

## NAME

perl - The Perl language interpreter

## 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] ] [ -S ] [ -x[dir] ] [ -i[extension] ] [ [-e|-E] 'command' ] [ -- ] [ programfile ] [ argument ]...
```

## GETTING HELP

The *perldoc* program gives you access to all the documentation that comes with Perl. You can get more documentation, tutorials and community support online at <http://www.perl.org/>.

If you're new to Perl, you should start by running `perldoc perlintro`, which is a general intro for beginners and provides some background to help you navigate the rest of Perl's extensive documentation. Run `perldoc perldoc` to learn more things you can do with *perldoc*.

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

perlperf    Perl Performance and Optimization Techniques

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  
perlop 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 references, the rest of the story  
perlform Perl formats  
perlobj Perl objects  
perltime Perl objects hidden behind simple variables  
    perltimefilter Perl DBM filters

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

perlthrtut Perl threads tutorial

perlport Perl portability guide  
perllocale Perl locale support  
perluniintro Perl Unicode introduction  
perlunicode Perl Unicode support  
perlunifaq Perl Unicode FAQ  
perluniprops Index of Unicode Version 5.2.0 properties in Perl  
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  
`perldebGuts` Perl debugging guts and tips  
`perlxsTut` 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  
`perlMroapi` Perl method resolution plugin interface  
`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  
`perlapiO` Perl internal IO abstraction interface

`perlhack` Perl hackers guide  
`perlpolicy` Perl development policies  
`perlrepository` Perl source repository

## Miscellaneous

`perlbook` Perl book information  
`perlcommunity` Perl community information  
`perltoDO` Perl things to do

`perldoc` Look up Perl documentation in Pod format

`perlhist` Perl history records  
`perldelta` Perl changes since previous version  
`perl5121delta` Perl changes in version 5.12.1  
`perl5120delta` Perl changes in version 5.12.0  
`perl5115delta` Perl changes in version 5.11.5  
`perl5114delta` Perl changes in version 5.11.4  
`perl5113delta` Perl changes in version 5.11.3  
`perl5112delta` Perl changes in version 5.11.2  
`perl5111delta` Perl changes in version 5.11.1  
`perl5110delta` Perl changes in version 5.11.0  
`perl5101delta` Perl changes in version 5.10.1  
`perl5100delta` Perl changes in version 5.10.0  
`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  
`perl589delta` Perl changes in version 5.8.9  
`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  
perlfreebsd Perl notes for FreeBSD  
perlhaiku Perl notes for Haiku  
perlhpx Perl notes for HP-UX  
perlhurd Perl notes for Hurd  
perlirix Perl notes for Irix  
perllinux Perl notes for Linux  
perlmacos Perl notes for Mac OS (Classic)  
perlmacosx Perl notes for Mac OS X  
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
perlvmesa    Perl notes for VM/ESA
perlvms      Perl notes for VMS
perlvos      Perl notes for Stratus VOS
perlwin32    Perl notes for Windows
```

On a Unix-like system, these documentation files will usually also be available as manpages for use with the *man* program.

In general, 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 officially stands for Practical Extraction and Report Language, except when it doesn't.

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*, *perlxtut*, *perlxs*, *perlcall*, *perlguts*, and *xsubpp*.
- roll-your-own magic variables (including multiple simultaneous DBM implementations)  
Described in *perltie* and *AnyDBM\_File*.
- subroutines can now be overridden, autoloaded, and prototyped  
Described in *perlsub*.
- arbitrarily nested data structures and anonymous functions  
Described in *perlreftut*, *perlref*, *perldsc*, and *perllool*.
- 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.