

## NAME

perl - Practical Extraction and Report Language

## SYNOPSIS

```
perl [-sTtuUWX] [-hv] [-V[:configvar]] [-cw] [-d[t][:debugger]] [-D[number/list]] [-pna] [-F
pattern] [-I[octal]] [-O[octal/hexadecimal]] [-ldir] [-m[-]module] [-M[-]'module...'] [-f] [-C [
number/list]] [-P] [-S] [-x[dir]] [-i[extension]] [-e 'command'] [--] [programfile] [argument]...
```

If you're new to Perl, you should start with *perlintro*, which is a general intro for beginners and provides some background to help you navigate the rest of Perl's extensive documentation.

For ease of access, the Perl manual has been split up into several sections.

## Overview

```
perl    Perl overview (this section)
perlintro  Perl introduction for beginners
perltoc  Perl documentation table of contents
```

## Tutorials

```
perlreftut  Perl references short introduction
perldsc     Perl data structures intro
perllo1     Perl data structures: arrays of arrays

perlrequick  Perl regular expressions quick start
perlretut   Perl regular expressions tutorial

perlboot    Perl OO tutorial for beginners
perltoot    Perl OO tutorial, part 1
perltooc    Perl OO tutorial, part 2
perlbot     Perl OO tricks and examples

perlstyle   Perl style guide

perlcheat   Perl cheat sheet
perltrap    Perl traps for the unwary
perldebtut  Perl debugging tutorial

perlfaq     Perl frequently asked questions
perlfaq1    General Questions About Perl
perlfaq2    Obtaining and Learning about Perl
perlfaq3    Programming Tools
perlfaq4    Data Manipulation
perlfaq5    Files and Formats
perlfaq6    Regexes
perlfaq7    Perl Language Issues
perlfaq8    System Interaction
perlfaq9    Networking
```

## Reference Manual

```
perlsyn    Perl syntax
perldata   Perl data structures
perlprep   Perl operators and precedence
perlsub    Perl subroutines
```

perlfunc Perl built-in functions  
  perlopentut Perl open() tutorial  
  perlpacktut Perl pack() and unpack() tutorial  
perlpod Perl plain old documentation  
perlpodspec Perl plain old documentation format specification  
perlrun Perl execution and options  
perldiag Perl diagnostic messages  
perllexwarn Perl warnings and their control  
perldebug Perl debugging  
perlvar Perl predefined variables  
perlre Perl regular expressions, the rest of the story  
perlrebackslash Perl regular expression backslash sequences  
perlrecharclass Perl regular expression character classes  
perlref Perl regular expressions quick reference  
perlref Perl references, the rest of the story  
perlform Perl formats  
perlobj Perl objects  
perltye Perl objects hidden behind simple variables  
  perldbmfilter Perl DBM filters

perlipc Perl interprocess communication  
perlfork Perl fork() information  
perlnumber Perl number semantics

perlthrtut Perl threads tutorial  
  perlothrtut Old Perl threads tutorial

perlport Perl portability guide  
perllocale Perl locale support  
perluniintro Perl Unicode introduction  
perlunicode Perl Unicode support  
perlunifaq Perl Unicode FAQ  
perlunitut Perl Unicode tutorial  
perlebcdic Considerations for running Perl on EBCDIC platforms

perlsec Perl security

perlmod Perl modules: how they work  
perlmodlib Perl modules: how to write and use  
perlmodstyle Perl modules: how to write modules with style  
perlmodinstall Perl modules: how to install from CPAN  
perlnewmod Perl modules: preparing a new module for distribution  
perlpragma Perl modules: writing a user pragma

perlutil utilities packaged with the Perl distribution

perlcompile Perl compiler suite intro

perlfilter Perl source filters

perlglossary Perl Glossary

## Internals and C Language Interface

perlembed Perl ways to embed perl in your C or C++ application  
perldebuguts Perl debugging guts and tips  
perlxsut Perl XS tutorial  
perlxs Perl XS application programming interface  
perlclib Internal replacements for standard C library functions  
perlguts Perl internal functions for those doing extensions  
perlcall Perl calling conventions from C  
perlreapi Perl regular expression plugin interface  
perlreguts Perl regular expression engine internals

perlapi Perl API listing (autogenerated)  
perlintern Perl internal functions (autogenerated)  
perliol C API for Perl's implementation of IO in Layers  
perlapiol Perl internal IO abstraction interface

perlhack Perl hackers guide

## Miscellaneous

perlbook Perl book information  
perlcommunity Perl community information  
perlto do Perl things to do

perldoc Look up Perl documentation in Pod format

perlhists Perl history records  
perldelta Perl changes since previous version  
perl595delta Perl changes in version 5.9.5  
perl594delta Perl changes in version 5.9.4  
perl593delta Perl changes in version 5.9.3  
perl592delta Perl changes in version 5.9.2  
perl591delta Perl changes in version 5.9.1  
perl590delta Perl changes in version 5.9.0  
perl588delta Perl changes in version 5.8.8  
perl587delta Perl changes in version 5.8.7  
perl586delta Perl changes in version 5.8.6  
perl585delta Perl changes in version 5.8.5  
perl584delta Perl changes in version 5.8.4  
perl583delta Perl changes in version 5.8.3  
perl582delta Perl changes in version 5.8.2  
perl581delta Perl changes in version 5.8.1  
perl58delta Perl changes in version 5.8.0  
perl573delta Perl changes in version 5.7.3  
perl572delta Perl changes in version 5.7.2  
perl571delta Perl changes in version 5.7.1  
perl570delta Perl changes in version 5.7.0  
perl561delta Perl changes in version 5.6.1  
perl56delta Perl changes in version 5.6  
perl5005delta Perl changes in version 5.005  
perl5004delta Perl changes in version 5.004

perlartistic Perl Artistic License  
perlgpl GNU General Public License

## Language-Specific

```
perlcn  Perl for Simplified Chinese (in EUC-CN)
perljp  Perl for Japanese (in EUC-JP)
perlko  Perl for Korean (in EUC-KR)
perltw  Perl for Traditional Chinese (in Big5)
```

## Platform-Specific

```
perlaix  Perl notes for AIX
perlamiga Perl notes for AmigaOS
perlapollo Perl notes for Apollo DomainOS
perlbeos  Perl notes for BeOS
perlbs2000 Perl notes for POSIX-BC BS2000
perlce    Perl notes for WinCE
perlcygwin Perl notes for Cygwin
perldgux  Perl notes for DG/UX
perldos   Perl notes for DOS
perlepoc  Perl notes for EPOC
perlfreesbsd Perl notes for FreeBSD
perlhpx  Perl notes for HP-UX
perlhurd  Perl notes for Hurd
perlirix  Perl notes for Irix
perllinux Perl notes for Linux
perlmachten Perl notes for Power MachTen
perlmacos Perl notes for Mac OS (Classic)
perlmacosx Perl notes for Mac OS X
perlmint  Perl notes for MiNT
perlmpaix Perl notes for MPE/iX
perlnetware Perl notes for NetWare
perlopenbsd Perl notes for OpenBSD
perlos2   Perl notes for OS/2
perlos390 Perl notes for OS/390
perlos400 Perl notes for OS/400
perlplan9 Perl notes for Plan 9
perlqnx   Perl notes for QNX
perlrisco Perl notes for RISC OS
perlsolaris Perl notes for Solaris
perlsymbian Perl notes for Symbian
perltru64 Perl notes for Tru64
perluts   Perl notes for UTS
perlvms   Perl notes for VM/ESA
perlvms   Perl notes for VMS
perlvos   Perl notes for Stratus VOS
perlwin32 Perl notes for Windows
```

By default, the manpages listed above are installed in the `/usr/local/man/` directory.

Extensive additional documentation for Perl modules is available. The default configuration for perl will place this additional documentation in the `/usr/local/lib/perl5/man` directory (or else in the *man* subdirectory of the Perl library directory). Some of this additional documentation is distributed standard with Perl, but you'll also find documentation for third-party modules there.

You should be able to view Perl's documentation with your `man(1)` program by including the proper directories in the appropriate start-up files, or in the `MANPATH` environment variable. To find out where the configuration has installed the manpages, type:

```
perl -V:man.dir
```

If the directories have a common stem, such as `/usr/local/man/man1` and `/usr/local/man/man3`, you need only to add that stem (`/usr/local/man`) to your `man(1)` configuration files or your `MANPATH` environment variable. If they do not share a stem, you'll have to add both stems.

If that doesn't work for some reason, you can still use the supplied `perldoc` script to view module information. You might also look into getting a replacement man program.

If something strange has gone wrong with your program and you're not sure where you should look for help, try the `-w` switch first. It will often point out exactly where the trouble is.

## DESCRIPTION

Perl is a language optimized for scanning arbitrary text files, extracting information from those text files, and printing reports based on that information. It's also a good language for many system management tasks. The language is intended to be practical (easy to use, efficient, complete) rather than beautiful (tiny, elegant, minimal).

Perl combines (in the author's opinion, anyway) some of the best features of C, **sed**, **awk**, and **sh**, so people familiar with those languages should have little difficulty with it. (Language historians will also note some vestiges of **csh**, Pascal, and even BASIC-PLUS.) Expression syntax corresponds closely to C expression syntax. Unlike most Unix utilities, Perl does not arbitrarily limit the size of your data--if you've got the memory, Perl can slurp in your whole file as a single string. Recursion is of unlimited depth. And the tables used by hashes (sometimes called "associative arrays") grow as necessary to prevent degraded performance. Perl can use sophisticated pattern matching techniques to scan large amounts of data quickly. Although optimized for scanning text, Perl can also deal with binary data, and can make dbm files look like hashes. Setuid Perl scripts are safer than C programs through a dataflow tracing mechanism that prevents many stupid security holes.

If you have a problem that would ordinarily use **sed** or **awk** or **sh**, but it exceeds their capabilities or must run a little faster, and you don't want to write the silly thing in C, then Perl may be for you. There are also translators to turn your **sed** and **awk** scripts into Perl scripts.

But wait, there's more...

Begun in 1993 (see *perlhist*), Perl version 5 is nearly a complete rewrite that provides the following additional benefits:

- modularity and reusability using innumerable modules  
Described in *perlmod*, *perlmodlib*, and *perlmodinstall*.
- embeddable and extensible  
Described in *perlembed*, *perlxsut*, *perlxs*, *perlcalls*, *perlguts*, and *xsubpp*.
- roll-your-own magic variables (including multiple simultaneous DBM implementations)  
Described in *perlty* and *AnyDBM\_File*.
- subroutines can now be overridden, autoloading, and prototyped  
Described in *perlsub*.
- arbitrarily nested data structures and anonymous functions  
Described in *perlreftut*, *perlref*, *perldsc*, and *perllo*.
- object-oriented programming  
Described in *perlobj*, *perlboot*, *perltoot*, *perltooc*, and *perlbot*.
- support for light-weight processes (threads)  
Described in *perlthrtut* and *threads*.
- support for Unicode, internationalization, and localization

Described in *perluniintro*, *perllocale* and *Locale::Maketext*.

- lexical scoping  
Described in *perlsub*.
- regular expression enhancements  
Described in *perlre*, with additional examples in *perlop*.
- enhanced debugger and interactive Perl environment, with integrated editor support  
Described in *perldebtut*, *perldebug* and *perldebguts*.
- POSIX 1003.1 compliant library  
Described in *POSIX*.

Okay, that's *definitely* enough hype.

## AVAILABILITY

Perl is available for most operating systems, including virtually all Unix-like platforms. See "*Supported Platforms*" in *perlport* for a listing.

## ENVIRONMENT

See *perlrun*.

## AUTHOR

Larry Wall <larry@wall.org>, with the help of oodles of other folks.

If your Perl success stories and testimonials may be of help to others who wish to advocate the use of Perl in their applications, or if you wish to simply express your gratitude to Larry and the Perl developers, please write to [perl-thanks@perl.org](mailto:perl-thanks@perl.org).

## FILES

"@INC"      locations of perl libraries

## SEE ALSO

a2p   awk to perl translator  
s2p   sed to perl translator

<a href="http://www.perl.org/">http://www.perl.org/</a>	the Perl homepage
<a href="http://www.perl.com/">http://www.perl.com/</a>	Perl articles (O'Reilly)
<a href="http://www.cpan.org/">http://www.cpan.org/</a>	the Comprehensive Perl Archive
<a href="http://www.pm.org/">http://www.pm.org/</a>	the Perl Mongers

## DIAGNOSTICS

The use `warnings` pragma (and the **-w** switch) produces some lovely diagnostics.

See *perldiag* for explanations of all Perl's diagnostics. The use `diagnostics` pragma automatically turns Perl's normally terse warnings and errors into these longer forms.

Compilation errors will tell you the line number of the error, with an indication of the next token or token type that was to be examined. (In a script passed to Perl via **-e** switches, each **-e** is counted as one line.)

Setuid scripts have additional constraints that can produce error messages such as "Insecure dependency". See *perlsec*.

Did we mention that you should definitely consider using the **-w** switch?

## BUGS

The **-w** switch is not mandatory.

Perl is at the mercy of your machine's definitions of various operations such as type casting, `atof()`, and floating-point output with `sprintf()`.

If your stdio requires a seek or eof between reads and writes on a particular stream, so does Perl. (This doesn't apply to `sysread()` and `syswrite()`.)

While none of the built-in data types have any arbitrary size limits (apart from memory size), there are still a few arbitrary limits: a given variable name may not be longer than 251 characters. Line numbers displayed by diagnostics are internally stored as short integers, so they are limited to a maximum of 65535 (higher numbers usually being affected by wraparound).

You may mail your bug reports (be sure to include full configuration information as output by the `myconfig` program in the perl source tree, or by `perl -V`) to `perlbug@perl.org`. If you've succeeded in compiling perl, the **perlbug** script in the *utils/* subdirectory can be used to help mail in a bug report.

Perl actually stands for Pathologically Eclectic Rubbish Lister, but don't tell anyone I said that.

## NOTES

The Perl motto is "There's more than one way to do it." Divining how many more is left as an exercise to the reader.

The three principal virtues of a programmer are Laziness, Impatience, and Hubris. See the Camel Book for why.