

dxflib

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1 Todo List	1
2 Hierarchical Index	3
2.1 Class Hierarchy	3
3 Class Index	5
3.1 Class List	5
4 File Index	9
4.1 File List	9
5 Class Documentation	11
5.1 DL_ArcAlignedTextData Struct Reference	11
5.1.1 Detailed Description	12
5.1.2 Member Data Documentation	12
5.1.2.1 alignment	12
5.1.2.2 arcHandle	12
5.1.2.3 bold	12
5.1.2.4 characerSet	12
5.1.2.5 cx	12
5.1.2.6 cy	13
5.1.2.7 cz	13
5.1.2.8 direction	13
5.1.2.9 endAngle	13
5.1.2.10 font	13
5.1.2.11 height	13
5.1.2.12 italic	14
5.1.2.13 leftOffset	14
5.1.2.14 offset	14
5.1.2.15 pitch	14
5.1.2.16 radius	14
5.1.2.17 reversedCharacterOrder	14
5.1.2.18 rightOffset	15
5.1.2.19 shxFont	15
5.1.2.20 side	15
5.1.2.21 spacing	15
5.1.2.22 startAngle	15
5.1.2.23 style	15
5.1.2.24 text	16
5.1.2.25 underline	16
5.1.2.26 wizard	16
5.1.2.27 xScaleFactor	16
5.2 DL_ArcData Struct Reference	16
5.2.1 Detailed Description	17

5.2.2 Constructor & Destructor Documentation	17
5.2.2.1 DL_ArcData()	17
5.2.3 Member Data Documentation	17
5.2.3.1 angle1	17
5.2.3.2 angle2	17
5.2.3.3 cx	18
5.2.3.4 cy	18
5.2.3.5 cz	18
5.2.3.6 radius	18
5.3 DL_AttributeData Struct Reference	18
5.3.1 Detailed Description	19
5.3.2 Constructor & Destructor Documentation	20
5.3.2.1 DL_AttributeData()	20
5.3.3 Member Data Documentation	20
5.3.3.1 tag	20
5.4 DL_Attributes Class Reference	20
5.4.1 Detailed Description	21
5.4.2 Constructor & Destructor Documentation	21
5.4.2.1 DL_Attributes() [1/2]	21
5.4.2.2 DL_Attributes() [2/2]	22
5.4.3 Member Function Documentation	22
5.4.3.1 getColor()	22
5.4.3.2 getColor24()	23
5.4.3.3 getLayer()	23
5.4.3.4 getLinetype()	23
5.4.3.5 getWidth()	23
5.4.3.6 setColor()	24
5.4.3.7 setColor24()	24
5.4.3.8 setLayer()	24
5.4.3.9 setLinetype()	24
5.5 DL_BlockData Struct Reference	25
5.5.1 Detailed Description	25
5.5.2 Constructor & Destructor Documentation	25
5.5.2.1 DL_BlockData()	25
5.5.3 Member Data Documentation	26
5.5.3.1 flags	26
5.6 DL_CircleData Struct Reference	26
5.6.1 Detailed Description	26
5.6.2 Constructor & Destructor Documentation	26
5.6.2.1 DL_CircleData()	26
5.6.3 Member Data Documentation	27
5.6.3.1 cx	27

5.6.3.2 cy	27
5.6.3.3 cz	27
5.6.3.4 radius	27
5.7 DL_Codes Class Reference	27
5.7.1 Detailed Description	28
5.8 DL_ControlPointData Struct Reference	28
5.8.1 Detailed Description	28
5.8.2 Constructor & Destructor Documentation	29
5.8.2.1 DL_ControlPointData()	29
5.8.3 Member Data Documentation	29
5.8.3.1 w	29
5.8.3.2 x	29
5.8.3.3 y	29
5.8.3.4 z	29
5.9 DL_CreationAdapter Class Reference	30
5.9.1 Detailed Description	33
5.9.2 Member Function Documentation	33
5.9.2.1 add3dFace()	33
5.9.2.2 addArc()	33
5.9.2.3 addArcAlignedText()	33
5.9.2.4 addAttribute()	34
5.9.2.5 addBlock()	34
5.9.2.6 addCircle()	34
5.9.2.7 addComment()	34
5.9.2.8 addControlPoint()	34
5.9.2.9 addDictionary()	35
5.9.2.10 addDictionaryEntry()	35
5.9.2.11 addDimAlign()	35
5.9.2.12 addDimAngular()	35
5.9.2.13 addDimAngular3P()	35
5.9.2.14 addDimDiametric()	36
5.9.2.15 addDimLinear()	36
5.9.2.16 addDimOrdinate()	36
5.9.2.17 addDimRadial()	36
5.9.2.18 addEllipse()	36
5.9.2.19 addFitPoint()	37
5.9.2.20 addHatch()	37
5.9.2.21 addHatchEdge()	37
5.9.2.22 addHatchLoop()	37
5.9.2.23 addImage()	37
5.9.2.24 addInsert()	37
5.9.2.25 addKnot()	38

5.9.2.26	addLayer()	38
5.9.2.27	addLeader()	38
5.9.2.28	addLeaderVertex()	38
5.9.2.29	addLine()	38
5.9.2.30	addLinetype()	38
5.9.2.31	addLinetypeDash()	39
5.9.2.32	addMText()	39
5.9.2.33	addMTextChunk()	39
5.9.2.34	addPoint()	39
5.9.2.35	addPolyline()	39
5.9.2.36	addRay()	40
5.9.2.37	addSolid()	40
5.9.2.38	addSpline()	40
5.9.2.39	addText()	40
5.9.2.40	addTextStyle()	40
5.9.2.41	addTrace()	40
5.9.2.42	addVertex()	41
5.9.2.43	addXDataApp()	41
5.9.2.44	addXDataInt()	41
5.9.2.45	addXDataReal()	41
5.9.2.46	addXDataString()	41
5.9.2.47	addXLine()	42
5.9.2.48	addXRecord()	42
5.9.2.49	addXRecordBool()	42
5.9.2.50	addXRecordInt()	42
5.9.2.51	addXRecordReal()	42
5.9.2.52	addXRecordString()	43
5.9.2.53	endBlock()	43
5.9.2.54	endEntity()	43
5.9.2.55	endSection()	43
5.9.2.56	endSequence()	43
5.9.2.57	linkImage()	44
5.9.2.58	processCodeValuePair()	44
5.9.2.59	setVariableDouble()	44
5.9.2.60	setVariableInt()	44
5.9.2.61	setVariableString()	45
5.9.2.62	setVariableVector()	45
5.10	DL_CreationInterface Class Reference	45
5.10.1	Detailed Description	48
5.10.2	Member Function Documentation	49
5.10.2.1	add3dFace()	49
5.10.2.2	addArc()	49

5.10.2.3 addArcAlignedText()	49
5.10.2.4 addAttribute()	49
5.10.2.5 addBlock()	50
5.10.2.6 addCircle()	50
5.10.2.7 addComment()	50
5.10.2.8 addControlPoint()	50
5.10.2.9 addDictionary()	51
5.10.2.10 addDictionaryEntry()	51
5.10.2.11 addDimAlign()	51
5.10.2.12 addDimAngular()	51
5.10.2.13 addDimAngular3P()	52
5.10.2.14 addDimDiametric()	52
5.10.2.15 addDimLinear()	52
5.10.2.16 addDimOrdinate()	52
5.10.2.17 addDimRadial()	53
5.10.2.18 addEllipse()	53
5.10.2.19 addFitPoint()	53
5.10.2.20 addHatch()	53
5.10.2.21 addHatchEdge()	53
5.10.2.22 addHatchLoop()	54
5.10.2.23 addImage()	54
5.10.2.24 addInsert()	54
5.10.2.25 addKnot()	54
5.10.2.26 addLayer()	54
5.10.2.27 addLeader()	55
5.10.2.28 addLeaderVertex()	55
5.10.2.29 addLine()	55
5.10.2.30 addLinetype()	55
5.10.2.31 addLinetypeDash()	55
5.10.2.32 addMText()	56
5.10.2.33 addMTextChunk()	56
5.10.2.34 addPoint()	56
5.10.2.35 addPolyline()	56
5.10.2.36 addRay()	56
5.10.2.37 addSolid()	57
5.10.2.38 addSpline()	57
5.10.2.39 addText()	57
5.10.2.40 addTextStyle()	57
5.10.2.41 addTrace()	57
5.10.2.42 addVertex()	58
5.10.2.43 addXDataApp()	58
5.10.2.44 addXDataInt()	58

5.10.2.45 addXDataReal()	58
5.10.2.46 addXDataString()	59
5.10.2.47 addXLine()	59
5.10.2.48 addXRecord()	59
5.10.2.49 addXRecordBool()	59
5.10.2.50 addXRecordInt()	60
5.10.2.51 addXRecordReal()	60
5.10.2.52 addXRecordString()	60
5.10.2.53 endBlock()	60
5.10.2.54 endEntity()	61
5.10.2.55 endSection()	61
5.10.2.56 endSequence()	61
5.10.2.57 getAttributes()	61
5.10.2.58 getExtrusion()	61
5.10.2.59 linkImage()	62
5.10.2.60 processCodeValuePair()	62
5.10.2.61 setVariableDouble()	62
5.10.2.62 setVariableInt()	62
5.10.2.63 setVariableString()	63
5.10.2.64 setVariableVector()	63
5.11 DL_DictionaryData Struct Reference	63
5.11.1 Detailed Description	64
5.12 DL_DictionaryEntryData Struct Reference	64
5.12.1 Detailed Description	64
5.13 DL_DimAlignedData Struct Reference	64
5.13.1 Detailed Description	65
5.13.2 Constructor & Destructor Documentation	65
5.13.2.1 DL_DimAlignedData()	65
5.13.3 Member Data Documentation	65
5.13.3.1 ep _{x1}	65
5.13.3.2 ep _{x2}	65
5.13.3.3 ep _{y1}	66
5.13.3.4 ep _{y2}	66
5.13.3.5 ep _{z1}	66
5.13.3.6 ep _{z2}	66
5.14 DL_DimAngular2LData Struct Reference	66
5.14.1 Detailed Description	67
5.14.2 Constructor & Destructor Documentation	67
5.14.2.1 DL_DimAngular2LData()	67
5.14.3 Member Data Documentation	67
5.14.3.1 dp _{x1}	67
5.14.3.2 dp _{x2}	68

5.14.3.3 dpx3	68
5.14.3.4 dpx4	68
5.14.3.5 dpy1	68
5.14.3.6 dpy2	68
5.14.3.7 dpy3	68
5.14.3.8 dpy4	69
5.14.3.9 dpz1	69
5.14.3.10 dpz2	69
5.14.3.11 dpz3	69
5.14.3.12 dpz4	69
5.15 DL_DimAngular3PData Struct Reference	69
5.15.1 Detailed Description	70
5.15.2 Constructor & Destructor Documentation	70
5.15.2.1 DL_DimAngular3PData()	70
5.15.3 Member Data Documentation	70
5.15.3.1 dpx1	70
5.15.3.2 dpx2	70
5.15.3.3 dpx3	71
5.15.3.4 dpy1	71
5.15.3.5 dpy2	71
5.15.3.6 dpy3	71
5.15.3.7 dpz1	71
5.15.3.8 dpz2	71
5.15.3.9 dpz3	72
5.16 DL_DimDiametricData Struct Reference	72
5.16.1 Detailed Description	72
5.16.2 Constructor & Destructor Documentation	72
5.16.2.1 DL_DimDiametricData()	72
5.16.3 Member Data Documentation	73
5.16.3.1 dpx	73
5.16.3.2 dpy	73
5.16.3.3 dpz	73
5.16.3.4 leader	73
5.17 DL_DimensionData Struct Reference	73
5.17.1 Detailed Description	74
5.17.2 Constructor & Destructor Documentation	74
5.17.2.1 DL_DimensionData()	74
5.17.3 Member Data Documentation	75
5.17.3.1 attachmentPoint	75
5.17.3.2 dpx	75
5.17.3.3 dpy	75
5.17.3.4 dpz	75

5.17.3.5 lineSpacingFactor	75
5.17.3.6 lineSpacingStyle	76
5.17.3.7 mpx	76
5.17.3.8 mpy	76
5.17.3.9 mpz	76
5.17.3.10 style	76
5.17.3.11 text	76
5.17.3.12 type	77
5.18 DL_DimLinearData Struct Reference	77
5.18.1 Detailed Description	78
5.18.2 Constructor & Destructor Documentation	78
5.18.2.1 DL_DimLinearData()	78
5.18.3 Member Data Documentation	78
5.18.3.1 angle	78
5.18.3.2 dpx1	78
5.18.3.3 dpx2	78
5.18.3.4 dpy1	79
5.18.3.5 dpy2	79
5.18.3.6 dpz1	79
5.18.3.7 dpz2	79
5.18.3.8 oblique	79
5.19 DL_DimOrdinateData Struct Reference	79
5.19.1 Detailed Description	80
5.19.2 Constructor & Destructor Documentation	80
5.19.2.1 DL_DimOrdinateData()	80
5.19.3 Member Data Documentation	80
5.19.3.1 dpx1	80
5.19.3.2 dpx2	81
5.19.3.3 dpy1	81
5.19.3.4 dpy2	81
5.19.3.5 dpz1	81
5.19.3.6 dpz2	81
5.19.3.7 xtype	81
5.20 DL_DimRadialData Struct Reference	82
5.20.1 Detailed Description	82
5.20.2 Constructor & Destructor Documentation	82
5.20.2.1 DL_DimRadialData()	82
5.20.3 Member Data Documentation	82
5.20.3.1 dpx	82
5.20.3.2 dpy	83
5.20.3.3 dpz	83
5.20.3.4 leader	83

5.21 DL_Dxf Class Reference	83
5.21.1 Detailed Description	88
5.21.2 Member Function Documentation	89
5.21.2.1 addAttribute()	89
5.21.2.2 addSolid()	89
5.21.2.3 addTrace()	89
5.21.2.4 checkVariable()	90
5.21.2.5 getDimData()	90
5.21.2.6 getLibVersion()	90
5.21.2.7 getStrippedLine()	90
5.21.2.8 in() [1/2]	91
5.21.2.9 in() [2/2]	91
5.21.2.10 out()	92
5.21.2.11 processDXFGroup()	92
5.21.2.12 readDxfGroups()	93
5.21.2.13 stripWhiteSpace()	93
5.21.2.14 test()	94
5.21.2.15 write3dFace()	94
5.21.2.16 writeAppid()	94
5.21.2.17 writeArc()	95
5.21.2.18 writeBlockRecord()	95
5.21.2.19 writeCircle()	95
5.21.2.20 writeControlPoint()	96
5.21.2.21 writeDimAligned()	96
5.21.2.22 writeDimAngular2L()	96
5.21.2.23 writeDimAngular3P()	97
5.21.2.24 writeDimDiametric()	97
5.21.2.25 writeDimLinear()	98
5.21.2.26 writeDimOrdinate()	98
5.21.2.27 writeDimRadial()	99
5.21.2.28 writeDimStyle()	99
5.21.2.29 writeEllipse()	99
5.21.2.30 writeEndBlock()	100
5.21.2.31 writeFitPoint()	100
5.21.2.32 writeHatch1()	100
5.21.2.33 writeHatch2()	100
5.21.2.34 writeHatchEdge()	101
5.21.2.35 writeHatchLoop1()	101
5.21.2.36 writeHatchLoop2()	101
5.21.2.37 writeImage()	102
5.21.2.38 writeInsert()	102
5.21.2.39 writeKnot()	102

5.21.2.40 writeLayer()	103
5.21.2.41 writeLeader()	103
5.21.2.42 writeLeaderVertex()	104
5.21.2.43 writeLine()	104
5.21.2.44 writeLinetype()	104
5.21.2.45 writeMText()	104
5.21.2.46 writeObjects()	105
5.21.2.47 writeObjectsEnd()	105
5.21.2.48 writePoint()	105
5.21.2.49 writePolyline()	106
5.21.2.50 writePolylineEnd()	106
5.21.2.51 writeRay()	106
5.21.2.52 writeSolid()	106
5.21.2.53 writeSpline()	107
5.21.2.54 writeStyle()	107
5.21.2.55 writeText()	107
5.21.2.56 writeTrace()	108
5.21.2.57 writeUcs()	108
5.21.2.58 writeVertex()	108
5.21.2.59 writeView()	109
5.21.2.60 writeVPort()	109
5.21.2.61 writeXLine()	109
5.22 DL_EllipseData Struct Reference	110
5.22.1 Detailed Description	110
5.22.2 Constructor & Destructor Documentation	110
5.22.2.1 DL_EllipseData()	110
5.22.3 Member Data Documentation	111
5.22.3.1 angle1	111
5.22.3.2 angle2	111
5.22.3.3 cx	111
5.22.3.4 cy	111
5.22.3.5 cz	111
5.22.3.6 mx	111
5.22.3.7 my	112
5.22.3.8 mz	112
5.22.3.9 ratio	112
5.23 DL_Exception Class Reference	112
5.23.1 Detailed Description	112
5.24 DL_Extrusion Class Reference	113
5.24.1 Detailed Description	113
5.24.2 Constructor & Destructor Documentation	113
5.24.2.1 DL_Extrusion()	113

5.24.3 Member Function Documentation	114
5.24.3.1 <code>getDirection()</code> [1/2]	114
5.24.3.2 <code>getDirection()</code> [2/2]	114
5.24.3.3 <code>getElevation()</code>	114
5.25 <code>DL_FitPointData</code> Struct Reference	114
5.25.1 Detailed Description	115
5.25.2 Constructor & Destructor Documentation	115
5.25.2.1 <code>DL_FitPointData()</code>	115
5.25.3 Member Data Documentation	115
5.25.3.1 <code>x</code>	115
5.25.3.2 <code>y</code>	115
5.25.3.3 <code>z</code>	115
5.26 <code>DL_GroupCodeExc</code> Class Reference	116
5.26.1 Detailed Description	116
5.27 <code>DL_HatchData</code> Struct Reference	116
5.27.1 Detailed Description	117
5.27.2 Constructor & Destructor Documentation	117
5.27.2.1 <code>DL_HatchData()</code>	117
5.27.3 Member Data Documentation	117
5.27.3.1 <code>angle</code>	117
5.27.3.2 <code>numLoops</code>	117
5.27.3.3 <code>originX</code>	117
5.27.3.4 <code>pattern</code>	118
5.27.3.5 <code>scale</code>	118
5.27.3.6 <code>solid</code>	118
5.28 <code>DL_HatchEdgeData</code> Struct Reference	118
5.28.1 Detailed Description	119
5.28.2 Constructor & Destructor Documentation	119
5.28.2.1 <code>DL_HatchEdgeData()</code> [1/4]	119
5.28.2.2 <code>DL_HatchEdgeData()</code> [2/4]	120
5.28.2.3 <code>DL_HatchEdgeData()</code> [3/4]	120
5.28.2.4 <code>DL_HatchEdgeData()</code> [4/4]	120
5.28.3 Member Data Documentation	121
5.28.3.1 <code>angle1</code>	121
5.28.3.2 <code>angle2</code>	121
5.28.3.3 <code>ccw</code>	121
5.28.3.4 <code>cx</code>	121
5.28.3.5 <code>cy</code>	121
5.28.3.6 <code>degree</code>	121
5.28.3.7 <code>mx</code>	122
5.28.3.8 <code>my</code>	122
5.28.3.9 <code>nControl</code>	122

5.28.3.10 nFit	122
5.28.3.11 nKnots	122
5.28.3.12 radius	122
5.28.3.13 ratio	123
5.28.3.14 type	123
5.28.3.15 x1	123
5.28.3.16 x2	123
5.28.3.17 y1	123
5.28.3.18 y2	123
5.29 DL_HatchLoopData Struct Reference	124
5.29.1 Detailed Description	124
5.29.2 Constructor & Destructor Documentation	124
5.29.2.1 DL_HatchLoopData()	124
5.29.3 Member Data Documentation	124
5.29.3.1 numEdges	124
5.30 DL_ImageData Struct Reference	125
5.30.1 Detailed Description	125
5.30.2 Constructor & Destructor Documentation	125
5.30.2.1 DL_ImageData()	125
5.30.3 Member Data Documentation	126
5.30.3.1 brightness	126
5.30.3.2 contrast	126
5.30.3.3 fade	126
5.30.3.4 height	126
5.30.3.5 ipx	126
5.30.3.6 ipy	126
5.30.3.7 ipz	127
5.30.3.8 ref	127
5.30.3.9 ux	127
5.30.3.10 uy	127
5.30.3.11 uz	127
5.30.3.12 vx	127
5.30.3.13 vy	128
5.30.3.14 vz	128
5.30.3.15 width	128
5.31 DL_ImageDefData Struct Reference	128
5.31.1 Detailed Description	128
5.31.2 Constructor & Destructor Documentation	129
5.31.2.1 DL_ImageDefData()	129
5.31.3 Member Data Documentation	129
5.31.3.1 file	129
5.31.3.2 ref	129

5.32 DL_InsertData Struct Reference	129
5.32.1 Detailed Description	130
5.32.2 Constructor & Destructor Documentation	130
5.32.2.1 DL_InsertData()	130
5.32.3 Member Data Documentation	130
5.32.3.1 angle	130
5.32.3.2 cols	131
5.32.3.3 colSp	131
5.32.3.4 ipx	131
5.32.3.5 ipy	131
5.32.3.6 ipz	131
5.32.3.7 name	131
5.32.3.8 rows	132
5.32.3.9 rowSp	132
5.32.3.10 sx	132
5.32.3.11 sy	132
5.32.3.12 sz	132
5.33 DL_KnotData Struct Reference	132
5.33.1 Detailed Description	133
5.33.2 Constructor & Destructor Documentation	133
5.33.2.1 DL_KnotData()	133
5.33.3 Member Data Documentation	133
5.33.3.1 k	133
5.34 DL_LayerData Struct Reference	133
5.34.1 Detailed Description	134
5.34.2 Constructor & Destructor Documentation	134
5.34.2.1 DL_LayerData()	134
5.34.3 Member Data Documentation	134
5.34.3.1 flags	134
5.35 DL_LeaderData Struct Reference	135
5.35.1 Detailed Description	135
5.35.2 Constructor & Destructor Documentation	135
5.35.2.1 DL_LeaderData()	135
5.35.3 Member Data Documentation	136
5.35.3.1 arrowHeadFlag	136
5.35.3.2 dimScale	136
5.35.3.3 hooklineDirectionFlag	136
5.35.3.4 hooklineFlag	136
5.35.3.5 leaderCreationFlag	136
5.35.3.6 leaderPathType	136
5.35.3.7 number	137
5.35.3.8 textAnnotationHeight	137

5.35.3.9 textAnnotationWidth	137
5.36 DL_LeaderVertexData Struct Reference	137
5.36.1 Detailed Description	138
5.36.2 Constructor & Destructor Documentation	138
5.36.2.1 DL_LeaderVertexData()	138
5.36.3 Member Data Documentation	138
5.36.3.1 x	138
5.36.3.2 y	138
5.36.3.3 z	138
5.37 DL_LineData Struct Reference	139
5.37.1 Detailed Description	139
5.37.2 Constructor & Destructor Documentation	139
5.37.2.1 DL_LineData()	139
5.37.3 Member Data Documentation	139
5.37.3.1 x1	139
5.37.3.2 x2	140
5.37.3.3 y1	140
5.37.3.4 y2	140
5.37.3.5 z1	140
5.37.3.6 z2	140
5.38 DL_LinetypeData Struct Reference	140
5.38.1 Detailed Description	141
5.38.2 Constructor & Destructor Documentation	141
5.38.2.1 DL_LinetypeData()	141
5.39 DL_MTextData Struct Reference	141
5.39.1 Detailed Description	142
5.39.2 Constructor & Destructor Documentation	142
5.39.2.1 DL_MTextData()	142
5.39.3 Member Data Documentation	143
5.39.3.1 angle	143
5.39.3.2 attachmentPoint	143
5.39.3.3 dirx	143
5.39.3.4 diry	143
5.39.3.5 dirz	143
5.39.3.6 drawingDirection	143
5.39.3.7 height	144
5.39.3.8 ipx	144
5.39.3.9 ipy	144
5.39.3.10 ipz	144
5.39.3.11 lineSpacingFactor	144
5.39.3.12 lineSpacingStyle	144
5.39.3.13 style	145

5.39.3.14 text	145
5.39.3.15 width	145
5.40 DL_NullStrExc Class Reference	145
5.40.1 Detailed Description	145
5.41 DL_PointData Struct Reference	146
5.41.1 Detailed Description	146
5.41.2 Constructor & Destructor Documentation	146
5.41.2.1 DL_PointData()	146
5.41.3 Member Data Documentation	146
5.41.3.1 x	146
5.41.3.2 y	147
5.41.3.3 z	147
5.42 DL_PolylineData Struct Reference	147
5.42.1 Detailed Description	147
5.42.2 Constructor & Destructor Documentation	148
5.42.2.1 DL_PolylineData()	148
5.42.3 Member Data Documentation	148
5.42.3.1 elevation	148
5.42.3.2 flags	148
5.42.3.3 m	148
5.42.3.4 n	148
5.42.3.5 number	149
5.43 DL_RayData Struct Reference	149
5.43.1 Detailed Description	149
5.43.2 Constructor & Destructor Documentation	149
5.43.2.1 DL_RayData()	149
5.43.3 Member Data Documentation	150
5.43.3.1 bx	150
5.43.3.2 by	150
5.43.3.3 bz	150
5.43.3.4 dx	150
5.43.3.5 dy	150
5.43.3.6 dz	150
5.44 DL_SplineData Struct Reference	151
5.44.1 Detailed Description	151
5.44.2 Constructor & Destructor Documentation	151
5.44.2.1 DL_SplineData()	151
5.44.3 Member Data Documentation	152
5.44.3.1 degree	152
5.44.3.2 flags	152
5.44.3.3 nControl	152
5.44.3.4 nFit	152

5.44.3.5 nKnots	152
5.45 DL_StyleData Struct Reference	153
5.45.1 Detailed Description	153
5.46 DL_TextData Struct Reference	154
5.46.1 Detailed Description	154
5.46.2 Constructor & Destructor Documentation	155
5.46.2.1 DL_TextData()	155
5.46.3 Member Data Documentation	155
5.46.3.1 angle	155
5.46.3.2 apx	155
5.46.3.3 apy	155
5.46.3.4 apz	156
5.46.3.5 height	156
5.46.3.6 hJustification	156
5.46.3.7 ipx	156
5.46.3.8 ipy	156
5.46.3.9 ipz	156
5.46.3.10 style	157
5.46.3.11 text	157
5.46.3.12 textGenerationFlags	157
5.46.3.13 vJustification	157
5.46.3.14 xScaleFactor	157
5.47 DL_TraceData Struct Reference	158
5.47.1 Detailed Description	158
5.47.2 Constructor & Destructor Documentation	158
5.47.2.1 DL_TraceData()	158
5.47.3 Member Data Documentation	159
5.47.3.1 thickness	159
5.47.3.2 x	159
5.48 DL_VertexData Struct Reference	159
5.48.1 Detailed Description	159
5.48.2 Constructor & Destructor Documentation	160
5.48.2.1 DL_VertexData()	160
5.48.3 Member Data Documentation	160
5.48.3.1 bulge	160
5.48.3.2 x	160
5.48.3.3 y	160
5.48.3.4 z	160
5.49 DL_Writer Class Reference	161
5.49.1 Detailed Description	163
5.49.2 Constructor & Destructor Documentation	163
5.49.2.1 DL_Writer()	163

5.49.3 Member Function Documentation	163
5.49.3.1 comment()	163
5.49.3.2 dxfBool()	163
5.49.3.3 dxfeof()	164
5.49.3.4 dxfHex()	164
5.49.3.5 dxflnt()	164
5.49.3.6 dxreal()	164
5.49.3.7 dxstring() [1/2]	165
5.49.3.8 dxstring() [2/2]	165
5.49.3.9 entity()	165
5.49.3.10 entityAttributes()	166
5.49.3.11 getNextHandle()	166
5.49.3.12 section()	166
5.49.3.13 sectionBlockEntry()	167
5.49.3.14 sectionBlockEntryEnd()	167
5.49.3.15 sectionBlocks()	167
5.49.3.16 sectionClasses()	167
5.49.3.17 sectionEnd()	168
5.49.3.18 sectionEntities()	168
5.49.3.19 sectionHeader()	168
5.49.3.20 sectionObjects()	168
5.49.3.21 sectionTables()	169
5.49.3.22 table()	169
5.49.3.23 tableAppid()	169
5.49.3.24 tableAppidEntry()	170
5.49.3.25 tableEnd()	170
5.49.3.26 tableLayerEntry()	170
5.49.3.27 tableLayers()	170
5.49.3.28 tableLinetypeEntry()	171
5.49.3.29 tableLinetypes()	171
5.49.3.30 tableStyle()	171
5.50 DL_WriterA Class Reference	172
5.50.1 Detailed Description	174
5.50.2 Member Function Documentation	174
5.50.2.1 dxfHex()	174
5.50.2.2 dxflnt()	174
5.50.2.3 dxreal()	175
5.50.2.4 dxstring() [1/2]	175
5.50.2.5 dxstring() [2/2]	176
5.50.2.6 openFailed()	176
5.51 DL_XLineData Struct Reference	177
5.51.1 Detailed Description	177

5.51.2 Constructor & Destructor Documentation	177
5.51.2.1 DL_XLineData()	177
5.51.3 Member Data Documentation	177
5.51.3.1 bx	177
5.51.3.2 by	178
5.51.3.3 bz	178
5.51.3.4 dx	178
5.51.3.5 dy	178
5.51.3.6 dz	178
6 File Documentation	179
6.1 dl_attributes.h	179
6.2 dl_codes.h	181
6.3 dl_creationadapter.h	187
6.4 dl_creationinterface.h	189
6.5 dl_dxf.h	191
6.6 dl_entities.h	197
6.7 dl_exception.h	210
6.8 dl_extrusion.h	211
6.9 dl_global.h	212
6.10 dl_writer.h	212
6.11 dl_writer_ascii.h	216
Index	219

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:

DL_ArcAlignedTextData	11
DL_ArcData	16
DL_Attributes	20
DL_BlockData	25
DL_CircleData	26
DL_Codes	27
DL_ControlPointData	28
DL_CreationInterface	45
DL_CreationAdapter	30
DL_DictionaryData	63
DL_DictionaryEntryData	64
DL_DimAlignedData	64
DL_DimAngular2LData	66
DL_DimAngular3PData	69
DL_DimDiametricData	72
DL_DimensionData	73
DL_DimLinearData	77
DL_DimOrdinateData	79
DL_DimRadialData	82
DL_Dxf	83
DL_EllipseData	110
DL_Exception	112
DL_GroupCodeExc	116
DL_NullStrExc	145
DL_Extrusion	113
DL_FitPointData	114
DL_HatchData	116
DL_HatchEdgeData	118
DL_HatchLoopData	124
DL_ImageData	125
DL_ImageDefData	128
DL_InsertData	129
DL_KnotData	132
DL_LayerData	133
DL_LeaderData	135

DL_LeaderVertexData	137
DL_LineData	139
DL_LinetypeData	140
DL_MTextData	141
DL_PointData	146
DL_PolylineData	147
DL_RayData	149
DL_SplineData	151
DL_StyleData	153
DL_TextData	154
DL_AttributeData	18
DL_TraceData	158
DL_VertexData	159
DL_Writer	161
DL_WriterA	172
DL_XLineData	177

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

DL_ArcAlignedTextData	
Arc Aligned Text Data	11
DL_ArcData	
Arc Data	16
DL_AttributeData	
Block attribute data	18
DL_Attributes	
Storing and passing around attributes	20
DL_BlockData	
Block Data	25
DL_CircleData	
Circle Data	26
DL_Codes	
Codes for colors and DXF versions	27
DL_ControlPointData	
Spline control point data	28
DL_CreationAdapter	
An abstract adapter class for receiving DXF events when a DXF file is being read	30
DL_CreationInterface	
Abstract class (interface) for the creation of new entities	45
DL_DictionaryData	
Dictionary data	63
DL_DictionaryEntryData	
Dictionary entry data	64
DL_DimAlignedData	
Aligned Dimension Data	64
DL_DimAngular2LData	
Angular Dimension Data	66
DL_DimAngular3PData	
Angular Dimension Data (3 points version)	69
DL_DimDiametricData	
Diametric Dimension Data	72
DL_DimensionData	
Generic Dimension Data	73
DL_DimLinearData	
Linear (rotated) Dimension Data	77

DL_DimOrdinateData	
Ordinate Dimension Data	79
DL_DimRadialData	
Radial Dimension Data	82
DL_Dxf	
Reading and writing of DXF files	83
DL_EllipseData	
Ellipse Data	110
DL_Exception	
Used for exception handling	112
DL_Extrusion	
Extrusion direction	113
DL_FitPointData	
Spline fit point data	114
DL_GroupCodeExc	
Used for exception handling	116
DL_HatchData	
Hatch data	116
DL_HatchEdgeData	
Hatch edge data	118
DL_HatchLoopData	
Hatch boundary path (loop) data	124
DL_ImageData	
Image Data	125
DL_ImageDefData	
Image Definition Data	128
DL_InsertData	
Insert Data	129
DL_KnotData	
Spline knot data	132
DL_LayerData	
Layer Data	133
DL_LeaderData	
Leader (arrow)	135
DL_LeaderVertexData	
Leader Vertex Data	137
DL_LineData	
Line Data	139
DL_LinetypeData	
Line Type Data	140
DL_MTextData	
MText Data	141
DL_NullStrExc	
Used for exception handling	145
DL_PointData	
Point Data	146
DL_PolylineData	
Polyline Data	147
DL_RayData	
Ray Data	149
DL_SplineData	
Spline Data	151
DL_StyleData	
Text style data	153
DL_TextData	
Text Data	154
DL_TraceData	
Trace Data / solid data / 3d face data	158

DL_VertexData	
Vertex Data	159
DL_Writer	
Defines interface for writing low level DXF constructs to a file	161
DL_WriterA	
Implements functions defined in DL_Writer for writing low level DXF constructs to an ASCII format DXF file	172
DL_XLineData	
XLine Data	177

Chapter 4

File Index

4.1 File List

Here is a list of all documented files with brief descriptions:

src/dl_attributes.h	179
src/dl_codes.h	181
src/dl_creationadapter.h	187
src/dl_creationinterface.h	189
src/dl_dxf.h	191
src/dl_entities.h	197
src/dl_exception.h	210
src/dl_extrusion.h	211
src/dl_global.h	212
src/dl_writer.h	212
src/dl_writer_ascii.h	216

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](#)
- int [side](#)
- 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:

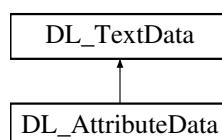
- `src/dl_entities.h`

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 Member Functions inherited from [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](#))

Constructor.

Public Attributes

- std::string [tag](#)

Public Attributes inherited from [DL_TextData](#)

- 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](#)

5.3.1 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.
<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 **bp_x**
X Coordinate of base point.
- double **bp_y**
Y Coordinate of base point.
- double **bp_z**
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:

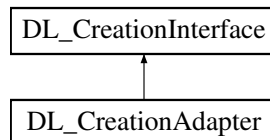
- `src/dl_entities.h`

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)

Public Member Functions inherited from [DL_CreationInterface](#)

- 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** ()

Additional Inherited Members

Protected Attributes inherited from [DL_CreationInterface](#)

- [DL_Attributes](#) **attributes**
- [DL_Extrusion](#) * **extrusion**

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:

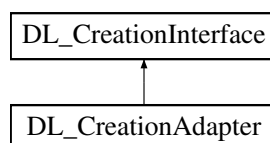
- src/dl_creationadapter.h

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 epx1

```
double DL_DimAlignedData::epx1
```

X Coordinate of Extension point 1.

Referenced by [DL_Dxf::writeDimAligned\(\)](#).

5.13.3.2 epx2

```
double DL_DimAlignedData::epx2
```

X Coordinate of Extension point 2.

Referenced by [DL_Dxf::writeDimAligned\(\)](#).

5.13.3.3 epy1

`double DL_DimAlignedData::epy1`

Y Coordinate of Extension point 1.

Referenced by [DL_Dxf::writeDimAligned\(\)](#).

5.13.3.4 epy2

`double DL_DimAlignedData::epy2`

Y Coordinate of Extension point 2.

Referenced by [DL_Dxf::writeDimAligned\(\)](#).

5.13.3.5 epz1

`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_x1, double ddp_y1, double ddp_z1, double ddp_x2, double ddp_y2, double ddp_z2, double ddp_x3, double ddp_y3, double ddp_z3, double ddp_x4, double ddp_y4, double ddp_z4)

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_{x1}, double ddp_{y1}, double ddp_{z1}, double ddp_{x2}, double ddp_{y2}, double ddp_{z2}, double ddp_{x3}, double ddp_{y3}, double ddp_{z3})

Constructor.

Public Attributes

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

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_x, double ddp_y, double ddp_z, double dleader)
Constructor.

Public Attributes

- double [dp_x](#)
- double [dp_y](#)
- double [dp_z](#)
- 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 ddp1, double ddp2, double ddp3, double ddp4, double ddp5, double ddp6, 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_x1, double ddp_y1, double ddp_z1, double ddp_x2, double ddp_y2, double ddp_z2, bool dxtype)

Constructor.

Public Attributes

- double [dpx1](#)
- double [dpy1](#)
- double [dpz1](#)
- double [dpx2](#)
- double [dpy2](#)
- double [dpz2](#)
- bool [xtype](#)

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_x, double ddp_y, double ddp_z, double dleader)
Constructor.

Public Attributes

- double [dpx](#)
- double [dpy](#)
- double [dpz](#)
- 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 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 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\(\)](#), and [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 <i>file</i> could be opened.
<i>false</i>	If <i>file</i> 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\(\)](#), [handleLWPolylineData\(\)](#), [handleMTextData\(\)](#), [handleSplineData\(\)](#), [handleXData\(\)](#), [handleXRecordData\(\)](#), [DL_CreationInterface::setAttributes\(\)](#), [DL_CreationInterface::setExtrusion\(\)](#), and [DL_Attributes::setLinetypeScale\(\)](#).

Referenced by [readDxfGroups\(\)](#), and [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\(\)](#), and [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\(\)](#), [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 value (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::dxflReal\(\)](#), [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::dxflnt\(\)](#), [DL_WriterA::dxflReal\(\)](#), [DL_WriterA::dxflString\(\)](#), [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::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](#).

5.21.2.24 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_DimDiametricData::dpx](#), [DL_DimensionData::dpx](#), [DL_DimDiametricData::dpy](#), [DL_DimensionData::dpy](#), [DL_DimensionData::dpz](#), [DL_WriterA::dxflnt\(\)](#), [DL_WriterA::dxflntReal\(\)](#), [DL_WriterA::dxflntString\(\)](#), [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::dxflnt\(\)](#), [DL_WriterA::dxflntReal\(\)](#), [DL_WriterA::dxflntString\(\)](#), [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::dxflntReal\(\)](#), [DL_WriterA::dxflntString\(\)](#), [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::lineSpacing](#), [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::dxflHex\(\)](#), [DL_WriterA::dxflnt\(\)](#), [DL_WriterA::dxflReal\(\)](#), and [DL_WriterA::dxflString\(\)](#).

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::dxflReal\(\)](#), [DL_WriterA::dxflString\(\)](#), [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::dxfReal\(\)](#), [DL_WriterA::dxfString\(\)](#), [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::dxfBool\(\)](#), [DL_WriterA::dxflnt\(\)](#), [DL_WriterA::dxfReal\(\)](#), [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 writelImage()

```
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 writelInsert()

```
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::dxReal\(\)](#), 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::dxHex\(\)](#), [DL_WriterA::dxInt\(\)](#), [DL_WriterA::dxString\(\)](#), [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::dxInt\(\)](#), [DL_WriterA::dxReal\(\)](#), [DL_WriterA::dxString\(\)](#), [DL_Writer::entity\(\)](#), [DL_Writer::entityAttributes\(\)](#), [DL_LeaderData::hooklineDirectionFlag](#), [DL_LeaderData::hooklineFlag](#), [DL_LeaderData::leaderCreationFlag](#), [DL_LeaderData::leaderPathType](#), [DL_LeaderData::number](#), [DL_LeaderData::textAnnotationHeight](#), 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::dxReal\(\)](#), [DL_LeaderVertexData::x](#), and [DL_LeaderVertexData::y](#).

5.21.2.43 writeLine()

```
void DL_Dxf::writeLine (
    DL_WriterA & dw,
    const DL_LineData & data,
    const DL_Attributes & attrib)
```

Writes a 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_WriterA::dxString\(\)](#), [DL_Writer::entity\(\)](#), [DL_Writer::entityAttributes\(\)](#), [DL_LineData::x1](#), [DL_LineData::x2](#), [DL_LineData::y1](#), [DL_LineData::y2](#), [DL_LineData::z1](#), and [DL_LineData::z2](#).

5.21.2.44 writeLinetype()

```
void DL_Dxf::writeLinetype (
    DL_WriterA & dw,
    const DL_LinetypeData & data)
```

Writes a line type to the file.

Line types are stored in the tables section of a DXF file.

References [DL_LinetypeData::description](#), [DL_WriterA::dxInt\(\)](#), [DL_WriterA::dxReal\(\)](#), [DL_WriterA::dxString\(\)](#), [DL_LinetypeData::flags](#), [DL_LinetypeData::name](#), [DL_LinetypeData::numberOfDashes](#), [DL_LinetypeData::pattern](#), [DL_LinetypeData::patternLength](#), and [DL_Writer::tableLinetypeEntry\(\)](#).

5.21.2.45 writeMText()

```
void DL_Dxf::writeMText (
    DL_WriterA & dw,
    const DL_MTextData & data,
    const DL_Attributes & attrib)
```

Writes a multi 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_MTextData::angle](#), [DL_MTextData::attachmentPoint](#), [DL_MTextData::drawingDirection](#), [DL_WriterA::dxflnt\(\)](#), [DL_WriterA::dxflReal\(\)](#), [DL_WriterA::dxflString\(\)](#), [DL_Writer::entity\(\)](#), [DL_Writer::entityAttributes\(\)](#), [DL_MTextData::height](#), [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::dxflHex\(\)](#), [DL_WriterA::dxflnt\(\)](#), [DL_WriterA::dxflReal\(\)](#), [DL_WriterA::dxflString\(\)](#), [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::dxflString\(\)](#).

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::dxflString\(\)](#), [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::dxfString\(\)](#), [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::dxfInt\(\)](#), [DL_WriterA::dxfString\(\)](#), [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::dxfInt\(\)](#), [DL_WriterA::dxfReal\(\)](#), [DL_WriterA::dxfString\(\)](#), [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::dxflReal\(\)](#), [DL_WriterA::dxflString\(\)](#), [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::dxflReal\(\)](#), [DL_WriterA::dxflString\(\)](#), [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::dxflHex\(\)](#), [DL_WriterA::dxflnt\(\)](#), and [DL_WriterA::dxflString\(\)](#).

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::dxReal\(\)](#), [DL_WriterA::dxString\(\)](#), [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:

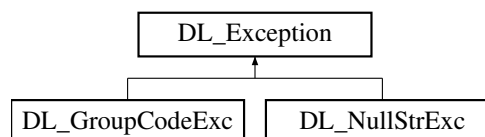
- `src/dl_entities.h`

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:

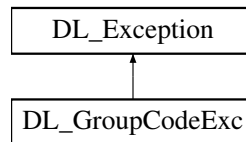
- `src/dl_entities.h`

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 &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)

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:

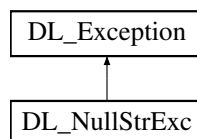
- `src/dl_entities.h`

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:

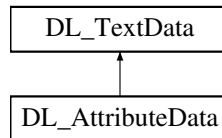
- src/dl_entities.h

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:

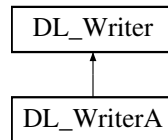
- `src/dl_entities.h`

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 [dxfReal](#) (int gc, double value) const =0

Must be overwritten by the implementing class to write a real value to the file.

- virtual void [dxfInt](#) (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 [dxfString](#) (int gc, const char *value) const =0

Must be overwritten by the implementing class to write a string to the file.

- virtual void [dxfString](#) (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:

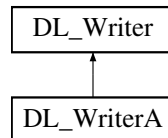
- `src/dl_writer.h`

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.

Public Member Functions inherited from [DL_Writer](#)

- [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 **dxEOF** () 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 **dxfBool** (int gc, bool value) const
Can be overwritten by the implementing class to write a bool value to the file.

Static Public Member Functions

- static void **strReplace** (char *str, char src, char dest)
Replaces every occurrence of src with dest in the null terminated str.

Additional Inherited Members

Protected Attributes inherited from [DL_Writer](#)

- unsigned long **m_handle**
- unsigned long **modelSpaceHandle**
- unsigned long **paperSpaceHandle**
- unsigned long **paperSpace0Handle**
- [DL_Codes::version](#) **version**

DXF version to be created.

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::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 [dxflHex\(\)](#), [dxflReal\(\)](#), [DL_Dxf::write3dFace\(\)](#), [DL_Dxf::writeAppid\(\)](#), [DL_Dxf::writeArc\(\)](#), [DL_Dxf::writeBlock\(\)](#), [DL_Dxf::writeBlockRecord\(\)](#), [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 dxflString() [2/2]

```
void DL_WriterA::dxflString (
    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

```
00001 /*****
00002 ** Copyright (C) 2001-2013 RibbonSoft, GmbH. All rights reserved.
00003 **
00004 ** This file is part of the dxflib project.
00005 **
00006 ** This file is free software; you can redistribute it and/or modify
00007 ** it under the terms of the GNU General Public License as published by
00008 ** the Free Software Foundation; either version 2 of the License, or
00009 ** (at your option) any later version.
00010 **
00011 ** Licensees holding valid dxflib Professional Edition licenses may use
00012 ** this file in accordance with the dxflib Commercial License
00013 ** Agreement provided with the Software.
00014 **
00015 ** This file is provided AS IS with NO WARRANTY OF ANY KIND, INCLUDING THE
00016 ** WARRANTY OF DESIGN, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
00017 **
00018 ** See http://www.ribbonsoft.com for further details.
00019 **
00020 ** Contact info@ribbonsoft.com if any conditions of this licensing are
00021 ** not clear to you.
00022 **
00023 *****/
00024
00025 #ifndef DL_ATTRIBUTES_H
00026 #define DL_ATTRIBUTES_H
00027
00028 #include "dl_global.h"
00029
00030 #include <string>
00031 #include <vector>
00032
00033 #include "dl_codes.h"
00034
00041 class DXFLIB_EXPORT DL_Attributes {
00042 public:
00043
00044     DL_Attributes() :
00045         layer(""),
00046         color(0),
00047         color24(-1),
00048         width(0),
00049         linetype("BYLAYER"),
00050         linetypeScale(1.0),
00051         handle(-1),
00052         inPaperSpace(false) {
00053
00054     DL_Attributes(const std::string& layer,
00055                  int color, int width,
00056                  const std::string& linetype,
00057                  double linetypeScale) :
00058         layer(layer),
00059         color(color),
00060         color24(-1),
00061         width(width),
00062         linetype(linetype),
```

```

00079         linetypeScale(linetypeScale),
00080         handle(-1),
00081         inPaperSpace(false) {
00082     }
00083 }
00084
00097 DL_Attributes(const std::string& layer,
00098               int color, int color24, int width,
00099               const std::string& linetype,
00100               int handle=-1) :
00101     layer(layer),
00102     color(color),
00103     color24(color24),
00104     width(width),
00105     linetype(linetype),
00106     linetypeScale(1.0),
00107     handle(handle),
00108     inPaperSpace(false) {
00109 }
00110
00115 void setLayer(const std::string& layer) {
00116     this->layer = layer;
00117 }
00118
00122 std::string getLayer() const {
00123     return layer;
00124 }
00125
00131 void setColor(int color) {
00132     this->color = color;
00133 }
00134
00140 void setColor24(int color) {
00141     this->color24 = color;
00142 }
00143
00149 int getColor() const {
00150     return color;
00151 }
00152
00158 int getColor24() const {
00159     return color24;
00160 }
00161
00165 void setWidth(int width) {
00166     this->width = width;
00167 }
00168
00172 int getWidth() const {
00173     return width;
00174 }
00175
00180 void setLinetype(const std::string& linetype) {
00181     this->linetype = linetype;
00182 }
00183
00187 void setLinetypeScale(double linetypeScale) {
00188     this->linetypeScale = linetypeScale;
00189 }
00190
00191 double getLinetypeScale() const {
00192     return linetypeScale;
00193 }
00194
00198 std::string getLinetype() const {
00199     if (linetype.length()==0) {
00200         return "BYLAYER";
00201     } else {
00202         return linetype;
00203     }
00204 }
00205
00206 void setHandle(int h) {
00207     handle = h;
00208 }
00209
00210 int getHandle() const {
00211     return handle;
00212 }
00213
00214 void setInPaperSpace(bool on) {
00215     inPaperSpace = on;
00216 }
00217
00218 bool isInPaperSpace() const {
00219     return inPaperSpace;
00220 }

```



```

00221
00222 private:
00223     std::string layer;
00224     int color;
00225     int color24;
00226     int width;
00227     std::string linetype;
00228     double linetypeScale;
00229     int handle;
00230
00231     // DXF code 67 (true: entity in paper space, false: entity in model space (default):
00232     bool inPaperSpace;
00233 };
00234
00235 #endif
00236
00237 // EOF

```

6.2 dl_codes.h

```

00001 /*****
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00023 **
00024 *****/
00025
00030 #ifndef DXF_CODES_H
00031 #define DXF_CODES_H
00032
00033 #include "dl_global.h"
00034
00035 #if _MSC_VER > 1000
00036 #pragma once
00037 #endif // _MSC_VER > 1000
00038
00039 #if defined(__OS2__) || defined(__EMX__)
00040 #define strcasecmp(s,t) stricmp(s,t)
00041 #endif
00042
00043 #if defined(_WIN32)
00044 #define strcasecmp(s,t) _stricmp(s,t)
00045 #endif
00046
00047
00048 #ifdef _WIN32
00049 #undef M_PI
00050 #define M_PI 3.14159265358979323846
00051 #pragma warning(disable : 4800)
00052 #endif
00053
00054 #ifndef M_PI
00055 #define M_PI 3.1415926535897932384626433832795
00056 #endif
00057
00058 #define DL_DXF_MAXLINE 1024
00059 #define DL_DXF_MAXGROUPCODE 1100
00060
00061 // used to mark invalid vectors:
00062 // #define DL_DXF_MAXDOUBLE 1.0E+10
00063
00064 class DXFLIB_EXPORT DL_Codes {
00065 public:
00066     enum color {
00067         black = 250,

```

```

00074         green = 3,
00075         red = 1,
00076         brown = 15,
00077         yellow = 2,
00078         cyan = 4,
00079         magenta = 6,
00080         gray = 8,
00081         blue = 5,
00082         l_blue = 163,
00083         l_green = 121,
00084         l_cyan = 131,
00085         l_red = 23,
00086         l_magenta = 221,
00087         l_gray = 252,
00088         white = 7,
00089         bylayer = 256,
00090         byblock = 0
00091     };
00092
00093     enum version {
00094         AC1009_MIN,          // R12, minimalistic
00095         AC1009,              // R12
00096         AC1012,
00097         AC1014,
00098         AC1015               // R2000
00099     };
00100 };
00101
00102 // Extended color palette:
00103 // The first entry is only for direct indexing starting with [1]
00104 // Color 1 is red (1,0,0)
00105 const double dxfColors[][3] = {
00106     {0,0,0},                // unused
00107     {1,0,0},                // 1
00108     {1,1,0},
00109     {0,1,0},
00110     {0,1,1},
00111     {0,0,1},
00112     {1,0,1},
00113     {1,1,1},                // black or white
00114     {0.5,0.5,0.5},
00115     {0.75,0.75,0.75},
00116     {1,0,0},                // 10
00117     {1,0.5,0.5},
00118     {0.65,0,0},
00119     {0.65,0.325,0.325},
00120     {0.5,0,0},
00121     {0.5,0.25,0.25},
00122     {0.3,0,0},
00123     {0.3,0.15,0.15},
00124     {0.15,0,0},
00125     {0.15,0.075,0.075},
00126     {1,0.25,0},            // 20
00127     {1,0.625,0.5},
00128     {0.65,0.1625,0},
00129     {0.65,0.4063,0.325},
00130     {0.5,0.125,0},
00131     {0.5,0.3125,0.25},
00132     {0.3,0.075,0},
00133     {0.3,0.1875,0.15},
00134     {0.15,0.0375,0},
00135     {0.15,0.0938,0.075},
00136     {1,0.5,0},             // 30
00137     {1,0.75,0.5},
00138     {0.65,0.325,0},
00139     {0.65,0.4875,0.325},
00140     {0.5,0.25,0},
00141     {0.5,0.375,0.25},
00142     {0.3,0.15,0},
00143     {0.3,0.225,0.15},
00144     {0.15,0.075,0},
00145     {0.15,0.1125,0.075},
00146     {1,0.75,0},           // 40
00147     {1,0.875,0.5},
00148     {0.65,0.4875,0},
00149     {0.65,0.5688,0.325},
00150     {0.5,0.375,0},
00151     {0.5,0.4375,0.25},
00152     {0.3,0.225,0},
00153     {0.3,0.2625,0.15},
00154     {0.15,0.1125,0},
00155     {0.15,0.1313,0.075},
00156     {1,1,0},              // 50
00157     {1,1,0.5},
00158     {0.65,0.65,0},
00159     {0.65,0.65,0.325},
00160

```

```

00164      {0.5,0.5,0},
00165      {0.5,0.5,0.25},
00166      {0.3,0.3,0},
00167      {0.3,0.3,0.15},
00168      {0.15,0.15,0},
00169      {0.15,0.15,0.075},
00170      {0.75,1,0}, // 60
00171      {0.875,1,0.5},
00172      {0.4875,0.65,0},
00173      {0.5688,0.65,0.325},
00174      {0.375,0.5,0},
00175      {0.4375,0.5,0.25},
00176      {0.225,0.3,0},
00177      {0.2625,0.3,0.15},
00178      {0.1125,0.15,0},
00179      {0.1313,0.15,0.075},
00180      {0.5,1,0}, // 70
00181      {0.75,1,0.5},
00182      {0.325,0.65,0},
00183      {0.4875,0.65,0.325},
00184      {0.25,0.5,0},
00185      {0.375,0.5,0.25},
00186      {0.15,0.3,0},
00187      {0.225,0.3,0.15},
00188      {0.075,0.15,0},
00189      {0.1125,0.15,0.075},
00190      {0.25,1,0}, // 80
00191      {0.625,1,0.5},
00192      {0.1625,0.65,0},
00193      {0.4063,0.65,0.325},
00194      {0.125,0.5,0},
00195      {0.3125,0.5,0.25},
00196      {0.075,0.3,0},
00197      {0.1875,0.3,0.15},
00198      {0.0375,0.15,0},
00199      {0.0938,0.15,0.075},
00200      {0,1,0}, // 90
00201      {0.5,1,0.5},
00202      {0,0.65,0},
00203      {0.325,0.65,0.325},
00204      {0,0.5,0},
00205      {0.25,0.5,0.25},
00206      {0,0.3,0},
00207      {0.15,0.3,0.15},
00208      {0,0.15,0},
00209      {0.075,0.15,0.075},
00210      {0,1,0.25}, // 100
00211      {0.5,1,0.625},
00212      {0,0.65,0.1625},
00213      {0.325,0.65,0.4063},
00214      {0,0.5,0.125},
00215      {0.25,0.5,0.3125},
00216      {0,0.3,0.075},
00217      {0.15,0.3,0.1875},
00218      {0,0.15,0.0375},
00219      {0.075,0.15,0.0938},
00220      {0,1,0.5}, // 110
00221      {0.5,1,0.75},
00222      {0,0.65,0.325},
00223      {0.325,0.65,0.4875},
00224      {0,0.5,0.25},
00225      {0.25,0.5,0.375},
00226      {0,0.3,0.15},
00227      {0.15,0.3,0.225},
00228      {0,0.15,0.075},
00229      {0.075,0.15,0.1125},
00230      {0,1,0.75}, // 120
00231      {0.5,1,0.875},
00232      {0,0.65,0.4875},
00233      {0.325,0.65,0.5688},
00234      {0,0.5,0.375},
00235      {0.25,0.5,0.4375},
00236      {0,0.3,0.225},
00237      {0.15,0.3,0.2625},
00238      {0,0.15,0.1125},
00239      {0.075,0.15,0.1313},
00240      {0,1,1}, // 130
00241      {0.5,1,1},
00242      {0,0.65,0.65},
00243      {0.325,0.65,0.65},
00244      {0,0.5,0.5},
00245      {0.25,0.5,0.5},
00246      {0,0.3,0.3},
00247      {0.15,0.3,0.3},
00248      {0,0.15,0.15},
00249      {0.075,0.15,0.15},
00250      {0,0.75,1}, // 140

```

```

00251      {0.5,0.875,1},
00252      {0,0.4875,0.65},
00253      {0.325,0.5688,0.65},
00254      {0,0.375,0.5},
00255      {0.25,0.4375,0.5},
00256      {0,0.225,0.3},
00257      {0.15,0.2625,0.3},
00258      {0,0.1125,0.15},
00259      {0.075,0.1313,0.15},
00260      {0,0.5,1}, // 150
00261      {0.5,0.75,1},
00262      {0,0.325,0.65},
00263      {0.325,0.4875,0.65},
00264      {0,0.25,0.5},
00265      {0.25,0.375,0.5},
00266      {0,0.15,0.3},
00267      {0.15,0.225,0.3},
00268      {0,0.075,0.15},
00269      {0.075,0.1125,0.15},
00270      {0,0.25,1}, // 160
00271      {0.5,0.625,1},
00272      {0,0.1625,0.65},
00273      {0.325,0.4063,0.65},
00274      {0,0.125,0.5},
00275      {0.25,0.3125,0.5},
00276      {0,0.075,0.3},
00277      {0.15,0.1875,0.3},
00278      {0,0.0375,0.15},
00279      {0.075,0.0938,0.15},
00280      {0,0,1}, // 170
00281      {0.5,0.5,1},
00282      {0,0,0.65},
00283      {0.325,0.325,0.65},
00284      {0,0,0.5},
00285      {0.25,0.25,0.5},
00286      {0,0,0.3},
00287      {0.15,0.15,0.3},
00288      {0,0,0.15},
00289      {0.075,0.075,0.15},
00290      {0.25,0,1}, // 180
00291      {0.625,0.5,1},
00292      {0.1625,0,0.65},
00293      {0.4063,0.325,0.65},
00294      {0.125,0,0.5},
00295      {0.3125,0.25,0.5},
00296      {0.075,0,0.3},
00297      {0.1875,0.15,0.3},
00298      {0.0375,0,0.15},
00299      {0.0938,0.075,0.15},
00300      {0.5,0,1}, // 190
00301      {0.75,0.5,1},
00302      {0.325,0,0.65},
00303      {0.4875,0.325,0.65},
00304      {0.25,0,0.5},
00305      {0.375,0.25,0.5},
00306      {0.15,0,0.3},
00307      {0.225,0.15,0.3},
00308      {0.075,0,0.15},
00309      {0.1125,0.075,0.15},
00310      {0.75,0,1}, // 200
00311      {0.875,0.5,1},
00312      {0.4875,0,0.65},
00313      {0.5688,0.325,0.65},
00314      {0.375,0,0.5},
00315      {0.4375,0.25,0.5},
00316      {0.225,0,0.3},
00317      {0.2625,0.15,0.3},
00318      {0.1125,0,0.15},
00319      {0.1313,0.075,0.15},
00320      {1,0,1}, // 210
00321      {1,0.5,1},
00322      {0.65,0,0.65},
00323      {0.65,0.325,0.65},
00324      {0.5,0,0.5},
00325      {0.5,0.25,0.5},
00326      {0.3,0,0.3},
00327      {0.3,0.15,0.3},
00328      {0.15,0,0.15},
00329      {0.15,0.075,0.15},
00330      {1,0,0.75}, // 220
00331      {1,0.5,0.875},
00332      {0.65,0,0.4875},
00333      {0.65,0.325,0.5688},
00334      {0.5,0,0.375},
00335      {0.5,0.25,0.4375},
00336      {0.3,0,0.225},
00337      {0.3,0.15,0.2625},

```

```

00338             {0.15,0,0.1125},
00339             {0.15,0.075,0.1313},
00340             {1,0,0.5}, // 230
00341             {1,0.5,0.75},
00342             {0.65,0,0.325},
00343             {0.65,0.325,0.4875},
00344             {0.5,0,0.25},
00345             {0.5,0.25,0.375},
00346             {0.3,0,0.15},
00347             {0.3,0.15,0.225},
00348             {0.15,0,0.075},
00349             {0.15,0.075,0.1125},
00350             {1,0,0.25}, // 240
00351             {1,0.5,0.625},
00352             {0.65,0,0.1625},
00353             {0.65,0.325,0.4063},
00354             {0.5,0,0.125},
00355             {0.5,0.25,0.3125},
00356             {0.3,0,0.075},
00357             {0.3,0.15,0.1875},
00358             {0.15,0,0.0375},
00359             {0.15,0.075,0.0938},
00360             {0.33,0.33,0.33}, // 250
00361             {0.464,0.464,0.464},
00362             {0.598,0.598,0.598},
00363             {0.732,0.732,0.732},
00364             {0.866,0.866,0.866},
00365             {1,1,1} // 255
00366         }
00367     ;
00368
00369
00370 // AutoCAD VERSION aliases
00371 #define DL_VERSION_R12 DL_Codes::AC1009
00372 #define DL_VERSION_LT2 DL_Codes::AC1009
00373 #define DL_VERSION_R13 DL_Codes::AC1012 // not supported yet
00374 #define DL_VERSION_LT95 DL_Codes::AC1012 // not supported yet
00375 #define DL_VERSION_R14 DL_Codes::AC1014 // not supported yet
00376 #define DL_VERSION_LT97 DL_Codes::AC1014 // not supported yet
00377 #define DL_VERSION_LT98 DL_Codes::AC1014 // not supported yet
00378 #define DL_VERSION_2000 DL_Codes::AC1015
00379 #define DL_VERSION_2002 DL_Codes::AC1015
00380
00381
00382 // DXF Group Codes:
00383
00384 // Strings
00385 #define DL_STRGRP_START 0
00386 #define DL_STRGRP_END 9
00387
00388 // Coordinates
00389 #define DL_CRDGRP_START 10
00390 #define DL_CRDGRP_END 19
00391
00392 // Real values
00393 #define DL_RLGRP_START 38
00394 #define DL_RLGRP_END 59
00395
00396 // Short integer values
00397 #define DL_SHOGRP_START 60
00398 #define DL_SHOGRP_END 79
00399
00400 // New in Release 13,
00401 #define DL_SUBCLASS 100
00402
00403 // More coordinates
00404 #define DL_CRD2GRP_START 210
00405 #define DL_CRD2GRP_END 239
00406
00407 // Extended data strings
00408 #define DL ESTRGRP_START 1000
00409 #define DL ESTRGRP_END 1009
00410
00411 // Extended data reals
00412 #define DL ERLGRP_START 1010
00413 #define DL ERLGRP_END 1059
00414
00415
00416 #define DL_Y8_COORD_CODE 28
00417 #define DL_Z0_COORD_CODE 30
00418 #define DL_Z8_COORD_CODE 38
00419
00420 #define DL_POINT_COORD_CODE 10
00421 #define DL_INSERT_COORD_CODE 10
00422
00423 #define DL_CRD2GRP_START 210
00424 #define DL_CRD2GRP_END 239

```

```

00425
00426 #define DL_THICKNESS 39
00427 #define DL_FIRST_REAL_CODE THICKNESS
00428 #define DL_LAST_REAL_CODE 59
00429 #define DL_FIRST_INT_CODE 60
00430 #define DL_ATTFLAGS_CODE 70
00431 #define DL_PLINE_FLAGS_CODE 70
00432 #define DL_LAYER_FLAGS_CODE 70
00433 #define DL_FLD_LEN_CODE 73 // Inside ATTRIB resbuf
00434 #define DL_LAST_INT_CODE 79
00435 #define DL_X_EXTRU_CODE 210
00436 #define DL_Y_EXTRU_CODE 220
00437 #define DL_Z_EXTRU_CODE 230
00438 #define DL_COMMENT_CODE 999
00439
00440 // Start and endpoints of a line
00441 #define DL_LINE_START_CODE 10 // Followed by x coord
00442 #define DL_LINE_END_CODE 11 // Followed by x coord
00443
00444 // Some codes used by blocks
00445 #define DL_BLOCK_FLAGS_CODE 70 // An int containing flags
00446 #define DL_BLOCK_BASE_CODE 10 // Origin of block definition
00447 #define DL_XREF_DEPENDENT 16 // If a block contains an XREF
00448 #define DL_XREF_RESOLVED 32 // If a XREF resolved ok
00449 #define DL_REFERENCED 64 // If a block is ref'd in DWG
00450
00451 #define DL_XSCALE_CODE 41
00452 #define DL_YSCALE_CODE 42
00453 #define DL_ANGLE_CODE 50
00454 #define DL_INS_POINT_CODE 10 // Followed by x of ins pnt
00455 #define DL_NAME2_CODE 3 // Second appearance of name
00456
00457 // Some codes used by circle entities
00458 #define DL_CENTER_CODE 10 // Followed by x of center
00459 #define DL_RADIUS_CODE 40 // Followd by radius of circle
00460
00461 #define DL_COND_OP_CODE -4 // Conditional op,ads_ssget
00462
00463 // When using ads_buildlist you MUST use RTDXF0 instead of these
00464 #define DL_ENTIITY_TYPE_CODE 0 // Then there is LINE, 3DFACE..
00465 #define DL_SES_CODE 0 // Start End String Code
00466 #define DL_FILE_SEP_CODE 0 // File separator
00467 #define DL_SOT_CODE 0 // Start Of Table
00468 #define DL_TEXTVAL_CODE 1
00469 #define DL_NAME_CODE 2
00470 #define DL_BLOCK_NAME_CODE 2
00471 #define DL_SECTION_NAME_CODE 2
00472 #define DL_ENT_HAND_CODE 5 // What follows is hexa string
00473 #define DL_TXT_STYLE_CODE 7 // Inside attributes
00474 #define DL_LAYER_NAME_CODE 8 // What follows is layer name
00475 #define DL_FIRST_XCOORD_CODE 10 // Group code x of 1st coord
00476 #define DL_FIRST_YCOORD_CODE 20 // Group code y of 1st coord
00477 #define DL_FIRST_ZCOORD_CODE 30 // Group code z of 1st coord
00478 #define DL_L_START_CODE 10
00479 #define DL_L_END_CODE 11
00480 #define DL_TXTHI_CODE 40
00481 #define DL_SCALE_X_CODE 41
00482 #define DL_SCALE_Y_CODE 42
00483 #define DL_SCALE_Z_CODE 43
00484 #define DL_BULGE_CODE 42 // Used in PLINE verts for arcs
00485 #define DL_ROTATION_CODE 50
00486 #define DL_COLOUR_CODE 62 // What follows is a color int
00487 #define DL_LTYPE_CODE 6 // What follows is a linetype
00488
00489
00490 // Attribute flags
00491 #define DL_ATTTS_FOLLOW_CODE 66
00492 #define DL_ATT_TAG_CODE 2
00493 #define DL_ATT_VAL_CODE 1
00494 #define DL_ATT_FLAGS_CODE 70 // 4 1 bit flags as follows...
00495 #define DL_ATT_INVIS_FLAG 1
00496 #define DL_ATT_CONST_FLAG 2
00497 #define DL_ATT_VERIFY_FLAG 4 // Prompt and verify
00498 #define DL_ATT_PRESET_FLAG 8 // No prompt and no verify
00499
00500 // PLINE defines
00501 // Flags
00502 #define DL_OPEN_PLINE 0x00
00503 #define DL_CLOSED_PLINE 0x01
00504 #define DL_POLYLINE3D 0x08
00505 #define DL_PFACE_MESH 0x40
00506 #define DL_PGON_MESH 0x10
00507 // Vertices follow entity, required in POLYLINES
00508 #define DL_VERTS_FOLLOW_CODE 66 // Value should always be 1
00509 #define DL_VERTEX_COORD_CODE 10
00510
00511

```

```

00512 // LAYER flags
00513 #define DL_FROZEN 1
00514 #define DL_FROZEN_BY_DEF 2
00515 #define DL_LOCKED 4
00516 #define DL_OBJECT_USED 64 // Object is ref'd in the dwg
00517
00518 #define DL_BLOCK_EN_CODE -2 // Block entity definition
00519 #define DL_E_NAME -1 // Entity name
00520
00521 // Extended data codes
00522 #define DL_EXTD_SENTINEL (-3)
00523 #define DL_EXTD_STR 1000
00524 #define DL_EXTD_APP_NAME 1001
00525 #define DL_EXTD_CTL_STR 1002
00526 #define DL_EXTD_LYR_STR 1003
00527 #define DL_EXTD_CHUNK 1004
00528 #define DL_EXTD_HANDLE 1005
00529 #define DL_EXTD_POINT 1010
00530 #define DL_EXTD_POS 1011
00531 #define DL_EXTD_DISP 1012
00532 #define DL_EXTD_DIR 1013
00533 #define DL_EXTD_FLOAT 1040
00534 #define DL_EXTD_DIST 1041
00535 #define DL_EXTD_SCALE 1042
00536 #define DL_EXTD_INT16 1070
00537 #define DL_EXTD_INT32 1071
00538
00539 // UCS codes for use in ads_trans
00540 #define DL_WCS_TRANS_CODE 0
00541 #define DL_UCS_TRANS_CODE 1
00542 #define DL_DCS_TRANS_CODE 2
00543 #define DL_PCS_TRANS_CODE 3
00544
00545 #endif
00546

```

6.3 dl_creationadapter.h

```

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00021 ** not clear to you.
00022 **
00023 *****/
00024
00025 #ifndef DL_CREATIONADAPTER_H
00026 #define DL_CREATIONADAPTER_H
00027
00028 #include "dl_global.h"
00029
00030 #include "dl_creationinterface.h"
00031
00032
00033 class DXFLIB_EXPORT DL_CreationAdapter : public DL_CreationInterface {
00034 public:
00035     DL_CreationAdapter() {}
00036     virtual ~DL_CreationAdapter() {}
00037     virtual void processCodeValuePair(unsigned int, const std::string&) {}
00038     virtual void endSection() {}
00039     virtual void addLayer(const DL_LayerData&) {}
00040     virtual void addLinetype(const DL_LinetypeData&) {}
00041     virtual void addLinetypeDash(double) {}
00042     virtual void addBlock(const DL_BlockData&) {}
00043     virtual void endBlock() {}
00044     virtual void addTextStyle(const DL_StyleData&) {}
00045     virtual void addPoint(const DL_PointData&) {}
00046     virtual void addLine(const DL_LineData&) {}
00047

```

```

00053     virtual void addXLine(const DL_XLineData&) {}
00054     virtual void addRay(const DL_RayData&) {}
00055
00056     virtual void addArc(const DL_ArcData&) {}
00057     virtual void addCircle(const DL_CircleData&) {}
00058     virtual void addEllipse(const DL_EllipseData&) {}
00059
00060     virtual void addPolyline(const DL_PolylineData&) {}
00061     virtual void addVertex(const DL_VertexData&) {}
00062
00063     virtual void addSpline(const DL_SplineData&) {}
00064     virtual void addControlPoint(const DL_ControlPointData&) {}
00065     virtual void addFitPoint(const DL_FitPointData&) {}
00066     virtual void addKnot(const DL_KnotData&) {}
00067
00068     virtual void addInsert(const DL_InsertData&) {}
00069
00070     virtual void addMText(const DL_MTextData&) {}
00071     virtual void addMTextChunk(const std::string&) {}
00072     virtual void addText(const DL_TextData&) {}
00073     virtual void addArcAlignedText(const DL_ArcAlignedTextData&) {}
00074     virtual void addAttribute(const DL_AttributeData&) {}
00075
00076     virtual void addDimAlign(const DL_DimensionData&,
00077                             const DL_DimAlignedData&) {}
00078     virtual void addDimLinear(const DL_DimensionData&,
00079                              const DL_DimLinearData&) {}
00080     virtual void addDimRadial(const DL_DimensionData&,
00081                              const DL_DimRadialData&) {}
00082     virtual void addDimDiametric(const DL_DimensionData&,
00083                                  const DL_DimDiametricData&) {}
00084     virtual void addDimAngular(const DL_DimensionData&,
00085                                const DL_DimAngular2LData&) {}
00086     virtual void addDimAngular3P(const DL_DimensionData&,
00087                                  const DL_DimAngular3PData&) {}
00088     virtual void addDimOrdinate(const DL_DimensionData&,
00089                                 const DL_DimOrdinateData&) {}
00090     virtual void addLeader(const DL_LeaderData&) {}
00091     virtual void addLeaderVertex(const DL_LeaderVertexData&) {}
00092
00093     virtual void addHatch(const DL_HatchData&) {}
00094
00095     virtual void addTrace(const DL_TraceData&) {}
00096     virtual void add3dFace(const DL_3dFaceData&) {}
00097     virtual void addSolid(const DL_SolidData&) {}
00098
00099     virtual void addImage(const DL_ImageData&) {}
00100     virtual void linkImage(const DL_ImageDefData&) {}
00101     virtual void addHatchLoop(const DL_HatchLoopData&) {}
00102     virtual void addHatchEdge(const DL_HatchEdgeData&) {}
00103
00104     virtual void addXRecord(const std::string&) {}
00105     virtual void addXRecordString(int, const std::string&) {}
00106     virtual void addXRecordReal(int, double) {}
00107     virtual void addXRecordInt(int, int) {}
00108     virtual void addXRecordBool(int, bool) {}
00109
00110     virtual void addXDataApp(const std::string&) {}
00111     virtual void addXDataString(int, const std::string&) {}
00112     virtual void addXDataReal(int, double) {}
00113     virtual void addXDataInt(int, int) {}
00114
00115     virtual void addDictionary(const DL_DictionaryData&) {}
00116     virtual void addDictionaryEntry(const DL_DictionaryEntryData&) {}
00117
00118     virtual void endEntity() {}
00119
00120     virtual void addComment(const std::string&) {}
00121
00122     virtual void setVariableVector(const std::string&, double, double, double, int) {}
00123     virtual void setVariableString(const std::string&, const std::string&, int) {}
00124     virtual void setVariableInt(const std::string&, int, int) {}
00125     virtual void setVariableDouble(const std::string&, double, int) {}
00126 #ifdef DL_COMPAT
00127     virtual void setVariableVector(const char*, double, double, double, int) {}
00128     virtual void setVariableString(const char*, const char*, int) {}
00129     virtual void setVariableInt(const char*, int, int) {}
00130     virtual void setVariableDouble(const char*, double, int) {}
00131     virtual void processCodeValuePair(unsigned int, char*) {}
00132     virtual void addComment(const char*) {}
00133     virtual void addMTextChunk(const char*) {}
00134 #endif
00135     virtual void endSequence() {}
00136 };
00137
00138 #endif

```


6.4 dl_creationinterface.h

```

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00021 ** not clear to you.
00022 **
00023 *****/
00024
00025 #ifndef DL_CREATIONINTERFACE_H
00026 #define DL_CREATIONINTERFACE_H
00027
00028 #include "dl_global.h"
00029
00030 #include <string.h>
00031
00032 #include "dl_attributes.h"
00033 #include "dl_codes.h"
00034 #include "dl_entities.h"
00035 #include "dl_extrusion.h"
00036
00047 class DXFLIB_EXPORT DL_CreationInterface {
00048 public:
00049     DL_CreationInterface() {
00050         extrusion = new DL_Extrusion;
00051     }
00052     virtual ~DL_CreationInterface() {
00053         delete extrusion;
00054     }
00055
00060     virtual void processCodeValuePair(unsigned int groupCode, const std::string& groupValue) = 0;
00061
00065     virtual void endSection() = 0;
00066
00070     virtual void addLayer(const DL_LayerData& data) = 0;
00071
00075     virtual void addLinetype(const DL_LinetypeData& data) = 0;
00076
00080     virtual void addLinetypeDash(double length) = 0;
00081
00088     virtual void addBlock(const DL_BlockData& data) = 0;
00089
00091     virtual void endBlock() = 0;
00092
00094     virtual void addTextStyle(const DL_StyleData& data) = 0;
00095
00097     virtual void addPoint(const DL_PointData& data) = 0;
00098
00100     virtual void addLine(const DL_LineData& data) = 0;
00101
00103     virtual void addXLine(const DL_XLineData& data) = 0;
00104
00106     virtual void addRay(const DL_RayData& data) = 0;
00107
00109     virtual void addArc(const DL_ArcData& data) = 0;
00110
00112     virtual void addCircle(const DL_CircleData& data) = 0;
00113
00115     virtual void addEllipse(const DL_EllipseData& data) = 0;
00116
00118     virtual void addPolyline(const DL_PolylineData& data) = 0;
00119
00121     virtual void addVertex(const DL_VertexData& data) = 0;
00122
00124     virtual void addSpline(const DL_SplineData& data) = 0;
00125
00127     virtual void addControlPoint(const DL_ControlPointData& data) = 0;
00128
00130     virtual void addFitPoint(const DL_FitPointData& data) = 0;
00131

```

```

00133     virtual void addKnot(const DL_KnotData& data) = 0;
00134
00136     virtual void addInsert(const DL_InsertData& data) = 0;
00137
00139     virtual void addTrace(const DL_TraceData& data) = 0;
00140
00142     virtual void add3dFace(const DL_3dFaceData& data) = 0;
00143
00145     virtual void addSolid(const DL_SolidData& data) = 0;
00146
00147
00149     virtual void addMText(const DL_MTextData& data) = 0;
00150
00156     virtual void addMTextChunk(const std::string& text) = 0;
00157
00159     virtual void addText(const DL_TextData& data) = 0;
00160
00162     virtual void addArcAlignedText(const DL_ArcAlignedTextData& data) = 0;
00163
00165     virtual void addAttribute(const DL_AttributeData& data) = 0;
00166
00170     virtual void addDimAlign(const DL_DimensionData& data,
00171                             const DL_DimAlignedData& edata) = 0;
00175     virtual void addDimLinear(const DL_DimensionData& data,
00176                              const DL_DimLinearData& edata) = 0;
00177
00181     virtual void addDimRadial(const DL_DimensionData& data,
00182                              const DL_DimRadialData& edata) = 0;
00183
00187     virtual void addDimDiametric(const DL_DimensionData& data,
00188                                  const DL_DimDiametricData& edata) = 0;
00189
00193     virtual void addDimAngular(const DL_DimensionData& data,
00194                                const DL_DimAngular2LData& edata) = 0;
00195
00199     virtual void addDimAngular3P(const DL_DimensionData& data,
00200                                  const DL_DimAngular3PData& edata) = 0;
00201
00205     virtual void addDimOrdinate(const DL_DimensionData& data,
00206                                 const DL_DimOrdinateData& edata) = 0;
00207
00211     virtual void addLeader(const DL_LeaderData& data) = 0;
00212
00216     virtual void addLeaderVertex(const DL_LeaderVertexData& data) = 0;
00217
00221     virtual void addHatch(const DL_HatchData& data) = 0;
00222
00226     virtual void addImage(const DL_ImageData& data) = 0;
00227
00231     virtual void linkImage(const DL_ImageDefData& data) = 0;
00232
00236     virtual void addHatchLoop(const DL_HatchLoopData& data) = 0;
00237
00241     virtual void addHatchEdge(const DL_HatchEdgeData& data) = 0;
00242
00246     virtual void addXRecord(const std::string& handle) = 0;
00247
00251     virtual void addXRecordString(int code, const std::string& value) = 0;
00252
00256     virtual void addXRecordReal(int code, double value) = 0;
00257
00261     virtual void addXRecordInt(int code, int value) = 0;
00262
00266     virtual void addXRecordBool(int code, bool value) = 0;
00267
00271     virtual void addXDataApp(const std::string& appId) = 0;
00272
00276     virtual void addXDataString(int code, const std::string& value) = 0;
00277
00281     virtual void addXDataReal(int code, double value) = 0;
00282
00286     virtual void addXDataInt(int code, int value) = 0;
00287
00291     virtual void addDictionary(const DL_DictionaryData& data) = 0;
00292
00296     virtual void addDictionaryEntry(const DL_DictionaryEntryData& data) = 0;
00297
00301     virtual void endEntity() = 0;
00302
00306     virtual void addComment(const std::string& comment) = 0;
00307
00311     virtual void setVariableVector(const std::string& key, double v1, double v2, double v3, int code)
= 0;
00312
00316     virtual void setVariableString(const std::string& key, const std::string& value, int code) = 0;
00317
00321     virtual void setVariableInt(const std::string& key, int value, int code) = 0;

```

```

00322
00326     virtual void setVariableDouble(const std::string& key, double value, int code) = 0;
00327
00328 #ifdef DL_COMPAT
00329     virtual void setVariableVector(const char* key, double v1, double v2, double v3, int code) = 0;
00330     virtual void setVariableString(const char* key, const char* value, int code) = 0;
00331     virtual void setVariableInt(const char* key, int value, int code) = 0;
00332     virtual void setVariableDouble(const char* key, double value, int code) = 0;
00333     virtual void processCodeValuePair(unsigned int groupCode, char* groupValue) = 0;
00334     virtual void addComment(const char* comment) = 0;
00335     virtual void addMTextChunk(const char* text) = 0;
00336 #endif
00337
00341     virtual void endSequence() = 0;
00342
00344     void setAttributes(const DL_Attributes& attrib) {
00345         attributes = attrib;
00346     }
00347
00349     DL_Attributes getAttributes() {
00350         return attributes;
00351     }
00352
00354     void setExtrusion(double dx, double dy, double dz, double elevation) {
00355         extrusion->setDirection(dx, dy, dz);
00356         extrusion->setElevation(elevation);
00357     }
00358
00360     DL_Extrusion* getExtrusion() {
00361         return extrusion;
00362     }
00363
00364 protected:
00365     DL_Attributes attributes;
00366     DL_Extrusion *extrusion;
00367 };
00368
00369 #endif

```

6.5 dl_dxf.h

```

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00022 **
00023 *****/
00024
00025 #ifndef DL_DXF_H
00026 #define DL_DXF_H
00027
00028 #include "dl_global.h"
00029
00030 #include <limits>
00031 #include <stdio.h>
00032 #include <stdlib.h>
00033 #include <string>
00034 #include <sstream>
00035 #include <map>
00036
00037 #include "dl_attributes.h"
00038 #include "dl_codes.h"
00039 #include "dl_entities.h"
00040 #include "dl_writer_ascii.h"
00041
00042 #ifdef _WIN32

```

```

00043 #undef M_PI
00044 #define M_PI 3.14159265358979323846
00045 #pragma warning(disable : 4800)
00046 #endif
00047
00048 #ifndef M_PI
00049 #define M_PI 3.1415926535897932384626433832795
00050 #endif
00051
00052 #ifndef DL_NANDOUBLE
00053 #define DL_NANDOUBLE std::numeric_limits<double>::quiet_NaN()
00054 #endif
00055
00056 class DL_CreationInterface;
00057 class DL_WriterA;
00058
00059
00060 #define DL_VERSION "3.26.4.0"
00061
00062 #define DL_VERSION_MAJOR 3
00063 #define DL_VERSION_MINOR 26
00064 #define DL_VERSION_REV 4
00065 #define DL_VERSION_BUILD 0
00066
00067 #define DL_UNKNOWN 0
00068 #define DL_LAYER 10
00069 #define DL_BLOCK 11
00070 #define DL_ENDBLK 12
00071 #define DL_LINETYPE 13
00072 #define DL_STYLE 20
00073 #define DL_SETTING 50
00074 #define DL_ENTITY_POINT 100
00075 #define DL_ENTITY_LINE 101
00076 #define DL_ENTITY_POLYLINE 102
00077 #define DL_ENTITY_LWPOLYLINE 103
00078 #define DL_ENTITY_VERTEX 104
00079 #define DL_ENTITY_SPLINE 105
00080 #define DL_ENTITY_KNOT 106
00081 #define DL_ENTITY_CONTROLPOINT 107
00082 #define DL_ENTITY_ARC 108
00083 #define DL_ENTITY_CIRCLE 109
00084 #define DL_ENTITY_ELLIPSE 110
00085 #define DL_ENTITY_INSERT 111
00086 #define DL_ENTITY_TEXT 112
00087 #define DL_ENTITY_MTEXT 113
00088 #define DL_ENTITY_DIMENSION 114
00089 #define DL_ENTITY_LEADER 115
00090 #define DL_ENTITY_HATCH 116
00091 #define DL_ENTITY_ATTRIB 117
00092 #define DL_ENTITY_IMAGE 118
00093 #define DL_ENTITY_IMAGEDEF 119
00094 #define DL_ENTITY_TRACE 120
00095 #define DL_ENTITY_SOLID 121
00096 #define DL_ENTITY_3DFACE 122
00097 #define DL_ENTITY_XLINE 123
00098 #define DL_ENTITY_RAY 124
00099 #define DL_ENTITY_ARCALIGNEDTEXT 125
00100 #define DL_ENTITY_SEQEND 126
00101 #define DL_XRECORD 200
00102 #define DL_DICTIONARY 210
00103
00104
00122 class DXFLIB_EXPORT DL_Dxf {
00123 public:
00124     DL_Dxf();
00125     ~DL_Dxf();
00126
00127     bool in(const std::string& file,
00128            DL_CreationInterface* creationInterface);
00129     bool readDxfGroups(FILE* fp,
00130            DL_CreationInterface* creationInterface);
00131     static bool getStrippedLine(std::string& s, unsigned int size,
00132            FILE* stream, bool stripSpace = true);
00133
00134     bool readDxfGroups(std::istream& stream,
00135            DL_CreationInterface* creationInterface);
00136     bool in(std::istream& stream,
00137            DL_CreationInterface* creationInterface);
00138     static bool getStrippedLine(std::string& s, unsigned int size,
00139            std::istream& stream, bool stripSpace = true);
00140
00141     static bool stripWhiteSpace(char* s, bool stripSpaces = true);
00142
00143     bool processDXFGroup(DL_CreationInterface* creationInterface,
00144            int groupCode, const std::string& groupValue);
00145     void addSetting(DL_CreationInterface* creationInterface);
00146     void addLayer(DL_CreationInterface* creationInterface);

```

```

00147     void addLinetype(DL_CreationInterface* creationInterface);
00148     void addBlock(DL_CreationInterface* creationInterface);
00149     void endBlock(DL_CreationInterface* creationInterface);
00150     void addTextStyle(DL_CreationInterface* creationInterface);
00151
00152     void addPoint(DL_CreationInterface* creationInterface);
00153     void addLine(DL_CreationInterface* creationInterface);
00154     void addXLine(DL_CreationInterface* creationInterface);
00155     void addRay(DL_CreationInterface* creationInterface);
00156
00157     void addPolyline(DL_CreationInterface* creationInterface);
00158     void addVertex(DL_CreationInterface* creationInterface);
00159
00160     void addSpline(DL_CreationInterface* creationInterface);
00161
00162     void addArc(DL_CreationInterface* creationInterface);
00163     void addCircle(DL_CreationInterface* creationInterface);
00164     void addEllipse(DL_CreationInterface* creationInterface);
00165     void addInsert(DL_CreationInterface* creationInterface);
00166
00167     void addTrace(DL_CreationInterface* creationInterface);
00168     void add3dFace(DL_CreationInterface* creationInterface);
00169     void addSolid(DL_CreationInterface* creationInterface);
00170
00171     void addMText(DL_CreationInterface* creationInterface);
00172     void addText(DL_CreationInterface* creationInterface);
00173     void addArcAlignedText(DL_CreationInterface* creationInterface);
00174
00175     void addAttribute(DL_CreationInterface* creationInterface);
00176
00177     DL_DimensionData getDimData();
00178     void addDimLinear(DL_CreationInterface* creationInterface);
00179     void addDimAligned(DL_CreationInterface* creationInterface);
00180     void addDimRadial(DL_CreationInterface* creationInterface);
00181     void addDimDiametric(DL_CreationInterface* creationInterface);
00182     void addDimAngular(DL_CreationInterface* creationInterface);
00183     void addDimAngular3P(DL_CreationInterface* creationInterface);
00184     void addDimOrdinate(DL_CreationInterface* creationInterface);
00185
00186     void addLeader(DL_CreationInterface* creationInterface);
00187
00188     void addHatch(DL_CreationInterface* creationInterface);
00189     void addHatchLoop();
00190     void addHatchEdge();
00191     bool handleHatchData(DL_CreationInterface* creationInterface);
00192
00193     void addImage(DL_CreationInterface* creationInterface);
00194     void addImageDef(DL_CreationInterface* creationInterface);
00195
00196     void addComment(DL_CreationInterface* creationInterface, const std::string& comment);
00197
00198     void addDictionary(DL_CreationInterface* creationInterface);
00199     void addDictionaryEntry(DL_CreationInterface* creationInterface);
00200
00201     bool handleXRecordData(DL_CreationInterface* creationInterface);
00202     bool handleDictionaryData(DL_CreationInterface* creationInterface);
00203
00204     bool handleXData(DL_CreationInterface* creationInterface);
00205     bool handleMTextData(DL_CreationInterface* creationInterface);
00206     bool handleLWPolylineData(DL_CreationInterface* creationInterface);
00207     bool handleSplineData(DL_CreationInterface* creationInterface);
00208     bool handleLeaderData(DL_CreationInterface* creationInterface);
00209     bool handleLinetypeData(DL_CreationInterface* creationInterface);
00210
00211     void endEntity(DL_CreationInterface* creationInterface);
00212
00213     void endSequence(DL_CreationInterface* creationInterface);
00214
00215     //int stringToInt(const char* s, bool* ok=NULL);
00216
00217     DL_WriterA* out(const char* file,
00218                    DL_Codes::version version=DL_VERSION_2000);
00219
00220     void writeHeader(DL_WriterA& dw);
00221
00222     void writePoint(DL_WriterA& dw,
00223                    const DL_PointData& data,
00224                    const DL_Attributes& attrib);
00225     void writeLine(DL_WriterA& dw,
00226                    const DL_LineData& data,
00227                    const DL_Attributes& attrib);
00228     void writeXLine(DL_WriterA& dw,
00229                     const DL_XLineData& data,
00230                     const DL_Attributes& attrib);
00231     void writeRay(DL_WriterA& dw,
00232                  const DL_RayData& data,
00233                  const DL_Attributes& attrib);

```

```
00234 void writePolyline(DL_WriterA& dw,  
00235                  const DL_PolylineData& data,  
00236                  const DL_Attributes& attrib);  
00237 void writeVertex(DL_WriterA& dw,  
00238                 const DL_VertexData& data);  
00239 void writePolylineEnd(DL_WriterA& dw);  
00240 void writeSpline(DL_WriterA& dw,  
00241                 const DL_SplineData& data,  
00242                 const DL_Attributes& attrib);  
00243 void writeControlPoint(DL_WriterA& dw,  
00244                       const DL_ControlPointData& data);  
00245 void writeFitPoint(DL_WriterA& dw,  
00246                   const DL_FitPointData& data);  
00247 void writeKnot(DL_WriterA& dw,  
00248               const DL_KnotData& data);  
00249 void writeCircle(DL_WriterA& dw,  
00250                 const DL_CircleData& data,  
00251                 const DL_Attributes& attrib);  
00252 void writeArc(DL_WriterA& dw,  
00253               const DL_ArcData& data,  
00254               const DL_Attributes& attrib);  
00255 void writeEllipse(DL_WriterA& dw,  
00256                  const DL_EllipseData& data,  
00257                  const DL_Attributes& attrib);  
00258 void writeSolid(DL_WriterA& dw,  
00259                const DL_SolidData& data,  
00260                const DL_Attributes& attrib);  
00261 void writeTrace(DL_WriterA& dw,  
00262                const DL_TraceData& data,  
00263                const DL_Attributes& attrib);  
00264 void write3dFace(DL_WriterA& dw,  
00265                 const DL_3dFaceData& data,  
00266                 const DL_Attributes& attrib);  
00267 void writeInsert(DL_WriterA& dw,  
00268                 const DL_InsertData& data,  
00269                 const DL_Attributes& attrib);  
00270 void writeMText(DL_WriterA& dw,  
00271                const DL_MTextData& data,  
00272                const DL_Attributes& attrib);  
00273 void writeText(DL_WriterA& dw,  
00274               const DL_TextData& data,  
00275               const DL_Attributes& attrib);  
00276 void writeAttribute(DL_WriterA& dw,  
00277                   const DL_AttributeData& data,  
00278                   const DL_Attributes& attrib);  
00279 void writeDimStyleOverrides(DL_WriterA& dw,  
00280                             const DL_DimensionData& data);  
00281 void writeDimAligned(DL_WriterA& dw,  
00282                     const DL_DimensionData& data,  
00283                     const DL_DimAlignedData& edata,  
00284                     const DL_Attributes& attrib);  
00285 void writeDimLinear(DL_WriterA& dw,  
00286                    const DL_DimensionData& data,  
00287                    const DL_DimLinearData& edata,  
00288                    const DL_Attributes& attrib);  
00289 void writeDimRadial(DL_WriterA& dw,  
00290                    const DL_DimensionData& data,  
00291                    const DL_DimRadialData& edata,  
00292                    const DL_Attributes& attrib);  
00293 void writeDimDiametric(DL_WriterA& dw,  
00294                       const DL_DimensionData& data,  
00295                       const DL_DimDiametricData& edata,  
00296                       const DL_Attributes& attrib);  
00297 void writeDimAngular2L(DL_WriterA& dw,  
00298                       const DL_DimensionData& data,  
00299                       const DL_DimAngular2LData& edata,  
00300                       const DL_Attributes& attrib);  
00301 void writeDimAngular3P(DL_WriterA& dw,  
00302                       const DL_DimensionData& data,  
00303                       const DL_DimAngular3PData& edata,  
00304                       const DL_Attributes& attrib);  
00305 void writeDimOrdinate(DL_WriterA& dw,  
00306                      const DL_DimensionData& data,  
00307                      const DL_DimOrdinateData& edata,  
00308                      const DL_Attributes& attrib);  
00309 void writeLeader(DL_WriterA& dw,  
00310                 const DL_LeaderData& data,  
00311                 const DL_Attributes& attrib);  
00312 void writeLeaderVertex(DL_WriterA& dw,  
00313                       const DL_LeaderVertexData& data);  
00314 void writeLeaderEnd(DL_WriterA& dw,  
00315                    const DL_LeaderData& data);  
00316 void writeHatch1(DL_WriterA& dw,  
00317                 const DL_HatchData& data,  
00318                 const DL_Attributes& attrib);  
00319 void writeHatch2(DL_WriterA& dw,  
00320                 const DL_HatchData& data,
```

```

00321         const DL_Attributes& attrib);
00322 void writeHatchLoop1(DL_WriterA& dw,
00323         const DL_HatchLoopData& data);
00324 void writeHatchLoop2(DL_WriterA& dw,
00325         const DL_HatchLoopData& data);
00326 void writeHatchEdge(DL_WriterA& dw,
00327         const DL_HatchEdgeData& data);
00328
00329 unsigned long writeImage(DL_WriterA& dw,
00330         const DL_ImageData& data,
00331         const DL_Attributes& attrib);
00332
00333 void writeImageDef(DL_WriterA& dw, int handle,
00334         const DL_ImageData& data);
00335
00336 void writeLayer(DL_WriterA& dw,
00337         const DL_LayerData& data,
00338         const DL_Attributes& attrib);
00339
00340 void writeLinetype(DL_WriterA& dw,
00341         const DL_LinetypeData& data);
00342
00343 void writeAppid(DL_WriterA& dw, const std::string& name);
00344
00345 void writeBlock(DL_WriterA& dw,
00346         const DL_BlockData& data);
00347 void writeEndBlock(DL_WriterA& dw, const std::string& name);
00348
00349 void writeVPort(DL_WriterA& dw);
00350 void writeStyle(DL_WriterA& dw, const DL_StyleData& style);
00351 void writeView(DL_WriterA& dw);
00352 void writeUcs(DL_WriterA& dw);
00353 void writeDimStyle(DL_WriterA& dw,
00354         double dimasz, double dimexe, double dimexo,
00355         double dimgap, double dimtxt);
00356 void writeBlockRecord(DL_WriterA& dw);
00357 void writeBlockRecord(DL_WriterA& dw, const std::string& name);
00358 void writeObjects(DL_WriterA& dw, const std::string& appDictionaryName = "");
00359 void writeAppDictionary(DL_WriterA& dw);
00360 unsigned long writeDictionaryEntry(DL_WriterA& dw, const std::string& name);
00361 void writeXRecord(DL_WriterA& dw, int handle, int value);
00362 void writeXRecord(DL_WriterA& dw, int handle, double value);
00363 void writeXRecord(DL_WriterA& dw, int handle, bool value);
00364 void writeXRecord(DL_WriterA& dw, int handle, const std::string& value);
00365 void writeObjectsEnd(DL_WriterA& dw);
00366
00367 void writeComment(DL_WriterA& dw, const std::string& comment);
00368
00373 //static double toReal(const char* value, double def=0.0);
00374
00379 // static int toInt(const char* value, int def=0) {
00380 //     if (value!=NULL && value[0] != '\0') {
00381 //         return atoi(value);
00382 //     }
00383 //     return def;
00384 // }
00385 //
00386
00391 // static const char* toString(const char* value, const char* def="") {
00392 //     if (value!=NULL && value[0] != '\0') {
00393 //         return value;
00394 //     } else {
00395 //         return def;
00396 //     }
00397 // }
00398
00399 static bool checkVariable(const char* var, DL_Codes::version version);
00400
00401 DL_Codes::version getVersion() {
00402     return version;
00403 }
00404
00405 int getLibVersion(const std::string &str);
00406
00407 static void test();
00408
00409 bool hasValue(int code) {
00410     return values.count(code)==1;
00411 }
00412
00413 int getIntValue(int code, int def) {
00414     if (!hasValue(code)) {
00415         return def;
00416     }
00417     return toInt(values[code]);
00418 }
00419

```

```

00420     int toInt(const std::string& str) {
00421         char* p;
00422         return strtol(str.c_str(), &p, 10);
00423     }
00424
00425     int getInt16Value(int code, int def) {
00426         if (!hasValue(code)) {
00427             return def;
00428         }
00429         return toInt16(values[code]);
00430     }
00431
00432     int toInt16(const std::string& str) {
00433         char* p;
00434         return strtol(str.c_str(), &p, 16);
00435     }
00436
00437     bool toBool(const std::string& str) {
00438         char* p;
00439         return (bool)strtol(str.c_str(), &p, 10);
00440     }
00441
00442     std::string getStringValue(int code, const std::string& def) {
00443         if (!hasValue(code)) {
00444             return def;
00445         }
00446         return values[code];
00447     }
00448
00449     double getRealValue(int code, double def) {
00450         if (!hasValue(code)) {
00451             return def;
00452         }
00453         return toReal(values[code]);
00454     }
00455
00456     double toReal(const std::string& str) {
00457         double ret;
00458         // make sure the real value uses '.' not ','
00459         std::string str2 = str;
00460         std::replace(str2.begin(), str2.end(), ',', '.');
00461         // make sure c++ expects '.' not ','
00462         std::istringstream istr(str2);
00463         //istr.imbue(std::locale("C"));
00464         istr >> ret;
00465         return ret;
00466     }
00467
00468 private:
00469     DL_Codes::version version;
00470
00471     std::string polylineLayer;
00472     double* vertices;
00473     int maxVertices;
00474     int vertexIndex;
00475
00476     double* knots;
00477     int maxKnots;
00478     int knotIndex;
00479
00480     double* weights;
00481     int weightIndex;
00482
00483     double* controlPoints;
00484     int maxControlPoints;
00485     int controlPointIndex;
00486
00487     double* fitPoints;
00488     int maxFitPoints;
00489     int fitPointIndex;
00490
00491     double* leaderVertices;
00492     int maxLeaderVertices;
00493     int leaderVertexIndex;
00494
00495     bool firstHatchLoop;
00496     DL_HatchEdgeData hatchEdge;
00497     std::vector<std::vector<DL_HatchEdgeData> > hatchEdges;
00498
00499     std::string xRecordHandle;
00500     bool xRecordValues;
00501
00502     // Only the useful part of the group code
00503     std::string groupCodeTmp;
00504     // ...same as integer
00505     unsigned int groupCode;
00506     // Only the useful part of the group value

```



```

00507     std::string groupValue;
00508     // Current entity type
00509     int currentObjectType;
00510     // Value of the current setting
00511     char settingValue[DL_DXF_MAXLINE+1];
00512     // Key of the current setting (e.g. "$ACADVER")
00513     std::string settingKey;
00514     // Stores the group codes
00515     std::map<int, std::string> values;
00516     // First call of this method. We initialize all group values in
00517     // the first call.
00518     bool firstCall;
00519     // Attributes of the current entity (layer, color, width, line type)
00520     DL_Attributes attrib;
00521     // library version. hex: 0x20003001 = 2.0.3.1
00522     int libVersion;
00523     // app specific dictionary handle:
00524     unsigned long appDictionaryHandle;
00525     // handle of standard text style, referenced by dimstyle:
00526     unsigned long styleHandleStd;
00527 };
00528
00529 #endif
00530
00531 // EOF

```

6.6 dl_entities.h

```

00001 /*****
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00019 **
00020 ** Contact info@ribbonsoft.com if any conditions of this licensing are
00021 ** not clear to you.
00022 **
00023 *****/
00024
00025 #ifndef DL_ENTITIES_H
00026 #define DL_ENTITIES_H
00027
00028 #include "dl_global.h"
00029
00030 #include <string>
00031 #include <vector>
00032
00033 struct DXFLIB_EXPORT DL_LayerData {
00034     DL_LayerData(const std::string& name,
00035                 int flags, bool off = false) :
00036         name(name), flags(flags), off(off) {
00037     }
00038
00039     std::string name;
00040     int flags;
00041     bool off;
00042 };
00043
00044 struct DXFLIB_EXPORT DL_BlockData {
00045     DL_BlockData(const std::string& bName,
00046                 int bFlags,
00047                 double bbpx, double bbpy, double bbpz) {
00048         name = bName;
00049         flags = bFlags;
00050         bpx = bbpx;
00051         bpy = bbpy;
00052         bpz = bbpz;
00053     }
00054
00055     std::string name;
00056     int flags;
00057     double bpx;
00058     double bpy;
00059     double bpz;
00060 };

```

```

00073
00075     std::string name;
00077     int flags;
00079     double bpx;
00081     double bpy;
00083     double bpz;
00084 };
00085
00086
00090 struct DXFLIB_EXPORT DL_LinetypeData {
00095     DL_LinetypeData(
00096         const std::string& name,
00097         const std::string& description,
00098         int flags,
00099         int numberOfDashes,
00100         double patternLength,
00101         double* pattern = NULL
00102     )
00103         : name(name),
00104         description(description),
00105         flags(flags),
00106         numberOfDashes(numberOfDashes),
00107         patternLength(patternLength),
00108         pattern(pattern)
00109     {}
00110
00112     std::string name;
00114     std::string description;
00116     int flags;
00118     int numberOfDashes;
00120     double patternLength;
00122     double* pattern;
00123 };
00124
00125
00126
00130 struct DXFLIB_EXPORT DL_StyleData {
00135     DL_StyleData(
00136         const std::string& name,
00137         int flags,
00138         double fixedTextHeight,
00139         double widthFactor,
00140         double obliqueAngle,
00141         int textGenerationFlags,
00142         double lastHeightUsed,
00143         const std::string& primaryFontFile,
00144         const std::string& bigFontFile
00145     )
00146         : name(name),
00147         flags(flags),
00148         fixedTextHeight(fixedTextHeight),
00149         widthFactor(widthFactor),
00150         obliqueAngle(obliqueAngle),
00151         textGenerationFlags(textGenerationFlags),
00152         lastHeightUsed(lastHeightUsed),
00153         primaryFontFile(primaryFontFile),
00154         bigFontFile(bigFontFile),
00155         bold(false),
00156         italic(false) {
00157     }
00158
00159     bool operator==(const DL_StyleData& other) {
00160         // ignore lastHeightUsed:
00161         return (name==other.name &&
00162             flags==other.flags &&
00163             fixedTextHeight==other.fixedTextHeight &&
00164             widthFactor==other.widthFactor &&
00165             obliqueAngle==other.obliqueAngle &&
00166             textGenerationFlags==other.textGenerationFlags &&
00167             primaryFontFile==other.primaryFontFile &&
00168             bigFontFile==other.bigFontFile);
00169     }
00170
00172     std::string name;
00174     int flags;
00176     double fixedTextHeight;
00178     double widthFactor;
00180     double obliqueAngle;
00182     int textGenerationFlags;
00184     double lastHeightUsed;
00186     std::string primaryFontFile;
00188     std::string bigFontFile;
00189
00190     bool bold;
00191     bool italic;
00192 };
00193

```

```

00197 struct DXFLIB_EXPORT DL_PointData {
00202     DL_PointData(double px=0.0, double py=0.0, double pz=0.0) {
00203         x = px;
00204         y = py;
00205         z = pz;
00206     }
00207
00209     double x;
00211     double y;
00213     double z;
00214 };
00215
00216
00217
00221 struct DXFLIB_EXPORT DL_LineData {
00226     DL_LineData(double lx1, double ly1, double lz1,
00227                 double lx2, double ly2, double lz2) {
00228         x1 = lx1;
00229         y1 = ly1;
00230         z1 = lz1;
00231
00232         x2 = lx2;
00233         y2 = ly2;
00234         z2 = lz2;
00235     }
00236
00238     double x1;
00240     double y1;
00242     double z1;
00243
00245     double x2;
00247     double y2;
00249     double z2;
00250 };
00251
00255 struct DXFLIB_EXPORT DL_XLineData {
00260     DL_XLineData(double bx, double by, double bz,
00261                  double dx, double dy, double dz) :
00262         bx(bx), by(by), bz(bz),
00263         dx(dx), dy(dy), dz(dz) {
00264     }
00265
00267     double bx;
00269     double by;
00271     double bz;
00272
00274     double dx;
00276     double dy;
00278     double dz;
00279 };
00280
00284 struct DXFLIB_EXPORT DL_RayData {
00289     DL_RayData(double bx, double by, double bz,
00290                double dx, double dy, double dz) :
00291         bx(bx), by(by), bz(bz),
00292         dx(dx), dy(dy), dz(dz) {
00293     }
00294
00296     double bx;
00298     double by;
00300     double bz;
00301
00303     double dx;
00305     double dy;
00307     double dz;
00308 };
00309
00310
00311
00315 struct DXFLIB_EXPORT DL_ArcData {
00320     DL_ArcData(double acx, double acy, double acz,
00321                double aRadius,
00322                double aAngle1, double aAngle2) {
00323
00324         cx = acx;
00325         cy = acy;
00326         cz = acz;
00327         radius = aRadius;
00328         angle1 = aAngle1;
00329         angle2 = aAngle2;
00330     }
00331
00333     double cx;
00335     double cy;
00337     double cz;
00338
00340     double radius;

```

```
00342     double angle1;
00344     double angle2;
00345 };
00346
00347
00348
00352 struct DXFLIB_EXPORT DL_CircleData {
00353     DL_CircleData(double acx, double acy, double acz,
00354                   double aRadius) {
00355
00356         cx = acx;
00357         cy = acy;
00358         cz = acz;
00359         radius = aRadius;
00360     }
00361
00362     double cx;
00363     double cy;
00364     double cz;
00365
00366     double radius;
00367 };
00368
00369
00372 struct DXFLIB_EXPORT DL_PolylineData {
00373     DL_PolylineData(int pNumber, int pMVerteces, int pNVerteces, int pFlags, double pElevation = 0.0)
00374     {
00375         number = pNumber;
00376         m = pMVerteces;
00377         n = pNVerteces;
00378         elevation = pElevation;
00379         flags = pFlags;
00380     }
00381
00382     unsigned int number;
00383
00384     unsigned int m;
00385
00386     unsigned int n;
00387
00388     double elevation;
00389
00390     int flags;
00391 };
00392
00393
00396 struct DXFLIB_EXPORT DL_VertexData {
00397     DL_VertexData(double px=0.0, double py=0.0, double pz=0.0,
00398                   double pBulge=0.0) {
00399
00400         x = px;
00401         y = py;
00402         z = pz;
00403         bulge = pBulge;
00404     }
00405
00406     double x;
00407     double y;
00408     double z;
00409     double bulge;
00410 };
00411
00412
00415 struct DXFLIB_EXPORT DL_TraceData {
00416     DL_TraceData() {
00417         thickness = 0.0;
00418         for (int i=0; i<4; i++) {
00419             x[i] = 0.0;
00420             y[i] = 0.0;
00421             z[i] = 0.0;
00422         }
00423     }
00424
00425     DL_TraceData(double sx1, double sy1, double sz1,
00426                  double sx2, double sy2, double sz2,
00427                  double sx3, double sy3, double sz3,
00428                  double sx4, double sy4, double sz4,
00429                  double sthickness=0.0) {
00430
00431         thickness = sthickness;
00432
00433         x[0] = sx1;
00434         y[0] = sy1;
00435         z[0] = sz1;
00436
00437         x[1] = sx2;
```

```
00471         y[1] = sy2;
00472         z[1] = sz2;
00473
00474         x[2] = sx3;
00475         y[2] = sy3;
00476         z[2] = sz3;
00477
00478         x[3] = sx4;
00479         y[3] = sy4;
00480         z[3] = sz4;
00481     }
00482
00484     double thickness;
00485
00487     double x[4];
00488     double y[4];
00489     double z[4];
00490 };
00491
00492
00493
00494
00495
00499 typedef DL_TraceData DL_SolidData;
00500
00501
00505 typedef DL_TraceData DL_3dFaceData;
00506
00507
00511 struct DXFLIB_EXPORT DL_SplineData {
00512     DL_SplineData(int degree,
00513                   int nKnots,
00514                   int nControl,
00515                   int nFit,
00516                   int flags) :
00517         degree(degree),
00518         nKnots(nKnots),
00519         nControl(nControl),
00520         nFit(nFit),
00521         flags(flags) {
00522
00523         degree(degree),
00524         nKnots(nKnots),
00525         nControl(nControl),
00526         nFit(nFit),
00527         flags(flags) {
00528
00529         unsigned int degree;
00530
00532         unsigned int nKnots;
00533
00535         unsigned int nControl;
00536
00538         unsigned int nFit;
00539
00541         int flags;
00542
00543         double tangentStartX;
00544         double tangentStartY;
00545         double tangentStartZ;
00546         double tangentEndX;
00547         double tangentEndY;
00548         double tangentEndZ;
00549 };
00550
00551
00552
00556 struct DXFLIB_EXPORT DL_KnotData {
00557     DL_KnotData() {}
00562     DL_KnotData(double pk) {
00563         k = pk;
00564     }
00565
00567     double k;
00568 };
00569
00570
00571
00575 struct DXFLIB_EXPORT DL_ControlPointData {
00580     DL_ControlPointData(double px, double py, double pz, double weight) {
00581         x = px;
00582         y = py;
00583         z = pz;
00584         w = weight;
00585     }
00586
00588     double x;
00590     double y;
00592     double z;
00594     double w;
00595 };
00596
```

```

00597
00598
00602 struct DXFLIB_EXPORT DL_FitPointData {
00607     DL_FitPointData(double x, double y, double z) : x(x), y(y), z(z) {}
00608
00610     double x;
00612     double y;
00614     double z;
00615 };
00616
00617
00618
00622 struct DXFLIB_EXPORT DL_EllipseData {
00627     DL_EllipseData(double cx, double cy, double cz,
00628                     double mx, double my, double mz,
00629                     double ratio,
00630                     double angle1, double angle2)
00631     : cx(cx),
00632       cy(cy),
00633       cz(cz),
00634       mx(mx),
00635       my(my),
00636       mz(mz),
00637       ratio(ratio),
00638       angle1(angle1),
00639       angle2(angle2) {
00640     }
00641
00643     double cx;
00645     double cy;
00647     double cz;
00648
00650     double mx;
00652     double my;
00654     double mz;
00655
00657     double ratio;
00659     double angle1;
00661     double angle2;
00662 };
00663
00664
00665
00669 struct DXFLIB_EXPORT DL_InsertData {
00674     DL_InsertData(const std::string& name,
00675                   double ipx, double ipy, double ipz,
00676                   double sx, double sy, double sz,
00677                   double angle,
00678                   int cols, int rows,
00679                   double colSp, double rowSp) :
00680     name(name),
00681     ipx(ipx), ipy(ipy), ipz(ipz),
00682     sx(sx), sy(sy), sz(sz),
00683     angle(angle),
00684     cols(cols), rows(rows),
00685     colSp(colSp), rowSp(rowSp) {
00686     }
00687
00689     std::string name;
00691     double ipx;
00693     double ipy;
00695     double ipz;
00697     double sx;
00699     double sy;
00701     double sz;
00703     double angle;
00705     int cols;
00707     int rows;
00709     double colSp;
00711     double rowSp;
00712 };
00713
00714
00715
00719 struct DXFLIB_EXPORT DL_MTextData {
00724     DL_MTextData(double ipx, double ipy, double ipz,
00725                  double dirx, double diry, double dirz,
00726                  double height, double width,
00727                  int attachmentPoint,
00728                  int drawingDirection,
00729                  int lineSpacingStyle,
00730                  double lineSpacingFactor,
00731                  const std::string& text,
00732                  const std::string& style,
00733                  double angle) :
00734     ipx(ipx), ipy(ipy), ipz(ipz),
00735     dirx(dirx), diry(diry), dirz(dirz),

```

```

00736         height(height), width(width),
00737         attachmentPoint(attachmentPoint),
00738         drawingDirection(drawingDirection),
00739         lineSpacingStyle(lineSpacingStyle),
00740         lineSpacingFactor(lineSpacingFactor),
00741         text(text),
00742         style(style),
00743         angle(angle) {
00744     }
00745 }
00746
00748 double ipx;
00750 double ipy;
00752 double ipz;
00754 double dirx;
00756 double diry;
00758 double dirz;
00760 double height;
00762 double width;
00770 int attachmentPoint;
00776 int drawingDirection;
00782 int lineSpacingStyle;
00786 double lineSpacingFactor;
00788 std::string text;
00790 std::string style;
00792 double angle;
00793 };
00794
00795
00796
00800 struct DXFLIB_EXPORT DL_TextData {
00805     DL_TextData(double ipx, double ipy, double ipz,
00806                 double apx, double apy, double apz,
00807                 double height, double xScaleFactor,
00808                 int textGenerationFlags,
00809                 int hJustification,
00810                 int vJustification,
00811                 const std::string& text,
00812                 const std::string& style,
00813                 double angle)
00814     : ipx(ipx), ipy(ipy), ipz(ipz),
00815       apx(apx), apy(apy), apz(apz),
00816       height(height), xScaleFactor(xScaleFactor),
00817       textGenerationFlags(textGenerationFlags),
00818       hJustification(hJustification),
00819       vJustification(vJustification),
00820       text(text),
00821       style(style),
00822       angle(angle) {
00823     }
00824
00826 double ipx;
00828 double ipy;
00830 double ipz;
00831
00833 double apx;
00835 double apy;
00837 double apz;
00838
00840 double height;
00842 double xScaleFactor;
00844 int textGenerationFlags;
00852 int hJustification;
00858 int vJustification;
00860 std::string text;
00862 std::string style;
00864 double angle;
00865 };
00866
00870 struct DXFLIB_EXPORT DL_ArcAlignedTextData {
00871
00873     std::string text;
00875     std::string font;
00877     std::string style;
00878
00880     double cx;
00882     double cy;
00884     double cz;
00886     double radius;
00887
00889     double xScaleFactor;
00891     double height;
00893     double spacing;
00895     double offset;
00897     double rightOffset;
00899     double leftOffset;
00901     double startAngle;

```

```

00903     double endAngle;
00904     bool reversedCharacterOrder;
00913     int direction;
00920     int alignment;
00925     int side;
00927     bool bold;
00929     bool italic;
00931     bool underline;
00933     int characerSet;
00935     int pitch;
00940     bool shxFont;
00942     bool wizard;
00944     int arcHandle;
00945 };
00946
00950 struct DXFLIB_EXPORT DL_AttributeData : public DL_TextData {
00951     DL_AttributeData(const DL_TextData& tData, const std::string& tag)
00952         : DL_TextData(tData), tag(tag) {
00953
00954     }
00955
00960     DL_AttributeData(double ipx, double ipy, double ipz,
00961                     double apx, double apy, double apz,
00962                     double height, double xScaleFactor,
00963                     int textGenerationFlags,
00964                     int hJustification,
00965                     int vJustification,
00966                     const std::string& tag,
00967                     const std::string& text,
00968                     const std::string& style,
00969                     double angle)
00970         : DL_TextData(ipx, ipy, ipz,
00971                     apx, apy, apz,
00972                     height, xScaleFactor,
00973                     textGenerationFlags,
00974                     hJustification,
00975                     vJustification,
00976                     text,
00977                     style,
00978                     angle),
00979         tag(tag) {
00980     }
00981
00983     std::string tag;
00984 };
00985
00986 struct DXFLIB_EXPORT DL_DimensionData {
00995     DL_DimensionData(double dpx, double dpy, double dpz,
00996                     double mpx, double mpy, double mpz,
00997                     int type,
00998                     int attachmentPoint,
00999                     int lineSpacingStyle,
01000                     double lineSpacingFactor,
01001                     const std::string& text,
01002                     const std::string& style,
01003                     double angle,
01004                     double linearFactor = 1.0,
01005                     double dimScale = 1.0) :
01006         dpx(dpx), dpy(dpy), dpz(dpz),
01007         mpx(mpx), mpy(mpy), mpz(mpz),
01008         type(type),
01009         attachmentPoint(attachmentPoint),
01010         lineSpacingStyle(lineSpacingStyle),
01011         lineSpacingFactor(lineSpacingFactor),
01012         text(text),
01013         style(style),
01014         angle(angle),
01015         linearFactor(linearFactor),
01016         dimScale(dimScale) {
01017
01018     }
01019
01021     double dpx;
01023     double dpy;
01025     double dpz;
01027     double mpx;
01029     double mpy;
01031     double mpz;
01051     int type;
01059     int attachmentPoint;
01065     int lineSpacingStyle;
01069     double lineSpacingFactor;
01077     std::string text;
01079     std::string style;
01084     double angle;
01088     double linearFactor;

```



```
01092     double dimScale;
01093     bool arrow1Flipped;
01094     bool arrow2Flipped;
01095 };
01096
01097
01098
01102 struct DXFLIB_EXPORT DL_DimAlignedData {
01107     DL_DimAlignedData(double depx1, double depy1, double depz1,
01108                       double depx2, double depy2, double depz2) {
01109
01110         ep1 = depx1;
01111         ep1 = depy1;
01112         ep1 = depz1;
01113
01114         ep2 = depx2;
01115         ep2 = depy2;
01116         ep2 = depz2;
01117     }
01118
01120     double ep1;
01122     double ep1;
01124     double ep1;
01125
01127     double ep2;
01129     double ep2;
01131     double ep2;
01132 };
01133
01134
01135
01139 struct DXFLIB_EXPORT DL_DimLinearData {
01144     DL_DimLinearData(double ddp1, double ddp1, double ddp1,
01145                      double ddp2, double ddp2, double ddp2,
01146                      double dAngle, double dOblique) {
01147
01148         dp1 = ddp1;
01149         dp1 = ddp1;
01150         dp1 = ddp1;
01151
01152         dp2 = ddp2;
01153         dp2 = ddp2;
01154         dp2 = ddp2;
01155
01156         angle = dAngle;
01157         oblique = dOblique;
01158     }
01159
01161     double dp1;
01163     double dp1;
01165     double dp1;
01166
01168     double dp2;
01170     double dp2;
01172     double dp2;
01173
01175     double angle;
01177     double oblique;
01178 };
01179
01180
01181
01185 struct DXFLIB_EXPORT DL_DimRadialData {
01190     DL_DimRadialData(double ddp, double ddp, double ddp, double dleader) {
01191         dp = ddp;
01192         dp = ddp;
01193         dp = ddp;
01194
01195         leader = dleader;
01196     }
01197
01199     double dp;
01201     double dp;
01203     double dp;
01204
01206     double leader;
01207 };
01208
01209
01210
01214 struct DXFLIB_EXPORT DL_DimDiametricData {
01219     DL_DimDiametricData(double ddp, double ddp, double ddp, double dleader) {
01220         dp = ddp;
01221         dp = ddp;
01222         dp = ddp;
01223
01224         leader = dleader;
```

```
01225     }
01226
01228     double dpx;
01230     double dpy;
01232     double dpz;
01233
01235     double leader;
01236 };
01237
01238
01239
01243 struct DXFLIB_EXPORT DL_DimAngular2LData {
01244     DL_DimAngular2LData(double ddp1, double ddp2, double ddp3,
01245         double ddp4, double ddp5, double ddp6,
01246         double ddp7, double ddp8, double ddp9,
01247         double ddp10, double ddp11, double ddp12) {
01248
01249         ddp1 = ddp1;
01250         ddp2 = ddp2;
01251         ddp3 = ddp3;
01252         ddp4 = ddp4;
01253         ddp5 = ddp5;
01254         ddp6 = ddp6;
01255         ddp7 = ddp7;
01256         ddp8 = ddp8;
01257         ddp9 = ddp9;
01258         ddp10 = ddp10;
01259         ddp11 = ddp11;
01260         ddp12 = ddp12;
01261     }
01262
01263     double ddp1;
01264     double ddp2;
01265     double ddp3;
01266     double ddp4;
01267     double ddp5;
01268     double ddp6;
01269     double ddp7;
01270     double ddp8;
01271     double ddp9;
01272     double ddp10;
01273     double ddp11;
01274     double ddp12;
01275 };
01276
01277 struct DXFLIB_EXPORT DL_DimAngular3PData {
01278     DL_DimAngular3PData(double ddp1, double ddp2, double ddp3,
01279         double ddp4, double ddp5, double ddp6,
01280         double ddp7, double ddp8, double ddp9,
01281         double ddp10, double ddp11, double ddp12) {
01282
01283         ddp1 = ddp1;
01284         ddp2 = ddp2;
01285         ddp3 = ddp3;
01286         ddp4 = ddp4;
01287         ddp5 = ddp5;
01288         ddp6 = ddp6;
01289         ddp7 = ddp7;
01290         ddp8 = ddp8;
01291         ddp9 = ddp9;
01292         ddp10 = ddp10;
01293         ddp11 = ddp11;
01294         ddp12 = ddp12;
01295     }
01296
01297     double ddp1;
01298     double ddp2;
01299     double ddp3;
01300     double ddp4;
01301     double ddp5;
01302     double ddp6;
01303     double ddp7;
01304     double ddp8;
01305     double ddp9;
01306     double ddp10;
01307     double ddp11;
01308     double ddp12;
01309 };
01310
01311 struct DXFLIB_EXPORT DL_DimOrdinateData {
01312     DL_DimOrdinateData(double ddp1, double ddp2, double ddp3,
01313         double ddp4, double ddp5, double ddp6,
01314         double ddp7, double ddp8, double ddp9,
01315         double ddp10, double ddp11, double ddp12) {
01316
01317         ddp1 = ddp1;
01318         ddp2 = ddp2;
01319         ddp3 = ddp3;
01320         ddp4 = ddp4;
01321         ddp5 = ddp5;
01322         ddp6 = ddp6;
01323         ddp7 = ddp7;
01324         ddp8 = ddp8;
01325         ddp9 = ddp9;
01326         ddp10 = ddp10;
01327         ddp11 = ddp11;
01328         ddp12 = ddp12;
01329     }
01330
01331     double ddp1;
01332     double ddp2;
01333     double ddp3;
01334     double ddp4;
01335     double ddp5;
01336     double ddp6;
01337     double ddp7;
01338     double ddp8;
01339     double ddp9;
01340     double ddp10;
01341     double ddp11;
01342     double ddp12;
01343 };
01344
01345 struct DXFLIB_EXPORT DL_DimOrdinateData {
01346     DL_DimOrdinateData(double ddp1, double ddp2, double ddp3,
```

```

01358             double ddpz2, double ddpz2, double ddpz2,
01359             bool dxtype) {
01360
01361         dpx1 = ddpz1;
01362         dpy1 = ddpz1;
01363         dpz1 = ddpz1;
01364
01365         dpx2 = ddpz2;
01366         dpy2 = ddpz2;
01367         dpz2 = ddpz2;
01368
01369         xtype = dxtype;
01370     }
01371
01372     double dpx1;
01373     double dpy1;
01374     double dpz1;
01375
01376     double dpx2;
01377     double dpy2;
01378     double dpz2;
01379
01380     bool xtype;
01381 };
01382
01383 struct DXFLIB_EXPORT DL_LeaderData {
01384     DL_LeaderData(int arrowHeadFlag,
01385                   int leaderPathType,
01386                   int leaderCreationFlag,
01387                   int hooklineDirectionFlag,
01388                   int hooklineFlag,
01389                   double textAnnotationHeight,
01390                   double textAnnotationWidth,
01391                   int number,
01392                   double dimScale = 1.0) :
01393         arrowHeadFlag(arrowHeadFlag),
01394         leaderPathType(leaderPathType),
01395         leaderCreationFlag(leaderCreationFlag),
01396         hooklineDirectionFlag(hooklineDirectionFlag),
01397         hooklineFlag(hooklineFlag),
01398         textAnnotationHeight(textAnnotationHeight),
01399         textAnnotationWidth(textAnnotationWidth),
01400         number(number),
01401         dimScale(dimScale) {
01402     }
01403
01404     int arrowHeadFlag;
01405     int leaderPathType;
01406     int leaderCreationFlag;
01407     int hooklineDirectionFlag;
01408     int hooklineFlag;
01409     double textAnnotationHeight;
01410     double textAnnotationWidth;
01411     int number;
01412     double dimScale;
01413 };
01414
01415 struct DXFLIB_EXPORT DL_LeaderVertexData {
01416     DL_LeaderVertexData(double px=0.0, double py=0.0, double pz=0.0) {
01417         x = px;
01418         y = py;
01419         z = pz;
01420     }
01421
01422     double x;
01423     double y;
01424     double z;
01425 };
01426
01427 struct DXFLIB_EXPORT DL_HatchData {
01428     DL_HatchData() {}
01429
01430     DL_HatchData(int numLoops,
01431                  bool solid,
01432                  double scale,
01433                  double angle,
01434                  const std::string& pattern,
01435                  double originX = 0.0,
01436                  double originY = 0.0) :
01437         numLoops(numLoops),

```

```

01488         solid(solid),
01489         scale(scale),
01490         angle(angle),
01491         pattern(pattern),
01492         originX(originX),
01493         originY(originY) {
01494     }
01495 }
01496
01498     int numLoops;
01500     bool solid;
01502     double scale;
01504     double angle;
01506     std::string pattern;
01508     double originX;
01509     double originY;
01510 };
01511
01512
01513
01517 struct DXFLIB_EXPORT DL_HatchLoopData {
01521     DL_HatchLoopData() {}
01526     DL_HatchLoopData(int hNumEdges) {
01527         numEdges = hNumEdges;
01528     }
01529
01531     int numEdges;
01532 };
01533
01534
01535
01539 struct DXFLIB_EXPORT DL_HatchEdgeData {
01543     DL_HatchEdgeData() : defined(false), x1(0.0), y1(0.0), x2(0.0), y2(0.0) {
01544     }
01545
01550     DL_HatchEdgeData(double x1, double y1,
01551                     double x2, double y2) :
01552         defined(true),
01553         type(1),
01554         x1(x1),
01555         y1(y1),
01556         x2(x2),
01557         y2(y2) {
01558     }
01559
01564     DL_HatchEdgeData(double cx, double cy,
01565                     double radius,
01566                     double angle1, double angle2,
01567                     bool ccw) :
01568         defined(true),
01569         type(2),
01570         cx(cx),
01571         cy(cy),
01572         radius(radius),
01573         angle1(angle1),
01574         angle2(angle2),
01575         ccw(ccw) {
01576     }
01577
01582     DL_HatchEdgeData(double cx, double cy,
01583                     double mx, double my,
01584                     double ratio,
01585                     double angle1, double angle2,
01586                     bool ccw) :
01587         defined(true),
01588         type(3),
01589         cx(cx),
01590         cy(cy),
01591         angle1(angle1),
01592         angle2(angle2),
01593         ccw(ccw),
01594         mx(mx),
01595         my(my),
01596         ratio(ratio) {
01597     }
01598
01603     DL_HatchEdgeData(unsigned int degree,
01604                     bool rational,
01605                     bool periodic,
01606                     unsigned int nKnots,
01607                     unsigned int nControl,
01608                     unsigned int nFit,
01609                     const std::vector<double>& knots,
01610                     const std::vector<std::vector<double>>& controlPoints,
01611                     const std::vector<std::vector<double>>& fitPoints,
01612                     const std::vector<double>& weights,
01613                     double startTangentX,

```

```

01614             double startTangentY,
01615             double endTangentX,
01616             double endTangentY) :
01617     defined(true),
01618     type(4),
01619     degree(degree),
01620     rational(rational),
01621     periodic(periodic),
01622     nKnots(nKnots),
01623     nControl(nControl),
01624     nFit(nFit),
01625     controlPoints(controlPoints),
01626     knots(knots),
01627     weights(weights),
01628     fitPoints(fitPoints),
01629     startTangentX(startTangentX),
01630     startTangentY(startTangentY),
01631     endTangentX(endTangentX),
01632     endTangentY(endTangentY) {
01633 }
01634
01638 bool defined;
01639
01643 int type;
01644
01645 // line edges:
01646
01648 double x1;
01650 double y1;
01652 double x2;
01654 double y2;
01655
01657 double cx;
01659 double cy;
01661 double radius;
01663 double angle1;
01665 double angle2;
01667 bool ccw;
01668
01670 double mx;
01672 double my;
01674 double ratio;
01675
01676
01678 unsigned int degree;
01679 bool rational;
01680 bool periodic;
01682 unsigned int nKnots;
01684 unsigned int nControl;
01686 unsigned int nFit;
01687
01688 std::vector<std::vector<double> > controlPoints;
01689 std::vector<double> knots;
01690 std::vector<double> weights;
01691 std::vector<std::vector<double> > fitPoints;
01692
01693 double startTangentX;
01694 double startTangentY;
01695
01696 double endTangentX;
01697 double endTangentY;
01698
01700 std::vector<std::vector<double> > vertices;
01701 //bool closed;
01702 };
01703
01704
01705
01709 struct DXFLIB_EXPORT DL_ImageData {
01710     DL_ImageData(const std::string& iref,
01711                 double iipx, double iipy, double iipz,
01712                 double iux, double iuy, double iuz,
01713                 double ivx, double ivy, double ivz,
01714                 int iwidth, int iheight,
01715                 int ibrightness, int icontrast, int ifade) {
01716         ref = iref;
01717         ipx = iipx;
01718         ipy = iipy;
01719         ipz = iipz;
01720         ux = iux;
01721         uy = iuy;
01722         uz = iuz;
01723         vx = ivx;
01724         vy = ivy;
01725         vz = ivz;
01726         width = iwidth;
01727         height = iheight;

```

```

01732         brightness = ibrightness;
01733         contrast = icontrast;
01734         fade = ifade;
01735     }
01736
01739     std::string ref;
01741     double ipx;
01743     double ipy;
01745     double ipz;
01747     double ux;
01749     double uy;
01751     double uz;
01753     double vx;
01755     double vy;
01757     double vz;
01759     int width;
01761     int height;
01763     int brightness;
01765     int contrast;
01767     int fade;
01768 };
01769
01770
01771
01775 struct DXFLIB_EXPORT DL_ImageDefData {
01780     DL_ImageDefData(const std::string& iref,
01781                     const std::string& ifile) {
01782         ref = iref;
01783         file = ifile;
01784     }
01785
01788     std::string ref;
01789
01791     std::string file;
01792 };
01793
01794
01795
01799 struct DXFLIB_EXPORT DL_DictionaryData {
01800     DL_DictionaryData(const std::string& handle) : handle(handle) {}
01801     std::string handle;
01802 };
01803
01804
01805
01809 struct DXFLIB_EXPORT DL_DictionaryEntryData {
01810     DL_DictionaryEntryData(const std::string& name, const std::string& handle) :
01811         name(name), handle(handle) {}
01812
01813     std::string name;
01814     std::string handle;
01815 };
01816
01817 #endif
01818
01819 // EOF

```

6.7 dl_exception.h

```

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00024 *****/

```

```

00025
00026 #ifndef DL_EXCEPTION_H
00027 #define DL_EXCEPTION_H
00028
00029 #include "dl_global.h"
00030
00031 #if _MSC_VER > 1000
00032 #pragma once
00033 #endif // _MSC_VER > 1000
00034
00038 class DXFLIB_EXPORT DL_Exception {}
00039 ;
00040
00044 class DXFLIB_EXPORT DL_NullStrExc : public DL_Exception {}
00045 ;
00046
00050 class DXFLIB_EXPORT DL_GroupCodeExc : public DL_Exception {
00051     DL_GroupCodeExc(int gc=0) : groupCode(gc) {}
00052     int groupCode;
00053 };
00054 #endif
00055

```

6.8 dl_extrusion.h

```

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00022 **
00023 *****/
00024
00025 #ifndef DL_EXTRUSION_H
00026 #define DL_EXTRUSION_H
00027
00028 #include "dl_global.h"
00029
00030 #include <math.h>
00031
00032
00038 class DXFLIB_EXPORT DL_Extrusion {
00039
00040 public:
00041
00045     DL_Extrusion() {
00046         direction = new double[3];
00047         setDirection(0.0, 0.0, 1.0);
00048         setElevation(0.0);
00049     }
00050
00051
00055     ~DL_Extrusion() {
00056         delete[] direction;
00057     }
00058
00059
00068     DL_Extrusion(double dx, double dy, double dz, double elevation) {
00069         direction = new double[3];
00070         setDirection(dx, dy, dz);
00071         setElevation(elevation);
00072     }
00073
00074
00075
00079     void setDirection(double dx, double dy, double dz) {
00080         direction[0]=dx;

```

```

00081         direction[1]=dy;
00082         direction[2]=dz;
00083     }
00084
00085
00086
00090     double* getDirection() const {
00091         return direction;
00092     }
00093
00094
00095
00099     void getDirection(double dir[]) const {
00100         dir[0]=direction[0];
00101         dir[1]=direction[1];
00102         dir[2]=direction[2];
00103     }
00104
00105
00106
00110     void setElevation(double elevation) {
00111         this->elevation = elevation;
00112     }
00113
00114
00115
00119     double getElevation() const {
00120         return elevation;
00121     }
00122
00123
00124
00128     DL_Extrusion operator = (const DL_Extrusion& extru) {
00129         setDirection(extru.direction[0], extru.direction[1], extru.direction[2]);
00130         setElevation(extru.elevation);
00131
00132         return *this;
00133     }
00134
00135
00136
00137 private:
00138     double *direction;
00139     double elevation;
00140 };
00141
00142 #endif
00143

```

6.9 dl_global.h

```

00001 #if defined(DXFLIB_DLL)
00002 #   ifdef _WIN32
00003 #       if defined(DXFLIB_LIBRARY)
00004 #           define DXFLIB_EXPORT __declspec(dllexport)
00005 #       else
00006 #           define DXFLIB_EXPORT __declspec(dllimport)
00007 #       endif
00008 #   else
00009 #       define DXFLIB_EXPORT
00010 #   endif
00011 #else
00012 #   define DXFLIB_EXPORT
00013 #endif

```

6.10 dl_writer.h

```

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00023 **
00024 *****/
00025
00026 #ifndef DL_WRITER_H
00027 #define DL_WRITER_H
00028
00029 #include "dl_global.h"
00030
00031 #ifndef _WIN32
00032 #include <strings.h>
00033 #endif
00034
00035 #if _MSC_VER > 1000
00036 #pragma once
00037 #endif // _MSC_VER > 1000
00038
00039 #include <cstring>
00040 #include <iostream>
00041 #include <algorithm>
00042
00043 #include "dl_attributes.h"
00044 #include "dl_codes.h"
00045
00046
00047
00048 class DXFLIB_EXPORT DL_Writer {
00049 public:
00050     DL_Writer(DL_Codes::version version) : m_handle(0x30) {
00051         this->version = version;
00052         modelSpaceHandle = 0;
00053         paperSpaceHandle = 0;
00054         paperSpace0Handle = 0;
00055     }
00056
00057     virtual ~DL_Writer() {}
00058     ;
00059
00060     void section(const char* name) const {
00061         dxflibString(0, "SECTION");
00062         dxflibString(2, name);
00063     }
00064
00065     void sectionHeader() const {
00066         section("HEADER");
00067     }
00068
00069     void sectionTables() const {
00070         section("TABLES");
00071     }
00072
00073     void sectionBlocks() const {
00074         section("BLOCKS");
00075     }
00076
00077     void sectionEntities() const {
00078         section("ENTITIES");
00079     }
00080
00081     void sectionClasses() const {
00082         section("CLASSES");
00083     }
00084
00085     void sectionObjects() const {
00086         section("OBJECTS");
00087     }
00088
00089     void sectionEnd() const {
00090         dxflibString(0, "ENDSEC");
00091     }
00092
00093     void table(const char* name, int num, int h=0) const {
00094         dxflibString(0, "TABLE");
00095         dxflibString(2, name);
00096         if (version>=DL_VERSION_2000) {
00097             if (h==0) {
00098                 handle();
00099             }
00100         }
00101     }

```

```

00202         else {
00203             dxflHex(5, h);
00204         }
00205         dxflString(100, "AcDbSymbolTable");
00206     }
00207     dxflInt(70, num);
00208 }
00209
00223 void tableLayers(int num) const {
00224     table("LAYER", num, 2);
00225 }
00226
00240 void tableLinetypes(int num) const {
00241     //linetypeHandle = 5;
00242     table("LTYPE", num, 5);
00243 }
00244
00258 void tableAppid(int num) const {
00259     table("APPID", num, 9);
00260 }
00261
00275 void tableStyle(int num) const {
00276     table("STYLE", num, 3);
00277 }
00278
00287 void tableEnd() const {
00288     dxflString(0, "ENDTAB");
00289 }
00290
00299 void dxflEOF() const {
00300     dxflString(0, "EOF");
00301 }
00302
00311 void comment(const char* text) const {
00312     dxflString(999, text);
00313 }
00314
00325 void entity(const char* entTypeName) const {
00326     dxflString(0, entTypeName);
00327     if (version>=DL_VERSION_2000) {
00328         handle();
00329     }
00330 }
00331
00346 void entityAttributes(const DL_Attributes& attrib) const {
00347
00348     // layer name:
00349     dxflString(8, attrib.getLayer());
00350
00351     // R12 doesn't accept BYLAYER values. The value has to be missing
00352     // in that case.
00353     if (version>=DL_VERSION_2000 || attrib.getColor()!=256) {
00354         dxflInt(62, attrib.getColor());
00355     }
00356     if (version>=DL_VERSION_2000 && attrib.getColor24()!=-1) {
00357         dxflInt(420, attrib.getColor24());
00358     }
00359     if (version>=DL_VERSION_2000) {
00360         dxflInt(370, attrib.getWidth());
00361     }
00362     if (version>=DL_VERSION_2000) {
00363         dxflReal(48, attrib.getLinetypeScale());
00364     }
00365     std::string linetype = attrib.getLinetype();
00366     std::transform(linetype.begin(), linetype.end(), linetype.begin(), ::toupper);
00367     if (version>=DL_VERSION_2000 || linetype=="BYLAYER") {
00368         dxflString(6, attrib.getLinetype());
00369     }
00370 }
00371
00375 void subClass(const char* sub) const {
00376     dxflString(100, sub);
00377 }
00378
00387 void tableLayerEntry(unsigned long int h=0) const {
00388     dxflString(0, "LAYER");
00389     if (version>=DL_VERSION_2000) {
00390         if (h==0) {
00391             handle();
00392         } else {
00393             dxflHex(5, h);
00394         }
00395         dxflString(100, "AcDbSymbolTableRecord");
00396         dxflString(100, "AcDbLayerTableRecord");
00397     }
00398 }
00399

```

```

00408 void tableLinetypeEntry(unsigned long int h=0) const {
00409     dxfsString(0, "LTYPE");
00410     if (version>=DL_VERSION_2000) {
00411         if (h==0) {
00412             handle();
00413         } else {
00414             dxfsHex(5, h);
00415         }
00416         //dxfsHex(330, 0x5);
00417         dxfsString(100, "AcDbSymbolTableRecord");
00418         dxfsString(100, "AcDbLinetypeTableRecord");
00419     }
00420 }
00421
00430 void tableAppidEntry(unsigned long int h=0) const {
00431     dxfsString(0, "APPID");
00432     if (version>=DL_VERSION_2000) {
00433         if (h==0) {
00434             handle();
00435         } else {
00436             dxfsHex(5, h);
00437         }
00438         //dxfsHex(330, 0x9);
00439         dxfsString(100, "AcDbSymbolTableRecord");
00440         dxfsString(100, "AcDbRegAppTableRecord");
00441     }
00442 }
00443
00452 void sectionBlockEntry(unsigned long int h=0) const {
00453     dxfsString(0, "BLOCK");
00454     if (version>=DL_VERSION_2000) {
00455         if (h==0) {
00456             handle();
00457         } else {
00458             dxfsHex(5, h);
00459         }
00460         //dxfsHex(330, blockHandle);
00461         dxfsString(100, "AcDbEntity");
00462         if (h==0x1C) {
00463             dxfsInt(67, 1);
00464         }
00465         dxfsString(8, "0");
00466         dxfsString(100, "AcDbBlockBegin");
00467     }
00468 }
00469
00478 void sectionBlockEntryEnd(unsigned long int h=0) const {
00479     dxfsString(0, "ENDBLK");
00480     if (version>=DL_VERSION_2000) {
00481         if (h==0) {
00482             handle();
00483         } else {
00484             dxfsHex(5, h);
00485         }
00486         //dxfsHex(330, blockHandle);
00487         dxfsString(100, "AcDbEntity");
00488         if (h==0x1D) {
00489             dxfsInt(67, 1);
00490         }
00491         dxfsString(8, "0");
00492         dxfsString(100, "AcDbBlockEnd");
00493     }
00494 }
00495
00496 void color(int col=256) const {
00497     dxfsInt(62, col);
00498 }
00499 void linetype(const char *lt) const {
00500     dxfsString(6, lt);
00501 }
00502 void linetypeScale(double scale) const {
00503     dxfsReal(48, scale);
00504 }
00505 void lineWeight(int lw) const {
00506     dxfsInt(370, lw);
00507 }
00508
00509 void coord(int gc, double x, double y, double z=0) const {
00510     dxfsReal(gc, x);
00511     dxfsReal(gc+10, y);
00512     dxfsReal(gc+20, z);
00513 }
00514
00515 void coordTriplet(int gc, const double* value) const {
00516     if (value) {
00517         dxfsReal(gc, *value++);
00518         dxfsReal(gc+10, *value++);

```

```

00519         dxflReal(gc+20, *value++);
00520     }
00521 }
00522
00523 void resetHandle() const {
00524     m_handle = 1;
00525 }
00526
00530 unsigned long handle(int gc=5) const {
00531     // handle has to be hex
00532     dxflHex(gc, m_handle);
00533     return m_handle++;
00534 }
00535
00539 unsigned long getNextHandle() const {
00540     return m_handle;
00541 }
00542
00550 virtual void dxflReal(int gc, double value) const = 0;
00551
00559 virtual void dxflInt(int gc, int value) const = 0;
00560
00568 virtual void dxflBool(int gc, bool value) const {
00569     dxflInt(gc, (int)value);
00570 }
00571
00579 virtual void dxflHex(int gc, int value) const = 0;
00580
00588 virtual void dxflString(int gc, const char* value) const = 0;
00589
00597 virtual void dxflString(int gc, const std::string& value) const = 0;
00598
00599 protected:
00600     mutable unsigned long m_handle;
00601     mutable unsigned long modelSpaceHandle;
00602     mutable unsigned long paperSpaceHandle;
00603     mutable unsigned long paperSpace0Handle;
00604
00608     DL_Codes::version version;
00609 private:
00610 };
00611
00612 #endif

```

6.11 dl_writer_ascii.h

```

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00024 *****/
00025
00026 #ifndef DL_WRITER_ASCII_H
00027 #define DL_WRITER_ASCII_H
00028
00029 #include "dl_global.h"
00030
00031 #if _MSC_VER > 1000
00032 #pragma once
00033 #endif // _MSC_VER > 1000
00034
00035 #include "dl_writer.h"
00036 #include <fstream>
00037 #include <string>

```

```
00038
00049 class DXFLIB_EXPORT DL_WriterA : public DL_Writer {
00050 public:
00051     DL_WriterA(const char* fname, DL_Codes::version version=DL_VERSION_2000)
00052         : DL_Writer(version), m_ofile(fname) {}
00053     virtual ~DL_WriterA() {}
00054
00055     bool openFailed() const;
00056     void close() const;
00057     void dxfReal(int gc, double value) const;
00058     void dxfInt(int gc, int value) const;
00059     void dxfHex(int gc, int value) const;
00060     void dxfString(int gc, const char* value) const;
00061     void dxfString(int gc, const std::string& value) const;
00062
00063     static void strReplace(char* str, char src, char dest);
00064
00065 private:
00066     mutable std::ofstream m_ofile;
00067
00070 };
00071
00072 #endif
00073
00074
```


Index

add3dFace
 DL_CreationAdapter, [33](#)
 DL_CreationInterface, [49](#)

addArc
 DL_CreationAdapter, [33](#)
 DL_CreationInterface, [49](#)

addArcAlignedText
 DL_CreationAdapter, [33](#)
 DL_CreationInterface, [49](#)

addAttribute
 DL_CreationAdapter, [33](#)
 DL_CreationInterface, [49](#)
 DL_Dxf, [89](#)

addBlock
 DL_CreationAdapter, [34](#)
 DL_CreationInterface, [49](#)

addCircle
 DL_CreationAdapter, [34](#)
 DL_CreationInterface, [50](#)

addComment
 DL_CreationAdapter, [34](#)
 DL_CreationInterface, [50](#)

addControlPoint
 DL_CreationAdapter, [34](#)
 DL_CreationInterface, [50](#)

addDictionary
 DL_CreationAdapter, [34](#)
 DL_CreationInterface, [50](#)

addDictionaryEntry
 DL_CreationAdapter, [35](#)
 DL_CreationInterface, [51](#)

addDimAlign
 DL_CreationAdapter, [35](#)
 DL_CreationInterface, [51](#)

addDimAngular
 DL_CreationAdapter, [35](#)
 DL_CreationInterface, [51](#)

addDimAngular3P
 DL_CreationAdapter, [35](#)
 DL_CreationInterface, [51](#)

addDimDiametric
 DL_CreationAdapter, [35](#)
 DL_CreationInterface, [52](#)

addDimLinear
 DL_CreationAdapter, [36](#)
 DL_CreationInterface, [52](#)

addDimOrdinate
 DL_CreationAdapter, [36](#)
 DL_CreationInterface, [52](#)

addDimRadial
 DL_CreationAdapter, [36](#)
 DL_CreationInterface, [52](#)

addEllipse
 DL_CreationAdapter, [36](#)
 DL_CreationInterface, [53](#)

addFitPoint
 DL_CreationAdapter, [36](#)
 DL_CreationInterface, [53](#)

addHatch
 DL_CreationAdapter, [37](#)
 DL_CreationInterface, [53](#)

addHatchEdge
 DL_CreationAdapter, [37](#)
 DL_CreationInterface, [53](#)

addHatchLoop
 DL_CreationAdapter, [37](#)
 DL_CreationInterface, [53](#)

addImage
 DL_CreationAdapter, [37](#)
 DL_CreationInterface, [54](#)

addInsert
 DL_CreationAdapter, [37](#)
 DL_CreationInterface, [54](#)

addKnot
 DL_CreationAdapter, [37](#)
 DL_CreationInterface, [54](#)

addLayer
 DL_CreationAdapter, [38](#)
 DL_CreationInterface, [54](#)

addLeader
 DL_CreationAdapter, [38](#)
 DL_CreationInterface, [54](#)

addLeaderVertex
 DL_CreationAdapter, [38](#)
 DL_CreationInterface, [55](#)

addLine
 DL_CreationAdapter, [38](#)
 DL_CreationInterface, [55](#)

addLinetype
 DL_CreationAdapter, [38](#)
 DL_CreationInterface, [55](#)

addLinetypeDash
 DL_CreationAdapter, [38](#)
 DL_CreationInterface, [55](#)

addMText
 DL_CreationAdapter, [39](#)
 DL_CreationInterface, [55](#)

addMTextChunk

- DL_CreationAdapter, 39
- DL_CreationInterface, 56
- addPoint
 - DL_CreationAdapter, 39
 - DL_CreationInterface, 56
- addPolyline
 - DL_CreationAdapter, 39
 - DL_CreationInterface, 56
- addRay
 - DL_CreationAdapter, 39
 - DL_CreationInterface, 56
- addSolid
 - DL_CreationAdapter, 40
 - DL_CreationInterface, 56
 - DL_Dxf, 89
- addSpline
 - DL_CreationAdapter, 40
 - DL_CreationInterface, 57
- addText
 - DL_CreationAdapter, 40
 - DL_CreationInterface, 57
- addTextStyle
 - DL_CreationAdapter, 40
 - DL_CreationInterface, 57
- addTrace
 - DL_CreationAdapter, 40
 - DL_CreationInterface, 57
 - DL_Dxf, 89
- addVertex
 - DL_CreationAdapter, 40
 - DL_CreationInterface, 57
- addXDataApp
 - DL_CreationAdapter, 41
 - DL_CreationInterface, 58
- addXDataInt
 - DL_CreationAdapter, 41
 - DL_CreationInterface, 58
- addXDataReal
 - DL_CreationAdapter, 41
 - DL_CreationInterface, 58
- addXDataString
 - DL_CreationAdapter, 41
 - DL_CreationInterface, 58
- addXLine
 - DL_CreationAdapter, 41
 - DL_CreationInterface, 59
- addXRecord
 - DL_CreationAdapter, 42
 - DL_CreationInterface, 59
- addXRecordBool
 - DL_CreationAdapter, 42
 - DL_CreationInterface, 59
- addXRecordInt
 - DL_CreationAdapter, 42
 - DL_CreationInterface, 59
- addXRecordReal
 - DL_CreationAdapter, 42
 - DL_CreationInterface, 60
- addXRecordString
 - DL_CreationAdapter, 42
 - DL_CreationInterface, 60
- alignment
 - DL_ArcAlignedTextData, 12
- angle
 - DL_DimLinearData, 78
 - DL_HatchData, 117
 - DL_InsertData, 130
 - DL_MTextData, 143
 - DL_TextData, 155
- angle1
 - DL_ArcData, 17
 - DL_EllipseData, 111
 - DL_HatchEdgeData, 121
- angle2
 - DL_ArcData, 17
 - DL_EllipseData, 111
 - DL_HatchEdgeData, 121
- apx
 - DL_TextData, 155
- apy
 - DL_TextData, 155
- apz
 - DL_TextData, 155
- arcHandle
 - DL_ArcAlignedTextData, 12
- arrowHeadFlag
 - DL_LeaderData, 136
- attachmentPoint
 - DL_DimensionData, 75
 - DL_MTextData, 143
- bold
 - DL_ArcAlignedTextData, 12
- brightness
 - DL_ImageData, 126
- bulge
 - DL_VertexData, 160
- bx
 - DL_RayData, 150
 - DL_XLineData, 177
- by
 - DL_RayData, 150
 - DL_XLineData, 177
- bz
 - DL_RayData, 150
 - DL_XLineData, 178
- ccw
 - DL_HatchEdgeData, 121
- characerSet
 - DL_ArcAlignedTextData, 12
- checkVariable
 - DL_Dxf, 89
- cols
 - DL_InsertData, 130
- colSp
 - DL_InsertData, 131

- comment
 - DL_Writer, 163
- contrast
 - DL_ImageData, 126
- cx
 - DL_ArcAlignedTextData, 12
 - DL_ArcData, 17
 - DL_CircleData, 27
 - DL_EllipseData, 111
 - DL_HatchEdgeData, 121
- cy
 - DL_ArcAlignedTextData, 12
 - DL_ArcData, 18
 - DL_CircleData, 27
 - DL_EllipseData, 111
 - DL_HatchEdgeData, 121
- cz
 - DL_ArcAlignedTextData, 13
 - DL_ArcData, 18
 - DL_CircleData, 27
 - DL_EllipseData, 111
- degree
 - DL_HatchEdgeData, 121
 - DL_SplineData, 152
- dimScale
 - DL_LeaderData, 136
- direction
 - DL_ArcAlignedTextData, 13
- dirx
 - DL_MTextData, 143
- diry
 - DL_MTextData, 143
- dirz
 - DL_MTextData, 143
- DL_ArcAlignedTextData, 11
 - alignment, 12
 - arcHandle, 12
 - bold, 12
 - characerSet, 12
 - cx, 12
 - cy, 12
 - cz, 13
 - direction, 13
 - endAngle, 13
 - font, 13
 - height, 13
 - italic, 13
 - leftOffset, 14
 - offset, 14
 - pitch, 14
 - radius, 14
 - reversedCharacterOrder, 14
 - rightOffset, 14
 - shxFont, 15
 - side, 15
 - spacing, 15
 - startAngle, 15
 - style, 15
 - text, 15
 - underline, 16
 - wizard, 16
 - xScaleFactor, 16
- DL_ArcData, 16
 - angle1, 17
 - angle2, 17
 - cx, 17
 - cy, 18
 - cz, 18
 - DL_ArcData, 17
 - radius, 18
- DL_AttributeData, 18
 - DL_AttributeData, 20
 - tag, 20
- DL_Attributes, 20
 - DL_Attributes, 21, 22
 - getColor, 22
 - getColor24, 22
 - getLayer, 23
 - getLinetype, 23
 - getWidth, 23
 - setColor, 23
 - setColor24, 24
 - setLayer, 24
 - setLinetype, 24
- DL_BlockData, 25
 - DL_BlockData, 25
 - flags, 26
- DL_CircleData, 26
 - cx, 27
 - cy, 27
 - cz, 27
 - DL_CircleData, 26
 - radius, 27
- DL_Codes, 27
- DL_ControlPointData, 28
 - DL_ControlPointData, 29
 - w, 29
 - x, 29
 - y, 29
 - z, 29
- DL_CreationAdapter, 30
 - add3dFace, 33
 - addArc, 33
 - addArcAlignedText, 33
 - addAttribute, 33
 - addBlock, 34
 - addCircle, 34
 - addComment, 34
 - addControlPoint, 34
 - addDictionary, 34
 - addDictionaryEntry, 35
 - addDimAlign, 35
 - addDimAngular, 35
 - addDimAngular3P, 35
 - addDimDiametric, 35
 - addDimLinear, 36

- addDimOrdinate, 36
- addDimRadial, 36
- addEllipse, 36
- addFitPoint, 36
- addHatch, 37
- addHatchEdge, 37
- addHatchLoop, 37
- addImage, 37
- addInsert, 37
- addKnot, 37
- addLayer, 38
- addLeader, 38
- addLeaderVertex, 38
- addLine, 38
- addLinetype, 38
- addLinetypeDash, 38
- addMText, 39
- addMTextChunk, 39
- addPoint, 39
- addPolyline, 39
- addRay, 39
- addSolid, 40
- addSpline, 40
- addText, 40
- addTextStyle, 40
- addTrace, 40
- addVertex, 40
- addXDataApp, 41
- addXDataInt, 41
- addXDataReal, 41
- addXDataString, 41
- addXLine, 41
- addXRecord, 42
- addXRecordBool, 42
- addXRecordInt, 42
- addXRecordReal, 42
- addXRecordString, 42
- endBlock, 43
- endEntity, 43
- endSection, 43
- endSequence, 43
- linkImage, 43
- processCodeValuePair, 44
- setVariableDouble, 44
- setVariableInt, 44
- setVariableString, 44
- setVariableVector, 45
- DL_CreationInterface, 45
 - add3dFace, 49
 - addArc, 49
 - addArcAlignedText, 49
 - addAttribute, 49
 - addBlock, 49
 - addCircle, 50
 - addComment, 50
 - addControlPoint, 50
 - addDictionary, 50
 - addDictionaryEntry, 51
 - addDimAlign, 51
 - addDimAngular, 51
 - addDimAngular3P, 51
 - addDimDiametric, 52
 - addDimLinear, 52
 - addDimOrdinate, 52
 - addDimRadial, 52
 - addEllipse, 53
 - addFitPoint, 53
 - addHatch, 53
 - addHatchEdge, 53
 - addHatchLoop, 53
 - addImage, 54
 - addInsert, 54
 - addKnot, 54
 - addLayer, 54
 - addLeader, 54
 - addLeaderVertex, 55
 - addLine, 55
 - addLinetype, 55
 - addLinetypeDash, 55
 - addMText, 55
 - addMTextChunk, 56
 - addPoint, 56
 - addPolyline, 56
 - addRay, 56
 - addSolid, 56
 - addSpline, 57
 - addText, 57
 - addTextStyle, 57
 - addTrace, 57
 - addVertex, 57
 - addXDataApp, 58
 - addXDataInt, 58
 - addXDataReal, 58
 - addXDataString, 58
 - addXLine, 59
 - addXRecord, 59
 - addXRecordBool, 59
 - addXRecordInt, 59
 - addXRecordReal, 60
 - addXRecordString, 60
 - endBlock, 60
 - endEntity, 60
 - endSection, 61
 - endSequence, 61
 - getAttributes, 61
 - getExtrusion, 61
 - linkImage, 61
 - processCodeValuePair, 62
 - setVariableDouble, 62
 - setVariableInt, 62
 - setVariableString, 62
 - setVariableVector, 63
- DL_DictionaryData, 63
- DL_DictionaryEntryData, 64
- DL_DimAlignedData, 64
 - DL_DimAlignedData, 65

- epx1, 65
- epx2, 65
- epy1, 65
- epy2, 66
- epz1, 66
- epz2, 66
- DL_DimAngular2LData, 66
 - DL_DimAngular2LData, 67
 - dpx1, 67
 - dpx2, 67
 - dpx3, 68
 - dpx4, 68
 - dpy1, 68
 - dpy2, 68
 - dpy3, 68
 - dpy4, 68
 - dpz1, 69
 - dpz2, 69
 - dpz3, 69
 - dpz4, 69
- DL_DimAngular3PData, 69
 - DL_DimAngular3PData, 70
 - dpx1, 70
 - dpx2, 70
 - dpx3, 70
 - dpy1, 71
 - dpy2, 71
 - dpy3, 71
 - dpz1, 71
 - dpz2, 71
 - dpz3, 71
- DL_DimDiametricData, 72
 - DL_DimDiametricData, 72
 - dpx, 73
 - dpy, 73
 - dpz, 73
 - leader, 73
- DL_DimensionData, 73
 - attachmentPoint, 75
 - DL_DimensionData, 74
 - dpx, 75
 - dpy, 75
 - dpz, 75
 - lineSpacingFactor, 75
 - lineSpacingStyle, 75
 - mpx, 76
 - mpy, 76
 - mpz, 76
 - style, 76
 - text, 76
 - type, 76
- DL_DimLinearData, 77
 - angle, 78
 - DL_DimLinearData, 78
 - dpx1, 78
 - dpx2, 78
 - dpy1, 78
 - dpy2, 79
 - dpz1, 79
 - dpz2, 79
 - oblique, 79
- DL_DimOrdinateData, 79
 - DL_DimOrdinateData, 80
 - dpx1, 80
 - dpx2, 80
 - dpy1, 81
 - dpy2, 81
 - dpz1, 81
 - dpz2, 81
 - xtype, 81
- DL_DimRadialData, 82
 - DL_DimRadialData, 82
 - dpx, 82
 - dpy, 82
 - dpz, 83
 - leader, 83
- DL_Dxf, 83
 - addAttribute, 89
 - addSolid, 89
 - addTrace, 89
 - checkVariable, 89
 - getDimData, 90
 - getLibVersion, 90
 - getStrippedLine, 90
 - in, 91
 - out, 92
 - processDXFGroup, 92
 - readDxfGroups, 93
 - stripWhiteSpace, 93
 - test, 94
 - write3dFace, 94
 - writeAppid, 94
 - writeArc, 95
 - writeBlockRecord, 95
 - writeCircle, 95
 - writeControlPoint, 95
 - writeDimAligned, 96
 - writeDimAngular2L, 96
 - writeDimAngular3P, 97
 - writeDimDiametric, 97
 - writeDimLinear, 98
 - writeDimOrdinate, 98
 - writeDimRadial, 98
 - writeDimStyle, 99
 - writeEllipse, 99
 - writeEndBlock, 99
 - writeFitPoint, 100
 - writeHatch1, 100
 - writeHatch2, 100
 - writeHatchEdge, 101
 - writeHatchLoop1, 101
 - writeHatchLoop2, 101
 - writeImage, 102
 - writeInsert, 102
 - writeKnot, 102
 - writeLayer, 103

- writeLeader, 103
- writeLeaderVertex, 103
- writeLine, 104
- writeLinetype, 104
- writeMText, 104
- writeObjects, 105
- writeObjectsEnd, 105
- writePoint, 105
- writePolyline, 105
- writePolylineEnd, 106
- writeRay, 106
- writeSolid, 106
- writeSpline, 107
- writeStyle, 107
- writeText, 107
- writeTrace, 108
- writeUcs, 108
- writeVertex, 108
- writeView, 109
- writeVPort, 109
- writeXLine, 109
- DL_EllipseData, 110
 - angle1, 111
 - angle2, 111
 - cx, 111
 - cy, 111
 - cz, 111
 - DL_EllipseData, 110
 - mx, 111
 - my, 111
 - mz, 112
 - ratio, 112
- DL_Exception, 112
- DL_Extrusion, 113
 - DL_Extrusion, 113
 - getDirection, 114
 - getElevation, 114
- DL_FitPointData, 114
 - DL_FitPointData, 115
 - x, 115
 - y, 115
 - z, 115
- DL_GroupCodeExc, 116
- DL_HatchData, 116
 - angle, 117
 - DL_HatchData, 117
 - numLoops, 117
 - originX, 117
 - pattern, 117
 - scale, 118
 - solid, 118
- DL_HatchEdgeData, 118
 - angle1, 121
 - angle2, 121
 - ccw, 121
 - cx, 121
 - cy, 121
 - degree, 121
 - DL_HatchEdgeData, 119, 120
 - mx, 121
 - my, 122
 - nControl, 122
 - nFit, 122
 - nKnots, 122
 - radius, 122
 - ratio, 122
 - type, 123
 - x1, 123
 - x2, 123
 - y1, 123
 - y2, 123
- DL_HatchLoopData, 124
 - DL_HatchLoopData, 124
 - numEdges, 124
- DL_ImageData, 125
 - brightness, 126
 - contrast, 126
 - DL_ImageData, 125
 - fade, 126
 - height, 126
 - ipx, 126
 - ipy, 126
 - ipz, 126
 - ref, 127
 - ux, 127
 - uy, 127
 - uz, 127
 - vx, 127
 - vy, 127
 - vz, 128
 - width, 128
- DL_ImageDefData, 128
 - DL_ImageDefData, 129
 - file, 129
 - ref, 129
- DL_InsertData, 129
 - angle, 130
 - cols, 130
 - colSp, 131
 - DL_InsertData, 130
 - ipx, 131
 - ipy, 131
 - ipz, 131
 - name, 131
 - rows, 131
 - rowSp, 132
 - sx, 132
 - sy, 132
 - sz, 132
- DL_KnotData, 132
 - DL_KnotData, 133
 - k, 133
- DL_LayerData, 133
 - DL_LayerData, 134
 - flags, 134
- DL_LeaderData, 135

- arrowHeadFlag, 136
- dimScale, 136
- DL_LeaderData, 135
- hooklineDirectionFlag, 136
- hooklineFlag, 136
- leaderCreationFlag, 136
- leaderPathType, 136
- number, 136
- textAnnotationHeight, 137
- textAnnotationWidth, 137
- DL_LeaderVertexData, 137
 - DL_LeaderVertexData, 138
 - x, 138
 - y, 138
 - z, 138
- DL_LineData, 139
 - DL_LineData, 139
 - x1, 139
 - x2, 139
 - y1, 140
 - y2, 140
 - z1, 140
 - z2, 140
- DL_LinetypeData, 140
 - DL_LinetypeData, 141
- DL_MTextData, 141
 - angle, 143
 - attachmentPoint, 143
 - dirx, 143
 - diry, 143
 - dirz, 143
 - DL_MTextData, 142
 - drawingDirection, 143
 - height, 143
 - ipx, 144
 - ipy, 144
 - ipz, 144
 - lineSpacingFactor, 144
 - lineSpacingStyle, 144
 - style, 144
 - text, 145
 - width, 145
- DL_NullStrExc, 145
- DL_PointData, 146
 - DL_PointData, 146
 - x, 146
 - y, 146
 - z, 147
- DL_PolylineData, 147
 - DL_PolylineData, 148
 - elevation, 148
 - flags, 148
 - m, 148
 - n, 148
 - number, 148
- DL_RayData, 149
 - bx, 150
 - by, 150
 - bz, 150
 - DL_RayData, 149
 - dx, 150
 - dy, 150
 - dz, 150
- DL_SplineData, 151
 - degree, 152
 - DL_SplineData, 151
 - flags, 152
 - nControl, 152
 - nFit, 152
 - nKnots, 152
- DL_StyleData, 153
- DL_TextData, 154
 - angle, 155
 - apx, 155
 - apy, 155
 - apz, 155
 - DL_TextData, 155
 - height, 156
 - hJustification, 156
 - ipx, 156
 - ipy, 156
 - ipz, 156
 - style, 156
 - text, 157
 - textGenerationFlags, 157
 - vJustification, 157
 - xScaleFactor, 157
- DL_TraceData, 158
 - DL_TraceData, 158
 - thickness, 159
 - x, 159
- DL_VertexData, 159
 - bulge, 160
 - DL_VertexData, 160
 - x, 160
 - y, 160
 - z, 160
- DL_Writer, 161
 - comment, 163
 - DL_Writer, 163
 - dxfBool, 163
 - dxfEOF, 163
 - dxfHex, 164
 - dxflnt, 164
 - dxflReal, 164
 - dxflString, 165
 - entity, 165
 - entityAttributes, 165
 - getNextHandle, 166
 - section, 166
 - sectionBlockEntry, 166
 - sectionBlockEntryEnd, 167
 - sectionBlocks, 167
 - sectionClasses, 167
 - sectionEnd, 167
 - sectionEntities, 168

- sectionHeader, 168
 - sectionObjects, 168
 - sectionTables, 168
 - table, 169
 - tableAppid, 169
 - tableAppidEntry, 169
 - tableEnd, 170
 - tableLayerEntry, 170
 - tableLayers, 170
 - tableLinetypeEntry, 170
 - tableLinetypes, 171
 - tableStyle, 171
- DL_WriterA, 172
 - dxflHex, 174
 - dxflInt, 174
 - dxflReal, 175
 - dxflString, 175, 176
 - openFailed, 176
- DL_XLineData, 177
 - bx, 177
 - by, 177
 - bz, 178
 - DL_XLineData, 177
 - dx, 178
 - dy, 178
 - dz, 178
- dpx
 - DL_DimDiametricData, 73
 - DL_DimensionData, 75
 - DL_DimRadialData, 82
- dpx1
 - DL_DimAngular2LData, 67
 - DL_DimAngular3PData, 70
 - DL_DimLinearData, 78
 - DL_DimOrdinateData, 80
- dpx2
 - DL_DimAngular2LData, 67
 - DL_DimAngular3PData, 70
 - DL_DimLinearData, 78
 - DL_DimOrdinateData, 80
- dpx3
 - DL_DimAngular2LData, 68
 - DL_DimAngular3PData, 70
- dpx4
 - DL_DimAngular2LData, 68
- dpy
 - DL_DimDiametricData, 73
 - DL_DimensionData, 75
 - DL_DimRadialData, 82
- dpy1
 - DL_DimAngular2LData, 68
 - DL_DimAngular3PData, 71
 - DL_DimLinearData, 78
 - DL_DimOrdinateData, 81
- dpy2
 - DL_DimAngular2LData, 68
 - DL_DimAngular3PData, 71
 - DL_DimLinearData, 79
- DL_DimOrdinateData, 81
- dpy3
 - DL_DimAngular2LData, 68
 - DL_DimAngular3PData, 71
- dpy4
 - DL_DimAngular2LData, 68
- dpz
 - DL_DimDiametricData, 73
 - DL_DimensionData, 75
 - DL_DimRadialData, 83
- dpz1
 - DL_DimAngular2LData, 69
 - DL_DimAngular3PData, 71
 - DL_DimLinearData, 79
 - DL_DimOrdinateData, 81
- dpz2
 - DL_DimAngular2LData, 69
 - DL_DimAngular3PData, 71
 - DL_DimLinearData, 79
 - DL_DimOrdinateData, 81
- dpz3
 - DL_DimAngular2LData, 69
 - DL_DimAngular3PData, 71
- dpz4
 - DL_DimAngular2LData, 69
- drawingDirection
 - DL_MTextData, 143
- dx
 - DL_RayData, 150
 - DL_XLineData, 178
- dxflBool
 - DL_Writer, 163
- dxflEOF
 - DL_Writer, 163
- dxflHex
 - DL_Writer, 164
 - DL_WriterA, 174
- dxflInt
 - DL_Writer, 164
 - DL_WriterA, 174
- dxflReal
 - DL_Writer, 164
 - DL_WriterA, 175
- dxflString
 - DL_Writer, 165
 - DL_WriterA, 175, 176
- dy
 - DL_RayData, 150
 - DL_XLineData, 178
- dz
 - DL_RayData, 150
 - DL_XLineData, 178
- elevation
 - DL_PolylineData, 148
- endAngle
 - DL_ArcAlignedTextData, 13
- endBlock
 - DL_CreationAdapter, 43

- DL_CreationInterface, 60
- endEntity
 - DL_CreationAdapter, 43
 - DL_CreationInterface, 60
- endSection
 - DL_CreationAdapter, 43
 - DL_CreationInterface, 61
- endSequence
 - DL_CreationAdapter, 43
 - DL_CreationInterface, 61
- entity
 - DL_Writer, 165
- entityAttributes
 - DL_Writer, 165
- epx1
 - DL_DimAlignedData, 65
- epx2
 - DL_DimAlignedData, 65
- epy1
 - DL_DimAlignedData, 65
- epy2
 - DL_DimAlignedData, 66
- epz1
 - DL_DimAlignedData, 66
- epz2
 - DL_DimAlignedData, 66
- fade
 - DL_ImageData, 126
- file
 - DL_ImageDefData, 129
- flags
 - DL_BlockData, 26
 - DL_LayerData, 134
 - DL_PolylineData, 148
 - DL_SplineData, 152
- font
 - DL_ArcAlignedTextData, 13
- getAttributes
 - DL_CreationInterface, 61
- getColor
 - DL_Attributes, 22
- getColor24
 - DL_Attributes, 22
- getDimData
 - DL_Dxf, 90
- getDirection
 - DL_Extrusion, 114
- getElevation
 - DL_Extrusion, 114
- getExtrusion
 - DL_CreationInterface, 61
- getLayer
 - DL_Attributes, 23
- getLibVersion
 - DL_Dxf, 90
- getLinetype
 - DL_Attributes, 23
- getNextHandle
 - DL_Writer, 166
- getStrippedLine
 - DL_Dxf, 90
- getWidth
 - DL_Attributes, 23
- height
 - DL_ArcAlignedTextData, 13
 - DL_ImageData, 126
 - DL_MTextData, 143
 - DL_TextData, 156
- hJustification
 - DL_TextData, 156
- hooklineDirectionFlag
 - DL_LeaderData, 136
- hooklineFlag
 - DL_LeaderData, 136
- in
 - DL_Dxf, 91
- ipx
 - DL_ImageData, 126
 - DL_InsertData, 131
 - DL_MTextData, 144
 - DL_TextData, 156
- ipy
 - DL_ImageData, 126
 - DL_InsertData, 131
 - DL_MTextData, 144
 - DL_TextData, 156
- ipz
 - DL_ImageData, 126
 - DL_InsertData, 131
 - DL_MTextData, 144
 - DL_TextData, 156
- italic
 - DL_ArcAlignedTextData, 13
- k
 - DL_KnotData, 133
- leader
 - DL_DimDiametricData, 73
 - DL_DimRadialData, 83
- leaderCreationFlag
 - DL_LeaderData, 136
- leaderPathType
 - DL_LeaderData, 136
- leftOffset
 - DL_ArcAlignedTextData, 14
- lineSpacingFactor
 - DL_DimensionData, 75
 - DL_MTextData, 144
- lineSpacingStyle
 - DL_DimensionData, 75
 - DL_MTextData, 144
- linkImage
 - DL_CreationAdapter, 43

- DL_CreationInterface, [61](#)
- m
 - DL_PolylineData, [148](#)
- mpx
 - DL_DimensionData, [76](#)
- mpy
 - DL_DimensionData, [76](#)
- mpz
 - DL_DimensionData, [76](#)
- mx
 - DL_EllipseData, [111](#)
 - DL_HatchEdgeData, [121](#)
- my
 - DL_EllipseData, [111](#)
 - DL_HatchEdgeData, [122](#)
- mz
 - DL_EllipseData, [112](#)
- n
 - DL_PolylineData, [148](#)
- name
 - DL_InsertData, [131](#)
- nControl
 - DL_HatchEdgeData, [122](#)
 - DL_SplineData, [152](#)
- nFit
 - DL_HatchEdgeData, [122](#)
 - DL_SplineData, [152](#)
- nKnots
 - DL_HatchEdgeData, [122](#)
 - DL_SplineData, [152](#)
- number
 - DL_LeaderData, [136](#)
 - DL_PolylineData, [148](#)
- numEdges
 - DL_HatchLoopData, [124](#)
- numLoops
 - DL_HatchData, [117](#)
- oblique
 - DL_DimLinearData, [79](#)
- offset
 - DL_ArcAlignedTextData, [14](#)
- openFailed
 - DL_WriterA, [176](#)
- originX
 - DL_HatchData, [117](#)
- out
 - DL_Dxf, [92](#)
- pattern
 - DL_HatchData, [117](#)
- pitch
 - DL_ArcAlignedTextData, [14](#)
- processCodeValuePair
 - DL_CreationAdapter, [44](#)
 - DL_CreationInterface, [62](#)
- processDXFGroup
 - DL_Dxf, [92](#)
- radius
 - DL_ArcAlignedTextData, [14](#)
 - DL_ArcData, [18](#)
 - DL_CircleData, [27](#)
 - DL_HatchEdgeData, [122](#)
- ratio
 - DL_EllipseData, [112](#)
 - DL_HatchEdgeData, [122](#)
- readDxfGroups
 - DL_Dxf, [93](#)
- ref
 - DL_ImageData, [127](#)
 - DL_ImageDefData, [129](#)
- reversedCharacterOrder
 - DL_ArcAlignedTextData, [14](#)
- rightOffset
 - DL_ArcAlignedTextData, [14](#)
- rows
 - DL_InsertData, [131](#)
- rowSp
 - DL_InsertData, [132](#)
- scale
 - DL_HatchData, [118](#)
- section
 - DL_Writer, [166](#)
- sectionBlockEntry
 - DL_Writer, [166](#)
- sectionBlockEntryEnd
 - DL_Writer, [167](#)
- sectionBlocks
 - DL_Writer, [167](#)
- sectionClasses
 - DL_Writer, [167](#)
- sectionEnd
 - DL_Writer, [167](#)
- sectionEntities
 - DL_Writer, [168](#)
- sectionHeader
 - DL_Writer, [168](#)
- sectionObjects
 - DL_Writer, [168](#)
- sectionTables
 - DL_Writer, [168](#)
- setColor
 - DL_Attributes, [23](#)
- setColor24
 - DL_Attributes, [24](#)
- setLayer
 - DL_Attributes, [24](#)
- setLinetype
 - DL_Attributes, [24](#)
- setVariableDouble
 - DL_CreationAdapter, [44](#)
 - DL_CreationInterface, [62](#)
- setVariableInt
 - DL_CreationAdapter, [44](#)

- DL_CreationInterface, [62](#)
- setVariableString
 - DL_CreationAdapter, [44](#)
 - DL_CreationInterface, [62](#)
- setVariableVector
 - DL_CreationAdapter, [45](#)
 - DL_CreationInterface, [63](#)
- shxFont
 - DL_ArcAlignedTextData, [15](#)
- side
 - DL_ArcAlignedTextData, [15](#)
- solid
 - DL_HatchData, [118](#)
- spacing
 - DL_ArcAlignedTextData, [15](#)
- src/dl_attributes.h, [179](#)
- src/dl_codes.h, [181](#)
- src/dl_creationadapter.h, [187](#)
- src/dl_creationinterface.h, [189](#)
- src/dl_dxf.h, [191](#)
- src/dl_entities.h, [197](#)
- src/dl_exception.h, [210](#)
- src/dl_extrusion.h, [211](#)
- src/dl_global.h, [212](#)
- src/dl_writer.h, [212](#)
- src/dl_writer_ascii.h, [216](#)
- startAngle
 - DL_ArcAlignedTextData, [15](#)
- stripWhiteSpace
 - DL_Dxf, [93](#)
- style
 - DL_ArcAlignedTextData, [15](#)
 - DL_DimensionData, [76](#)
 - DL_MTextData, [144](#)
 - DL_TextData, [156](#)
- sx
 - DL_InsertData, [132](#)
- sy
 - DL_InsertData, [132](#)
- sz
 - DL_InsertData, [132](#)
- table
 - DL_Writer, [169](#)
- tableAppid
 - DL_Writer, [169](#)
- tableAppidEntry
 - DL_Writer, [169](#)
- tableEnd
 - DL_Writer, [170](#)
- tableLayerEntry
 - DL_Writer, [170](#)
- tableLayers
 - DL_Writer, [170](#)
- tableLinetypeEntry
 - DL_Writer, [170](#)
- tableLinetypes
 - DL_Writer, [171](#)
- tableStyle
 - DL_Writer, [171](#)
- tag
 - DL_AttributeData, [20](#)
- test
 - DL_Dxf, [94](#)
- text
 - DL_ArcAlignedTextData, [15](#)
 - DL_DimensionData, [76](#)
 - DL_MTextData, [145](#)
 - DL_TextData, [157](#)
- textAnnotationHeight
 - DL_LeaderData, [137](#)
- textAnnotationWidth
 - DL_LeaderData, [137](#)
- textGenerationFlags
 - DL_TextData, [157](#)
- thickness
 - DL_TraceData, [159](#)
- Todo List, [1](#)
- type
 - DL_DimensionData, [76](#)
 - DL_HatchEdgeData, [123](#)
- underline
 - DL_ArcAlignedTextData, [16](#)
- ux
 - DL_ImageData, [127](#)
- uy
 - DL_ImageData, [127](#)
- uz
 - DL_ImageData, [127](#)
- vJustification
 - DL_TextData, [157](#)
- vx
 - DL_ImageData, [127](#)
- vy
 - DL_ImageData, [127](#)
- vz
 - DL_ImageData, [128](#)
- w
 - DL_ControlPointData, [29](#)
- width
 - DL_ImageData, [128](#)
 - DL_MTextData, [145](#)
- wizard
 - DL_ArcAlignedTextData, [16](#)
- write3dFace
 - DL_Dxf, [94](#)
- writeAppid
 - DL_Dxf, [94](#)
- writeArc
 - DL_Dxf, [95](#)
- writeBlockRecord
 - DL_Dxf, [95](#)
- writeCircle
 - DL_Dxf, [95](#)
- writeControlPoint

- DL_Dxf, [95](#)
- writeDimAligned
 - DL_Dxf, [96](#)
- writeDimAngular2L
 - DL_Dxf, [96](#)
- writeDimAngular3P
 - DL_Dxf, [97](#)
- writeDimDiametric
 - DL_Dxf, [97](#)
- writeDimLinear
 - DL_Dxf, [98](#)
- writeDimOrdinate
 - DL_Dxf, [98](#)
- writeDimRadial
 - DL_Dxf, [98](#)
- writeDimStyle
 - DL_Dxf, [99](#)
- writeEllipse
 - DL_Dxf, [99](#)
- writeEndBlock
 - DL_Dxf, [99](#)
- writeFitPoint
 - DL_Dxf, [100](#)
- writeHatch1
 - DL_Dxf, [100](#)
- writeHatch2
 - DL_Dxf, [100](#)
- writeHatchEdge
 - DL_Dxf, [101](#)
- writeHatchLoop1
 - DL_Dxf, [101](#)
- writeHatchLoop2
 - DL_Dxf, [101](#)
- writeImage
 - DL_Dxf, [102](#)
- writeInsert
 - DL_Dxf, [102](#)
- writeKnot
 - DL_Dxf, [102](#)
- writeLayer
 - DL_Dxf, [103](#)
- writeLeader
 - DL_Dxf, [103](#)
- writeLeaderVertex
 - DL_Dxf, [103](#)
- writeLine
 - DL_Dxf, [104](#)
- writeLinetype
 - DL_Dxf, [104](#)
- writeMText
 - DL_Dxf, [104](#)
- writeObjects
 - DL_Dxf, [105](#)
- writeObjectsEnd
 - DL_Dxf, [105](#)
- writePoint
 - DL_Dxf, [105](#)
- writePolyline
 - DL_Dxf, [105](#)
- writePolylineEnd
 - DL_Dxf, [106](#)
- writeRay
 - DL_Dxf, [106](#)
- writeSolid
 - DL_Dxf, [106](#)
- writeSpline
 - DL_Dxf, [107](#)
- writeStyle
 - DL_Dxf, [107](#)
- writeText
 - DL_Dxf, [107](#)
- writeTrace
 - DL_Dxf, [108](#)
- writeUcs
 - DL_Dxf, [108](#)
- writeVertex
 - DL_Dxf, [108](#)
- writeView
 - DL_Dxf, [109](#)
- writeVPort
 - DL_Dxf, [109](#)
- writeXLine
 - DL_Dxf, [109](#)
- x
 - DL_ControlPointData, [29](#)
 - DL_FitPointData, [115](#)
 - DL_LeaderVertexData, [138](#)
 - DL_PointData, [146](#)
 - DL_TraceData, [159](#)
 - DL_VertexData, [160](#)
- x1
 - DL_HatchEdgeData, [123](#)
 - DL_LineData, [139](#)
- x2
 - DL_HatchEdgeData, [123](#)
 - DL_LineData, [139](#)
- xScaleFactor
 - DL_ArcAlignedTextData, [16](#)
 - DL_TextData, [157](#)
- xtype
 - DL_DimOrdinateData, [81](#)
- y
 - DL_ControlPointData, [29](#)
 - DL_FitPointData, [115](#)
 - DL_LeaderVertexData, [138](#)
 - DL_PointData, [146](#)
 - DL_VertexData, [160](#)
- y1
 - DL_HatchEdgeData, [123](#)
 - DL_LineData, [140](#)
- y2
 - DL_HatchEdgeData, [123](#)
 - DL_LineData, [140](#)
- z

- DL_ControlPointData, [29](#)
- DL_FitPointData, [115](#)
- DL_LeaderVertexData, [138](#)
- DL_PointData, [147](#)
- DL_VertexData, [160](#)
- z1
 - DL_LineData, [140](#)
- z2
 - DL_LineData, [140](#)