

## NAME

IO::Handle - supply object methods for I/O handles

## SYNOPSIS

```
use IO::Handle;

$io = IO::Handle->new();
if ($io->fdopen(fileno(STDIN), "r")) {
    print $io->getline;
    $io->close;
}

$io = IO::Handle->new();
if ($io->fdopen(fileno(STDOUT), "w")) {
    $io->print("Some text\n");
}

# setvbuf is not available by default on Perls 5.8.0 and later.
use IO::Handle '_IOLBF';
$io->setvbuf($buffer_var, _IOLBF, 1024);

undef $io;      # automatically closes the file if it's open

autoflush STDOUT 1;
```

## DESCRIPTION

IO::Handle is the base class for all other IO handle classes. It is not intended that objects of IO::Handle would be created directly, but instead IO::Handle is inherited from by several other classes in the IO hierarchy.

If you are reading this documentation, looking for a replacement for the FileHandle package, then I suggest you read the documentation for IO::File too.

## CONSTRUCTOR

`new()`

Creates a new IO::Handle object.

`new_from_fd( FD, MODE )`

Creates an IO::Handle like new does. It requires two parameters, which are passed to the method `fdopen`; if the `fdopen` fails, the object is destroyed. Otherwise, it is returned to the caller.

## METHODS

See *perlfunc* for complete descriptions of each of the following supported IO::Handle methods, which are just front ends for the corresponding built-in functions:

```
$io->close
$io->eof
$io->fcntl( FUNCTION, SCALAR )
$io->fileno
$io->format_write( [FORMAT_NAME] )
$io->getc
$io->ioctl( FUNCTION, SCALAR )
$io->read ( BUF, LEN, [OFFSET] )
```

```

$io->print ( ARGS )
$io->printf ( FMT, [ARGS] )
$io->say ( ARGS )
$io->stat
$io->sysread ( BUF, LEN, [OFFSET] )
$io->syswrite ( BUF, [LEN, [OFFSET]] )
$io->truncate ( LEN )

```

See *perlvar* for complete descriptions of each of the following supported IO::Handle methods. All of them return the previous value of the attribute and takes an optional single argument that when given will set the value. If no argument is given the previous value is unchanged (except for \$io->autoflush will actually turn ON autoflush by default).

```

$io->autoflush ( [BOOL] )           $|
$io->format_page_number( [NUM] )    $%
$io->format_lines_per_page( [NUM] ) $=
$io->format_lines_left( [NUM] )    $-
$io->format_name( [STR] )          $~
$io->format_top_name( [STR] )       $^
$io->input_line_number( [NUM] )     $.

```

The following methods are not supported on a per-filehandle basis.

```

IO::Handle->format_line_break_characters( [STR] ) $:
IO::Handle->format_formfeed( [STR] )             $^L
IO::Handle->output_field_separator( [STR] )      $,
IO::Handle->output_record_separator( [STR] )     $\

IO::Handle->input_record_separator( [STR] )      $/

```

Furthermore, for doing normal I/O you might need these:

**\$io->fdopen ( FD, MODE )**

`fdopen` is like an ordinary `open` except that its first parameter is not a filename but rather a file handle name, an IO::Handle object, or a file descriptor number. (For the documentation of the `open` method, see *IO::File*.)

**\$io->opened**

Returns true if the object is currently a valid file descriptor, false otherwise.

**\$io->getline**

This works like `<$io>` described in *"I/O Operators" in perlop* except that it's more readable and can be safely called in a list context but still returns just one line. If used as the conditional `+within` a while or C-style `for` loop, however, you will need to `+emulate` the functionality of `<$io>` with `defined($_ = $io->getline)`.

**\$io->getlines**

This works like `<$io>` when called in a list context to read all the remaining lines in a file, except that it's more readable. It will also `croak()` if accidentally called in a scalar context.

**\$io->ungetc ( ORD )**

Pushes a character with the given ordinal value back onto the given handle's input stream. Only one character of pushback per handle is guaranteed.

**\$io->write ( BUF, LEN [, OFFSET ] )**

This `write` is somewhat like `write` found in C, in that it is the opposite of `read`. The wrapper for the perl `write` function is called `format_write`. However, whilst the C `write` function returns the number of bytes written, this `write` function simply returns true if successful (like `print`). A more C-like `write` is `syswrite` (see above).

#### `$io->error`

Returns a true value if the given handle has experienced any errors since it was opened or since the last call to `clearerr`, or if the handle is invalid. It only returns false for a valid handle with no outstanding errors.

#### `$io->clearerr`

Clear the given handle's error indicator. Returns -1 if the handle is invalid, 0 otherwise.

#### `$io->sync`

`sync` synchronizes a file's in-memory state with that on the physical medium. `sync` does not operate at the `perlio` api level, but operates on the file descriptor (similar to `sysread`, `sysseek` and `sysest`). This means that any data held at the `perlio` api level will not be synchronized. To synchronize data that is buffered at the `perlio` api level you must use the `flush` method. `sync` is not implemented on all platforms. Returns "0 but true" on success, `undef` on error, `undef` for an invalid handle. See `fsync(3c)`.

#### `$io->flush`

`flush` causes perl to flush any buffered data at the `perlio` api level. Any unread data in the buffer will be discarded, and any unwritten data will be written to the underlying file descriptor. Returns "0 but true" on success, `undef` on error.

#### `$io->printflush ( ARGS )`

Turns on autoflush, print `ARGS` and then restores the autoflush status of the `IO::Handle` object. Returns the return value from `print`.

#### `$io->blocking ( [ BOOL ] )`

If called with an argument `blocking` will turn on non-blocking IO if `BOOL` is false, and turn it off if `BOOL` is true.

`blocking` will return the value of the previous setting, or the current setting if `BOOL` is not given.

If an error occurs `blocking` will return `undef` and `#!` will be set.

If the C functions `setbuf()` and/or `setvbuf()` are available, then `IO::Handle::setbuf` and `IO::Handle::setvbuf` set the buffering policy for an `IO::Handle`. The calling sequences for the Perl functions are the same as their C counterparts--including the constants `_IOFBUF`, `_IOLBF`, and `_IONBF` for `setvbuf()`--except that the buffer parameter specifies a scalar variable to use as a buffer. You should only change the buffer before any I/O, or immediately after calling `flush`.

WARNING: The `IO::Handle::setvbuf()` is not available by default on Perls 5.8.0 and later because `setvbuf()` is rather specific to using the `stdio` library, while Perl prefers the new `perlio` subsystem instead.

WARNING: A variable used as a buffer by `setbuf` or `setvbuf` **must not be modified** in any way until the `IO::Handle` is closed or `setbuf` or `setvbuf` is called again, or memory corruption may result! Remember that the order of global destruction is undefined, so even if your buffer variable remains in scope until program termination, it may be undefined before the file `IO::Handle` is closed. Note that you need to import the constants `_IOFBUF`, `_IOLBF`, and `_IONBF` explicitly. Like C, `setbuf` returns nothing. `setvbuf` returns "0 but true", on success, `undef` on failure.

Lastly, there is a special method for working under `-T` and `setuid/gid` scripts:

#### `$io->untaint`

Marks the object as taint-clean, and as such data read from it will also be considered taint-clean. Note that this is a very trusting action to take, and appropriate consideration for the data source and potential vulnerability should be kept in mind. Returns 0 on success, -1 if setting the taint-clean flag failed. (eg invalid handle)

## NOTE

An `IO::Handle` object is a reference to a symbol/GLOB reference (see the `Symbol` package). Some modules that inherit from `IO::Handle` may want to keep object related variables in the hash table part of the GLOB. In an attempt to prevent modules trampling on each other I propose that any such module should prefix its variables with its own name separated by `_`'s. For example the `IO::Socket` module keeps a `timeout` variable in `'io_socket_timeout'`.

## SEE ALSO

*perfunc*, "I/O Operators" in *perlop*, *IO::File*

## BUGS

Due to backwards compatibility, all filehandles resemble objects of class `IO::Handle`, or actually classes derived from that class. They actually aren't. Which means you can't derive your own class from `IO::Handle` and inherit those methods.

## HISTORY

Derived from `FileHandle.pm` by Graham Barr <[gbarr@pobox.com](mailto:gbarr@pobox.com)>