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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'UNIVERSAL.3pm' command

\$ man UNIVERSAL.3pm

UNIVERSAL(3pm) Perl Programmers Reference Guide UNIVERSAL(3pm)

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 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 invocand 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 invocand 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, as well as the role of all classes in their inheritance. In other words, by default "DOES" responds identically to "isa".

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 invocand 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", or if either \$VERSION or "REQUIRE" is not a "lax" version number (as defined by the version module).

The return from "VERSION" will actually be the stringified version object using the package \$VERSION scalar, which is guaranteed to be equivalent but may not be precisely the contents of the \$VERSION scalar. If you want the actual contents of \$VERSION, use \$CLASS::VERSION instead.

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

WARNINGS

NOTE: "can" directly uses Perl's internal code for method lookup, and "isa" uses a very similar method and cache-ing strategy. This may cause strange effects if the Perl code dynamically changes @ISA in any package.

You may add other methods to the UNIVERSAL class via Perl or XS code.

You do not need to "use UNIVERSAL" to make these methods available to your program (and you should not do so).

EXPORTS

None.

Previous versions of this documentation suggested using "isa" as a function to determine the type of a reference:

```
$yes = UNIVERSAL::isa($h, "HASH");
```

```
$yes = UNIVERSAL::isa("Foo", "Bar");
```

The problem is that this code would 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");
```

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