28
417 #define DL_Z0_COORD_CODE    30
418 #define DL_Z8_COORD_CODE    38
419
420 #define DL_POINT_COORD_CODE 10
421 #define DL_INSERT_COORD_CODE 10
422
423 #define DL_CRD2GRP_START    210
424 #define DL_CRD2GRP_END      239

```

```

425
426 #define DL_THICKNESS          39
427 #define DL_FIRST_REAL_CODE    THICKNESS
428 #define DL_LAST_REAL_CODE     59
429 #define DL_FIRST_INT_CODE     60
430 #define DL_ATTFLAGS_CODE     70
431 #define DL_PLINE_FLAGS_CODE   70
432 #define DL_LAYER_FLAGS_CODE   70
433 #define DL_FLD_LEN_CODE       73 // Inside ATTRIB resbuf
434 #define DL_LAST_INT_CODE      79
435 #define DL_X_EXTRU_CODE       210
436 #define DL_Y_EXTRU_CODE       220
437 #define DL_Z_EXTRU_CODE       230
438 #define DL_COMMENT_CODE       999
439
440 // Start and endpoints of a line
441 #define DL_LINE_START_CODE     10 // Followed by x coord
442 #define DL_LINE_END_CODE       11 // Followed by x coord
443
444 // Some codes used by blocks
445 #define DL_BLOCK_FLAGS_CODE    70 // An int containing flags
446 #define DL_BLOCK_BASE_CODE     10 // Origin of block definition
447 #define DL_XREF_DEPENDENT      16 // If a block contains an XREF
448 #define DL_XREF_RESOLVED       32 // If a XREF resolved ok
449 #define DL_REFERENCED          64 // If a block is ref'd in DWG
450
451 #define DL_XSCALE_CODE         41
452 #define DL_YSCALE_CODE         42
453 #define DL_ANGLE_CODE          50
454 #define DL_INS_POINT_CODE      10 // Followed by x of ins pnt
455 #define DL_NAME2_CODE          3 // Second appearance of name
456
457 // Some codes used by circle entities
458 #define DL_CENTER_CODE         10 // Followed by x of center
459 #define DL_RADIUS_CODE         40 // Followed by radius of circle
460
461 #define DL_COND_OP_CODE        -4 // Conditional op, ads_ssget
462
463 // When using ads_buildlist you MUST use RTDXF0 instead of these
464 #define DL_ENTITY_TYPE_CODE     0 // Then there is LINE, 3DFACE..
465 #define DL_SES_CODE             0 // Start End String Code
466 #define DL_FILE_SEP_CODE        0 // File separator
467 #define DL_SOT_CODE             0 // Start Of Table
468 #define DL_TEXTVAL_CODE         1
469 #define DL_NAME_CODE            2
470 #define DL_BLOCK_NAME_CODE      2
471 #define DL_SECTION_NAME_CODE    2
472 #define DL_ENT_HAND_CODE        5 // What follows is hexa string
473 #define DL_TXT_STYLE_CODE       7 // Inside attributes
474 #define DL_LAYER_NAME_CODE      8 // What follows is layer name
475 #define DL_FIRST_XCOORD_CODE    10 // Group code x of 1st coord
476 #define DL_FIRST_YCOORD_CODE    20 // Group code y of 1st coord
477 #define DL_FIRST_ZCOORD_CODE    30 // Group code z of 1st coord
478 #define DL_L_START_CODE         10
479 #define DL_L_END_CODE           11
480 #define DL_TXTHI_CODE           40
481 #define DL_SCALE_X_CODE         41
482 #define DL_SCALE_Y_CODE         42
483 #define DL_SCALE_Z_CODE         43
484 #define DL_BULGE_CODE           42 // Used in PLINE verts for arcs
485 #define DL_ROTATION_CODE        50
486 #define DL_COLOUR_CODE          62 // What follows is a color int
487 #define DL_LTYPE_CODE           6 // What follows is a linetype
488
489
490 // Attribute flags
491 #define DL_ATTS_FOLLOW_CODE     66
492 #define DL_ATT_TAG_CODE         2
493 #define DL_ATT_VAL_CODE         1
494 #define DL_ATT_FLAGS_CODE       70 // 4 1 bit flags as follows...
495 #define DL_ATT_INVIS_FLAG       1
496 #define DL_ATT_CONST_FLAG       2
497 #define DL_ATT_VERIFY_FLAG      4 // Prompt and verify
498 #define DL_ATT_PRESET_FLAG      8 // No prompt and no verify
499
500 // PLINE defines
501 // Flags
502 #define DL_OPEN_PLINE           0x00
503 #define DL_CLOSED_PLINE         0x01
504 #define DL_POLYLINE3D           0x08
505 #define DL_PFACE_MESH           0x40
506 #define DL_PGON_MESH            0x10
507 // Vertices follow entity, required in POLYLINES
508 #define DL_VERTS_FOLLOW_CODE     66 // Value should always be 1
509 #define DL_VERTEX_COORD_CODE     10
510
511

```

```

512 // LAYER flags
513 #define DL_FROZEN 1
514 #define DL_FROZEN_BY_DEF 2
515 #define DL_LOCKED 4
516 #define DL_OBJECT_USED 64 // Object is ref'd in the dwg
517
518 #define DL_BLOCK_EN_CODE -2 // Block entity definition
519 #define DL_E_NAME -1 // Entity name
520
521 // Extended data codes
522 #define DL_EXTD_SENTINEL (-3)
523 #define DL_EXTD_STR 1000
524 #define DL_EXTD_APP_NAME 1001
525 #define DL_EXTD_CTL_STR 1002
526 #define DL_EXTD_LYR_STR 1003
527 #define DL_EXTD_CHUNK 1004
528 #define DL_EXTD_HANDLE 1005
529 #define DL_EXTD_POINT 1010
530 #define DL_EXTD_POS 1011
531 #define DL_EXTD_DISP 1012
532 #define DL_EXTD_DIR 1013
533 #define DL_EXTD_FLOAT 1040
534 #define DL_EXTD_DIST 1041
535 #define DL_EXTD_SCALE 1042
536 #define DL_EXTD_INT16 1070
537 #define DL_EXTD_INT32 1071
538
539 // UCS codes for use in ads_trans
540 #define DL_WCS_TRANS_CODE 0
541 #define DL_UCS_TRANS_CODE 1
542 #define DL_DCS_TRANS_CODE 2
543 #define DL_PCS_TRANS_CODE 3
544
545 #endif
546

```

## 6.3 dl\_creationadapter.h

```

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22 **
23 *****/
24
25 #ifndef DL_CREATIONADAPTER_H
26 #define DL_CREATIONADAPTER_H
27
28 #include "dl_global.h"
29
30 #include "dl_creationinterface.h"
31
32
33 class DXFLIB_EXPORT DL_CreationAdapter : public DL_CreationInterface {
34 public:
35     DL_CreationAdapter() {}
36     virtual ~DL_CreationAdapter() {}
37     virtual void processCodeValuePair(unsigned int, const std::string&) {}
38     virtual void endSection() {}
39     virtual void addLayer(const DL_LayerData&) {}
40     virtual void addLinetype(const DL_LinetypeData&) {}
41     virtual void addLinetypeDash(double) {}
42     virtual void addBlock(const DL_BlockData&) {}
43     virtual void endBlock() {}
44     virtual void addTextStyle(const DL_StyleData&) {}
45     virtual void addPoint(const DL_PointData&) {}
46     virtual void addLine(const DL_LineData&) {}
47

```

```

53     virtual void addXLine(const DL_XLineData&) {}
54     virtual void addRay(const DL_RayData&) {}
55
56     virtual void addArc(const DL_ArcData&) {}
57     virtual void addCircle(const DL_CircleData&) {}
58     virtual void addEllipse(const DL_EllipseData&) {}
59
60     virtual void addPolyline(const DL_PolylineData&) {}
61     virtual void addVertex(const DL_VertexData&) {}
62
63     virtual void addSpline(const DL_SplineData&) {}
64     virtual void addControlPoint(const DL_ControlPointData&) {}
65     virtual void addFitPoint(const DL_FitPointData&) {}
66     virtual void addKnot(const DL_KnotData&) {}
67
68     virtual void addInsert(const DL_InsertData&) {}
69
70     virtual void addMText(const DL_MTextData&) {}
71     virtual void addMTextChunk(const std::string&) {}
72     virtual void addText(const DL_TextData&) {}
73     virtual void addArcAlignedText(const DL_ArcAlignedTextData&) {}
74     virtual void addAttribute(const DL_AttributeData&) {}
75
76     virtual void addDimAlign(const DL_DimensionData&,
77                             const DL_DimAlignedData&) {}
78     virtual void addDimLinear(const DL_DimensionData&,
79                              const DL_DimLinearData&) {}
80     virtual void addDimRadial(const DL_DimensionData&,
81                              const DL_DimRadialData&) {}
82     virtual void addDimDiametric(const DL_DimensionData&,
83                                  const DL_DimDiametricData&) {}
84     virtual void addDimAngular(const DL_DimensionData&,
85                                const DL_DimAngular2LData&) {}
86     virtual void addDimAngular3P(const DL_DimensionData&,
87                                  const DL_DimAngular3PData&) {}
88     virtual void addDimOrdinate(const DL_DimensionData&,
89                                 const DL_DimOrdinateData&) {}
90     virtual void addLeader(const DL_LeaderData&) {}
91     virtual void addLeaderVertex(const DL_LeaderVertexData&) {}
92
93     virtual void addHatch(const DL_HatchData&) {}
94
95     virtual void addTrace(const DL_TraceData&) {}
96     virtual void add3dFace(const DL_3dFaceData&) {}
97     virtual void addSolid(const DL_SolidData&) {}
98
99     virtual void addImage(const DL_ImageData&) {}
100    virtual void linkImage(const DL_ImageDefData&) {}
101    virtual void addHatchLoop(const DL_HatchLoopData&) {}
102    virtual void addHatchEdge(const DL_HatchEdgeData&) {}
103
104    virtual void addXRecord(const std::string&) {}
105    virtual void addXRecordString(int, const std::string&) {}
106    virtual void addXRecordReal(int, double) {}
107    virtual void addXRecordInt(int, int) {}
108    virtual void addXRecordBool(int, bool) {}
109
110    virtual void addXDataApp(const std::string&) {}
111    virtual void addXDataString(int, const std::string&) {}
112    virtual void addXDataReal(int, double) {}
113    virtual void addXDataInt(int, int) {}
114
115    virtual void addDictionary(const DL_DictionaryData&) {}
116    virtual void addDictionaryEntry(const DL_DictionaryEntryData&) {}
117
118    virtual void endEntity() {}
119
120    virtual void addComment(const std::string&) {}
121
122    virtual void setVariableVector(const std::string&, double, double, double, int) {}
123    virtual void setVariableString(const std::string&, const std::string&, int) {}
124    virtual void setVariableInt(const std::string&, int, int) {}
125    virtual void setVariableDouble(const std::string&, double, int) {}
126 #ifdef DL_COMPAT
127    virtual void setVariableVector(const char*, double, double, double, int) {}
128    virtual void setVariableString(const char*, const char*, int) {}
129    virtual void setVariableInt(const char*, int, int) {}
130    virtual void setVariableDouble(const char*, double, int) {}
131    virtual void processCodeValuePair(unsigned int, char*) {}
132    virtual void addComment(const char*) {}
133    virtual void addMTextChunk(const char*) {}
134 #endif
135    virtual void endSequence() {}
136 };
137
138 #endif

```



## 6.4 dl\_creationinterface.h

```

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21 ** not clear to you.
22 **
23 *****/
24
25 #ifndef DL_CREATIONINTERFACE_H
26 #define DL_CREATIONINTERFACE_H
27
28 #include "dl_global.h"
29
30 #include <string.h>
31
32 #include "dl_attributes.h"
33 #include "dl_codes.h"
34 #include "dl_entities.h"
35 #include "dl_extrusion.h"
36
37 class DXFLIB_EXPORT DL_CreationInterface {
38 public:
39     DL_CreationInterface() {
40         extrusion = new DL_Extrusion;
41     }
42     virtual ~DL_CreationInterface() {
43         delete extrusion;
44     }
45
46     virtual void processCodeValuePair(unsigned int groupCode, const std::string& groupValue) = 0;
47
48     virtual void endSection() = 0;
49
50     virtual void addLayer(const DL_LayerData& data) = 0;
51
52     virtual void addLinetype(const DL_LinetypeData& data) = 0;
53
54     virtual void addLinetypeDash(double length) = 0;
55
56     virtual void addBlock(const DL_BlockData& data) = 0;
57
58     virtual void endBlock() = 0;
59
60     virtual void addTextStyle(const DL_StyleData& data) = 0;
61
62     virtual void addPoint(const DL_PointData& data) = 0;
63
64     virtual void addLine(const DL_LineData& data) = 0;
65
66     virtual void addXLine(const DL_XLineData& data) = 0;
67
68     virtual void addRay(const DL_RayData& data) = 0;
69
70     virtual void addArc(const DL_ArcData& data) = 0;
71
72     virtual void addCircle(const DL_CircleData& data) = 0;
73
74     virtual void addEllipse(const DL_EllipseData& data) = 0;
75
76     virtual void addPolyline(const DL_PolylineData& data) = 0;
77
78     virtual void addVertex(const DL_VertexData& data) = 0;
79
80     virtual void addSpline(const DL_SplineData& data) = 0;
81
82     virtual void addControlPoint(const DL_ControlPointData& data) = 0;
83
84     virtual void addFitPoint(const DL_FitPointData& data) = 0;
85
86 };
87
88 #endif

```

```

133     virtual void addKnot(const DL_KnotData& data) = 0;
134
136     virtual void addInsert(const DL_InsertData& data) = 0;
137
139     virtual void addTrace(const DL_TraceData& data) = 0;
140
142     virtual void add3dFace(const DL_3dFaceData& data) = 0;
143
145     virtual void addSolid(const DL_SolidData& data) = 0;
146
147
149     virtual void addMText(const DL_MTextData& data) = 0;
150
156     virtual void addMTextChunk(const std::string& text) = 0;
157
159     virtual void addText(const DL_TextData& data) = 0;
160
162     virtual void addArcAlignedText(const DL_ArcAlignedTextData& data) = 0;
163
165     virtual void addAttribute(const DL_AttributeData& data) = 0;
166
170     virtual void addDimAlign(const DL_DimensionData& data,
171                             const DL_DimAlignedData& edata) = 0;
175     virtual void addDimLinear(const DL_DimensionData& data,
176                              const DL_DimLinearData& edata) = 0;
177
181     virtual void addDimRadial(const DL_DimensionData& data,
182                              const DL_DimRadialData& edata) = 0;
183
187     virtual void addDimDiametric(const DL_DimensionData& data,
188                                  const DL_DimDiametricData& edata) = 0;
189
193     virtual void addDimAngular(const DL_DimensionData& data,
194                                const DL_DimAngular2LData& edata) = 0;
195
199     virtual void addDimAngular3P(const DL_DimensionData& data,
200                                  const DL_DimAngular3PData& edata) = 0;
201
205     virtual void addDimOrdinate(const DL_DimensionData& data,
206                                 const DL_DimOrdinateData& edata) = 0;
207
211     virtual void addLeader(const DL_LeaderData& data) = 0;
212
216     virtual void addLeaderVertex(const DL_LeaderVertexData& data) = 0;
217
221     virtual void addHatch(const DL_HatchData& data) = 0;
222
226     virtual void addImage(const DL_ImageData& data) = 0;
227
231     virtual void linkImage(const DL_ImageDefData& data) = 0;
232
236     virtual void addHatchLoop(const DL_HatchLoopData& data) = 0;
237
241     virtual void addHatchEdge(const DL_HatchEdgeData& data) = 0;
242
246     virtual void addXRecord(const std::string& handle) = 0;
247
251     virtual void addXRecordString(int code, const std::string& value) = 0;
252
256     virtual void addXRecordReal(int code, double value) = 0;
257
261     virtual void addXRecordInt(int code, int value) = 0;
262
266     virtual void addXRecordBool(int code, bool value) = 0;
267
271     virtual void addXDataApp(const std::string& appId) = 0;
272
276     virtual void addXDataString(int code, const std::string& value) = 0;
277
281     virtual void addXDataReal(int code, double value) = 0;
282
286     virtual void addXDataInt(int code, int value) = 0;
287
291     virtual void addDictionary(const DL_DictionaryData& data) = 0;
292
296     virtual void addDictionaryEntry(const DL_DictionaryEntryData& data) = 0;
297
301     virtual void endEntity() = 0;
302
306     virtual void addComment(const std::string& comment) = 0;
307
311     virtual void setVariableVector(const std::string& key, double v1, double v2, double v3, int code) =
0;
312
316     virtual void setVariableString(const std::string& key, const std::string& value, int code) = 0;
317
321     virtual void setVariableInt(const std::string& key, int value, int code) = 0;

```

```

322
326     virtual void setVariableDouble(const std::string& key, double value, int code) = 0;
327
328 #ifdef DL_COMPAT
329     virtual void setVariableVector(const char* key, double v1, double v2, double v3, int code) = 0;
330     virtual void setVariableString(const char* key, const char* value, int code) = 0;
331     virtual void setVariableInt(const char* key, int value, int code) = 0;
332     virtual void setVariableDouble(const char* key, double value, int code) = 0;
333     virtual void processCodeValuePair(unsigned int groupCode, char* groupValue) = 0;
334     virtual void addComment(const char* comment) = 0;
335     virtual void addMTextChunk(const char* text) = 0;
336 #endif
337
341     virtual void endSequence() = 0;
342
344     void setAttributes(const DL_Attributes& attrib) {
345         attributes = attrib;
346     }
347
349     DL_Attributes getAttributes() {
350         return attributes;
351     }
352
354     void setExtrusion(double dx, double dy, double dz, double elevation) {
355         extrusion->setDirection(dx, dy, dz);
356         extrusion->setElevation(elevation);
357     }
358
360     DL_Extrusion* getExtrusion() {
361         return extrusion;
362     }
363
364 protected:
365     DL_Attributes attributes;
366     DL_Extrusion *extrusion;
367 };
368
369 #endif

```

## 6.5 dl\_dxf.h

```

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23 *****/
24
25 #ifndef DL_DXF_H
26 #define DL_DXF_H
27
28 #include "dl_global.h"
29
30 #include <limits>
31 #include <stdio.h>
32 #include <stdlib.h>
33 #include <string>
34 #include <sstream>
35 #include <map>
36
37 #include "dl_attributes.h"
38 #include "dl_codes.h"
39 #include "dl_entities.h"
40 #include "dl_writer_ascii.h"
41
42 #ifdef _WIN32

```

```

43 #undef M_PI
44 #define M_PI 3.14159265358979323846
45 #pragma warning(disable : 4800)
46 #endif
47
48 #ifndef M_PI
49 #define M_PI 3.1415926535897932384626433832795
50 #endif
51
52 #ifndef DL_NANDOUBLE
53 #define DL_NANDOUBLE std::numeric_limits<double>::quiet_NaN()
54 #endif
55
56 class DL_CreationInterface;
57 class DL_WriterA;
58
59
60 #define DL_VERSION "3.26.4.0"
61
62 #define DL_VERSION_MAJOR 3
63 #define DL_VERSION_MINOR 26
64 #define DL_VERSION_REV 4
65 #define DL_VERSION_BUILD 0
66
67 #define DL_UNKNOWN 0
68 #define DL_LAYER 10
69 #define DL_BLOCK 11
70 #define DL_ENDBLK 12
71 #define DL_LINETYPE 13
72 #define DL_STYLE 20
73 #define DL_SETTING 50
74 #define DL_ENTITY_POINT 100
75 #define DL_ENTITY_LINE 101
76 #define DL_ENTITY_POLYLINE 102
77 #define DL_ENTITY_LWPOLYLINE 103
78 #define DL_ENTITY_VERTEX 104
79 #define DL_ENTITY_SPLINE 105
80 #define DL_ENTITY_KNOT 106
81 #define DL_ENTITY_CONTROLPOINT 107
82 #define DL_ENTITY_ARC 108
83 #define DL_ENTITY_CIRCLE 109
84 #define DL_ENTITY_ELLIPSE 110
85 #define DL_ENTITY_INSERT 111
86 #define DL_ENTITY_TEXT 112
87 #define DL_ENTITY_MTEXT 113
88 #define DL_ENTITY_DIMENSION 114
89 #define DL_ENTITY_LEADER 115
90 #define DL_ENTITY_HATCH 116
91 #define DL_ENTITY_ATTRIB 117
92 #define DL_ENTITY_IMAGE 118
93 #define DL_ENTITY_IMAGEDEF 119
94 #define DL_ENTITY_TRACE 120
95 #define DL_ENTITY_SOLID 121
96 #define DL_ENTITY_3DFACE 122
97 #define DL_ENTITY_XLINE 123
98 #define DL_ENTITY_RAY 124
99 #define DL_ENTITY_ARCALIGNEDTEXT 125
100 #define DL_ENTITY_SEQEND 126
101 #define DL_XRECORD 200
102 #define DL_DICTIONARY 210
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122 class DXFLIB_EXPORT DL_Dxf {
123 public:
124     DL_Dxf();
125     ~DL_Dxf();
126
127     bool in(const std::string& file,
128            DL_CreationInterface* creationInterface);
129     bool readDxfGroups(FILE* fp,
130            DL_CreationInterface* creationInterface);
131     static bool getStrippedLine(std::string& s, unsigned int size,
132            FILE* stream, bool stripSpace = true);
133
134     bool readDxfGroups(std::istream& stream,
135            DL_CreationInterface* creationInterface);
136     bool in(std::istream& stream,
137            DL_CreationInterface* creationInterface);
138     static bool getStrippedLine(std::string& s, unsigned int size,
139            std::istream& stream, bool stripSpace = true);
140
141     static bool stripWhiteSpace(char** s, bool stripSpaces = true);
142
143     bool processDXFGroup(DL_CreationInterface* creationInterface,
144            int groupCode, const std::string& groupValue);
145     void addSetting(DL_CreationInterface* creationInterface);
146     void addLayer(DL_CreationInterface* creationInterface);

```

```

147 void addLinetype(DL_CreationInterface* creationInterface);
148 void addBlock(DL_CreationInterface* creationInterface);
149 void endBlock(DL_CreationInterface* creationInterface);
150 void addTextStyle(DL_CreationInterface* creationInterface);
151
152 void addPoint(DL_CreationInterface* creationInterface);
153 void addLine(DL_CreationInterface* creationInterface);
154 void addXLine(DL_CreationInterface* creationInterface);
155 void addRay(DL_CreationInterface* creationInterface);
156
157 void addPolyline(DL_CreationInterface* creationInterface);
158 void addVertex(DL_CreationInterface* creationInterface);
159
160 void addSpline(DL_CreationInterface* creationInterface);
161
162 void addArc(DL_CreationInterface* creationInterface);
163 void addCircle(DL_CreationInterface* creationInterface);
164 void addEllipse(DL_CreationInterface* creationInterface);
165 void addInsert(DL_CreationInterface* creationInterface);
166
167 void addTrace(DL_CreationInterface* creationInterface);
168 void add3dFace(DL_CreationInterface* creationInterface);
169 void addSolid(DL_CreationInterface* creationInterface);
170
171 void addMText(DL_CreationInterface* creationInterface);
172 void addText(DL_CreationInterface* creationInterface);
173 void addArcAlignedText(DL_CreationInterface* creationInterface);
174
175 void addAttribute(DL_CreationInterface* creationInterface);
176
177 DL_DimensionData getDimData();
178 void addDimLinear(DL_CreationInterface* creationInterface);
179 void addDimAligned(DL_CreationInterface* creationInterface);
180 void addDimRadial(DL_CreationInterface* creationInterface);
181 void addDimDiametric(DL_CreationInterface* creationInterface);
182 void addDimAngular(DL_CreationInterface* creationInterface);
183 void addDimAngular3P(DL_CreationInterface* creationInterface);
184 void addDimOrdinate(DL_CreationInterface* creationInterface);
185
186 void addLeader(DL_CreationInterface* creationInterface);
187
188 void addHatch(DL_CreationInterface* creationInterface);
189 void addHatchLoop();
190 void addHatchEdge();
191 bool handleHatchData(DL_CreationInterface* creationInterface);
192
193 void addImage(DL_CreationInterface* creationInterface);
194 void addImageDef(DL_CreationInterface* creationInterface);
195
196 void addComment(DL_CreationInterface* creationInterface, const std::string& comment);
197
198 void addDictionary(DL_CreationInterface* creationInterface);
199 void addDictionaryEntry(DL_CreationInterface* creationInterface);
200
201 bool handleXRecordData(DL_CreationInterface* creationInterface);
202 bool handleDictionaryData(DL_CreationInterface* creationInterface);
203
204 bool handleXData(DL_CreationInterface* creationInterface);
205 bool handleMTextData(DL_CreationInterface* creationInterface);
206 bool handleLWPolylineData(DL_CreationInterface* creationInterface);
207 bool handleSplineData(DL_CreationInterface* creationInterface);
208 bool handleLeaderData(DL_CreationInterface* creationInterface);
209 bool handleLinetypeData(DL_CreationInterface* creationInterface);
210
211 void endEntity(DL_CreationInterface* creationInterface);
212
213 void endSequence(DL_CreationInterface* creationInterface);
214
215 //int stringToInt(const char* s, bool* ok=NULL);
216
217 DL_WriterA* out(const char* file,
218                DL_Codes::version version=DL_VERSION_2000);
219
220 void writeHeader(DL_WriterA& dw);
221
222 void writePoint(DL_WriterA& dw,
223                const DL_PointData& data,
224                const DL_Attributes& attrib);
225 void writeLine(DL_WriterA& dw,
226                const DL_LineData& data,
227                const DL_Attributes& attrib);
228 void writeXLine(DL_WriterA& dw,
229                const DL_XLineData& data,
230                const DL_Attributes& attrib);
231 void writeRay(DL_WriterA& dw,
232               const DL_RayData& data,
233               const DL_Attributes& attrib);

```

```
234 void writePolyline(DL_WriterA& dw,  
235                   const DL_PolylineData& data,  
236                   const DL_Attributes& attrib);  
237 void writeVertex(DL_WriterA& dw,  
238                 const DL_VertexData& data);  
239 void writePolylineEnd(DL_WriterA& dw);  
240 void writeSpline(DL_WriterA& dw,  
241                 const DL_SplineData& data,  
242                 const DL_Attributes& attrib);  
243 void writeControlPoint(DL_WriterA& dw,  
244                       const DL_ControlPointData& data);  
245 void writeFitPoint(DL_WriterA& dw,  
246                   const DL_FitPointData& data);  
247 void writeKnot(DL_WriterA& dw,  
248               const DL_KnotData& data);  
249 void writeCircle(DL_WriterA& dw,  
250                 const DL_CircleData& data,  
251                 const DL_Attributes& attrib);  
252 void writeArc(DL_WriterA& dw,  
253               const DL_ArcData& data,  
254               const DL_Attributes& attrib);  
255 void writeEllipse(DL_WriterA& dw,  
256                  const DL_EllipseData& data,  
257                  const DL_Attributes& attrib);  
258 void writeSolid(DL_WriterA& dw,  
259                const DL_SolidData& data,  
260                const DL_Attributes& attrib);  
261 void writeTrace(DL_WriterA& dw,  
262                const DL_TraceData& data,  
263                const DL_Attributes& attrib);  
264 void write3dFace(DL_WriterA& dw,  
265                 const DL_3dFaceData& data,  
266                 const DL_Attributes& attrib);  
267 void writeInsert(DL_WriterA& dw,  
268                 const DL_InsertData& data,  
269                 const DL_Attributes& attrib);  
270 void writeMText(DL_WriterA& dw,  
271                const DL_MTextData& data,  
272                const DL_Attributes& attrib);  
273 void writeText(DL_WriterA& dw,  
274                const DL_TextData& data,  
275                const DL_Attributes& attrib);  
276 void writeAttribute(DL_WriterA& dw,  
277                    const DL_AttributeData& data,  
278                    const DL_Attributes& attrib);  
279 void writeDimStyleOverrides(DL_WriterA& dw,  
280                             const DL_DimensionData& data);  
281 void writeDimAligned(DL_WriterA& dw,  
282                     const DL_DimensionData& data,  
283                     const DL_DimAlignedData& edata,  
284                     const DL_Attributes& attrib);  
285 void writeDimLinear(DL_WriterA& dw,  
286                    const DL_DimensionData& data,  
287                    const DL_DimLinearData& edata,  
288                    const DL_Attributes& attrib);  
289 void writeDimRadial(DL_WriterA& dw,  
290                    const DL_DimensionData& data,  
291                    const DL_DimRadialData& edata,  
292                    const DL_Attributes& attrib);  
293 void writeDimDiametric(DL_WriterA& dw,  
294                       const DL_DimensionData& data,  
295                       const DL_DimDiametricData& edata,  
296                       const DL_Attributes& attrib);  
297 void writeDimAngular2L(DL_WriterA& dw,  
298                       const DL_DimensionData& data,  
299                       const DL_DimAngular2LData& edata,  
300                       const DL_Attributes& attrib);  
301 void writeDimAngular3P(DL_WriterA& dw,  
302                       const DL_DimensionData& data,  
303                       const DL_DimAngular3PData& edata,  
304                       const DL_Attributes& attrib);  
305 void writeDimOrdinate(DL_WriterA& dw,  
306                      const DL_DimensionData& data,  
307                      const DL_DimOrdinateData& edata,  
308                      const DL_Attributes& attrib);  
309 void writeLeader(DL_WriterA& dw,  
310                 const DL_LeaderData& data,  
311                 const DL_Attributes& attrib);  
312 void writeLeaderVertex(DL_WriterA& dw,  
313                       const DL_LeaderVertexData& data);  
314 void writeLeaderEnd(DL_WriterA& dw,  
315                    const DL_LeaderData& data);  
316 void writeHatch1(DL_WriterA& dw,  
317                 const DL_HatchData& data,  
318                 const DL_Attributes& attrib);  
319 void writeHatch2(DL_WriterA& dw,  
320                 const DL_HatchData& data,
```

```

321         const DL_Attributes& attrib);
322 void writeHatchLoop1(DL_WriterA& dw,
323         const DL_HatchLoopData& data);
324 void writeHatchLoop2(DL_WriterA& dw,
325         const DL_HatchLoopData& data);
326 void writeHatchEdge(DL_WriterA& dw,
327         const DL_HatchEdgeData& data);
328
329 unsigned long writeImage(DL_WriterA& dw,
330         const DL_ImageData& data,
331         const DL_Attributes& attrib);
332
333 void writeImageDef(DL_WriterA& dw, int handle,
334         const DL_ImageData& data);
335
336 void writeLayer(DL_WriterA& dw,
337         const DL_LayerData& data,
338         const DL_Attributes& attrib);
339
340 void writeLinetype(DL_WriterA& dw,
341         const DL_LinetypeData& data);
342
343 void writeAppid(DL_WriterA& dw, const std::string& name);
344
345 void writeBlock(DL_WriterA& dw,
346         const DL_BlockData& data);
347 void writeEndBlock(DL_WriterA& dw, const std::string& name);
348
349 void writeVPort(DL_WriterA& dw);
350 void writeStyle(DL_WriterA& dw, const DL_StyleData& style);
351 void writeView(DL_WriterA& dw);
352 void writeUcs(DL_WriterA& dw);
353 void writeDimStyle(DL_WriterA& dw,
354         double dimasz, double dimexe, double dimexo,
355         double dimgap, double dimtxt);
356 void writeBlockRecord(DL_WriterA& dw);
357 void writeBlockRecord(DL_WriterA& dw, const std::string& name);
358 void writeObjects(DL_WriterA& dw, const std::string& appDictionaryName = "");
359 void writeAppDictionary(DL_WriterA& dw);
360 unsigned long writeDictionaryEntry(DL_WriterA& dw, const std::string& name);
361 void writeXRecord(DL_WriterA& dw, int handle, int value);
362 void writeXRecord(DL_WriterA& dw, int handle, double value);
363 void writeXRecord(DL_WriterA& dw, int handle, bool value);
364 void writeXRecord(DL_WriterA& dw, int handle, const std::string& value);
365 void writeObjectsEnd(DL_WriterA& dw);
366
367 void writeComment(DL_WriterA& dw, const std::string& comment);
368
369 //static double toReal(const char* value, double def=0.0);
370
371 // static int toInt(const char* value, int def=0) {
372 //     if (value!=NULL && value[0] != '\0') {
373 //         return atoi(value);
374 //     }
375 //     return def;
376 // }
377
378 // static const char* toString(const char* value, const char* def="") {
379 //     if (value!=NULL && value[0] != '\0') {
380 //         return value;
381 //     } else {
382 //         return def;
383 //     }
384 // }
385
386 static bool checkVariable(const char* var, DL_Codes::version version);
387
388 DL_Codes::version getVersion() {
389     return version;
390 }
391
392 int getLibVersion(const std::string &str);
393
394 static void test();
395
396 bool hasValue(int code) {
397     return values.count(code)==1;
398 }
399
400 int getIntValue(int code, int def) {
401     if (!hasValue(code)) {
402         return def;
403     }
404     return toInt(values[code]);
405 }
406
407
408

```

```

420     int toInt(const std::string& str) {
421         char* p;
422         return strtol(str.c_str(), &p, 10);
423     }
424
425     int getInt16Value(int code, int def) {
426         if (!hasValue(code)) {
427             return def;
428         }
429         return toInt16(values[code]);
430     }
431
432     int toInt16(const std::string& str) {
433         char* p;
434         return strtol(str.c_str(), &p, 16);
435     }
436
437     bool toBool(const std::string& str) {
438         char* p;
439         return (bool) strtol(str.c_str(), &p, 10);
440     }
441
442     std::string getStringValue(int code, const std::string& def) {
443         if (!hasValue(code)) {
444             return def;
445         }
446         return values[code];
447     }
448
449     double getRealValue(int code, double def) {
450         if (!hasValue(code)) {
451             return def;
452         }
453         return toReal(values[code]);
454     }
455
456     double toReal(const std::string& str) {
457         double ret;
458         // make sure the real value uses '.' not ',';
459         std::string str2 = str;
460         std::replace(str2.begin(), str2.end(), ',', '.');
461         // make sure c++ expects '.' not ',';
462         std::istringstream istr(str2);
463         //istr.imbue(std::locale("C"));
464         istr >> ret;
465         return ret;
466     }
467
468 private:
469     DL_Codes::version version;
470
471     std::string polylineLayer;
472     double* vertices;
473     int maxVertices;
474     int vertexIndex;
475
476     double* knots;
477     int maxKnots;
478     int knotIndex;
479
480     double* weights;
481     int weightIndex;
482
483     double* controlPoints;
484     int maxControlPoints;
485     int controlPointIndex;
486
487     double* fitPoints;
488     int maxFitPoints;
489     int fitPointIndex;
490
491     double* leaderVertices;
492     int maxLeaderVertices;
493     int leaderVertexIndex;
494
495     bool firstHatchLoop;
496     DL_HatchEdgeData hatchEdge;
497     std::vector<std::vector<DL_HatchEdgeData> > hatchEdges;
498
499     std::string xRecordHandle;
500     bool xRecordValues;
501
502     // Only the useful part of the group code
503     std::string groupCodeTmp;
504     // ...same as integer
505     unsigned int groupCode;
506     // Only the useful part of the group value

```



```

507     std::string groupValue;
508     // Current entity type
509     int currentObjectType;
510     // Value of the current setting
511     char settingValue[DL_DXF_MAXLINE+1];
512     // Key of the current setting (e.g. "$ACADVER")
513     std::string settingKey;
514     // Stores the group codes
515     std::map<int, std::string> values;
516     // First call of this method. We initialize all group values in
517     // the first call.
518     bool firstCall;
519     // Attributes of the current entity (layer, color, width, line type)
520     DL_Attributes attrib;
521     // library version. hex: 0x20003001 = 2.0.3.1
522     int libVersion;
523     // app specific dictionary handle:
524     unsigned long appDictionaryHandle;
525     // handle of standard text style, referenced by dimstyle:
526     unsigned long styleHandleStd;
527 };
528
529 #endif
530
531 // EOF

```

## 6.6 dl\_entities.h

```

1  /*****
2  ** Copyright (C) 2001-2013 RibbonSoft, GmbH. All rights reserved.
3  **
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19 **
20 ** Contact info@ribbonsoft.com if any conditions of this licensing are
21 ** not clear to you.
22 **
23 *****/
24
25 #ifndef DL_ENTITIES_H
26 #define DL_ENTITIES_H
27
28 #include "dl_global.h"
29
30 #include <string>
31 #include <vector>
32
33 struct DXFLIB_EXPORT DL_LayerData {
34     DL_LayerData(const std::string& name,
35                 int flags, bool off = false) :
36         name(name), flags(flags), off(off) {}
37
38     std::string name;
39     int flags;
40     bool off;
41 };
42
43 struct DXFLIB_EXPORT DL_BlockData {
44     DL_BlockData(const std::string& bName,
45                 int bFlags,
46                 double bbpx, double bbpy, double bbpz) {
47         name = bName;
48         flags = bFlags;
49         bpx = bbpx;
50         bpy = bbpy;
51         bpz = bbpz;
52     }
53
54     std::string name;
55     int flags;
56     double bpx;
57     double bpy;
58     double bpz;
59 };

```

```

73
74     std::string name;
75     int flags;
76     double bpx;
77     double bpy;
78     double bpz;
79 };
80
81 struct DXFLIB_EXPORT DL_LinetypeData {
82     DL_LinetypeData(
83         const std::string& name,
84         const std::string& description,
85         int flags,
86         int numberOfDashes,
87         double patternLength,
88         double* pattern = NULL
89     )
90     : name(name),
91       description(description),
92       flags(flags),
93       numberOfDashes(numberOfDashes),
94       patternLength(patternLength),
95       pattern(pattern)
96     {}
97
98     std::string name;
99     std::string description;
100    int flags;
101    int numberOfDashes;
102    double patternLength;
103    double* pattern;
104 };
105
106 struct DXFLIB_EXPORT DL_StyleData {
107     DL_StyleData(
108         const std::string& name,
109         int flags,
110         double fixedTextHeight,
111         double widthFactor,
112         double obliqueAngle,
113         int textGenerationFlags,
114         double lastHeightUsed,
115         const std::string& primaryFontFile,
116         const std::string& bigFontFile
117     )
118     : name(name),
119       flags(flags),
120       fixedTextHeight(fixedTextHeight),
121       widthFactor(widthFactor),
122       obliqueAngle(obliqueAngle),
123       textGenerationFlags(textGenerationFlags),
124       lastHeightUsed(lastHeightUsed),
125       primaryFontFile(primaryFontFile),
126       bigFontFile(bigFontFile),
127       bold(false),
128       italic(false) {
129
130     bool operator==(const DL_StyleData& other) {
131         // ignore lastHeightUsed:
132         return (name==other.name &&
133             flags==other.flags &&
134             fixedTextHeight==other.fixedTextHeight &&
135             widthFactor==other.widthFactor &&
136             obliqueAngle==other.obliqueAngle &&
137             textGenerationFlags==other.textGenerationFlags &&
138             primaryFontFile==other.primaryFontFile &&
139             bigFontFile==other.bigFontFile);
140     }
141
142     std::string name;
143     int flags;
144     double fixedTextHeight;
145     double widthFactor;
146     double obliqueAngle;
147     int textGenerationFlags;
148     double lastHeightUsed;
149     std::string primaryFontFile;
150     std::string bigFontFile;
151
152     bool bold;
153     bool italic;
154 };

```

```
197 struct DXFLIB_EXPORT DL_PointData {
202     DL_PointData(double px=0.0, double py=0.0, double pz=0.0) {
203         x = px;
204         y = py;
205         z = pz;
206     }
207
208     double x;
209     double y;
210     double z;
211 };
212
213 struct DXFLIB_EXPORT DL_LineData {
214     DL_LineData(double lx1, double ly1, double lz1,
215                 double lx2, double ly2, double lz2) {
216         x1 = lx1;
217         y1 = ly1;
218         z1 = lz1;
219
220         x2 = lx2;
221         y2 = ly2;
222         z2 = lz2;
223     }
224
225     double x1;
226     double y1;
227     double z1;
228
229     double x2;
230     double y2;
231     double z2;
232 };
233
234 struct DXFLIB_EXPORT DL_XLineData {
235     DL_XLineData(double bx, double by, double bz,
236                  double dx, double dy, double dz) :
237         bx(bx), by(by), bz(bz),
238         dx(dx), dy(dy), dz(dz) {
239     }
240
241     double bx;
242     double by;
243     double bz;
244
245     double dx;
246     double dy;
247     double dz;
248 };
249
250 struct DXFLIB_EXPORT DL_RayData {
251     DL_RayData(double bx, double by, double bz,
252                double dx, double dy, double dz) :
253         bx(bx), by(by), bz(bz),
254         dx(dx), dy(dy), dz(dz) {
255     }
256
257     double bx;
258     double by;
259     double bz;
260
261     double dx;
262     double dy;
263     double dz;
264 };
265
266 struct DXFLIB_EXPORT DL_ArcData {
267     DL_ArcData(double acx, double acy, double acz,
268                double aRadius,
269                double aAngle1, double aAngle2) {
270         cx = acx;
271         cy = acy;
272         cz = acz;
273         radius = aRadius;
274         angle1 = aAngle1;
275         angle2 = aAngle2;
276     }
277
278     double cx;
279     double cy;
280     double cz;
281
282     double radius;
283 }
```

```
342     double angle1;
343     double angle2;
344 };
345
346
347
348
349 struct DXFLIB_EXPORT DL_CircleData {
350     DL_CircleData(double acx, double acy, double acz,
351         double aRadius) {
352
353         cx = acx;
354         cy = acy;
355         cz = acz;
356         radius = aRadius;
357     }
358
359     double cx;
360     double cy;
361     double cz;
362
363     double radius;
364 };
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379 struct DXFLIB_EXPORT DL_PolylineData {
380     DL_PolylineData(int pNumber, int pMVerteces, int pNVerteces, int pFlags, double pElevation = 0.0) {
381         number = pNumber;
382         m = pMVerteces;
383         n = pNVerteces;
384         elevation = pElevation;
385         flags = pFlags;
386     }
387
388     unsigned int number;
389
390     unsigned int m;
391
392     unsigned int n;
393
394     double elevation;
395
396     int flags;
397 };
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413 struct DXFLIB_EXPORT DL_VertexData {
414     DL_VertexData(double px=0.0, double py=0.0, double pz=0.0,
415         double pBulge=0.0) {
416
417         x = px;
418         y = py;
419         z = pz;
420         bulge = pBulge;
421     }
422
423     double x;
424     double y;
425     double z;
426     double bulge;
427 };
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442 struct DXFLIB_EXPORT DL_TraceData {
443     DL_TraceData() {
444         thickness = 0.0;
445         for (int i=0; i<4; i++) {
446             x[i] = 0.0;
447             y[i] = 0.0;
448             z[i] = 0.0;
449         }
450     }
451
452     DL_TraceData(double sx1, double sy1, double sz1,
453         double sx2, double sy2, double sz2,
454         double sx3, double sy3, double sz3,
455         double sx4, double sy4, double sz4,
456         double sthickness=0.0) {
457
458         thickness = sthickness;
459
460         x[0] = sx1;
461         y[0] = sy1;
462         z[0] = sz1;
463
464         x[1] = sx2;
465         y[1] = sy2;
```

```
472         z[1] = sz2;
473
474         x[2] = sx3;
475         y[2] = sy3;
476         z[2] = sz3;
477
478         x[3] = sx4;
479         y[3] = sy4;
480         z[3] = sz4;
481     }
482
483     double thickness;
484
485     double x[4];
486     double y[4];
487     double z[4];
488 };
489
490
491
492
493
494
495
496 typedef DL_TraceData DL_SolidData;
497
498
499 typedef DL_TraceData DL_3dFaceData;
500
501
502
503 struct DXFLIB_EXPORT DL_SplineData {
504     DL_SplineData(int degree,
505                   int nKnots,
506                   int nControl,
507                   int nFit,
508                   int flags) :
509         degree(degree),
510         nKnots(nKnots),
511         nControl(nControl),
512         nFit(nFit),
513         flags(flags) {
514     }
515
516     unsigned int degree;
517
518     unsigned int nKnots;
519
520     unsigned int nControl;
521
522     unsigned int nFit;
523
524     int flags;
525
526     double tangentStartX;
527     double tangentStartY;
528     double tangentStartZ;
529     double tangentEndX;
530     double tangentEndY;
531     double tangentEndZ;
532 };
533
534
535 struct DXFLIB_EXPORT DL_KnotData {
536     DL_KnotData() {}
537     DL_KnotData(double pk) {
538         k = pk;
539     }
540
541     double k;
542 };
543
544
545 struct DXFLIB_EXPORT DL_ControlPointData {
546     DL_ControlPointData(double px, double py, double pz, double weight) {
547         x = px;
548         y = py;
549         z = pz;
550         w = weight;
551     }
552
553     double x;
554     double y;
555     double z;
556     double w;
557 };
558
559
560
```

```

598
602 struct DXFLIB_EXPORT DL_FitPointData {
607     DL_FitPointData(double x, double y, double z) : x(x), y(y), z(z) {}
608
609     double x;
610     double y;
611     double z;
612 };
613
614 struct DXFLIB_EXPORT DL_EllipseData {
615     DL_EllipseData(double cx, double cy, double cz,
616                     double mx, double my, double mz,
617                     double ratio,
618                     double angle1, double angle2)
619         : cx(cx),
620           cy(cy),
621           cz(cz),
622           mx(mx),
623           my(my),
624           mz(mz),
625           ratio(ratio),
626           angle1(angle1),
627           angle2(angle2) {}
628
629     double cx;
630     double cy;
631     double cz;
632
633     double mx;
634     double my;
635     double mz;
636
637     double ratio;
638     double angle1;
639     double angle2;
640 };
641
642 struct DXFLIB_EXPORT DL_InsertData {
643     DL_InsertData(const std::string& name,
644                   double ipx, double ipy, double ipz,
645                   double sx, double sy, double sz,
646                   double angle,
647                   int cols, int rows,
648                   double colSp, double rowSp) :
649         name(name),
650         ipx(ipx), ipy(ipy), ipz(ipz),
651         sx(sx), sy(sy), sz(sz),
652         angle(angle),
653         cols(cols), rows(rows),
654         colSp(colSp), rowSp(rowSp) {}
655
656     std::string name;
657     double ipx;
658     double ipy;
659     double ipz;
660     double sx;
661     double sy;
662     double sz;
663     double angle;
664     int cols;
665     int rows;
666     double colSp;
667     double rowSp;
668 };
669
670 struct DXFLIB_EXPORT DL_MTextData {
671     DL_MTextData(double ipx, double ipy, double ipz,
672                  double dirx, double diry, double dirz,
673                  double height, double width,
674                  int attachmentPoint,
675                  int drawingDirection,
676                  int lineSpacingStyle,
677                  double lineSpacingFactor,
678                  const std::string& text,
679                  const std::string& style,
680                  double angle) :
681         ipx(ipx), ipy(ipy), ipz(ipz),
682         dirx(dirx), diry(diry), dirz(dirz),
683         height(height), width(width),

```

```

737         attachmentPoint(attachmentPoint),
738         drawingDirection(drawingDirection),
739         lineSpacingStyle(lineSpacingStyle),
740         lineSpacingFactor(lineSpacingFactor),
741         text(text),
742         style(style),
743         angle(angle) {
744     }
745 }
746
747 double ipx;
748 double ipy;
749 double ipz;
750 double dirx;
751 double diry;
752 double dirz;
753 double height;
754 double width;
755 int attachmentPoint;
756 int drawingDirection;
757 int lineSpacingStyle;
758 double lineSpacingFactor;
759 std::string text;
760 std::string style;
761 double angle;
762 };
763
764 struct DXFLIB_EXPORT DL_TextData {
765     DL_TextData(double ipx, double ipy, double ipz,
766                 double apx, double apy, double apz,
767                 double height, double xScaleFactor,
768                 int textGenerationFlags,
769                 int hJustification,
770                 int vJustification,
771                 const std::string& text,
772                 const std::string& style,
773                 double angle)
774     : ipx(ipx), ipy(ipy), ipz(ipz),
775       apx(apx), apy(apy), apz(apz),
776       height(height), xScaleFactor(xScaleFactor),
777       textGenerationFlags(textGenerationFlags),
778       hJustification(hJustification),
779       vJustification(vJustification),
780       text(text),
781       style(style),
782       angle(angle) {
783     }
784
785     double ipx;
786     double ipy;
787     double ipz;
788
789     double apx;
790     double apy;
791     double apz;
792
793     double height;
794     double xScaleFactor;
795     int textGenerationFlags;
796     int hJustification;
797     int vJustification;
798     std::string text;
799     std::string style;
800     double angle;
801 };
802
803 struct DXFLIB_EXPORT DL_ArcAlignedTextData {
804     std::string text;
805     std::string font;
806     std::string style;
807
808     double cx;
809     double cy;
810     double cz;
811     double radius;
812
813     double xScaleFactor;
814     double height;
815     double spacing;
816     double offset;
817     double rightOffset;
818     double leftOffset;
819     double startAngle;
820     double endAngle;

```

```

908     bool reversedCharacterOrder;
913     int direction;
920     int alignment;
925     int side;
927     bool bold;
929     bool italic;
931     bool underline;
933     int characterSet;
935     int pitch;
940     bool shxFont;
942     bool wizard;
944     int arcHandle;
945 };
946
950 struct DXFLIB_EXPORT DL_AttributeData : public DL_TextData {
951     DL_AttributeData(const DL_TextData& tData, const std::string& tag)
952         : DL_TextData(tData), tag(tag) {
953
954     }
955
960     DL_AttributeData(double ipx, double ipy, double ipz,
961                     double apx, double apy, double apz,
962                     double height, double xScaleFactor,
963                     int textGenerationFlags,
964                     int hJustification,
965                     int vJustification,
966                     const std::string& tag,
967                     const std::string& text,
968                     const std::string& style,
969                     double angle)
970         : DL_TextData(ipx, ipy, ipz,
971                     apx, apy, apz,
972                     height, xScaleFactor,
973                     textGenerationFlags,
974                     hJustification,
975                     vJustification,
976                     text,
977                     style,
978                     angle),
979         tag(tag) {
980     }
981
983     std::string tag;
984 };
985
986
990 struct DXFLIB_EXPORT DL_DimensionData {
991     DL_DimensionData(double dpx, double dpy, double dpz,
992                     double mpx, double mpy, double mpz,
993                     int type,
994                     int attachmentPoint,
995                     int lineSpacingStyle,
1000                    double lineSpacingFactor,
1001                    const std::string& text,
1002                    const std::string& style,
1003                    double angle,
1004                    double linearFactor = 1.0,
1005                    double dimScale = 1.0) :
1006        dpx(dpx), dpy(dpy), dpz(dpz),
1007        mpx(mpx), mpy(mpy), mpz(mpz),
1008        type(type),
1009        attachmentPoint(attachmentPoint),
1010        lineSpacingStyle(lineSpacingStyle),
1011        lineSpacingFactor(lineSpacingFactor),
1012        text(text),
1013        style(style),
1014        angle(angle),
1015        linearFactor(linearFactor),
1016        dimScale(dimScale) {
1017
1018     }
1019
1021     double dpx;
1023     double dpy;
1025     double dpz;
1027     double mpx;
1029     double mpy;
1031     double mpz;
1051     int type;
1059     int attachmentPoint;
1065     int lineSpacingStyle;
1069     double lineSpacingFactor;
1077     std::string text;
1079     std::string style;
1084     double angle;
1088     double linearFactor;
1092     double dimScale;

```



```
1093     bool arrow1Flipped;
1094     bool arrow2Flipped;
1095 };
1096
1097
1098
1102 struct DXFLIB_EXPORT DL_DimAlignedData {
1103     DL_DimAlignedData(double depx1, double depy1, double depz1,
1104                       double depx2, double depy2, double depz2) {
1105
1106         ep1 = depx1;
1107         ep2 = depy1;
1108         ep3 = depz1;
1109
1110         ep4 = depx2;
1111         ep5 = depy2;
1112         ep6 = depz2;
1113     }
1114
1115     double ep1;
1116     double ep2;
1117     double ep3;
1118
1119     double ep4;
1120     double ep5;
1121     double ep6;
1122 };
1123
1124
1125
1129 struct DXFLIB_EXPORT DL_DimLinearData {
1130     DL_DimLinearData(double ddp1, double ddp2, double ddp3,
1131                      double ddp4, double ddp5, double ddp6,
1132                      double dAngle, double dOblique) {
1133
1134         dpx1 = ddp1;
1135         dpy1 = ddp2;
1136         dpz1 = ddp3;
1137
1138         dpx2 = ddp4;
1139         dpy2 = ddp5;
1140         dpz2 = ddp6;
1141
1142         angle = dAngle;
1143         oblique = dOblique;
1144     }
1145
1146     double dpx1;
1147     double dpy1;
1148     double dpz1;
1149
1150     double dpx2;
1151     double dpy2;
1152     double dpz2;
1153
1154     double angle;
1155     double oblique;
1156 };
1157
1158
1159
1165 struct DXFLIB_EXPORT DL_DimRadialData {
1166     DL_DimRadialData(double ddp1, double ddp2, double ddp3, double dleader) {
1167         dpx = ddp1;
1168         dpy = ddp2;
1169         dpz = ddp3;
1170
1171         leader = dleader;
1172     }
1173
1174     double dpx;
1175     double dpy;
1176     double dpz;
1177
1178     double leader;
1179 };
1180
1181
1182
1185 struct DXFLIB_EXPORT DL_DimDiametricData {
1186     DL_DimDiametricData(double ddp1, double ddp2, double ddp3, double dleader) {
1187         dpx = ddp1;
1188         dpy = ddp2;
1189         dpz = ddp3;
1190
1191         leader = dleader;
1192     }
1193
1194     double dpx;
1195     double dpy;
1196     double dpz;
1197
1198     double leader;
1199 }
```



```

1359         bool dxtype) {
1360
1361         dpx1 = ddp1;
1362         dpy1 = ddp1;
1363         dpz1 = ddp1;
1364
1365         dpx2 = ddp2;
1366         dpy2 = ddp2;
1367         dpz2 = ddp2;
1368
1369         xtype = dxtype;
1370     }
1371
1372     double dpx1;
1373     double dpy1;
1374     double dpz1;
1375
1376     double dpx2;
1377     double dpy2;
1378     double dpz2;
1379
1380     bool xtype;
1381 };
1382
1383 struct DXFLIB_EXPORT DL_LeaderData {
1384     DL_LeaderData(int arrowHeadFlag,
1385                   int leaderPathType,
1386                   int leaderCreationFlag,
1387                   int hooklineDirectionFlag,
1388                   int hooklineFlag,
1389                   double textAnnotationHeight,
1390                   double textAnnotationWidth,
1391                   int number,
1392                   double dimScale = 1.0) :
1393         arrowHeadFlag(arrowHeadFlag),
1394         leaderPathType(leaderPathType),
1395         leaderCreationFlag(leaderCreationFlag),
1396         hooklineDirectionFlag(hooklineDirectionFlag),
1397         hooklineFlag(hooklineFlag),
1398         textAnnotationHeight(textAnnotationHeight),
1399         textAnnotationWidth(textAnnotationWidth),
1400         number(number),
1401         dimScale(dimScale) {
1402     }
1403
1404     int arrowHeadFlag;
1405     int leaderPathType;
1406     int leaderCreationFlag;
1407     int hooklineDirectionFlag;
1408     int hooklineFlag;
1409     double textAnnotationHeight;
1410     double textAnnotationWidth;
1411     int number;
1412     double dimScale;
1413 };
1414
1415 struct DXFLIB_EXPORT DL_LeaderVertexData {
1416     DL_LeaderVertexData(double px=0.0, double py=0.0, double pz=0.0) {
1417         x = px;
1418         y = py;
1419         z = pz;
1420     }
1421
1422     double x;
1423     double y;
1424     double z;
1425 };
1426
1427 struct DXFLIB_EXPORT DL_HatchData {
1428     DL_HatchData() {}
1429
1430     DL_HatchData(int numLoops,
1431                  bool solid,
1432                  double scale,
1433                  double angle,
1434                  const std::string& pattern,
1435                  double originX = 0.0,
1436                  double originY = 0.0) :
1437         numLoops(numLoops),
1438         solid(solid),

```

```

1489         scale(scale),
1490         angle(angle),
1491         pattern(pattern),
1492         originX(originX),
1493         originY(originY) {
1494     }
1495 }
1496
1497 int numLoops;
1498 bool solid;
1499 double scale;
1500 double angle;
1501 std::string pattern;
1502 double originX;
1503 double originY;
1504 };
1505
1506 struct DXFLIB_EXPORT DL_HatchLoopData {
1507     DL_HatchLoopData() {}
1508     DL_HatchLoopData(int hNumEdges) {
1509         numEdges = hNumEdges;
1510     }
1511     int numEdges;
1512 };
1513
1514 struct DXFLIB_EXPORT DL_HatchEdgeData {
1515     DL_HatchEdgeData() : defined(false), x1(0.0), y1(0.0), x2(0.0), y2(0.0) {}
1516     DL_HatchEdgeData(double x1, double y1,
1517                       double x2, double y2) :
1518         defined(true),
1519         type(1),
1520         x1(x1),
1521         y1(y1),
1522         x2(x2),
1523         y2(y2) {}
1524     DL_HatchEdgeData(double cx, double cy,
1525                       double radius,
1526                       double angle1, double angle2,
1527                       bool ccw) :
1528         defined(true),
1529         type(2),
1530         cx(cx),
1531         cy(cy),
1532         radius(radius),
1533         angle1(angle1),
1534         angle2(angle2),
1535         ccw(ccw) {}
1536     DL_HatchEdgeData(double cx, double cy,
1537                       double mx, double my,
1538                       double ratio,
1539                       double angle1, double angle2,
1540                       bool ccw) :
1541         defined(true),
1542         type(3),
1543         cx(cx),
1544         cy(cy),
1545         angle1(angle1),
1546         angle2(angle2),
1547         ccw(ccw),
1548         mx(mx),
1549         my(my),
1550         ratio(ratio) {}
1551     DL_HatchEdgeData(unsigned int degree,
1552                       bool rational,
1553                       bool periodic,
1554                       unsigned int nKnots,
1555                       unsigned int nControl,
1556                       unsigned int nFit,
1557                       const std::vector<double>& knots,
1558                       const std::vector<std::vector<double>>& controlPoints,
1559                       const std::vector<std::vector<double>>& fitPoints,
1560                       const std::vector<double>& weights,
1561                       double startTangentX,
1562                       double startTangentY,

```

```

1615         double endTangentX,
1616         double endTangentY) :
1617     defined(true),
1618     type(4),
1619     degree(degree),
1620     rational(rational),
1621     periodic(periodic),
1622     nKnots(nKnots),
1623     nControl(nControl),
1624     nFit(nFit),
1625     controlPoints(controlPoints),
1626     knots(knots),
1627     weights(weights),
1628     fitPoints(fitPoints),
1629     startTangentX(startTangentX),
1630     startTangentY(startTangentY),
1631     endTangentX(endTangentX),
1632     endTangentY(endTangentY) {
1633 }
1634
1638 bool defined;
1639
1643 int type;
1644
1645 // line edges:
1646
1648 double x1;
1650 double y1;
1652 double x2;
1654 double y2;
1655
1657 double cx;
1659 double cy;
1661 double radius;
1663 double angle1;
1665 double angle2;
1667 bool ccw;
1668
1670 double mx;
1672 double my;
1674 double ratio;
1675
1676
1678 unsigned int degree;
1679 bool rational;
1680 bool periodic;
1682 unsigned int nKnots;
1684 unsigned int nControl;
1686 unsigned int nFit;
1687
1688 std::vector<std::vector<double> > controlPoints;
1689 std::vector<double> knots;
1690 std::vector<double> weights;
1691 std::vector<std::vector<double> > fitPoints;
1692
1693 double startTangentX;
1694 double startTangentY;
1695
1696 double endTangentX;
1697 double endTangentY;
1698
1699 std::vector<std::vector<double> > vertices;
1701 //bool closed;
1702 };
1703
1704
1705
1709 struct DXFLIB_EXPORT DL_ImageData {
1714     DL_ImageData(const std::string& iref,
1715         double iipx, double iipy, double iipz,
1716         double iux, double iuy, double iuz,
1717         double ivx, double ivy, double ivz,
1718         int iwidth, int iheight,
1719         int ibrightness, int icontrast, int ifade) {
1720         ref = iref;
1721         ipx = iipx;
1722         ipy = iipy;
1723         ipz = iipz;
1724         ux = iux;
1725         uy = iuy;
1726         uz = iuz;
1727         vx = ivx;
1728         vy = ivy;
1729         vz = ivz;
1730         width = iwidth;
1731         height = iheight;
1732         brightness = ibrightness;

```

```

1733         contrast = icontrast;
1734         fade = ifade;
1735     }
1736
1739     std::string ref;
1741     double ipx;
1743     double ipy;
1745     double ipz;
1747     double ux;
1749     double uy;
1751     double uz;
1753     double vx;
1755     double vy;
1757     double vz;
1759     int width;
1761     int height;
1763     int brightness;
1765     int contrast;
1767     int fade;
1768 };
1769
1770
1771
1775 struct DXFLIB_EXPORT DL_ImageDefData {
1780     DL_ImageDefData(const std::string& iref,
1781                     const std::string& ifile) {
1782         ref = iref;
1783         file = ifile;
1784     }
1785
1788     std::string ref;
1789
1791     std::string file;
1792 };
1793
1794
1795
1799 struct DXFLIB_EXPORT DL_DictionaryData {
1800     DL_DictionaryData(const std::string& handle) : handle(handle) {}
1801     std::string handle;
1802 };
1803
1804
1805
1809 struct DXFLIB_EXPORT DL_DictionaryEntryData {
1810     DL_DictionaryEntryData(const std::string& name, const std::string& handle) :
1811         name(name), handle(handle) {}
1812
1813     std::string name;
1814     std::string handle;
1815 };
1816
1817 #endif
1818
1819 // EOF

```

## 6.7 dl\_exception.h

```

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22 ** not clear to you.
23 **
24 *****/
25

```

```

26 #ifndef DL_EXCEPTION_H
27 #define DL_EXCEPTION_H
28
29 #include "dl_global.h"
30
31 #if _MSC_VER > 1000
32 #pragma once
33 #endif // _MSC_VER > 1000
34
35 class DXFLIB_EXPORT DL_Exception {}
36 ;
37
38 class DXFLIB_EXPORT DL_NullStrExc : public DL_Exception {}
39 ;
40
41 class DXFLIB_EXPORT DL_GroupCodeExc : public DL_Exception {
42     DL_GroupCodeExc(int gc=0) : groupCode(gc) {}
43     int groupCode;
44 };
45 #endif
46

```

## 6.8 dl\_extrusion.h

```

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20 ** Contact info@ribbonsoft.com if any conditions of this licensing are
21 ** not clear to you.
22 **
23 *****/
24
25 #ifndef DL_EXTRUSION_H
26 #define DL_EXTRUSION_H
27
28 #include "dl_global.h"
29
30 #include <math.h>
31
32
33 class DXFLIB_EXPORT DL_Extrusion {
34 public:
35     DL_Extrusion() {
36         direction = new double[3];
37         setDirection(0.0, 0.0, 1.0);
38         setElevation(0.0);
39     }
40
41     ~DL_Extrusion() {
42         delete[] direction ;
43     }
44
45     DL_Extrusion(double dx, double dy, double dz, double elevation) {
46         direction = new double[3];
47         setDirection(dx, dy, dz);
48         setElevation(elevation);
49     }
50
51     void setDirection(double dx, double dy, double dz) {
52         direction[0]=dx;
53         direction[1]=dy;
54

```

```

82     direction[2]=dz;
83 }
84
85
86
90 double* getDirection() const {
91     return direction;
92 }
93
94
95
99 void getDirection(double dir[]) const {
100     dir[0]=direction[0];
101     dir[1]=direction[1];
102     dir[2]=direction[2];
103 }
104
105
106
110 void setElevation(double elevation) {
111     this->elevation = elevation;
112 }
113
114
115
119 double getElevation() const {
120     return elevation;
121 }
122
123
124
128 DL_Extrusion operator = (const DL_Extrusion& extru) {
129     setDirection(extru.direction[0], extru.direction[1], extru.direction[2]);
130     setElevation(extru.elevation);
131
132     return *this;
133 }
134
135
136
137 private:
138     double *direction;
139     double elevation;
140 };
141
142 #endif
143

```

## 6.9 dl\_global.h

```

1 #if defined(DXFLIB_DLL)
2 #   ifdef _WIN32
3 #       if defined(DXFLIB_LIBRARY)
4 #           define DXFLIB_EXPORT __declspec(dllexport)
5 #       else
6 #           define DXFLIB_EXPORT __declspec(dllimport)
7 #       endif
8 #   else
9 #       define DXFLIB_EXPORT
10 #   endif
11 #else
12 #   define DXFLIB_EXPORT
13 #endif

```

## 6.10 dl\_writer.h

```

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20 **
21 ** Contact info@ribbonsoft.com if any conditions of this licensing are
22 ** not clear to you.
23 **
24 *****/
25
26 #ifndef DL_WRITER_H
27 #define DL_WRITER_H
28
29 #include "dl_global.h"
30
31 #ifndef _WIN32
32 #include <strings.h>
33 #endif
34
35 #if _MSC_VER > 1000
36 #pragma once
37 #endif // _MSC_VER > 1000
38
39 #include <cstring>
40 #include <iostream>
41 #include <algorithm>
42
43 #include "dl_attributes.h"
44 #include "dl_codes.h"
45
46
47
48 class DXFLIB_EXPORT DL_Writer {
49 public:
50     DL_Writer(DL_Codes::version version) : m_handle(0x30) {
51         this->version = version;
52         modelSpaceHandle = 0;
53         paperSpaceHandle = 0;
54         paperSpace0Handle = 0;
55     }
56
57     virtual ~DL_Writer() {}
58     ;
59
60     void section(const char* name) const {
61         dxfString(0, "SECTION");
62         dxfString(2, name);
63     }
64
65     void sectionHeader() const {
66         section("HEADER");
67     }
68
69     void sectionTables() const {
70         section("TABLES");
71     }
72
73     void sectionBlocks() const {
74         section("BLOCKS");
75     }
76
77     void sectionEntities() const {
78         section("ENTITIES");
79     }
80
81     void sectionClasses() const {
82         section("CLASSES");
83     }
84
85     void sectionObjects() const {
86         section("OBJECTS");
87     }
88
89     void sectionEnd() const {
90         dxfString(0, "ENDSEC");
91     }
92
93     void table(const char* name, int num, int h=0) const {
94         dxfString(0, "TABLE");
95         dxfString(2, name);
96         if (version>=DL_VERSION_2000) {
97             if (h==0) {
98                 handle();
99             }
100             else {

```

```

203         dxfHex(5, h);
204     }
205     dxfString(100, "AcDbSymbolTable");
206 }
207 dxfInt(70, num);
208 }
209
223 void tableLayers(int num) const {
224     table("LAYER", num, 2);
225 }
226
240 void tableLinetypes(int num) const {
241     //linetypeHandle = 5;
242     table("LTYPE", num, 5);
243 }
244
258 void tableAppid(int num) const {
259     table("APPID", num, 9);
260 }
261
275 void tableStyle(int num) const {
276     table("STYLE", num, 3);
277 }
278
287 void tableEnd() const {
288     dxfString(0, "ENDTAB");
289 }
290
299 void dxfeof() const {
300     dxfString(0, "EOF");
301 }
302
311 void comment(const char* text) const {
312     dxfString(999, text);
313 }
314
325 void entity(const char* entTypeName) const {
326     dxfString(0, entTypeName);
327     if (version >= DL_VERSION_2000) {
328         handle();
329     }
330 }
331
346 void entityAttributes(const DL_Attributes& attrib) const {
347
348     // layer name:
349     dxfString(8, attrib.getLayer());
350
351     // R12 doesn't accept BYLAYER values. The value has to be missing
352     // in that case.
353     if (version >= DL_VERSION_2000 || attrib.getColor() != 256) {
354         dxfInt(62, attrib.getColor());
355     }
356     if (version >= DL_VERSION_2000 && attrib.getColor24() != -1) {
357         dxfInt(420, attrib.getColor24());
358     }
359     if (version >= DL_VERSION_2000) {
360         dxfInt(370, attrib.getWidth());
361     }
362     if (version >= DL_VERSION_2000) {
363         dxfReal(48, attrib.getLinetypeScale());
364     }
365     std::string linetype = attrib.getLinetype();
366     std::transform(linetype.begin(), linetype.end(), linetype.begin(), ::toupper);
367     if (version >= DL_VERSION_2000 || linetype == "BYLAYER") {
368         dxfString(6, attrib.getLinetype());
369     }
370 }
371
375 void subClass(const char* sub) const {
376     dxfString(100, sub);
377 }
378
387 void tableLayerEntry(unsigned long int h=0) const {
388     dxfString(0, "LAYER");
389     if (version >= DL_VERSION_2000) {
390         if (h==0) {
391             handle();
392         } else {
393             dxfHex(5, h);
394         }
395         dxfString(100, "AcDbSymbolTableRecord");
396         dxfString(100, "AcDbLayerTableRecord");
397     }
398 }
399
408 void tableLinetypeEntry(unsigned long int h=0) const {

```

```

409     dxfString(0, "LTYPE");
410     if (version>=DL_VERSION_2000) {
411         if (h==0) {
412             handle();
413         } else {
414             dxfHex(5, h);
415         }
416         //dxfHex(330, 0x5);
417         dxfString(100, "AcDbSymbolTableRecord");
418         dxfString(100, "AcDbLinetypeTableRecord");
419     }
420 }
421
422 void tableAppidEntry(unsigned long int h=0) const {
423     dxfString(0, "APPID");
424     if (version>=DL_VERSION_2000) {
425         if (h==0) {
426             handle();
427         } else {
428             dxfHex(5, h);
429         }
430         //dxfHex(330, 0x9);
431         dxfString(100, "AcDbSymbolTableRecord");
432         dxfString(100, "AcDbRegAppTableRecord");
433     }
434 }
435
436 void sectionBlockEntry(unsigned long int h=0) const {
437     dxfString(0, "BLOCK");
438     if (version>=DL_VERSION_2000) {
439         if (h==0) {
440             handle();
441         } else {
442             dxfHex(5, h);
443         }
444         //dxfHex(330, blockHandle);
445         dxfString(100, "AcDbEntity");
446         if (h==0x1C) {
447             dxfInt(67, 1);
448         }
449         dxfString(8, "0"); // TODO: Layer for block
450         dxfString(100, "AcDbBlockBegin");
451     }
452 }
453
454 void sectionBlockEntryEnd(unsigned long int h=0) const {
455     dxfString(0, "ENDBLK");
456     if (version>=DL_VERSION_2000) {
457         if (h==0) {
458             handle();
459         } else {
460             dxfHex(5, h);
461         }
462         //dxfHex(330, blockHandle);
463         dxfString(100, "AcDbEntity");
464         if (h==0x1D) {
465             dxfInt(67, 1);
466         }
467         dxfString(8, "0"); // TODO: Layer for block
468         dxfString(100, "AcDbBlockEnd");
469     }
470 }
471
472 void color(int col=256) const {
473     dxfInt(62, col);
474 }
475
476 void linetype(const char *lt) const {
477     dxfString(6, lt);
478 }
479
480 void linetypeScale(double scale) const {
481     dxfReal(48, scale);
482 }
483
484 void lineWeight(int lw) const {
485     dxfInt(370, lw);
486 }
487
488 void coord(int gc, double x, double y, double z=0) const {
489     dxfReal(gc, x);
490     dxfReal(gc+10, y);
491     dxfReal(gc+20, z);
492 }
493
494 void coordTriplet(int gc, const double* value) const {
495     if (value) {
496         dxfReal(gc, *value++);
497         dxfReal(gc+10, *value++);
498         dxfReal(gc+20, *value++);
499     }
500 }

```

```

520     }
521 }
522
523 void resetHandle() const {
524     m_handle = 1;
525 }
526
527 unsigned long handle(int gc=5) const {
528     // handle has to be hex
529     dxfHex(gc, m_handle);
530     return m_handle++;
531 }
532
533 unsigned long getNextHandle() const {
534     return m_handle;
535 }
536
537 virtual void dxfReal(int gc, double value) const = 0;
538
539 virtual void dxfInt(int gc, int value) const = 0;
540
541 virtual void dxfBool(int gc, bool value) const {
542     dxfInt(gc, (int)value);
543 }
544
545 virtual void dxfHex(int gc, int value) const = 0;
546
547 virtual void dxfString(int gc, const char* value) const = 0;
548
549 virtual void dxfString(int gc, const std::string& value) const = 0;
550
551 protected:
552     mutable unsigned long m_handle;
553     mutable unsigned long modelSpaceHandle;
554     mutable unsigned long paperSpaceHandle;
555     mutable unsigned long paperSpace0Handle;
556
557     DL_Codes::version version;
558 private:
559 };
560 #endif

```

## 6.11 dl\_writer\_ascii.h

```

1  /*****
2  ** Copyright (C) 2001-2013 RibbonSoft, GmbH. All rights reserved.
3  ** Copyright (C) 2001 Robert J. Campbell Jr.
4  **
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22 ** not clear to you.
23 **
24 *****/
25
26 #ifndef DL_WRITER_ASCII_H
27 #define DL_WRITER_ASCII_H
28
29 #include "dl_global.h"
30
31 #if _MSC_VER > 1000
32 #pragma once
33 #endif // _MSC_VER > 1000
34
35 #include "dl_writer.h"
36 #include <fstream>
37 #include <string>
38

```

```
49 class DXFLIB_EXPORT DL_WriterA : public DL_Writer {
50 public:
51     DL_WriterA(const char* fname, DL_Codes::version version=DL_VERSION_2000)
52         : DL_Writer(version), m_ofile(fname) {}
53     virtual ~DL_WriterA() {}
54
55     bool openFailed() const;
56     void close() const;
57     void dxfReal(int gc, double value) const;
58     void dxfInt(int gc, int value) const;
59     void dxfHex(int gc, int value) const;
60     void dxfString(int gc, const char* value) const;
61     void dxfString(int gc, const std::string& value) const;
62
63     static void strReplace(char* str, char src, char dest);
64
65 private:
66     mutable std::ofstream m_ofile;
67
68 };
69 #endif
70
71
72
73
74
```



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