

3DLDF 2.0 User Manual

3-dimensional drawing with MetaPost output.
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3DLDF User Manual, edition 2.0.

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1 Introduction

This manual documents 3DLDF 2.0. The most important difference between release 2.0 and previous releases is that 3DLDF 2.0 is an *interactive* program, whereas in previous releases, 3DLDF was more like a *library* of C++ functions that users could use in their own programs to make drawings.

Now, 3DLDF implements a *language* similar to the METAFONT language, and in particular the MetaPost language derived from it.

For several years, interactive versions of 3DLDF have been available for downloading from the Savannah website: <https://savannah.gnu.org/projects/3dldf/>. However, 2.0 is the first release that includes this feature.

One result of this is that the old manual for releases through 1.1.5.1 is largely obsolete, as far as the usage of 3DLDF is concerned. The reference sections, documenting the classes, functions, etc., are still usable for those who want to know the details of how the program works, though many descriptions may be out-of-date because of changes made in the meantime. On the other hand, the reference sections are longer needed for just using the program. The old manual is included in the distribution in the directory 3DLDF-2.0/doc/old_doc/.

The code for *scanning* and *parsing*, i.e., that which implements the *interpreter* that makes the program interactive, is of course not documented in the old manual at all.

To document the new, interactive version of 3DLDF, it would therefore be necessary to write a completely new manual. Unfortunately, it has not been possible for the author to do this, which is the main reason that there has been no new release for so many years. In order not to delay it any longer, he has decided to make a release without rewriting the manual, although this is clearly not ideal.

As a partial substitute, release 2.0 contains the directory 3DLDF-2.0/examples/ with many examples which can be used to learn how to use the 3DLDF language. In addition, the directory 3DLDF-2.0/src/ contains the files `sample.ldf`, `sample0.ldf`, `sample1.ldf` and `sample2.ldf`.

2 Installation

3 Invoking

Command-line options:

- `--bison-trace`
Prints information generated by GNU Bison for tracing which parser rules are reduced and the state of the Bison stack.
- `--multithread-input`
Enables the use of multiple threads for input.
- `--multithread-output`
Enables the use of multiple threads for output.
- `--multithread-include`
Enables the use of multiple threads for input files included in other input files.
- `--silent` Suppresses almost all output to standard output and standard error.
- `--quiet` Suppresses some output to standard output and standard error.
- `--verbose`
Causes status information to be printed to standard output.
- `--help` Prints a help message and exits.
- `--version`
Prints version information and exits.

4 Getting Started

5 Data Types

5.1 Numeric types

`numeric` Integers and floating point numbers.

`boolean` `true` or `false`

`ulong_long`
Unsigned long long integers. Corresponds to the C type `unsigned long long int`.

`complex` Complex number.

`matrix` Matrix.

5.2 Types for drawing and labeling:

`transform`
Transformation matrix.

`focus` Focus for the *perspective projection*.

`pen`
`dash_pattern`
`color`
`string`

5.3 Shape types

point
path
circle
circle_slice
arc
cone
conic_section_lattice
cuboid
cylinder
ellipse_slice
ellipse
ellipsoid
glyph
helix
hyperbola
parabola
paraboloid
polygon
polyhedron_slice
polyhedron
rectangle
reg_polygon
sphere
sphere_development
triangle

5.4 Combined types

bool_point

5.5 Other types

plane
nurb
origami_figure

5.6 Vector types

Vector types (alphabetical):

arc_vector
boolean_vector
bool_point_vector
circle_slice_vector
circle_vector
color_vector
complex_vector
cone_vector
conic_section_lattice_vector
cuboid_vector
cylinder_vector
dash_pattern_vector
ellipse_slice_vector
ellipse_vector
ellipsoid_vector
focus_vector
glyph_vector
helix_vector
hyperbola_vector
macro_vector
matrix_vector
numeric_vector
nurb_vector
origami_figure_vector
parabola_vector
paraboloid_vector
path_vector
pen_vector
picture_vector
plane_vector
point_vector
polygon_vector
polyhedron_slice_vector
polyhedron_vector
rectangle_vector
reg_polygon_vector
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sphere_vector
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transform_vector
triangle_vector
ulong_long_vector

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