

NAME

UNIVERSAL - base class for ALL classes (blessed references)

SYNOPSIS

```
$is_io      = $fd->isa("IO::Handle");
$is_io      = Class->isa("IO::Handle");

$does_log   = $obj->DOES("Logger");
$does_log   = Class->DOES("Logger");

$sub        = $obj->can("print");
$sub        = Class->can("print");

$sub        = eval { $ref->can("fandango") };
$ver        = $obj->VERSION;

# but never do this!
$is_io      = UNIVERSAL::isa($fd, "IO::Handle");
$sub        = UNIVERSAL::can($obj, "print");
```

DESCRIPTION

UNIVERSAL is the base class from which all blessed references inherit. See *perlobj*.

UNIVERSAL provides the following methods:

```
$obj->isa( TYPE )
CLASS->isa( TYPE )
eval { VAL->isa( TYPE ) }
```

Where

TYPE

is a package name

\$obj

is a blessed reference or a string containing a package name

CLASS

is a package name

VAL

is any of the above or an unblessed reference

When used as an instance or class method (`$obj->isa(TYPE)`), `isa` returns *true* if `$obj` is blessed into package `TYPE` or inherits from package `TYPE`.

When used as a class method (`CLASS->isa(TYPE)`, sometimes referred to as a static method), `isa` returns *true* if `CLASS` inherits from (or is itself) the name of the package `TYPE` or inherits from package `TYPE`.

If you're not sure what you have (the `VAL` case), wrap the method call in an `eval` block to catch the exception if `VAL` is undefined.

If you want to be sure that you're calling `isa` as a method, not a class, check the invocant with blessed from *Scalar::Util* first:

```
use Scalar::Util 'blessed';
```

```
if ( blessed( $obj ) && $obj->isa("Some::Class") {  
    ...  
}
```

```
$obj->DOES( ROLE )
```

```
CLASS->DOES( ROLE )
```

DOES checks if the object or class performs the role `ROLE`. A role is a named group of specific behavior (often methods of particular names and signatures), similar to a class, but not necessarily a complete class by itself. For example, logging or serialization may be roles.

DOES and `isa` are similar, in that if either is true, you know that the object or class on which you call the method can perform specific behavior. However, DOES is different from `isa` in that it does not care *how* the invocant performs the operations, merely that it does. (`isa` of course mandates an inheritance relationship. Other relationships include aggregation, delegation, and mocking.)

By default, classes in Perl only perform the `UNIVERSAL` role. To mark that your own classes perform other roles, override DOES appropriately.

There is a relationship between roles and classes, as each class implies the existence of a role of the same name. There is also a relationship between inheritance and roles, in that a subclass that inherits from an ancestor class implicitly performs any roles its parent performs. Thus you can use DOES in place of `isa` safely, as it will return true in all places where `isa` will return true (provided that any overridden DOES *and* `isa` methods behave appropriately).

```
$obj->can( METHOD )
```

```
CLASS->can( METHOD )
```

```
eval { VAL->can( METHOD ) }
```

`can` checks if the object or class has a method called `METHOD`. If it does, then it returns a reference to the sub. If it does not, then it returns *undef*. This includes methods inherited or imported by `$obj`, `CLASS`, or `VAL`.

`can` cannot know whether an object will be able to provide a method through AUTOLOAD (unless the object's class has overridden `can` appropriately), so a return value of *undef* does not necessarily mean the object will not be able to handle the method call. To get around this some module authors use a forward declaration (see *perlsub*) for methods they will handle via AUTOLOAD. For such 'dummy' subs, `can` will still return a code reference, which, when called, will fall through to the AUTOLOAD. If no suitable AUTOLOAD is provided, calling the coderef will cause an error.

You may call `can` as a class (static) method or an object method.

Again, the same rule about having a valid invocant applies -- use an `eval` block or `blessed` if you need to be extra paranoid.

```
VERSION ( [ REQUIRE ] )
```

VERSION will return the value of the variable `$VERSION` in the package the object is blessed into. If `REQUIRE` is given then it will do a comparison and die if the package version is not greater than or equal to `REQUIRE`.

VERSION can be called as either a class (static) method or an object method.

EXPORTS

None by default.

You may request the import of three functions (`isa`, `can`, and `VERSION`), however it is usually harmful to do so. Please don't do this in new code.

For example, previous versions of this documentation suggested using `isa` as a function to determine the type of a reference:

```
use UNIVERSAL 'isa';
```

```
$yes = isa $h, "HASH";  
$yes = isa "Foo", "Bar";
```

The problem is that this code will *never* call an overridden `isa` method in any class. Instead, use `reftype` from *Scalar::Util* for the first case:

```
use Scalar::Util 'reftype';  
  
$yes = reftype( $h ) eq "HASH";
```

and the method form of `isa` for the second:

```
$yes = Foo->isa("Bar");
```