

## NAME

Devel::PPPort - Perl/Pollution/Portability

## SYNOPSIS

```
Devel::PPPort::WriteFile();    # defaults to ./ppport.h
Devel::PPPort::WriteFile('someheader.h');

# Same as above but retrieve contents rather than write file
my $contents = Devel::PPPort::GetFileContents();
my $contents = Devel::PPPort::GetFileContents('someheader.h');
```

## DESCRIPTION

Perl's API has changed over time, gaining new features, new functions, increasing its flexibility, and reducing the impact on the C namespace environment (reduced pollution). The header file written by this module, typically *ppport.h*, attempts to bring some of the newer Perl API features to older versions of Perl, so that you can worry less about keeping track of old releases, but users can still reap the benefit.

Devel::PPPort contains two functions, `WriteFile` and `GetFileContents`. `WriteFile`'s only purpose is to write the *ppport.h* C header file. This file contains a series of macros and, if explicitly requested, functions that allow XS modules to be built using older versions of Perl. Currently, Perl versions from 5.003 to 5.20 are supported.

`GetFileContents` can be used to retrieve the file contents rather than writing it out.

This module is used by `h2xs` to write the file *ppport.h*.

## Why use ppport.h?

You should use *ppport.h* in modern code so that your code will work with the widest range of Perl interpreters possible, without significant additional work.

You should attempt older code to fully use *ppport.h*, because the reduced pollution of newer Perl versions is an important thing. It's so important that the old polluting ways of original Perl modules will not be supported very far into the future, and your module will almost certainly break! By adapting to it now, you'll gain compatibility and a sense of having done the electronic ecology some good.

## How to use ppport.h

Don't direct the users of your module to download `Devel::PPPort`. They are most probably no XS writers. Also, don't make *ppport.h* optional. Rather, just take the most recent copy of *ppport.h* that you can find (e.g. by generating it with the latest `Devel::PPPort` release from CPAN), copy it into your project, adjust your project to use it, and distribute the header along with your module.

## Running ppport.h

But *ppport.h* is more than just a C header. It's also a Perl script that can check your source code. It will suggest hints and portability notes, and can even make suggestions on how to change your code. You can run it like any other Perl program:

```
perl ppport.h [options] [files]
```

It also has embedded documentation, so you can use

```
perldoc ppport.h
```

to find out more about how to use it.

## FUNCTIONS

### WriteFile

`WriteFile` takes one optional argument. When called with one argument, it expects to be passed a filename. When called with no arguments, it defaults to the filename *ppport.h*.

The function returns a true value if the file was written successfully. Otherwise it returns a false value.

### GetFileContents

`GetFileContents` behaves like `WriteFile` above, but returns the contents of the would-be file rather than writing it out.

## COMPATIBILITY

*ppport.h* supports Perl versions from 5.003 to 5.20 in threaded and non-threaded configurations.

### Provided Perl compatibility API

The header file written by this module, typically *ppport.h*, provides access to the following elements of the Perl API that is not available in older Perl releases:

```
_aMY_CXT
_pMY_CXT
aMY_CXT
aMY_CXT_
aTHX
aTHX_
aTHXR
aTHXR_
AvFILLp
boolSV
call_argv
call_method
call_pv
call_sv
caller_cx
ckWARN
CopFILE
CopFILE_set
CopFILEAV
CopFILEGV
CopFILEGV_set
CopFILESV
CopSTASH
CopSTASH_eq
CopSTASH_set
CopSTASHPV
CopSTASHPV_set
CopyD
CPERLscope
dAX
dAXMARK
DEFSV
DEFSV_set
dITEMS
dMY_CXT
dMY_CXT_SV
dNOOP
dTHR
```

dTHX  
dTHXa  
dTHXoa  
dTHXR  
dUNDERBAR  
dVAR  
dXCPT  
dXSTARG  
END\_EXTERN\_C  
ERRSV  
eval\_pv  
eval\_sv  
EXTERN\_C  
G\_METHOD  
get\_av  
get\_cv  
get\_cvn\_flags  
get\_cvs  
get\_hv  
get\_sv  
grok\_bin  
grok\_hex  
grok\_number  
GROK\_NUMERIC\_RADIX  
grok\_numeric\_radix  
grok\_oct  
gv\_fetchpvn\_flags  
gv\_fetchpvs  
gv\_fetchsv  
gv\_stashpvn  
gv\_stashpvs  
GvSVn  
HEf\_SVKEY  
HeUTF8  
hv\_fetchs  
hv\_stores  
HvNAME\_get  
HvNAMELEN\_get  
IN\_LOCALE  
IN\_LOCALE\_COMPILETIME  
IN\_LOCALE\_RUNTIME  
IN\_PERL\_COMPILETIME  
INT2PTR  
IS\_NUMBER\_GREATER\_THAN\_UV\_MAX  
IS\_NUMBER\_IN\_UV  
IS\_NUMBER\_INFINITY  
IS\_NUMBER\_NAN  
IS\_NUMBER\_NEG  
IS\_NUMBER\_NOT\_INT  
isALNUMC  
isASCII  
isBLANK  
isCNTRL  
isGRAPH  
isGV\_with\_GP  
isPRINT

isPSXSPC  
isPUNCT  
isXDIGIT  
IVdf  
IVSIZE  
IVTYPE  
load\_module  
memEQ  
memEQs  
memNE  
memNEs  
mg\_findext  
Moved  
mPUSHi  
mPUSHn  
mPUSHp  
mPUSHs  
mPUSHu  
MUTABLE\_PTR  
MUTABLE\_SV  
mXPUSHi  
mXPUSHn  
mXPUSHp  
mXPUSHs  
mXPUSHu  
MY\_CXT  
MY\_CXT\_CLONE  
MY\_CXT\_INIT  
my\_snprintf  
my\_sprintf  
my\_strlcat  
my\_strlcpy  
newCONSTSUB  
newRV\_inc  
newRV\_noinc  
newSV\_type  
newSVpvn  
newSVpvn\_flags  
newSVpvn\_share  
newSVpvn\_utf8  
newSVpvs  
newSVpvs\_flags  
newSVpvs\_share  
newSVuv  
Newx  
Newxc  
Newxz  
NOOP  
NUM2PTR  
NVef  
NVff  
NVgf  
NVTYPE  
packWARN  
PERL\_ABS  
PERL\_BCDVERSION

PERL\_GCC\_BRACE\_GROUPS\_FORBIDDEN  
PERL\_HASH  
PERL\_INT\_MAX  
PERL\_INT\_MIN  
PERL\_LONG\_MAX  
PERL\_LONG\_MIN  
PERL\_MAGIC\_arylen  
PERL\_MAGIC\_backref  
PERL\_MAGIC\_bm  
PERL\_MAGIC\_collxfrm  
PERL\_MAGIC\_dbfile  
PERL\_MAGIC\_dbline  
PERL\_MAGIC\_defelem  
PERL\_MAGIC\_env  
PERL\_MAGIC\_envelem  
PERL\_MAGIC\_ext  
PERL\_MAGIC\_fm  
PERL\_MAGIC\_glob  
PERL\_MAGIC\_isa  
PERL\_MAGIC\_isaelem  
PERL\_MAGIC\_mutex  
PERL\_MAGIC\_nkeys  
PERL\_MAGIC\_overload  
PERL\_MAGIC\_overload\_elem  
PERL\_MAGIC\_overload\_table  
PERL\_MAGIC\_pos  
PERL\_MAGIC\_qr  
PERL\_MAGIC\_regdata  
PERL\_MAGIC\_regdatum  
PERL\_MAGIC\_regex\_global  
PERL\_MAGIC\_shared  
PERL\_MAGIC\_shared\_scalar  
PERL\_MAGIC\_sig  
PERL\_MAGIC\_sigelem  
PERL\_MAGIC\_substr  
PERL\_MAGIC\_sv  
PERL\_MAGIC\_taint  
PERL\_MAGIC\_tied  
PERL\_MAGIC\_tiedelem  
PERL\_MAGIC\_tiedscalar  
PERL\_MAGIC\_utf8  
PERL\_MAGIC\_uvar  
PERL\_MAGIC\_uvar\_elem  
PERL\_MAGIC\_vec  
PERL\_MAGIC\_vstring  
PERL\_PV\_ESCAPE\_ALL  
PERL\_PV\_ESCAPE\_FIRSTCHAR  
PERL\_PV\_ESCAPE\_NOBACKSLASH  
PERL\_PV\_ESCAPE\_NOCLEAR  
PERL\_PV\_ESCAPE\_QUOTE  
PERL\_PV\_ESCAPE\_RE  
PERL\_PV\_ESCAPE\_UNI  
PERL\_PV\_ESCAPE\_UNI\_DETECT  
PERL\_PV\_PRETTY\_DUMP  
PERL\_PV\_PRETTY\_ELLIPSES  
PERL\_PV\_PRETTY\_LTGT

PERL\_PV\_PRETTY\_NOCLEAR  
PERL\_PV\_PRETTY\_QUOTE  
PERL\_PV\_PRETTY\_REGPROP  
PERL\_QUAD\_MAX  
PERL\_QUAD\_MIN  
PERL\_REVISION  
PERL\_SCAN\_ALLOW\_UNDESCORES  
PERL\_SCAN\_DISALLOW\_PREFIX  
PERL\_SCAN\_GREATER\_THAN\_UV\_MAX  
PERL\_SCAN\_SILENT\_ILLDIGIT  
PERL\_SHORT\_MAX  
PERL\_SHORT\_MIN  
PERL\_SIGNALS\_UNSAFE\_FLAG  
PERL\_SUBVERSION  
PERL\_UCHAR\_MAX  
PERL\_UCHAR\_MIN  
PERL\_UINT\_MAX  
PERL\_UINT\_MIN  
PERL\_ULONG\_MAX  
PERL\_ULONG\_MIN  
PERL\_UNUSED\_ARG  
PERL\_UNUSED\_CONTEXT  
PERL\_UNUSED\_DECL  
PERL\_UNUSED\_VAR  
PERL\_UQUAD\_MAX  
PERL\_UQUAD\_MIN  
PERL\_USE\_GCC\_BRACE\_GROUPS  
PERL\_USHORT\_MAX  
PERL\_USHORT\_MIN  
PERL\_VERSION  
Perl\_warner  
Perl\_warner\_nocontext  
PERLIO\_FUNCS\_CAST  
PERLIO\_FUNCS\_DECL  
PL\_bufend  
PL\_bufptr  
PL\_compiling  
PL\_copline  
PL\_curcop  
PL\_curstash  
PL\_DBsignal  
PL\_DBsingle  
PL\_DBsub  
PL\_DBtrace  
PL\_debstash  
PL\_defgv  
PL\_diehook  
PL\_dirty  
PL\_dowarn  
PL\_errgv  
PL\_error\_count  
PL\_expect  
PL\_hexdigit  
PL\_hints  
PL\_in\_my  
PL\_in\_my\_stash

PL\_laststatval  
PL\_lex\_state  
PL\_lex\_stuff  
PL\_linestr  
PL\_na  
PL\_no\_modify  
PL\_parser  
PL\_perl\_destruct\_level  
PL\_perldb  
PL\_ppaddr  
PL\_rsfp  
PL\_rsfp\_filters  
PL\_signals  
PL\_stack\_base  
PL\_stack\_sp  
PL\_statcache  
PL\_stdingv  
PL\_Sv  
PL\_sv\_arenaroot  
PL\_sv\_no  
PL\_sv\_undef  
PL\_sv\_yes  
PL\_tainted  
PL\_tainting  
PL\_tokenbuf  
pMY\_CXT  
pMY\_CXT\_  
Poison  
PoisonFree  
PoisonNew  
PoisonWith  
pTHX  
pTHX\_  
PTR2IV  
PTR2nat  
PTR2NV  
PTR2ul  
PTR2UV  
PTRV  
PUSHmortal  
PUSHu  
pv\_display  
pv\_escape  
pv\_pretty  
SAVE\_DEFSV  
START\_EXTERN\_C  
START\_MY\_CXT  
STMT\_END  
STMT\_START  
STR\_WITH\_LEN  
sv\_2pv\_flags  
sv\_2pv\_nolen  
sv\_2pvbyte  
sv\_2pvbyte\_nolen  
sv\_2uv  
sv\_catpv\_mg

sv\_catpvf\_mg  
sv\_catpvf\_mg\_nocontext  
sv\_catpvn\_mg  
sv\_catpvn\_nomg  
sv\_catpvs  
sv\_catsv\_mg  
sv\_catsv\_nomg  
SV\_CONST\_RETURN  
SV\_COW\_DROP\_PV  
SV\_COW\_SHARED\_HASH\_KEYS  
SV\_GMAGIC  
SV\_HAS\_TRAILING\_NUL  
SV\_IMMEDIATE\_UNREF  
sv\_magic\_portable  
SV\_MUTABLE\_RETURN  
SV\_NOSTEAL  
sv\_pvn\_force\_flags  
sv\_pvn\_nomg  
sv\_setiv\_mg  
sv\_setnv\_mg  
sv\_setpv\_mg  
sv\_setpvf\_mg  
sv\_setpvf\_mg\_nocontext  
sv\_setpvn\_mg  
sv\_setpvs  
sv\_setsv\_mg  
sv\_setsv\_nomg  
sv\_setuv  
sv\_setuv\_mg  
SV\_SMAGIC  
sv\_unmagicext  
sv\_usepvn\_mg  
SV\_UTF8\_NO\_ENCODING  
sv\_uv  
sv\_vcatpvf  
sv\_vcatpvf\_mg  
sv\_vsetpvf  
sv\_vsetpvf\_mg  
SVf  
SVf\_UTF8  
SVfARG  
SvGETMAGIC  
SvIV\_nomg  
SvMAGIC\_set  
SvPV\_const  
SvPV\_flags  
SvPV\_flags\_const  
SvPV\_flags\_const\_nolen  
SvPV\_flags\_mutable  
SvPV\_force  
SvPV\_force\_flags  
SvPV\_force\_flags\_mutable  
SvPV\_force\_flags\_nolen  
SvPV\_force\_mutable  
SvPV\_force\_nolen  
SvPV\_force\_nomg



SvPV\_force\_nomg\_nolen  
SvPV\_mutable  
SvPV\_nolen  
SvPV\_nolen\_const  
SvPV\_nomg  
SvPV\_nomg\_const  
SvPV\_nomg\_const\_nolen  
SvPV\_nomg\_nolen  
SvPV\_renew  
SvPVbyte  
SvPVX\_const  
SvPVX\_mutable  
SvREFCNT\_inc  
SvREFCNT\_inc\_NN  
SvREFCNT\_inc\_simple  
SvREFCNT\_inc\_simple\_NN  
SvREFCNT\_inc\_simple\_void  
SvREFCNT\_inc\_simple\_void\_NN  
SvREFCNT\_inc\_void  
SvREFCNT\_inc\_void\_NN  
SvRV\_set  
SvSHARED\_HASH  
SvSTASH\_set  
SvUOK  
SvUV  
SvUV\_nomg  
SvUV\_set  
SvUVX  
SvUVx  
SvUVXx  
SvVSTRING\_mg  
UNDERBAR  
UTF8\_MAXBYTES  
UVof  
UVSIZE  
UVTYPE  
UVuf  
UVXf  
UVxf  
vload\_module  
vnewSVpvf  
WARN\_ALL  
WARN\_AMBIGUOUS  
WARN\_ASSERTIONS  
WARN\_BAREWORD  
WARN\_CLOSED  
WARN\_CLOSURE  
WARN\_DEBUGGING  
WARN\_DEPRECATED  
WARN\_DIGIT  
WARN\_EXEC  
WARN\_EXITING  
WARN\_GLOB  
WARN\_INPLACE  
WARN\_INTERNAL  
WARN\_IO

WARN\_LAYER  
WARN\_MALLOC  
WARN\_MISC  
WARN\_NEWLINE  
WARN\_NUMERIC  
WARN\_ONCE  
WARN\_OVERFLOW  
WARN\_PACK  
WARN\_PARENTHESES  
WARN\_PIPE  
WARN\_PORTABLE  
WARN\_PRECEDENCE  
WARN\_PRINTF  
WARN\_PROTOTYPE  
WARN\_QW  
WARN\_RECURSION  
WARN\_REDEFINE  
WARN\_REGEX  
WARN\_RESERVED  
WARN\_SEMICOLON  
WARN\_SEVERE  
WARN\_SIGNAL  
WARN\_SUBSTR  
WARN\_SYNTAX  
WARN\_TAIN  
WARN\_THREADS  
WARN\_UNINITIALIZED  
WARN\_UNOPENED  
WARN\_UNPACK  
WARN\_UNTIE  
WARN\_UTF8  
WARN\_VOID  
warner  
WIDEST\_UTYPE  
XCPT\_CATCH  
XCPT\_RETHROW  
XCPT\_TRY\_END  
XCPT\_TRY\_START  
XPUSHmortal  
XPUSHu  
XSpresPUSH  
XSPROTO  
XSRETURN  
XSRETURN\_UV  
XST\_mUV  
ZeroD

### Perl API not supported by `ppport.h`

There is still a big part of the API not supported by *ppport.h*. Either because it doesn't make sense to back-port that part of the API, or simply because it hasn't been implemented yet. Patches welcome!

Here's a list of the currently unsupported API, and also the version of Perl below which it is unsupported:

perl 5.21.8

BhkDISABLE

BhkENABLE  
BhkENTRY\_set  
MULTICALL  
PERL\_SYS\_TERM  
POP\_MULTICALL  
PUSH\_MULTICALL  
PadARRAY  
PadMAX  
PadlistARRAY  
PadlistMAX  
PadlistNAMES  
PadlistNAMESARRAY  
PadlistNAMESMAX  
PadnameLEN  
PadnamePV  
PadnameREFCNT  
PadnameREFCNT\_dec  
PadnameSV  
PadnamelistARRAY  
PadnamelistMAX  
PadnamelistREFCNT  
PadnamelistREFCNT\_dec  
XS\_APIVERSION\_BOOTCHECK  
XS\_EXTERNAL  
XS\_INTERNAL  
XS\_VERSION\_BOOTCHECK  
XopDISABLE  
XopENABLE  
XopENTRY  
XopENTRYCUSTOM  
XopENTRY\_set  
cophh\_new\_empty  
my\_lstat  
my\_stat  
reentrant\_free  
reentrant\_init  
reentrant\_retry  
reentrant\_size  
ref  
sv\_get\_backrefs  
sv\_setref\_pvs

#### perl 5.21.7

OpHAS\_SIBLING  
OpSIBLING  
OpSIBLING\_set  
PadnameUTF8  
is\_invariant\_string  
newPADNAMELIST  
newPADNAMEouter  
newPADNAMEpvn  
newUNOP\_AUX  
padnamelist\_fetch  
padnamelist\_store

## perl 5.21.6

newDEFSVOP  
op\_convert\_list

## perl 5.21.5

cv\_name  
newMETHOP  
newMETHOP\_named

## perl 5.21.4

cv\_set\_call\_checker\_flags  
grok\_infnan  
isinfnan  
sync\_locale

## perl 5.21.2

grok\_number\_flags  
op\_parent  
op\_sibling\_splice

## perl 5.21.1

\_is\_in\_locale\_category  
\_is\_utf8\_char\_slow  
\_is\_utf8\_idcont  
\_is\_utf8\_idstart  
\_is\_utf8\_xidcont  
\_is\_utf8\_xidstart  
isALNUM\_lazy  
isIDFIRST\_lazy  
isUTF8\_CHAR  
markstack\_grow  
my\_strerror

## perl 5.19.10

OP\_TYPE\_IS\_OR\_WAS

## perl 5.19.9

\_to\_utf8\_fold\_flags  
\_to\_utf8\_lower\_flags  
\_to\_utf8\_title\_flags  
\_to\_utf8\_upper\_flags

## perl 5.19.7

OP\_TYPE\_IS

## perl 5.19.4

append\_utf8\_from\_native\_byte  
is\_safe\_syscall  
uvoffuni\_to\_utf8\_flags

## perl 5.19.3

```
croak_memory_wrap
sv_pos_b2u_flags
```

## perl 5.19.2

```
SVt_INVLIST
```

## perl 5.19.1

```
re_intuit_start
toFOLD
toFOLD_utf8
toLOWER_L1
toTITLE
```

## perl 5.18.0

```
hv_rand_set
```

## perl 5.17.9

```
av_tindex
av_top_index
```

## perl 5.17.8

```
_is_uni_FOO
_is_uni_perl_idcont
_is_utf8_FOO
_is_utf8_mark
_is_utf8_perl_idcont
isALPHANUMERIC
isIDCONT
```

## perl 5.17.7

```
SvREFCNT_dec_NN
_is_uni_perl_idstart
_is_utf8_perl_idstart
is_uni_alnumc
is_uni_alnumc_lc
is_utf8_alnumc
```

## perl 5.17.6

```
READ_XDIGIT
```

## perl 5.17.4

```
PL_comppad_name
PadlistREFCNT
newMYSUB
newSVpadname
```

## perl 5.17.2

```
is_uni_blank
is_uni_blank_lc
```

```
is_utf8_blank  
sv_copypv_flags  
sv_copypv_nomg  
sv_vcatpvfn_flags
```

#### perl 5.15.9

```
utf8_to_uvchr_buf  
utf8_to_uvuni_buf  
valid_utf8_to_uvchr  
valid_utf8_to_uvuni
```

#### perl 5.15.8

```
is_utf8_char_buf  
wrap_op_checker
```

#### perl 5.15.7

```
toLOWER_utf8  
toTITLE_utf8  
toUPPER_utf8  
to_utf8_fold  
to_utf8_lower  
to_utf8_title  
to_utf8_upper
```

#### perl 5.15.6

```
newCONSTSUB_flags
```

#### perl 5.15.4

```
HvENAMELEN  
HvENAMEUTF8  
HvNAMELEN  
HvNAMEUTF8  
gv_autoload_pv  
gv_autoload_pvn  
gv_autoload_sv  
gv_fetchmeth_pv  
gv_fetchmeth_pv_autoload  
gv_fetchmeth_pvn  
gv_fetchmeth_pvn_autoload  
gv_fetchmeth_sv  
gv_fetchmeth_sv_autoload  
gv_fetchmethod_pv_flags  
gv_fetchmethod_pvn_flags  
gv_fetchmethod_sv_flags  
gv_init_pv  
gv_init_pvn  
gv_init_sv  
newGVgen_flags  
sv_derived_from_pv  
sv_derived_from_pvn  
sv_derived_from_sv  
sv_does_pv  
sv_does_pvn
```

sv\_does\_sv  
whichsig\_pv  
whichsig\_pvn  
whichsig\_sv

#### perl 5.15.1

cop\_fetch\_label  
cop\_store\_label  
pad\_add\_name\_pv  
pad\_add\_name\_pvn  
pad\_add\_name\_pvs  
pad\_add\_name\_sv  
pad\_findmy\_pv  
pad\_findmy\_pvn  
pad\_findmy\_pvs  
pad\_findmy\_sv

#### perl 5.14.0

\_to\_uni\_fold\_flags

#### perl 5.13.10

foldEQ\_utf8\_flags  
is\_utf8\_xidcont  
is\_utf8\_xidfirst

#### perl 5.13.8

foldEQ\_latn1  
parse\_arithexpr  
parse\_fullexpr  
parse\_listexpr  
parse\_termexpr

#### perl 5.13.7

HvENAME  
OP\_CLASS  
XopFLAGS  
amagic\_deref\_call  
bytes\_cmp\_utf8  
cop\_hints\_2hv  
cop\_hints\_fetch\_pv  
cop\_hints\_fetch\_pvn  
cop\_hints\_fetch\_pvs  
cop\_hints\_fetch\_sv  
cophh\_2hv  
cophh\_copy  
cophh\_delete\_pv  
cophh\_delete\_pvn  
cophh\_delete\_pvs  
cophh\_delete\_sv  
cophh\_fetch\_pv  
cophh\_fetch\_pvn  
cophh\_fetch\_pvs  
cophh\_fetch\_sv

cophh\_free  
cophh\_store\_pv  
cophh\_store\_pvn  
cophh\_store\_pvs  
cophh\_store\_sv  
custom\_op\_register  
custom\_op\_xop  
newFOROP  
newWHILEOP  
op\_lvalue  
op\_scope  
parse\_barestmt  
parse\_block  
parse\_label

#### perl 5.13.6

LINKLIST  
SvTRUE\_nomg  
ck\_entersub\_args\_list  
ck\_entersub\_args\_proto  
ck\_entersub\_args\_proto\_or\_list  
cv\_get\_call\_checker  
cv\_set\_call\_checker  
isWORDCHAR  
lex\_stuff\_pv  
mg\_free\_type  
newSVpv\_share  
op\_append\_elem  
op\_append\_list  
op\_contextualize  
op\_linklist  
op\_prepend\_elem  
parse\_stmtseq  
rv2cv\_op\_cv  
savesharedpvs  
savesharedsvpv  
sv\_2bool\_flags  
sv\_catpv\_flags  
sv\_catpv\_nomg  
sv\_catpvs\_flags  
sv\_catpvs\_mg  
sv\_catpvs\_nomg  
sv\_cmp\_flags  
sv\_cmp\_locale\_flags  
sv\_collxfrm\_flags  
sv\_eq\_flags  
sv\_setpvs\_mg

#### perl 5.13.5

PL\_rpeepp  
isOCTAL  
lex\_stuff\_pvs  
parse\_fullstmt



## perl 5.13.3

blockhook\_register  
croak\_no\_modify

## perl 5.13.2

SvNV\_nomg  
find\_rundefsv  
foldEQ  
foldEQ\_locale  
foldEQ\_utf8  
hv\_fill  
sv\_dec\_nomg  
sv\_inc\_nomg

## perl 5.13.1

croak\_sv  
die\_sv  
mess\_sv  
sv\_2nv\_flags  
warn\_sv

## perl 5.11.5

sv\_pos\_u2b\_flags

## perl 5.11.4

prescan\_version

## perl 5.11.2

PL\_keyword\_plugin  
lex\_bufutf8  
lex\_discard\_to  
lex\_grow\_linestr  
lex\_next\_chunk  
lex\_peek\_unichar  
lex\_read\_space  
lex\_read\_to  
lex\_read\_unichar  
lex\_stuff\_pvn  
lex\_stuff\_sv  
lex\_unstuff

## perl 5.11.1

ck\_warner  
ck\_warner\_d  
is\_utf8\_perl\_space  
is\_utf8\_perl\_word  
is\_utf8\_posix\_digit

## perl 5.11.0

Gv\_AMupdate  
PL\_opfreehook

SVt\_REGEX  
SvOOK\_offset  
av\_iter\_p  
gv\_add\_by\_type  
is\_ascii\_string  
pregfree2  
save\_adelete  
save\_aelem\_flags  
save\_hdelete  
save\_helem\_flags  
sv\_utf8\_upgrade\_flags\_grow

#### perl 5.10.1

croak\_xs\_usage  
mro\_get\_from\_name  
mro\_get\_private\_data  
mro\_register  
mro\_set\_mro  
mro\_set\_private\_data  
save\_hints  
save\_padsv\_and\_mortalize  
save\_pushi32ptr  
save\_pushptr  
save\_pushptrptr  
sv\_insert\_flags

#### perl 5.10.0

hv\_common  
hv\_common\_key\_len  
sv\_destroyable  
sys\_init  
sys\_init3  
sys\_term

#### perl 5.9.5

Perl\_signbit  
SvRX  
SvRXOK  
av\_create\_and\_push  
av\_create\_and\_unshift\_one  
gv\_fetchfile\_flags  
lex\_start  
mro\_get\_linear\_isa  
mro\_method\_changed\_in  
my\_dirfd  
pregcomp  
ptr\_table\_clear  
ptr\_table\_fetch  
ptr\_table\_free  
ptr\_table\_new  
ptr\_table\_split  
ptr\_table\_store  
re\_compile  
reg\_named\_buff\_all

```
reg_named_buff_exists  
reg_named_buff_fetch  
reg_named_buff_firstkey  
reg_named_buff_nextkey  
reg_named_buff_scalar  
regfree_internal  
savesharedpvn  
scan_vstring  
upg_version
```

#### perl 5.9.4

```
PerlIO_context_layers  
gv_name_set  
hv_copy_hints_hv  
my_vsnprintf  
newXS_flags  
regclass_swash  
sv_does  
sv_usepvn_flags
```

#### perl 5.9.3

```
av_arylen_p  
ckwarn  
ckwarn_d  
csighandler  
dMULTICALL  
doref  
gv_const_sv  
hv_eiter_p  
hv_eiter_set  
hv_name_set  
hv_placeholders_get  
hv_placeholders_set  
hv_riter_p  
hv_riter_set  
is_utf8_string_loclen  
newGIVENOP  
newSVhek  
newWHENOP  
pad_compname_type  
savepvs  
sortsv_flags  
vverify
```

#### perl 5.9.2

```
SvPVbyte_force  
find_rundefsvoffset  
op_refcnt_lock  
op_refcnt_unlock  
savesvpv  
vnormal
```

#### perl 5.9.1

```
hv_clear_placeholders
hv_scalar
scan_version
sv_2iv_flags
sv_2uv_flags
```

#### perl 5.9.0

```
new_version
save_set_svflags
vcmp
vnumify
vstringify
```

#### perl 5.8.3

```
SvIsCOW
SvIsCOW_shared_hash
```

#### perl 5.8.1

```
CvPADLIST
PL_comppad
SvVOK
doing_taint
find_runcv
is_utf8_string_loc
packlist
pad_add_anon
pad_new
pad_tidy
save_bool
savestack_grow_cnt
seed
sv_cat_decode
sv_setpviv
sv_setpviv_mg
unpackstring
```

#### perl 5.8.0

```
HeUTF8
hv_iternext_flags
hv_store_flags
is_utf8_idcont
nothreadhook
```

#### perl 5.7.3

```
OP_DESC
OP_NAME
PL_peepp
PerlIO_clearerr
PerlIO_close
PerlIO_eof
PerlIO_error
PerlIO_fileno
PerlIO_fill
```

PerlIO\_flush  
PerlIO\_get\_base  
PerlIO\_get\_bufsiz  
PerlIO\_get\_cnt  
PerlIO\_get\_ptr  
PerlIO\_read  
PerlIO\_seek  
PerlIO\_set\_cnt  
PerlIO\_set\_ptrcnt  
PerlIO\_setlinebuf  
PerlIO\_stderr  
PerlIO\_stdin  
PerlIO\_stdout  
PerlIO\_tell  
PerlIO\_unread  
PerlIO\_write  
SvLOCK  
SvSHARE  
SvUNLOCK  
atfork\_lock  
atfork\_unlock  
custom\_op\_desc  
custom\_op\_name  
deb  
debstack  
debstackptrs  
gv\_fetchmeth\_autoload  
ibcmp\_utf8  
my\_fork  
my\_socketpair  
pack\_cat  
perl\_destruct  
pv\_uni\_display  
save\_shared\_pvref  
savessharedpv  
sortsv  
sv\_magicext  
sv\_nolocking  
sv\_nosharing  
sv\_recode\_to\_utf8  
sv\_uni\_display  
toFOLD\_uni  
toLOWER\_uni  
toTITLE\_uni  
toUPPER\_uni  
to\_uni\_fold  
to\_uni\_lower  
to\_uni\_title  
to\_uni\_upper  
to\_utf8\_case  
unpack\_str  
uvchr\_to\_utf8\_flags  
uvuni\_to\_utf8\_flags  
vdeb

calloc  
getcwd\_sv  
init\_tm  
malloc  
mfree  
mini\_mktime  
my\_atof2  
my\_strftime  
op\_null  
realloc  
sv\_catpv\_n\_flags  
sv\_catsv\_flags  
sv\_setsv\_flags  
sv\_utf8\_upgrade\_flags  
sv\_utf8\_upgrade\_nomg  
swash\_fetch

#### perl 5.7.1

ASCII\_TO\_NEED  
NATIVE\_TO\_NEED  
POPpbytex  
bytes\_from\_utf8  
despatch\_signals  
do\_openn  
gv\_handler  
is\_lvalue\_sub  
my\_popen\_list  
save\_mortalizesv  
scan\_num  
sv\_force\_normal\_flags  
sv\_setref\_uv  
sv\_unref\_flags  
sv\_utf8\_upgrade  
utf8\_length  
utf8\_to\_uvchr  
utf8\_to\_uvuni  
utf8n\_to\_uvchr  
utf8n\_to\_uvuni  
uvchr\_to\_utf8  
uvuni\_to\_utf8

#### perl 5.6.1

SvGAMAGIC  
apply\_attrs\_string  
bytes\_to\_utf8  
gv\_efullname4  
gv\_fullname4  
is\_utf8\_string  
save\_generic\_pvref  
utf16\_to\_utf8  
utf16\_to\_utf8\_reversed  
utf8\_to\_bytes

#### perl 5.6.0

PERL\_SYS\_INIT3  
PL\_check  
SvIOK\_UV  
SvIOK\_notUV  
SvIOK\_only\_UV  
SvPOK\_only\_UTF8  
SvPVbyte\_nolen  
SvPVbytex  
SvPVbytex\_force  
SvPVutf8  
SvPVutf8\_force  
SvPVutf8\_nolen  
SvPVutf8x  
SvPVutf8x\_force  
SvUOK  
SvUTF8  
SvUTF8\_off  
SvUTF8\_on  
av\_delete  
av\_exists  
call\_atexit  
caller\_cx  
cast\_i32  
cast\_iv  
cast\_ulong  
cast\_uv  
do\_gv\_dump  
do\_gvgv\_dump  
do\_hv\_dump  
do\_magic\_dump  
do\_op\_dump  
do\_open9  
do\_pmop\_dump  
do\_sv\_dump  
dump\_all  
dump\_eval  
dump\_form  
dump\_indent  
dump\_packsubs  
dump\_sub  
dump\_vindent  
get\_context  
get\_ppaddr  
gv\_dump  
init\_i18nl10n  
init\_i18nl14n  
is\_uni\_alnum  
is\_uni\_alnum\_lc  
is\_uni\_alpha  
is\_uni\_alpha\_lc  
is\_uni\_ascii  
is\_uni\_ascii\_lc  
is\_uni\_cntrl  
is\_uni\_cntrl\_lc  
is\_uni\_digit  
is\_uni\_digit\_lc

is\_uni\_graph  
is\_uni\_graph\_lc  
is\_uni\_idfirst  
is\_uni\_idfirst\_lc  
is\_uni\_lower  
is\_uni\_lower\_lc  
is\_uni\_print  
is\_uni\_print\_lc  
is\_uni\_punct  
is\_uni\_punct\_lc  
is\_uni\_space  
is\_uni\_space\_lc  
is\_uni\_upper  
is\_uni\_upper\_lc  
is\_uni\_xdigit  
is\_uni\_xdigit\_lc  
is\_utf8\_alnum  
is\_utf8\_alpha  
is\_utf8\_ascii  
is\_utf8\_char  
is\_utf8\_cntrl  
is\_utf8\_digit  
is\_utf8\_graph  
is\_utf8\_idfirst  
is\_utf8\_lower  
is\_utf8\_mark  
is\_utf8\_print  
is\_utf8\_punct  
is\_utf8\_space  
is\_utf8\_upper  
is\_utf8\_xdigit  
magic\_dump  
mess  
my\_atof  
my\_fflush\_all  
newANONATTRSUB  
newATTRSUB  
newXS  
newXSproto  
new\_collate  
new\_ctype  
new\_numeric  
op\_dump  
perl\_parse  
pmop\_dump  
re\_intuit\_string  
reginitcolors  
require\_pv  
safesyscalloc  
safesysfree  
safesysmalloc  
safesysrealloc  
save\_I8  
save\_alloc  
save\_destructor  
save\_destructor\_x



save\_re\_context  
save\_vptr  
scan\_bin  
set\_context  
set\_numeric\_local  
set\_numeric\_radix  
set\_numeric\_standard  
str\_to\_version  
sv\_2pvutf8  
sv\_2pvutf8\_nolen  
sv\_force\_normal  
sv\_len\_utf8  
sv\_pos\_b2u  
sv\_pos\_u2b  
sv\_pv  
sv\_pvbyte  
sv\_pvbyten  
sv\_pvbyten\_force  
sv\_pvutf8  
sv\_pvutf8n  
sv\_pvutf8n\_force  
sv\_rvweaken  
sv\_utf8\_decode  
sv\_utf8\_downgrade  
sv\_utf8\_encode  
swash\_init  
to\_uni\_lower\_lc  
to\_uni\_title\_lc  
to\_uni\_upper\_lc  
utf8\_distance  
utf8\_hop  
vcroak  
vform  
vmess  
vwarn  
vwarner

#### perl 5.005\_03

POPpx  
get\_vtbl  
save\_generic\_svref

#### perl 5.005

PL\_curpad  
PL\_modglobal  
cx\_dump  
debop  
debprofdump  
fbm\_compile  
fbm\_instr  
get\_op\_descs  
get\_op\_names  
init\_stacks  
mg\_length  
mg\_size

newHVhv  
new\_stackinfo  
regdump  
regexec\_flags  
regnext  
runops\_debug  
runops\_standard  
save\_iv  
save\_op  
sv\_iv  
sv\_nv  
sv\_peek  
sv\_pvn  
sv\_pvn\_nomg  
sv\_true

#### perl 5.004\_05

CopyD  
MoveD  
do\_binmode  
save\_aelem  
save\_helem

#### perl 5.004

GIMME\_V  
G\_VOID  
HePV  
HeSVKEY\_set  
SvSetMagicSV  
SvSetMagicSV\_nosteal  
SvSetSV\_nosteal  
SvTAINTED  
SvTAINTED\_off  
SvTAINTED\_on  
block\_end  
block\_gimme  
block\_start  
call\_list  
delimcpy  
form  
gv\_autoload4  
gv\_fetchmethod\_autoload  
hv\_delayfree\_ent  
hv\_free\_ent  
ibcmp\_locale  
intro\_my  
my\_failure\_exit  
newSVpvf  
rsignal  
rsignal\_state  
save\_I16  
save\_gp  
share\_hek  
start\_subparse  
sv\_catpvf

sv\_catpvf\_mg  
sv\_cmp\_locale  
sv\_derived\_from  
sv\_magic\_portable  
sv\_setpvf  
sv\_setpvf\_mg  
sv\_taint  
sv\_tainted  
sv\_untaint  
sv\_vcatpvf  
sv\_vcatpvf\_mg  
sv\_vcatpvfn  
sv\_vsetpvf  
sv\_vsetpvf\_mg  
sv\_vsetpvfn  
toLOWER\_LC  
vnewSVpvf  
warner

#### perl 5.003\_07

HeHASH  
HeKEY  
HeKLEN  
HeSVKEY  
HeSVKEY\_force  
HeVAL  
cv\_const\_sv  
do\_open  
gv\_efullname3  
gv\_fullname3  
hv\_delete\_ent  
hv\_exists\_ent  
hv\_fetch\_ent  
hv\_iterkeysv  
hv\_ksplit  
hv\_store\_ent  
my\_pclose  
my\_popen  
sv\_gets  
unsharepvn

## BUGS

If you find any bugs, Devel::PPPort doesn't seem to build on your system, or any of its tests fail, please file an issue here: <https://github.com/mhx/Devel-PPPort/issues/>

## AUTHORS

- Version 1.x of Devel::PPPort was written by Kenneth Albanowski.
- Version 2.x was ported to the Perl core by Paul Marquess.
- Version 3.x was ported back to CPAN by Marcus Holland-Moritz.
- Versions >= 3.22 are maintained with support from Matthew Horsfall (alh).

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**SEE ALSO**

See *h2xs*, *ppport.h*.