

# The Plotting Reference Manual

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Common Lisp Vega Plotting, version 1.0.0

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# 1 Systems

The main system appears first, followed by any subsystem dependency.

## 1.1 plot

A plotting system for Common Lisp

### Long Name

Common Lisp Vega Plotting

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### Home Page

<https://lisp-stat.dev/docs/tasks/plotting/>

### Source Control

(GIT <https://github.com/Lisp-Stat/plot.git>)

### Bug Tracker

<https://github.com/Lisp-Stat/plot/issues>

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### Long Description

Plot is a general front end for describing plots. The front end handles interaction with the display, a local window or a browser, and backends handle the rendering. There are backends for Vega and Vega-Lite, as well as text.

**Version** 1.0.0

### Dependencies

- `cl-ppcre` (system).
- `alexandria` (system).
- `alexandria+` (system).
- `data-frame` (system).

**Source** `[plot.asd]`, page 5.

### Child Components

- `[pkgdcl.lisp]`, page 5 (file).
- `[init.lisp]`, page 5 (file).
- `[browser.lisp]`, page 5 (file).
- `[plot.lisp]`, page 6 (file).





## 2 Files

Files are sorted by type and then listed depth-first from the systems components trees.

### 2.1 Lisp

#### 2.1.1 plot/plot.asd

**Source** [plot.asd], page 5.

**Parent Component**  
[plot], page 3 (system).

**ASDF Systems**  
[plot], page 3.

#### 2.1.2 plot/pkgdcl.lisp

**Source** [plot.asd], page 5.

**Parent Component**  
[plot], page 3 (system).

**Packages** [plot], page 7.

#### 2.1.3 plot/init.lisp

**Dependency**  
[pkgdcl.lisp], page 5 (file).

**Source** [plot.asd], page 5.

**Parent Component**  
[plot], page 3 (system).

#### 2.1.4 plot/browser.lisp

**Dependency**  
[init.lisp], page 5 (file).

**Source** [plot.asd], page 5.

**Parent Component**  
[plot], page 3 (system).

#### Public Interface

- [\*browser-commands\*], page 9 (special variable).
- [\*default-browser-command\*], page 9 (special variable).
- [\*default-browser-options\*], page 9 (special variable).

#### Internals

- [%print-alist], page 11 (function).
- [\*default-chrome-options\*], page 11 (special variable).
- [encode-application-options], page 11 (function).
- [encode-chrome-options], page 11 (function).
- [set-chrome-size], page 11 (function).

### 2.1.5 plot/plot.lisp

**Dependency**

[browser.lisp], page 5 (file).

**Source** [plot.asd], page 5.

**Parent Component**

[plot], page 3 (system).

**Public Interface**

- [plot], page 10 (class).
- [plot-data], page 9 (reader method).
- [(setf plot-data)], page 9 (writer method).
- [plot-from-file], page 9 (function).
- [plot-name], page 10 (reader method).
- [(setf plot-name)], page 10 (writer method).
- [plot-spec], page 10 (reader method).
- [(setf plot-spec)], page 10 (writer method).

**Internals**

- [make-plot], page 11 (function).
- [write-plot], page 12 (generic function).

## 3 Packages

Packages are listed by definition order.

### 3.1 plot

Functionality common to all plotting. The plot class is defined here, with each backend subclassing it. Functions for interacting with display systems, like the browser or Electron/Webview are also defined here

**Source** [pkgdcl.lisp], page 5.

#### Use List

- alexandria.
- alexandria+.
- common-lisp.

#### Public Interface

- [\*browser-commands\*], page 9 (special variable).
- [\*default-browser-command\*], page 9 (special variable).
- [\*default-browser-options\*], page 9 (special variable).
- [plot], page 10 (class).
- [plot-data], page 9 (generic reader).
- [(setf plot-data)], page 9 (generic writer).
- [plot-from-file], page 9 (function).
- [plot-name], page 9 (generic reader).
- [(setf plot-name)], page 10 (generic writer).
- [plot-spec], page 10 (generic reader).
- [(setf plot-spec)], page 10 (generic writer).

#### Internals

- [%print-alist], page 11 (function).
- [\*default-chrome-options\*], page 11 (special variable).
- [encode-application-options], page 11 (function).
- [encode-chrome-options], page 11 (function).
- [make-plot], page 11 (function).
- [set-chrome-size], page 11 (function).
- [write-plot], page 12 (generic function).



## 4 Definitions

Definitions are sorted by export status, category, package, and then by lexicographic order.

### 4.1 Public Interface

#### 4.1.1 Special variables

**\*browser-commands\*** [Special Variable]

**Package** [plot], page 7.

**Source** [browser.lisp], page 5.

**\*default-browser-command\*** [Special Variable]

**Package** [plot], page 7.

**Source** [browser.lisp], page 5.

**\*default-browser-options\*** [Special Variable]

**Package** [plot], page 7.

**Source** [browser.lisp], page 5.

#### 4.1.2 Ordinary functions

**plot-from-file** (*filespec* &key *browser browser-options*) [Function]

Open FILESPEC with browser. FILESPEC must be displayable by the browser, e.g. HTML.

**Package** [plot], page 7.

**Source** [plot.lisp], page 6.

#### 4.1.3 Generic functions

**plot-data** (*object*) [Generic Reader]

**(setf plot-data)** (*object*) [Generic Writer]

**Package** [plot], page 7.

**Methods**

**plot-data** ((*plot* [plot], page 10)) [Reader Method]

**(setf plot-data)** ((*plot* [plot], page 10)) [Writer Method]

A DATA-FRAME OR PLIST of key/column pairs. Internally, a PLIST will be converted to a DATA-FRAME by the rendering functions. A PLIST can sometimes be more convenient for ad-hoc plotting.

**Source** [plot.lisp], page 6.

**Target Slot**

[data], page 11.

**plot-name** (*object*) [Generic Reader]

**Package** [plot], page 7.

**Methods**

<code>plot-name</code> ( <i>((plot [plot], page 10))</i> )	[Reader Method]
automatically generated reader method	
<b>Source</b> [plot.lisp], page 6.	
<b>Target Slot</b>	
[name], page 10.	
<code>(setf plot-name) (object)</code>	[Generic Writer]
<b>Package</b> [plot], page 7.	
<b>Methods</b>	
<code>(setf plot-name) ((plot [plot], page 10))</code>	[Writer Method]
automatically generated writer method	
<b>Source</b> [plot.lisp], page 6.	
<b>Target Slot</b>	
[name], page 10.	
<code>plot-spec (object)</code>	[Generic Reader]
<code>(setf plot-spec) (object)</code>	[Generic Writer]
<b>Package</b> [plot], page 7.	
<b>Methods</b>	
<code>plot-spec ((plot [plot], page 10))</code>	[Reader Method]
<code>(setf plot-spec) ((plot [plot], page 10))</code>	[Writer Method]
The plot specification in PLIST format. The PLIST is passed to YASON for encoding to the backend specific JSON. See the file encode.lisp in the Vega backend for examples of how this is done.	
<b>Source</b> [plot.lisp], page 6.	
<b>Target Slot</b>	
[spec], page 11.	

#### 4.1.4 Classes

<code>plot</code>	[Class]
Base class for plots	
<b>Package</b> [plot], page 7.	
<b>Source</b> [plot.lisp], page 6.	
<b>Direct methods</b>	
<ul style="list-style-type: none"> <li>• [(setf plot-data)], page 9.</li> <li>• [plot-data], page 9.</li> <li>• [(setf plot-name)], page 10.</li> <li>• [plot-name], page 10.</li> <li>• [(setf plot-spec)], page 10.</li> <li>• [plot-spec], page 10.</li> </ul>	
<b>Direct slots</b>	
<b>name</b>	[Slot]
<b>Initargs</b> :name	
<b>Readers</b> [plot-name], page 10.	
<b>Writers</b> [(setf plot-name)], page 10.	

<b>data</b>	[Slot]
A DATA-FRAME OR PLIST of key/column pairs. Internally, a PLIST will be converted to a DATA-FRAME by the rendering functions. A PLIST can sometimes be more convenient for ad-hoc plotting.	
<b>Initargs</b>	:data
<b>Readers</b>	[plot-data], page 9.
<b>Writers</b>	[(setf plot-data)], page 9.
<b>spec</b>	[Slot]
The plot specification in PLIST format. The PLIST is passed to YASON for encoding to the backend specific JSON. See the file encode.lisp in the Vega backend for examples of how this is done.	
<b>Initargs</b>	:spec
<b>Readers</b>	[plot-spec], page 10.
<b>Writers</b>	[(setf plot-spec)], page 10.

## 4.2 Internals

### 4.2.1 Special variables

<b>*default-chrome-options*</b>	[Special Variable]
<b>Package</b>	[plot], page 7.
<b>Source</b>	[browser.lisp], page 5.

### 4.2.2 Ordinary functions

<b>%print-alist</b> ( <i>stream data &amp;rest args</i> )	[Function]
<b>Package</b>	[plot], page 7.
<b>Source</b>	[browser.lisp], page 5.
<b>encode-application-options</b> ( <i>options arg-format</i> )	[Function]
Turns OPTIONS, an alist, into a command line argument list according to ARG-FORMAT	
<b>Package</b>	[plot], page 7.
<b>Source</b>	[browser.lisp], page 5.
<b>encode-chrome-options</b> ( <i>options</i> )	[Function]
Encode command line options for Chrome	
<b>Package</b>	[plot], page 7.
<b>Source</b>	[browser.lisp], page 5.
<b>make-plot</b> ( <i>name &amp;optional data spec</i> )	[Function]
Plot constructor	
<b>Package</b>	[plot], page 7.
<b>Source</b>	[plot.lisp], page 6.
<b>set-chrome-size</b> ( <i>size</i> )	[Function]
Set the windows size in *default-browser-options*	
<b>Package</b>	[plot], page 7.
<b>Source</b>	[browser.lisp], page 5.

### 4.2.3 Generic functions

**write-plot** (*plot device*) [Generic Function]

Write PLOT to DEVICE

May not be immediately visible to the user, depending on the device.

A device could be a webserver, where a PUT operation would write the plot, locations on disk, a github gist, etc.

**Package** [plot], page 7.

**Source** [plot.lisp], page 6.



## Appendix A Indexes

### A.1 Concepts

(Index is nonexistent)

## A.2 Functions

### %

`%print-alist` ..... 11

### (

`(setf plot-data)` ..... 9

`(setf plot-name)` ..... 10

`(setf plot-spec)` ..... 10

### E

`encode-application-options` ..... 11

`encode-chrome-options` ..... 11

### F

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Function, `encode-application-options` ..... 11

Function, `encode-chrome-options` ..... 11

Function, `make-plot` ..... 11

Function, `plot-from-file` ..... 9

Function, `set-chrome-size` ..... 11

### G

Generic Function, `(setf plot-data)` ..... 9

Generic Function, `(setf plot-name)` ..... 10

Generic Function, `(setf plot-spec)` ..... 10

Generic Function, `plot-data` ..... 9

Generic Function, `plot-name` ..... 9

Generic Function, `plot-spec` ..... 10

Generic Function, `write-plot` ..... 12

### M

`make-plot` ..... 11

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Method, `(setf plot-name)` ..... 10

Method, `(setf plot-spec)` ..... 10

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Method, `plot-name` ..... 10

Method, `plot-spec` ..... 10

### P

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`plot-spec` ..... 10

### S

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### W

`write-plot` ..... 12

## A.3 Variables

### \*

<code>*browser-commands*</code> .....	9
<code>*default-browser-command*</code> .....	9
<code>*default-browser-options*</code> .....	9
<code>*default-chrome-options*</code> .....	11

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### N

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<code>spec</code> .....	11
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## A.4 Data types

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File, plot.lisp ..... 6

### I

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### S

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