SCons

API Documentation

March 26, 2019

Contents

1 Package SCons

SCons

The main package for the SCons software construction utility. **Version:** 3.0.5

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1.1 Modules

1.2 Variables

Name	Description
__build__	**Value:** `'a56bbd8c09fb219ab8a9673330ffcd55279219d0'`
__buildsys__	**Value:** `'kufra'`
__developer__	**Value:** `'bdeegan'`
__package__	**Value:** `'SCons'`
__revision__	**Value:** `'src/engine/SCons/__init__.py a56bbd8c09fb219ab8a9673330f...`

2 Module SCons.Action

SCons.Action

This encapsulates information about executing any sort of action that can build one or more target Nodes (typically files) from one or more source Nodes (also typically files) given a specific Environment.

The base class here is ActionBase. The base class supplies just a few OO utility methods and some generic methods for displaying information about an Action in response to the various commands that control printing.

A second-level base class is _ActionAction. This extends ActionBase by providing the methods that can be used to show and perform an action. True Action objects will subclass _ActionAction; Action factory class objects will subclass ActionBase.

The heavy lifting is handled by subclasses for the different types of actions we might execute:

CommandAction CommandGeneratorAction FunctionAction ListAction

The subclasses supply the following public interface methods used by other modules:

___call___() THE public interface, "calling" an Action object executes the command or Python function. This also takes care of printing a pre-substitution command for debugging purposes.

get_contents() Fetches the "contents" of an Action for signature calculation plus the varlist. This is what gets MD5 checksummed to decide if a target needs to be rebuilt because its action changed.

genstring() Returns a string representation of the Action *without* command substitution, but allows a CommandGeneratorAction to generate the right action based on the specified target, source and env. This is used by the Signature subsystem (through the Executor) to obtain an (imprecise) representation of the Action operation for informative purposes.

Subclasses also supply the following methods for internal use within this module:

___str___() Returns a string approximation of the Action; no variable substitution is performed.

execute() The internal method that really, truly, actually handles the execution of a command or Python function. This is used so that the ___call___() methods can take care of displaying any pre-substitution representations, and *then* execute an action without worrying about the specific Actions involved.

get_presig() Fetches the "contents" of a subclass for signature calculation. The varlist is added to this to produce the Action's contents. TODO(?): Change this to always return ascii/bytes and not unicode (or py3 strings)

strfunction() Returns a substituted string representation of the Action. This is used by the _ActionAction.show() command to display the command/function that will be executed to generate the target(s).

There is a related independent ActionCaller class that looks like a regular Action, and which serves as a wrapper for arbitrary functions that we want to let the user specify the arguments to now, but actually execute later (when an out-of-date check determines that it's needed to be executed, for example). Objects of this class are returned by an ActionFactory class that provides a __call__() method as a convenient way for wrapping up the functions.

2.1 Functions

rfile(*n*)

default_exitstatfunc(*s*)

Action(*act*, **args*, ***kw*)

A factory for action objects.

get_default_ENV(*env*)

A fiddlin' little function that has an 'import SCons.Environment' which can't be moved to the top level without creating an import loop. Since this import creates a local variable named 'SCons', it blocks access to the global variable, so we move it here to prevent complaints about local variables being used uninitialized.

2.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Action.py a56bbd8c09fb219ab8a9673330ffc...`
print_actions	**Value:** `1`
execute_actions	**Value:** `1`
print_actions_presub	**Value:** `0`
ACTION_SIGNATURE_PICKLE_PROTOCOL	**Value:** `1`
strip_quotes	**Value:** `re.compile(r'^[\'"](.*)[\'"]$')`
default_ENV	**Value:** `None`
__package__	**Value:** `'SCons'`

2.3 Class ActionBase

object ┐
SCons.Action.ActionBase

Known Subclasses: SCons.Action._ActionAction, SCons.Action.CommandGeneratorAction, SCons.Action.ListAction

Base class for all types of action objects that can be held by other objects (Builders, Executors, etc.) This provides the common methods for manipulating and combining those actions.

2.3.1 Methods

___eq___(*self*, *other*)

no_batch_key(*self*, *env*, *target*, *source*)

batch_key(*self*, *env*, *target*, *source*)

genstring(*self*, *target*, *source*, *env*)

get_contents(*self*, *target*, *source*, *env*)

___add___(*self*, *other*)

___radd___(*self*, *other*)

presub_lines(*self*, *env*)

get_varlist(*self*, *target*, *source*, *env*, *executor*=`None`)

get_targets(*self*, *env*, *executor*)

Returns the type of targets ($TARGETS, $CHANGED_TARGETS) used by this action.

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___init___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

2.3.2 Properties

Name	Description
Inherited from object	
___class___	

2.4 Class CommandAction

```
object ─┐
        │
SCons.Action.ActionBase ─┐
                         │
 SCons.Action._ActionAction ─┐
                             │
                      SCons.Action.CommandAction
```

Known Subclasses: SCons.Action.LazyAction

Class for command-execution actions.

2.4.1 Methods

__init__(*self*, *cmd*, ***kw*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__str__(*self*)

str(x) Overrides: object.__str__ extit(inherited documentation)

process(*self*, *target*, *source*, *env*, *executor*=`None`)

strfunction(*self*, *target*, *source*, *env*, *executor*=`None`)

execute(*self*, *target*, *source*, *env*, *executor*=`None`)

Execute a command action.

This will handle lists of commands as well as individual commands, because construction variable substitution may turn a single "command" into a list. This means that this class can actually handle lists of commands, even though that's not how we use it externally.

get_presig(*self*, *target*, *source*, *env*, *executor*=`None`)

Return the signature contents of this action's command line.

This strips $(-$) and everything in between the string, since those parts don't affect signatures.

get_implicit_deps(*self*, *target*, *source*, *env*, *executor*=`None`)

Inherited from SCons.Action._ActionAction

___call___(), print_cmd_line()

Inherited from SCons.Action.ActionBase(Section 2.3)

___add___(), ___eq___(), ___radd___(), batch_key(), genstring(), get_contents(), get_targets(), get_varlist(), no_batch_key(), presub_lines()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

2.4.2 Properties

Name	Description
Inherited from object	
___class___	

2.5 Class CommandGeneratorAction

object
SCons.Action.ActionBase
SCons.Action.CommandGeneratorAction

Known Subclasses: SCons.Action.LazyAction

Class for command-generator actions.

2.5.1 Methods

___init___(*self*, *generator*, *kw*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

batch_key(*self*, *env*, *target*, *source*)

Overrides: SCons.Action.ActionBase.batch_key

genstring(*self*, *target*, *source*, *env*, *executor*=`None`)

Overrides: SCons.Action.ActionBase.genstring

___call___(*self*, *target*, *source*, *env*, *exitstatfunc*=`<class 'SCons.Action._null'>`, *presub*=`<class 'SCons.Action._null'>`, *show*=`<class 'SCons.Action._null'>`, *execute*=`<class 'SCons.Action._null'>`, *chdir*=`<class 'SCons.Action._null'>`, *executor*=`None`)

get_presig(*self*, *target*, *source*, *env*, *executor*=`None`)

Return the signature contents of this action's command line.

This strips $(-$) and everything in between the string, since those parts don't affect signatures.

get_implicit_deps(*self*, *target*, *source*, *env*, *executor*=`None`)

get_varlist(*self*, *target*, *source*, *env*, *executor*=`None`)

Overrides: SCons.Action.ActionBase.get_varlist

get_targets(*self*, *env*, *executor*)

Returns the type of targets ($TARGETS, $CHANGED_TARGETS) used by this action. Overrides: SCons.Action.ActionBase.get_targets extit(inherited documentation)

Inherited from SCons.Action.ActionBase(Section 2.3)

__add__(), __eq__(), __radd__(), get_contents(), no_batch_key(), presub_lines()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __subclasshook__()

2.5.2 Properties

Name	Description
Inherited from object	
__class__	

2.6 Class LazyAction

object
SCons.Action.ActionBase
SCons.Action.CommandGeneratorAction
object
SCons.Action.ActionBase
SCons.Action._ActionAction
SCons.Action.CommandAction
SCons.Action.LazyAction

A LazyAction is a kind of hybrid generator and command action for strings of the form "$VAR". These strings normally expand to other strings (think "$CCCOM" to "$CC -c -o $TARGET $SOURCE"), but we also want to be able to replace them with functions in the construction environment. Consequently, we want lazy evaluation and creation of an Action in the case of the function, but that's overkill in the more normal case of expansion to other strings.

So we do this with a subclass that's both a generator *and* a command action. The overridden methods all do a quick check of the construction variable, and if it's a string we just call the corresponding CommandAction method to do the heavy lifting. If not, then we call the same-named CommandGeneratorAction method. The CommandGeneratorAction methods work by using the overridden _generate() method, that is, our own way of handling "generation" of an action based on what's in the construction variable.

2.6.1 Methods

__init__(*self*, *var*, *kw*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

---

get_parent_class(*self*, *env*)

__call__(*self*, *target*, *source*, *env*, **args*, ***kw*)

Overrides: SCons.Action._ActionAction.__call__

---

get_presig(*self*, *target*, *source*, *env*)

Return the signature contents of this action's command line.

This strips $(-$) and everything in between the string, since those parts don't affect signatures. Overrides: SCons.Action.CommandAction.get_presig extit(inherited documentation)

---

get_varlist(*self*, *target*, *source*, *env*, *executor*=`None`)

Overrides: SCons.Action.ActionBase.get_varlist

Inherited from SCons.Action.CommandGeneratorAction(Section 2.5)

__str__(), batch_key(), genstring(), get_implicit_deps(), get_targets()

Inherited from SCons.Action.CommandAction(Section 2.4)

execute(), process(), strfunction()

Inherited from SCons.Action._ActionAction

print_cmd_line()

Inherited from SCons.Action.ActionBase(Section 2.3)

__add__(), __eq__(), __radd__(), get_contents(), no_batch_key(), presub_lines()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(),

___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

2.6.2 Properties

Name	Description
Inherited from object	
___class___	

2.7 Class FunctionAction

object
SCons.Action.ActionBase
SCons.Action._ActionAction
SCons.Action.FunctionAction

Class for Python function actions.

2.7.1 Methods

___init___(*self*, *execfunction*, *kw*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

function_name(*self*)

strfunction(*self*, *target*, *source*, *env*, *executor*=`None`)

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

execute(*self*, *target*, *source*, *env*, *executor*=`None`)

get_presig(*self*, *target*, *source*, *env*)

Return the signature contents of this callable action.

get_implicit_deps(*self*, *target*, *source*, *env*)

Inherited from SCons.Action._ActionAction

___call___(), print_cmd_line()

Inherited from SCons.Action.ActionBase(Section 2.3)

___add___(), ___eq___(), ___radd___(), batch_key(), genstring(), get_contents(), get_targets(), get_varlist(), no_batch_key(), presub_lines()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

2.7.2 Properties

Name	Description
Inherited from object	
___class___	

2.8 Class ListAction

```
object ─┐
        │
SCons.Action.ActionBase ─┐
                         │
                         SCons.Action.ListAction
```

Class for lists of other actions.

2.8.1 Methods

__init__(*self*, *actionlist*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

genstring(*self*, *target*, *source*, *env*)

Overrides: SCons.Action.ActionBase.genstring

__str__(*self*)

str(x) Overrides: object.__str__ extit(inherited documentation)

presub_lines(*self*, *env*)

Overrides: SCons.Action.ActionBase.presub_lines

get_presig(*self*, *target*, *source*, *env*)

Return the signature contents of this action list.

Simple concatenation of the signatures of the elements.

__call__(*self*, *target*, *source*, *env*, *exitstatfunc*=`<class 'SCons.Action._null'>`, *presub*=`<class 'SCons.Action._null'>`, *show*=`<class 'SCons.Action._null'>`, *execute*=`<class 'SCons.Action._null'>`, *chdir*=`<class 'SCons.Action._null'>`, *executor*=`None`)

get_implicit_deps(*self*, *target*, *source*, *env*)

get_varlist(*self*, *target*, *source*, *env*, *executor*=`None`)

Overrides: SCons.Action.ActionBase.get_varlist

Inherited from SCons.Action.ActionBase(Section 2.3)

__add__(), __eq__(), __radd__(), batch_key(), get_contents(), get_targets(), no_batch_key()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(),

___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

2.8.2 Properties

Name	Description
Inherited from object	
___class___	

2.9 Class ActionCaller

object ─┐
SCons.Action.ActionCaller

A class for delaying calling an Action function with specific (positional and keyword) arguments until the Action is actually executed.

This class looks to the rest of the world like a normal Action object, but what it's really doing is hanging on to the arguments until we have a target, source and env to use for the expansion.

2.9.1 Methods

___init___(*self*, *parent*, *args*, *kw*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

get_contents(*self*, *target*, *source*, *env*)

subst(*self*, *s*, *target*, *source*, *env*)

subst_args(*self*, *target*, *source*, *env*)

subst_kw(*self*, *target*, *source*, *env*)

___call___(*self*, *target*, *source*, *env*, *executor*=`None`)

strfunction(*self*, *target*, *source*, *env*)

__str__(*self*)

str(x) Overrides: object.__str__ extit(inherited documentation)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __subclasshook__()

2.9.2 Properties

Name	Description
Inherited from object	
__class__	

2.10 Class ActionFactory

object
└ **SCons.Action.ActionFactory**

A factory class that will wrap up an arbitrary function as an SCons-executable Action object.

The real heavy lifting here is done by the ActionCaller class. We just collect the (positional and keyword) arguments that we're called with and give them to the ActionCaller object we create, so it can hang onto them until it needs them.

2.10.1 Methods

__init__(*self*, *actfunc*, *strfunc*, *convert*=`<__builtin__.function object>`)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__call__(*self*, **args*, ***kw*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

2.10.2 Properties

Name	Description
Inherited from object	
__class__	

3 Module SCons.Builder

SCons.Builder

Builder object subsystem.

A Builder object is a callable that encapsulates information about how to execute actions to create a target Node (file) from source Nodes (files), and how to create those dependencies for tracking.

The main entry point here is the Builder() factory method. This provides a procedural interface that creates the right underlying Builder object based on the keyword arguments supplied and the types of the arguments.

The goal is for this external interface to be simple enough that the vast majority of users can create new Builders as necessary to support building new types of files in their configurations, without having to dive any deeper into this subsystem.

The base class here is BuilderBase. This is a concrete base class which does, in fact, represent the Builder objects that we (or users) create.

There is also a proxy that looks like a Builder:

CompositeBuilder

> This proxies for a Builder with an action that is actually a dictionary that knows how to map file suffixes to a specific action. This is so that we can invoke different actions (compilers, compile options) for different flavors of source files.

Builders and their proxies have the following public interface methods used by other modules:

- **__call__()** THE public interface. Calling a Builder object (with the use of internal helper methods) sets up the target and source dependencies, appropriate mapping to a specific action, and the environment manipulation necessary for overridden construction variable. This also takes care of warning about possible mistakes in keyword arguments.
- **add_emitter()** Adds an emitter for a specific file suffix, used by some Tool modules to specify that (for example) a yacc invocation on a .y can create a .h *and* a .c file.
- **add_action()** Adds an action for a specific file suffix, heavily used by Tool modules to add their specific action(s) for turning a source file into an object file to the global static and shared object file Builders.

There are the following methods for internal use within this module:

- **_execute()** The internal method that handles the heavily lifting when a

Builder is called. This is used so that the __call__() methods can set up warning about possible mistakes in keyword-argument overrides, and *then* execute all of the steps necessary so that the warnings only occur once.

- **get_name()** Returns the Builder's name within a specific Environment, primarily used to try to return helpful information in error messages.
- adjust_suffix()
- get_prefix()
- get_suffix()
- get_src_suffix()
- **set_src_suffix()** Miscellaneous stuff for handling the prefix and suffix manipulation we use in turning source file names into target file names.

3.1 Functions

match_splitext(*path*, *suffixes*=`[]`)

Builder(***kw*)

A factory for builder objects.

---

is_a_Builder(*obj*)

"Returns True if the specified obj is one of our Builder classes.

The test is complicated a bit by the fact that CompositeBuilder is a proxy, not a subclass of BuilderBase.

3.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Builder.py a56bbd8c09fb219ab8a9673330ff...`
misleading_keywords	**Value:** `{'sources': 'source', 'targets': 'target'}`
__package__	**Value:** `'SCons'`

3.3 Class DictCmdGenerator

object
    dict
        collections.OrderedDict
            SCons.Util.Selector
                SCons.Builder.DictCmdGenerator

This is a callable class that can be used as a command generator function. It holds on to a dictionary mapping file suffixes to Actions. It uses that dictionary to return the proper action based on the file suffix of the source file.

3.3.1 Methods

__init__(*self*, *dict*=None, *source_ext_match*=1)

Initialize an ordered dictionary. The signature is the same as regular dictionaries, but keyword arguments are not recommended because their insertion order is arbitrary. **Return Value**

    new empty dictionary

Overrides: object.__init__ extit(inherited documentation)

src_suffixes(*self*)

add_action(*self*, *suffix*, *action*)

Add a suffix-action pair to the mapping.

__call__(*self*, *target*, *source*, *env*, *for_signature*)

Overrides: SCons.Util.Selector.__call__

Inherited from collections.OrderedDict

__delitem__(), __eq__(), __iter__(), __ne__(), __reduce__(), __repr__(), __reversed__(), __setitem__(), clear(), copy(), fromkeys(), items(), iteritems(), iterkeys(), itervalues(), keys(), pop(), popitem(), setdefault(), update(), values(), viewitems(), viewkeys(), viewvalues()

Inherited from dict

__cmp__(), __contains__(), __ge__(), __getattribute__(), __getitem__(), __gt__(), __le__(), __len__(), __lt__(), __new__(), __sizeof__(), get(), has_key()

Inherited from object

__delattr__(), __format__(), __reduce_ex__(), __setattr__(), __str__(), __subclasshook__()

3.3.2 Properties

Name	Description
Inherited from object	
__class__	

3.3.3 Class Variables

Name	Description
Inherited from dict	
__hash__	

3.4 Class CallableSelector

object
dict
collections.OrderedDict
SCons.Util.Selector
SCons.Builder.CallableSelector

A callable dictionary that will, in turn, call the value it finds if it can.

3.4.1 Methods

__call__(*self*, *env*, *source*)
Overrides: SCons.Util.Selector.__call__

Inherited from collections.OrderedDict

__delitem__(), __eq__(), __init__(), __iter__(), __ne__(), __reduce__(), __repr__(), __reversed__(), __setitem__(), clear(), copy(), fromkeys(), items(), iteritems(), iterkeys(), itervalues(), keys(), pop(), popitem(), setdefault(), update(), values(), viewitems(), viewkeys(), viewvalues()

Inherited from dict

__cmp__(), __contains__(), __ge__(), __getattribute__(), __getitem__(), __gt__(), __le__(), __len__(), __lt__(), __new__(), __sizeof__(), get(), has_key()

Inherited from object

__delattr__(), __format__(), __reduce_ex__(), __setattr__(), __str__(), __subclasshook__()

3.4.2 Properties

Name	Description
Inherited from object	
__class__	

3.4.3 Class Variables

Name	Description
Inherited from dict	
__hash__	

3.5 Class DictEmitter

object
dict
collections.OrderedDict
SCons.Util.Selector
SCons.Builder.DictEmitter

A callable dictionary that maps file suffixes to emitters. When called, it finds the right emitter in its dictionary for the suffix of the first source file, and calls that emitter to get the right lists of targets and sources to return. If there's no emitter for the suffix in its dictionary, the original target and source are returned.

3.5.1 Methods

__call__(*self*, *target*, *source*, *env*)

Overrides: SCons.Util.Selector.__call__

Inherited from collections.OrderedDict

__delitem__(), __eq__(), __init__(), __iter__(), __ne__(), __reduce__(), __repr__(), __reversed__(), __setitem__(), clear(), copy(), fromkeys(), items(), iteritems(), iterkeys(), itervalues(), keys(), pop(), popitem(), setdefault(), update(), values(), viewitems(), viewkeys(), viewvalues()

Inherited from dict

__cmp__(), __contains__(), __ge__(), __getattribute__(), __getitem__(), __gt__(), __le__(), __len__(), __lt__(), __new__(), __sizeof__(), get(), has_key()

Inherited from object

__delattr__(), __format__(), __reduce_ex__(), __setattr__(), __str__(), __subclasshook__()

3.5.2 Properties

Name	Description
Inherited from object	
__class__	

3.5.3 Class Variables

Name	Description
Inherited from dict	
__hash__	

3.6 Class ListEmitter

```
object
    _abcoll.Sized
object
    _abcoll.Iterable
object
    _abcoll.Container
        _abcoll.Sequence
            _abcoll.MutableSequence
                UserList.UserList
                    SCons.Builder.ListEmitter
```

A callable list of emitters that calls each in sequence, returning the result.

3.6.1 Methods

__call__(*self*, *target*, *source*, *env*)

Inherited from UserList.UserList

__add__(), __cmp__(), __contains__(), __delitem__(), __delslice__(), __eq__(), __ge__(), __getitem__(), __getslice__(), __gt__(), __iadd__(), __imul__(), __init__(), __le__(), __len__(), __lt__(), __mul__(), __ne__(), __radd__(), __repr__(), __rmul__(), __setitem__(), __setslice__(), append(), count(), extend(), index(), insert(), pop(), remove(), reverse(), sort()

Inherited from _abcoll.Sequence

__iter__(), __reversed__()

Inherited from _abcoll.Sized

__subclasshook__()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(),

___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___()

3.6.2 Properties

Name	Description
Inherited from object	
___class___	

3.6.3 Class Variables

Name	Description
Inherited from UserList.UserList	
___abstractmethods___, ___hash___	

3.7 Class OverrideWarner

UserDict.UserDict
└ **SCons.Builder.OverrideWarner**

A class for warning about keyword arguments that we use as overrides in a Builder call.

This class exists to handle the fact that a single Builder call can actually invoke multiple builders. This class only emits the warnings once, no matter how many Builders are invoked.

3.7.1 Methods

___init___(*self*, *dict*)

Overrides: UserDict.UserDict.___init___

warn(*self*)

Inherited from UserDict.UserDict

___cmp___(), ___contains___(), ___delitem___(), ___getitem___(), ___len___(), ___repr___(), ___setitem___(), clear(), copy(), fromkeys(), get(), has_key(), items(), iteritems(), iterkeys(), itervalues(), keys(), pop(), popitem(), setdefault(), update(), values()

3.7.2 Class Variables

Name	Description
Inherited from UserDict.UserDict	
___hash___	

3.8 Class EmitterProxy

object ─┐
SCons.Builder.EmitterProxy

This is a callable class that can act as a Builder emitter. It holds on to a string that is a key into an Environment dictionary, and will look there at actual build time to see if it holds a callable. If so, we will call that as the actual emitter.

3.8.1 Methods

___init___(*self*, *var*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, *target*, *source*, *env*)

___eq___(*self*, *other*)

___lt___(*self*, *other*)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

3.8.2 Properties

Name	Description
Inherited from object	
___class___	

3.9 Class BuilderBase

```
object ─┐
        SCons.Builder.BuilderBase
```

Base class for Builders, objects that create output nodes (files) from input nodes (files).

3.9.1 Methods

__init__(*self*, *action*=`None`, *prefix*=`''`, *suffix*=`''`, *src_suffix*=`''`, *target_factory*=`None`, *source_factory*=`None`, *target_scanner*=`None`, *source_scanner*=`None`, *emitter*=`None`, *multi*=`0`, *env*=`None`, *single_source*=`0`, *name*=`None`, *chdir*=`<class 'SCons.Builder._Null'>`, *is_explicit*=`1`, *src_builder*=`None`, *ensure_suffix*=`False`, ***overrides*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__nonzero__(*self*)

__bool__(*self*)

get_name(*self*, *env*)

Attempts to get the name of the Builder.

Look at the BUILDERS variable of env, expecting it to be a dictionary containing this Builder, and return the key of the dictionary. If there's no key, then return a directly-configured name (if there is one) or the name of the class (by default).

__eq__(*self*, *other*)

splitext(*self*, *path*, *env*=`None`)

__call__(*self*, *env*, *target*=`None`, *source*=`None`, *chdir*=`<class 'SCons.Builder._Null'>`, ***kw*)

adjust_suffix(*self*, *suff*)

get_prefix(*self*, *env*, *sources*=`[]`)

set_suffix(*self*, *suffix*)

get_suffix(*self*, *env*, *sources*=`[]`)

set_src_suffix(*self*, *src_suffix*)

get_src_suffix(*self*, *env*)

Get the first src_suffix in the list of src_suffixes.

add_emitter(*self*, *suffix*, *emitter*)

Add a suffix-emitter mapping to this Builder.

This assumes that emitter has been initialized with an appropriate dictionary type, and will throw a TypeError if not, so the caller is responsible for knowing that this is an appropriate method to call for the Builder in question.

add_src_builder(*self*, *builder*)

Add a new Builder to the list of src_builders.

This requires wiping out cached values so that the computed lists of source suffixes get re-calculated.

src_builder_sources(*self*, *env*, *source*, *overwarn*=`{}`)

get_src_builders(*self*, *env*)

Returns the list of source Builders for this Builder.

This exists mainly to look up Builders referenced as strings in the 'BUILDER' variable of the construction environment and cache the result.

subst__src__suffixes(*self*, *env*)

The suffix list may contain construction variable expansions, so we have to evaluate the individual strings. To avoid doing this over and over, we memoize the results for each construction environment.

src__suffixes(*self*, *env*)

Returns the list of source suffixes for all src_builders of this Builder.

This is essentially a recursive descent of the src_builder "tree." (This value isn't cached because there may be changes in a src_builder many levels deep that we can't see.)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

3.9.2 Properties

Name	Description
Inherited from object	
___class___	

3.10 Class CompositeBuilder

object ┐
SCons.Util.Proxy ┐
SCons.Builder.CompositeBuilder

A Builder Proxy whose main purpose is to always have a DictCmdGenerator as its action, and to provide access to the DictCmdGenerator's add_action() method.

3.10.1 Methods

___init___(*self*, *builder*, *cmdgen*)

Wrap an object as a Proxy object Overrides: object.___init___ extit(inherited documentation)

___call___(*...*)

A Python Descriptor class that delegates attribute fetches to an underlying wrapped subject of a Proxy. Typical use:

class Foo(Proxy): ___str___ = Delegate('___str___')

add_action(*self*, *suffix*, *action*)

Inherited from SCons.Util.Proxy(Section 48.5)

___eq___(), ___getattr___(), get()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

3.10.2 Properties

Name	Description
Inherited from object	
___class___	

4 Module SCons.CacheDir

CacheDir support

4.1 Functions

CacheRetrieveFunc(*target*, *source*, *env*)

CacheRetrieveString(*target*, *source*, *env*)

CachePushFunc(*target*, *source*, *env*)

4.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/CacheDir.py a56bbd8c09fb219ab8a9673330f...`
__doc__	**Value:** `...`
cache_enabled	**Value:** `True`
cache_debug	**Value:** `False`
cache_force	**Value:** `False`
cache_show	**Value:** `False`
cache_readonly	**Value:** `False`
CacheRetrieve	**Value:** `<SCons.Action.FunctionAction object>`
CacheRetrieveSilent	**Value:** `<SCons.Action.FunctionAction object>`
CachePush	**Value:** `<SCons.Action.FunctionAction object>`
warned	**Value:** `{}`
__package__	**Value:** `'SCons'`

4.3 Class CacheDir

object

SCons.CacheDir.CacheDir

4.3.1 Methods

__init__(*self*, *path*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

CacheDebug(*self*, *fmt*, *target*, *cachefile*)

is_enabled(*self*)

is_readonly(*self*)

cachepath(*self*, *node*)

retrieve(*self*, *node*)

This method is called from multiple threads in a parallel build, so only do thread safe stuff here. Do thread unsafe stuff in built().

Note that there's a special trick here with the execute flag (one that's not normally done for other actions). Basically if the user requested a no_exec (-n) build, then SCons.Action.execute_actions is set to 0 and when any action is called, it does its showing but then just returns zero instead of actually calling the action execution operation. The problem for caching is that if the file does NOT exist in cache then the CacheRetrieveString won't return anything to show for the task, but the Action.__call__ won't call CacheRetrieveFunc; instead it just returns zero, which makes the code below think that the file *was* successfully retrieved from the cache, therefore it doesn't do any subsequent building. However, the CacheRetrieveString didn't print anything because it didn't actually exist in the cache, and no more build actions will be performed, so the user just sees nothing. The fix is to tell Action.__call__ to always execute the CacheRetrieveFunc and then have the latter explicitly check SCons.Action.execute_actions itself.

push(*self*, *node*)

push_if_forced(*self*, *node*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(),

___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

4.3.2 Properties

Name	Description
Inherited from object	
___class___	

5 Module SCons.Conftest

SCons.Conftest

Autoconf-like configuration support; low level implementation of tests.

5.1 Functions

CheckBuilder(*context*, *text*=`None`, *language*=`None`)

Configure check to see if the compiler works. Note that this uses the current value of compiler and linker flags, make sure $CFLAGS, $CPPFLAGS and $LIBS are set correctly. "language" should be "C" or "C++" and is used to select the compiler. Default is "C". "text" may be used to specify the code to be build. Returns an empty string for success, an error message for failure.

CheckCC(*context*)

Configure check for a working C compiler.

This checks whether the C compiler, as defined in the $CC construction variable, can compile a C source file. It uses the current $CCCOM value too, so that it can test against non working flags.

CheckSHCC(*context*)

Configure check for a working shared C compiler.

This checks whether the C compiler, as defined in the $SHCC construction variable, can compile a C source file. It uses the current $SHCCCOM value too, so that it can test against non working flags.

CheckCXX(*context*)

Configure check for a working CXX compiler.

This checks whether the CXX compiler, as defined in the $CXX construction variable, can compile a CXX source file. It uses the current $CXXCOM value too, so that it can test against non working flags.

CheckSHCXX(*context*)

Configure check for a working shared CXX compiler.

This checks whether the CXX compiler, as defined in the $SHCXX construction variable, can compile a CXX source file. It uses the current $SHCXXCOM value too, so that it can test against non working flags.

CheckFunc(*context*, *function_name*, *header*=`None`, *language*=`None`)

Configure check for a function "function_name". "language" should be "C" or "C++" and is used to select the compiler. Default is "C". Optional "header" can be defined to define a function prototype, include a header file or anything else that comes before main(). Sets HAVE_function_name in context.havedict according to the result. Note that this uses the current value of compiler and linker flags, make sure $CFLAGS, $CPPFLAGS and $LIBS are set correctly. Returns an empty string for success, an error message for failure.

CheckHeader(*context*, *header_name*, *header*=`None`, *language*=`None`, *include_quotes*=`None`)

Configure check for a C or C++ header file "header_name". Optional "header" can be defined to do something before including the header file (unusual, supported for consistency). "language" should be "C" or "C++" and is used to select the compiler. Default is "C". Sets HAVE_header_name in context.havedict according to the result. Note that this uses the current value of compiler and linker flags, make sure $CFLAGS and $CPPFLAGS are set correctly. Returns an empty string for success, an error message for failure.

CheckType(*context*, *type_name*, *fallback*=`None`, *header*=`None`, *language*=`None`)

Configure check for a C or C++ type "type_name". Optional "header" can be defined to include a header file. "language" should be "C" or "C++" and is used to select the compiler. Default is "C". Sets HAVE_type_name in context.havedict according to the result. Note that this uses the current value of compiler and linker flags, make sure $CFLAGS, $CPPFLAGS and $LIBS are set correctly. Returns an empty string for success, an error message for failure.

CheckTypeSize(*context*, *type_name*, *header*=`None`, *language*=`None`, *expect*=`None`)

This check can be used to get the size of a given type, or to check whether the type is of expected size.

Arguments:

- **type** (**str**) the type to check
- **includes** (**sequence**) list of headers to include in the test code before testing the type
- **language** (**str**) 'C' or 'C++'
- **expect** (**int**) if given, will test wether the type has the given number of bytes. If not given, will automatically find the size.

Returns:

status (**int**) 0 if the check failed, or the found size of the type if the check succeeded.

CheckDeclaration(*context*, *symbol*, *includes*=`None`, *language*=`None`)

Checks whether symbol is declared.

Use the same test as autoconf, that is test whether the symbol is defined as a macro or can be used as an r-value.

Arguments:

> **symbol** (**str**) the symbol to check
>
> **includes** (**str**) Optional "header" can be defined to include a header file.
>
> **language** (**str**) only C and C++ supported.

Returns:

> **status** (**bool**) True if the check failed, False if succeeded.

CheckLib(*context*, *libs*, *func_name*=`None`, *header*=`None`, *extra_libs*=`None`, *call*=`None`, *language*=`None`, *autoadd*=`1`, *append*=`True`)

Configure check for a C or C++ libraries "libs". Searches through the list of libraries, until one is found where the test succeeds. Tests if "func_name" or "call" exists in the library. Note: if it exists in another library the test succeeds anyway! Optional "header" can be defined to include a header file. If not given a default prototype for "func_name" is added. Optional "extra_libs" is a list of library names to be added after "lib_name" in the build command. To be used for libraries that "lib_name" depends on. Optional "call" replaces the call to "func_name" in the test code. It must consist of complete C statements, including a trailing ";". Both "func_name" and "call" arguments are optional, and in that case, just linking against the libs is tested. "language" should be "C" or "C++" and is used to select the compiler. Default is "C". Note that this uses the current value of compiler and linker flags, make sure $CFLAGS, $CPPFLAGS and $LIBS are set correctly. Returns an empty string for success, an error message for failure.

CheckProg(*context*, *prog_name*)

Configure check for a specific program.

Check whether program prog_name exists in path. If it is found, returns the path for it, otherwise returns None.

5.2 Variables

Name	Description
LogInputFiles	**Value:** `1`
LogErrorMessages	**Value:** `1`
__package__	**Value:** `'SCons'`

6 Module SCons.Debug

SCons.Debug

Code for debugging SCons internal things. Shouldn't be needed by most users. Quick shortcuts:

from SCons.Debug import caller_trace caller_trace()

6.1 Functions

logInstanceCreation(*instance*, *name*=`None`)

string_to_classes(*s*)

fetchLoggedInstances(*classes*=`'*'`)

countLoggedInstances(*classes*, *file*=`<epydoc.docintrospecter._DevNull object>`)

listLoggedInstances(*classes*, *file*=`<epydoc.docintrospecter._DevNull object>`)

dumpLoggedInstances(*classes*, *file*=`<epydoc.docintrospecter._DevNull object>`)

memory()

caller_stack()

caller_trace(*back*=`0`)

Trace caller stack and save info into global dicts, which are printed automatically at the end of SCons execution.

dump_caller_counts(*file*=`<epydoc.docintrospecter._DevNull object>`)

func_shorten(*func_tuple*)

Trace(*msg*, *file*=`None`, *mode*=`'w'`, *tstamp*=`None`)

Write a trace message to a file. Whenever a file is specified, it becomes the default for the next call to Trace().

6.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Debug.py a56bbd8c09fb219ab8a9673330ffcd...`
track_instances	**Value:** `False`
tracked_classes	**Value:** `{}`
caller_bases	**Value:** `{}`
caller_dicts	**Value:** `{}`
shorten_list	**Value:** `[('/scons/SCons/', 1), ('/src/engine/SCons/', 1), ('/usr/...`
TraceFP	**Value:** `{}`
TraceDefault	**Value:** `'/dev/tty'`
TimeStampDefault	**Value:** `None`
StartTime	**Value:** `1553642263.13`
PreviousTime	**Value:** `1553642263.13`
__package__	**Value:** `'SCons'`

7 Module SCons.Defaults

SCons.Defaults

Builders and other things for the local site. Here's where we'll duplicate the functionality of autoconf until we move it into the installation procedure or use something like qmconf.

The code that reads the registry to find MSVC components was borrowed from distutils.msvccompiler.

7.1 Functions

DefaultEnvironment(**args*, ***kw*)

Initial public entry point for creating the default construction Environment.

After creating the environment, we overwrite our name (DefaultEnvironment) with the _fetch_DefaultEnvironment() function, which more efficiently returns the initialized default construction environment without checking for its existence.

(This function still exists with its _default_check because someone else (*cough* Script/__init__.py *cough*) may keep a reference to this function. So we can't use the fully functional idiom of having the name originally be a something that *only* creates the construction environment and then overwrites the name.)

StaticObjectEmitter(*target*, *source*, *env*)

SharedObjectEmitter(*target*, *source*, *env*)

SharedFlagChecker(*source*, *target*, *env*)

get_paths_str(*dest*)

chmod_func(*dest*, *mode*)

chmod_strfunc(*dest*, *mode*)

copy_func(*dest*, *src*, *symlinks*=True)

If symlinks (is true), then a symbolic link will be shallow copied and recreated as a symbolic link; otherwise, copying a symbolic link will be equivalent to copying the symbolic link's final target regardless of symbolic link depth.

delete_func(*dest*, *must_exist*=0)

delete_strfunc(*dest*, *must_exist*=0)

mkdir_func(*dest*)

move_func(*dest*, *src*)

touch_func(*dest*)

processDefines(*defs*)

process defines, resolving strings, lists, dictionaries, into a list of strings

7.2 Variables

Name	Description
__revision__	**Value:** 'src/engine/SCons/Defaults.py a56bbd8c09fb219ab8a9673330f...
SharedCheck	**Value:** <SCons.Action.FunctionAction object>
CScan	**Value:** <SCons.Scanner.ClassicCPP object>
DScan	**Value:** <SCons.Scanner.D.D object>
LaTeXScan	**Value:** <SCons.Scanner.LaTeX.LaTeX object>
ObjSourceScan	**Value:** <SCons.Scanner.Base object>
ProgScan	**Value:** <SCons.Scanner.Base object>
DirScanner	**Value:** <SCons.Scanner.Base object>
DirEntryScanner	**Value:** <SCons.Scanner.Base object>
CAction	**Value:** <SCons.Action.LazyAction object>
ShCAction	**Value:** <SCons.Action.LazyAction object>
CXXAction	**Value:** <SCons.Action.LazyAction object>
ShCXXAction	**Value:** <SCons.Action.LazyAction object>

continued on next page

Name	Description
DAction	**Value:** <SCons.Action.LazyAction object>
ShDAction	**Value:** <SCons.Action.LazyAction object>
ASAction	**Value:** <SCons.Action.LazyAction object>
ASPPAction	**Value:** <SCons.Action.LazyAction object>
LinkAction	**Value:** <SCons.Action.LazyAction object>
ShLinkAction	**Value:** <SCons.Action.LazyAction object>
LdModuleLinkAction	**Value:** <SCons.Action.LazyAction object>
permission_dic	**Value:** {'g': {'r': 32, 'w': 16, 'x': 8}, 'o': {'r': 4, 'w': 2, '...
Chmod	**Value:** <SCons.Action.ActionFactory object>
Copy	**Value:** <SCons.Action.ActionFactory object>
Delete	**Value:** <SCons.Action.ActionFactory object>
Mkdir	**Value:** <SCons.Action.ActionFactory object>
Move	**Value:** <SCons.Action.ActionFactory object>
Touch	**Value:** <SCons.Action.ActionFactory object>
ConstructionEnvironment	**Value:** {'BUILDERS': {}, 'CONFIGUREDIR': '#/.sconf_temp', 'CONFIG...
__package__	**Value:** 'SCons'

7.3 Class NullCmdGenerator

object
SCons.Defaults.NullCmdGenerator

This is a callable class that can be used in place of other command generators if you don't want them to do anything.

The __call__ method for this class simply returns the thing you instantiated it with.

Example usage: env["DO_NOTHING"] = NullCmdGenerator env["LINKCOM"] = "${DO_NOTHING('$LINK $SOURCES $TARGET')}"

7.3.1 Methods

___init___(*self*, *cmd*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, *target*, *source*, *env*, *for_signature*=`None`)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

7.3.2 Properties

Name	Description
Inherited from object	
___class___	

7.4 Class Variable_Method_Caller

object ─┐
SCons.Defaults.Variable_Method_Caller

A class for finding a construction variable on the stack and calling one of its methods.

We use this to support "construction variables" in our string eval()s that actually stand in for methods--specifically, use of "RDirs" in call to _concat that should actually execute the "TARGET.RDirs" method. (We used to support this by creating a little "build dictionary" that mapped RDirs to the method, but this got in the way of Memoizing construction environments, because we had to create new environment objects to hold the variables.)

7.4.1 Methods

___init___(*self*, *variable*, *method*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

__call__(*self*, **args*, ***kw*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

7.4.2 Properties

Name	Description
Inherited from object	
__class__	

8 Module SCons.Environment

SCons.Environment

Base class for construction Environments. These are the primary objects used to communicate dependency and construction information to the build engine.

Keyword arguments supplied when the construction Environment is created are construction variables used to initialize the Environment

8.1 Functions

alias_builder(*env*, *target*, *source*)

apply_tools(*env*, *tools*, *toolpath*)

copy_non_reserved_keywords(*dict*)

is_valid_construction_var(*varstr*)

Return if the specified string is a legitimate construction variable.

default_decide_source(*dependency*, *target*, *prev_ni*)

default_decide_target(*dependency*, *target*, *prev_ni*)

default_copy_from_cache(*src*, *dst*)

NoSubstitutionProxy(*subject*)

An entry point for returning a proxy subclass instance that overrides the subst*() methods so they don't actually perform construction variable substitution. This is specifically intended to be the shim layer in between global function calls (which don't want construction variable substitution) and the DefaultEnvironment() (which would substitute variables if left to its own devices).

We have to wrap this in a function that allows us to delay definition of the class until it's necessary, so that when it subclasses Environment it will pick up whatever Environment subclass the wrapper interface might have assigned to SCons.Environment.Environment.

8.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Environment.py a56bbd8c09fb219ab8a96733...`
CleanTargets	**Value:** `{}`
CalculatorArgs	**Value:** `{}`
AliasBuilder	**Value:** `<SCons.Builder.BuilderBase object>`
reserved_construction_var_names	**Value:** `['CHANGED_SOURCES', 'CHANGED_TARGETS', 'SOURCE', 'SOURCES...`
future_reserved_construction_var_names	**Value:** `[]`
__package__	**Value:** `'SCons'`

8.3 Class MethodWrapper

object ┐
  SCons.Environment.MethodWrapper

Known Subclasses: SCons.Environment.BuilderWrapper

A generic Wrapper class that associates a method (which can actually be any callable) with an object. As part of creating this MethodWrapper object an attribute with the specified (by default, the name of the supplied method) is added to the underlying object. When that new "method" is called, our ___call___() method adds the object as the first argument, simulating the Python behavior of supplying "self" on method calls.

We hang on to the name by which the method was added to the underlying base class so that we can provide a method to "clone" ourselves onto a new underlying object being copied (without which we wouldn't need to save that info).

8.3.1 Methods

___init___(*self*, *object*, *method*, *name*=None)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*, ***kwargs*)

clone(*self*, *new_object*)

Returns an object that re-binds the underlying "method" to the specified new object.

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

8.3.2 Properties

Name	Description
Inherited from object	
___class___	

8.4 Class BuilderWrapper

object
SCons.Environment.MethodWrapper
SCons.Environment.BuilderWrapper

A MethodWrapper subclass that that associates an environment with a Builder.

This mainly exists to wrap the __call__() function so that all calls to Builders can have their argument lists massaged in the same way (treat a lone argument as the source, treat two arguments as target then source, make sure both target and source are lists) without having to have cut-and-paste code to do it.

As a bit of obsessive backwards compatibility, we also intercept attempts to get or set the "env" or "builder" attributes, which were the names we used before we put the common functionality into the MethodWrapper base class. We'll keep this around for a while in case people shipped Tool modules that reached into the wrapper (like the Tool/qt.py module does, or did). There shouldn't be a lot attribute fetching or setting on these, so a little extra work shouldn't hurt.

8.4.1 Methods

__call__(*self*, *target*=`None`, *source*=`<class 'SCons.Environment._Null'>`, **args*, ***kw*)

Overrides: SCons.Environment.MethodWrapper.__call__

__repr__(*self*)

repr(x) Overrides: object.__repr__ extit(inherited documentation)

__str__(*self*)

str(x) Overrides: object.__str__ extit(inherited documentation)

__getattr__(*self*, *name*)

__setattr__(*self*, *name*, *value*)

x.__setattr__('name', value) <==> x.name = value Overrides: object.__setattr__ extit(inherited documentation)

Inherited from SCons.Environment.MethodWrapper(Section 8.3)

__init__(), clone()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

8.4.2 Properties

Name	Description
Inherited from object	
__class__	

8.5 Class BuilderDict

UserDict.UserDict
└ **SCons.Environment.BuilderDict**

This is a dictionary-like class used by an Environment to hold the Builders. We need to do this because every time someone changes the Builders in the Environment's BUILDERS dictionary, we must update the Environment's attributes.

8.5.1 Methods

__init__(*self, dict, env*)

Overrides: UserDict.UserDict.__init__

__semi_deepcopy__(*self*)

__setitem__(*self, item, val*)

Overrides: UserDict.UserDict.__setitem__

__delitem__(*self, item*)

Overrides: UserDict.UserDict.__delitem__

update(*self, dict*)

Overrides: UserDict.UserDict.update

Inherited from UserDict.UserDict

__cmp__(), __contains__(), __getitem__(), __len__(), __repr__(), clear(), copy(), fromkeys(), get(), has_key(), items(), iteritems(), iterkeys(), itervalues(), keys(), pop(), popitem(), setdefault(), values()

8.5.2 Class Variables

Name	Description
Inherited from UserDict.UserDict	
___hash___	

8.6 Class SubstitutionEnvironment

object ─┐
SCons.Environment.SubstitutionEnvironment

Known Subclasses: SCons.Environment.Base

Base class for different flavors of construction environments.

This class contains a minimal set of methods that handle construction variable expansion and conversion of strings to Nodes, which may or may not be actually useful as a stand-alone class. Which methods ended up in this class is pretty arbitrary right now. They're basically the ones which we've empirically determined are common to the different construction environment subclasses, and most of the others that use or touch the underlying dictionary of construction variables.

Eventually, this class should contain all the methods that we determine are necessary for a "minimal" interface to the build engine. A full "native Python" SCons environment has gotten pretty heavyweight with all of the methods and Tools and construction variables we've jammed in there, so it would be nice to have a lighter weight alternative for interfaces that don't need all of the bells and whistles. (At some point, we'll also probably rename this class "Base," since that more reflects what we want this class to become, but because we've released comments that tell people to subclass Environment.Base to create their own flavors of construction environment, we'll save that for a future refactoring when this class actually becomes useful.)

8.6.1 Methods

___init___(*self*, ***kw*)

Initialization of an underlying SubstitutionEnvironment class. Overrides: object.___init___

___eq___(*self*, *other*)

___delitem___(*self*, *key*)

__getitem__(*self*, *key*)

__setitem__(*self*, *key*, *value*)

get(*self*, *key*, *default*=`None`)

Emulates the get() method of dictionaries.

has_key(*self*, *key*)

__contains__(*self*, *key*)

items(*self*)

arg2nodes(*self*, *args*, *node_factory*=`<class 'SCons.Environment._Null'>`, *lookup_list*=`<class 'SCons.Environment._Null'>`, ***kw*)

gvars(*self*)

lvars(*self*)

subst(*self*, *string*, *raw*=`0`, *target*=`None`, *source*=`None`, *conv*=`None`, *executor*=`None`)

Recursively interpolates construction variables from the Environment into the specified string, returning the expanded result. Construction variables are specified by a $ prefix in the string and begin with an initial underscore or alphabetic character followed by any number of underscores or alphanumeric characters. The construction variable names may be surrounded by curly braces to separate the name from trailing characters.

subst_kw(*self*, *kw*, *raw*=`0`, *target*=`None`, *source*=`None`)

subst_list(*self*, *string*, *raw*=`0`, *target*=`None`, *source*=`None`, *conv*=`None`, *executor*=`None`)

Calls through to SCons.Subst.scons_subst_list(). See the documentation for that function.

subst_path(*self*, *path*, *target*=`None`, *source*=`None`)

Substitute a path list, turning EntryProxies into Nodes and leaving Nodes (and other objects) as-is.

subst_target_source(*self*, *string*, *raw*=`0`, *target*=`None`, *source*=`None`, *conv*=`None`, *executor*=`None`)

Recursively interpolates construction variables from the Environment into the specified string, returning the expanded result. Construction variables are specified by a $ prefix in the string and begin with an initial underscore or alphabetic character followed by any number of underscores or alphanumeric characters. The construction variable names may be surrounded by curly braces to separate the name from trailing characters.

backtick(*self*, *command*)

AddMethod(*self*, *function*, *name*=`None`)

Adds the specified function as a method of this construction environment with the specified name. If the name is omitted, the default name is the name of the function itself.

RemoveMethod(*self*, *function*)

Removes the specified function's MethodWrapper from the added_methods list, so we don't re-bind it when making a clone.

Override(*self*, *overrides*)

Produce a modified environment whose variables are overridden by the overrides dictionaries. "overrides" is a dictionary that will override the variables of this environment.

This function is much more efficient than Clone() or creating a new Environment because it doesn't copy the construction environment dictionary, it just wraps the underlying construction environment, and doesn't even create a wrapper object if there are no overrides.

ParseFlags(*self*, **flags*)

Parse the set of flags and return a dict with the flags placed in the appropriate entry. The flags are treated as a typical set of command-line flags for a GNU-like toolchain and used to populate the entries in the dict immediately below. If one of the flag strings begins with a bang (exclamation mark), it is assumed to be a command and the rest of the string is executed; the result of that evaluation is then added to the dict.

MergeFlags(*self*, *args*, *unique*=`1`, *dict*=`None`)

Merge the dict in args into the construction variables of this env, or the passed-in dict. If args is not a dict, it is converted into a dict using ParseFlags. If unique is not set, the flags are appended rather than merged.

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

8.6.2 Properties

Name	Description
Inherited from object	
___class___	

8.7 Class Base

object
SCons.Environment.SubstitutionEnvironment
SCons.Environment.Base

Known Subclasses: SCons.Environment.OverrideEnvironment, SCons.Script.SConscript'.SConsEnvironment

Base class for "real" construction Environments. These are the primary objects used to communicate dependency and construction information to the build engine.

Keyword arguments supplied when the construction Environment is created are construction variables used to initialize the Environment.

8.7.1 Methods

Action(*self*, **args*, ***kw*)

AddPostAction(*self*, *files*, *action*)

AddPreAction(*self*, *files*, *action*)

Alias(*self*, *target*, *source*=`[]`, *action*=`None`, ***kw*)

AlwaysBuild(*self*, **targets*)

Append(*self*, ***kw*)

Append values to existing construction variables in an Environment.

AppendENVPath(*self*, *name*, *newpath*, *envname*='ENV', *sep*=':', *delete_existing*=0)

Append path elements to the path 'name' in the 'ENV' dictionary for this environment. Will only add any particular path once, and will normpath and normcase all paths to help assure this. This can also handle the case where the env variable is a list instead of a string.

If delete_existing is 0, a newpath which is already in the path will not be moved to the end (it will be left where it is).

AppendUnique(*self*, *delete_existing*=0, ***kw*)

Append values to existing construction variables in an Environment, if they're not already there. If delete_existing is 1, removes existing values first, so values move to end.

BuildDir(*self*, **args*, ***kw*)

Builder(*self*, ***kw*)

CacheDir(*self*, *path*)

Clean(*self*, *targets*, *files*)

Clone(*self*, *tools*=[], *toolpath*=None, *parse_flags*=None, ***kw*)

Return a copy of a construction Environment. The copy is like a Python "deep copy"--that is, independent copies are made recursively of each objects--except that a reference is copied when an object is not deep-copyable (like a function). There are no references to any mutable objects in the original Environment.

Command(*self*, *target*, *source*, *action*, ***kw*)

Builds the supplied target files from the supplied source files using the supplied action. Action may be any type that the Builder constructor will accept for an action.

Configure(*self*, **args*, ***kw*)

Copy(*self*, **args*, ***kw*)

Decider(*self*, *function*)

Depends(*self*, *target*, *dependency*)

Explicity specify that 'target's depend on 'dependency'.

Detect(*self*, *progs*)

Return the first available program in progs.

Dictionary(*self*, **args*)

Dir(*self*, *name*, **args*, ***kw*)

Dump(*self*, *key*=`None`)

Using the standard Python pretty printer, return the contents of the scons build environment as a string.

If the key passed in is anything other than None, then that will be used as an index into the build environment dictionary and whatever is found there will be fed into the pretty printer. Note that this key is case sensitive.

Entry(*self*, *name*, **args*, ***kw*)

Environment(*self*, ***kw*)

Execute(*self*, *action*, **args*, ***kw*)

Directly execute an action through an Environment

File(*self*, *name*, **args*, ***kw*)

FindFile(*self*, *file*, *dirs*)

FindInstalledFiles(*self*)

returns the list of all targets of the Install and InstallAs Builder.

FindIxes(*self*, *paths*, *prefix*, *suffix*)

Search a list of paths for something that matches the prefix and suffix.

paths - the list of paths or nodes. prefix - construction variable for the prefix. suffix - construction variable for the suffix.

FindSourceFiles(*self*, *node*=`'.'`)

returns a list of all source files.

Flatten(*self*, *sequence*)

GetBuildPath(*self*, *files*)

Glob(*self*, *pattern*, *ondisk*=`True`, *source*=`False`, *strings*=`False`, *exclude*=`None`)

Ignore(*self*, *target*, *dependency*)

Ignore a dependency.

Literal(*self*, *string*)

Local(*self*, **targets*)

NoCache(*self*, **targets*)

Tags a target so that it will not be cached

NoClean(*self*, **targets*)

Tags a target so that it will not be cleaned by `-c`

ParseConfig(*self*, *command*, *function*=`None`, *unique*=`1`)

Use the specified function to parse the output of the command in order to modify the current environment. The 'command' can be a string or a list of strings representing a command and its arguments. 'Function' is an optional argument that takes the environment, the output of the command, and the unique flag. If no function is specified, MergeFlags, which treats the output as the result of a typical 'X-config' command (i.e. gtk-config), will merge the output into the appropriate variables.

ParseDepends(*self*, *filename*, *must_exist*=`None`, *only_one*=`0`)

Parse a mkdep-style file for explicit dependencies. This is completely abusable, and should be unnecessary in the "normal" case of proper SCons configuration, but it may help make the transition from a Make hierarchy easier for some people to swallow. It can also be genuinely useful when using a tool that can write a .d file, but for which writing a scanner would be too complicated.

Platform(*self*, *platform*)

Precious(*self*, **targets*)

Prepend(*self*, ***kw*)

Prepend values to existing construction variables in an Environment.

PrependENVPath(*self*, *name*, *newpath*, *envname*='ENV', *sep*=':', *delete_existing*=1)

Prepend path elements to the path 'name' in the 'ENV' dictionary for this environment. Will only add any particular path once, and will normpath and normcase all paths to help assure this. This can also handle the case where the env variable is a list instead of a string.

If delete_existing is 0, a newpath which is already in the path will not be moved to the front (it will be left where it is).

PrependUnique(*self*, *delete_existing*=0, ***kw*)

Prepend values to existing construction variables in an Environment, if they're not already there. If delete_existing is 1, removes existing values first, so values move to front.

Pseudo(*self*, **targets*)

PyPackageDir(*self*, *modulename*)

Replace(*self*, ***kw*)

Replace existing construction variables in an Environment with new construction variables and/or values.

ReplaceIxes(*self*, *path*, *old_prefix*, *old_suffix*, *new_prefix*, *new_suffix*)

Replace old_prefix with new_prefix and old_suffix with new_suffix.

env - Environment used to interpolate variables. path - the path that will be modified. old_prefix - construction variable for the old prefix. old_suffix - construction variable for the old suffix. new_prefix - construction variable for the new prefix. new_suffix - construction variable for the new suffix.

Repository(*self*, **dirs*, ***kw*)

Requires(*self*, *target*, *prerequisite*)

Specify that 'prerequisite' must be built before 'target', (but 'target' does not actually depend on 'prerequisite' and need not be rebuilt if it changes).

SConsignFile(*self*, *name*=`'.sconsign'`, *dbm_module*=`None`)

Scanner(*self*, **args*, ***kw*)

SetDefault(*self*, ***kw*)

SideEffect(*self*, *side_effect*, *target*)

Tell scons that side_effects are built as side effects of building targets.

SourceCode(*self*, *entry*, *builder*)

Arrange for a source code builder for (part of) a tree.

SourceSignatures(*self*, *type*)

Split(*self*, *arg*)

This function converts a string or list into a list of strings or Nodes. This makes things easier for users by allowing files to be specified as a white-space separated list to be split.

The input rules are:

- A single string containing names separated by spaces. These will be split apart at the spaces.
- A single Node instance
- A list containing either strings or Node instances. Any strings in the list are not split at spaces.

In all cases, the function returns a list of Nodes and strings.

TargetSignatures(*self*, *type*)

Tool(*self*, *tool*, *toolpath*=`None`, `**`*kw*)

Value(*self*, *value*, *built_value*=`None`)

VariantDir(*self*, *variant_dir*, *src_dir*, *duplicate*=`1`)

WhereIs(*self*, *prog*, *path*=`None`, *pathext*=`None`, *reject*=`[]`)

Find prog in the path.

__init__(*self*, *platform*=`None`, *tools*=`None`, *toolpath*=`None`, *variables*=`None`, *parse_flags*=`None`, `**`*kw*)

Initialization of a basic SCons construction environment, including setting up special construction variables like BUILDER, PLATFORM, etc., and searching for and applying available Tools.

Note that we do *not* call the underlying base class (SubsitutionEnvironment) initialization, because we need to initialize things in a very specific order that doesn't work with the much simpler base class initialization. Overrides: object.__init__

get_CacheDir(*self*)

get_builder(*self*, *name*)

Fetch the builder with the specified name from the environment.

get_factory(*self*, *factory*, *default*=`'File'`)

Return a factory function for creating Nodes for this construction environment.

get_scanner(*self*, *skey*)

Find the appropriate scanner given a key (usually a file suffix).

get_src_sig_type(*self*)

get_tgt_sig_type(*self*)

scanner_map_delete(*self*, *kw*=`None`)

Delete the cached scanner map (if we need to).

Inherited from SCons.Environment.SubstitutionEnvironment(Section 8.6)

AddMethod(), MergeFlags(), Override(), ParseFlags(), RemoveMethod(), __contains__(), __delitem__(), __eq__(), __getitem__(), __setitem__(), arg2nodes(), backtick(), get(), gvars(), has_key(), items(), lvars(), subst(), subst_kw(), subst_list(), subst_path(), subst_target_source()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

8.7.2 Properties

Name	Description
Inherited from object	
__class__	

8.8 Class OverrideEnvironment

object

SCons.Environment.SubstitutionEnvironment

SCons.Environment.Base

SCons.Environment.OverrideEnvironment

A proxy that overrides variables in a wrapped construction environment by returning values from an overrides dictionary in preference to values from the underlying subject environment.

This is a lightweight (I hope) proxy that passes through most use of attributes to the underlying Environment.Base class, but has just enough additional methods defined to act like a real construction environment with overridden values. It can wrap either a Base construction environment, or another OverrideEnvironment, which can in turn nest arbitrary OverrideEnvironments...

Note that we do *not* call the underlying base class (SubsitutionEnvironment) initialization, because we get most of those from proxying the attributes of the subject construction environment. But because we subclass SubstitutionEnvironment, this class also has inherited arg2nodes() and subst*() methods; those methods can't be proxied because they need *this* object's methods to fetch the values from the overrides dictionary.

8.8.1 Methods

__init__(*self*, *subject*, *overrides*=`{}`)

Initialization of a basic SCons construction environment, including setting up special construction variables like BUILDER, PLATFORM, etc., and searching for and applying available Tools.

Note that we do *not* call the underlying base class (SubsitutionEnvironment) initialization, because we need to initialize things in a very specific order that doesn't work with the much simpler base class initialization. Overrides: object.__init__ extit(inherited documentation)

__getattr__(*self*, *name*)

__setattr__(*self*, *name*, *value*)

x.__setattr__('name', value) <==> x.name = value Overrides: object.__setattr__ extit(inherited documentation)

__getitem__(*self*, *key*)

Overrides: SCons.Environment.SubstitutionEnvironment.__getitem__

__setitem__(*self*, *key*, *value*)

Overrides: SCons.Environment.SubstitutionEnvironment.__setitem__

__delitem__(*self*, *key*)

Overrides: SCons.Environment.SubstitutionEnvironment.__delitem__

get(*self*, *key*, *default*=None)

Emulates the get() method of dictionaries. Overrides: SCons.Environment.SubstitutionEnvironment.get

has_key(*self*, *key*)

Overrides: SCons.Environment.SubstitutionEnvironment.has_key

__contains__(*self*, *key*)

Overrides: SCons.Environment.SubstitutionEnvironment.__contains__

Dictionary(*self*)

Emulates the items() method of dictionaries. Overrides: SCons.Environment.Base.Dictionary

items(*self*)

Emulates the items() method of dictionaries. Overrides: SCons.Environment.SubstitutionEnvironment.items

gvars(*self*)

Overrides: SCons.Environment.SubstitutionEnvironment.gvars

lvars(*self*)

Overrides: SCons.Environment.SubstitutionEnvironment.lvars

Replace(*self*, ***kw*)

Replace existing construction variables in an Environment with new construction variables and/or values. Overrides: SCons.Environment.Base.Replace extit(inherited documentation)

Inherited from SCons.Environment.Base(Section 8.9)

Action(), AddPostAction(), AddPreAction(), Alias(), AlwaysBuild(), Append(), AppendENVPath(), AppendUnique(), BuildDir(), Builder(), CacheDir(), Clean(), Clone(), Command(), Configure(), Copy(), Decider(), Depends(), Detect(), Dir(), Dump(), Entry(), Environment(), Execute(), File(), FindFile(), FindInstalledFiles(), FindIxes(), FindSourceFiles(), Flatten(), GetBuildPath(), Glob(), Ignore(), Literal(), Local(), NoCache(), NoClean(), ParseConfig(), ParseDepends(), Platform(), Precious(), Prepend(), PrependENVPath(), PrependUnique(), Pseudo(), PyPackageDir(), ReplaceIxes(), Repository(), Requires(), SConsignFile(), Scanner(), SetDefault(), SideEffect(), SourceCode(), SourceSignatures(), Split(), TargetSignatures(), Tool(), Value(), VariantDir(), WhereIs(), get_CacheDir(), get_builder(), get_factory(), get_scanner(), get_src_sig_type(), get_tgt_sig_type(), scanner_map_delete()

Inherited from SCons.Environment.SubstitutionEnvironment(Section 8.6)

AddMethod(), MergeFlags(), Override(), ParseFlags(), RemoveMethod(), __eq__(), arg2nodes(), backtick(), subst(), subst_kw(), subst_list(), subst_path(), subst_target_source()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __sizeof__(), __str__(), __subclasshook__()

8.8.2 Properties

Name	Description
Inherited from object	
__class__	

8.9 Class Base

object

SCons.Environment.SubstitutionEnvironment

SCons.Environment.Base

Known Subclasses: SCons.Environment.OverrideEnvironment, SCons.Script.SConscript'.SConsEnvironment

Base class for "real" construction Environments. These are the primary objects used to communicate dependency and construction information to the build engine.

Keyword arguments supplied when the construction Environment is created are construction variables used to initialize the Environment.

8.9.1 Methods

Action(*self*, **args*, ***kw*)

AddPostAction(*self*, *files*, *action*)

AddPreAction(*self*, *files*, *action*)

Alias(*self*, *target*, *source*=`[]`, *action*=`None`, ***kw*)

AlwaysBuild(*self*, **targets*)

Append(*self*, ***kw*)

Append values to existing construction variables in an Environment.

AppendENVPath(*self*, *name*, *newpath*, *envname*=`'ENV'`, *sep*=`':'`, *delete_existing*=`0`)

Append path elements to the path 'name' in the 'ENV' dictionary for this environment. Will only add any particular path once, and will normpath and normcase all paths to help assure this. This can also handle the case where the env variable is a list instead of a string.

If delete_existing is 0, a newpath which is already in the path will not be moved to the end (it will be left where it is).

AppendUnique(*self*, *delete_existing*=`0`, ***kw*)

Append values to existing construction variables in an Environment, if they're not already there. If delete_existing is 1, removes existing values first, so values move to end.

BuildDir(*self*, **args*, ***kw*)

Builder(*self*, ***kw*)

CacheDir(*self*, *path*)

Clean(*self*, *targets*, *files*)

Clone(*self*, *tools*=`[]`, *toolpath*=`None`, *parse_flags*=`None`, ***kw*)

Return a copy of a construction Environment. The copy is like a Python "deep copy"--that is, independent copies are made recursively of each objects--except that a reference is copied when an object is not deep-copyable (like a function). There are no references to any mutable objects in the original Environment.

Command(*self*, *target*, *source*, *action*, ***kw*)

Builds the supplied target files from the supplied source files using the supplied action. Action may be any type that the Builder constructor will accept for an action.

Configure(*self*, **args*, ***kw*)

Copy(*self*, **args*, ***kw*)

Decider(*self*, *function*)

Depends(*self*, *target*, *dependency*)

Explicity specify that 'target's depend on 'dependency'.

Detect(*self*, *progs*)

Return the first available program in progs.

Dictionary(*self*, **args*)

Dir(*self*, *name*, **args*, ***kw*)

Dump(*self*, *key*=`None`)

Using the standard Python pretty printer, return the contents of the scons build environment as a string.

If the key passed in is anything other than None, then that will be used as an index into the build environment dictionary and whatever is found there will be fed into the pretty printer. Note that this key is case sensitive.

Entry(*self*, *name*, **args*, ***kw*)

Environment(*self*, ***kw*)

Execute(*self*, *action*, **args*, ***kw*)

Directly execute an action through an Environment

File(*self*, *name*, **args*, ***kw*)

FindFile(*self*, *file*, *dirs*)

FindInstalledFiles(*self*)

returns the list of all targets of the Install and InstallAs Builder.

FindIxes(*self*, *paths*, *prefix*, *suffix*)

Search a list of paths for something that matches the prefix and suffix.

paths - the list of paths or nodes. prefix - construction variable for the prefix. suffix - construction variable for the suffix.

FindSourceFiles(*self*, *node*=`'.'`)

returns a list of all source files.

Flatten(*self*, *sequence*)

GetBuildPath(*self*, *files*)

Glob(*self*, *pattern*, *ondisk*=`True`, *source*=`False`, *strings*=`False`, *exclude*=`None`)

Ignore(*self*, *target*, *dependency*)

Ignore a dependency.

Literal(*self*, *string*)

Local(*self*, **targets*)

NoCache(*self*, **targets*)

Tags a target so that it will not be cached

NoClean(*self*, **targets*)

Tags a target so that it will not be cleaned by `-c`

ParseConfig(*self*, *command*, *function*=`None`, *unique*=`1`)

Use the specified function to parse the output of the command in order to modify the current environment. The 'command' can be a string or a list of strings representing a command and its arguments. 'Function' is an optional argument that takes the environment, the output of the command, and the unique flag. If no function is specified, MergeFlags, which treats the output as the result of a typical 'X-config' command (i.e. gtk-config), will merge the output into the appropriate variables.

ParseDepends(*self*, *filename*, *must_exist*=`None`, *only_one*=`0`)

Parse a mkdep-style file for explicit dependencies. This is completely abusable, and should be unnecessary in the "normal" case of proper SCons configuration, but it may help make the transition from a Make hierarchy easier for some people to swallow. It can also be genuinely useful when using a tool that can write a .d file, but for which writing a scanner would be too complicated.

Platform(*self*, *platform*)

Precious(*self*, **targets*)

Prepend(*self*, ***kw*)

Prepend values to existing construction variables in an Environment.

PrependENVPath(*self*, *name*, *newpath*, *envname*=`'ENV'`, *sep*=`':'`, *delete_existing*=`1`)

Prepend path elements to the path 'name' in the 'ENV' dictionary for this environment. Will only add any particular path once, and will normpath and normcase all paths to help assure this. This can also handle the case where the env variable is a list instead of a string.

If delete_existing is 0, a newpath which is already in the path will not be moved to the front (it will be left where it is).

PrependUnique(*self*, *delete_existing*=`0`, ***kw*)

Prepend values to existing construction variables in an Environment, if they're not already there. If delete_existing is 1, removes existing values first, so values move to front.

Pseudo(*self*, **targets*)

PyPackageDir(*self*, *modulename*)

Replace(*self*, ***kw*)

Replace existing construction variables in an Environment with new construction variables and/or values.

ReplaceIxes(*self*, *path*, *old_prefix*, *old_suffix*, *new_prefix*, *new_suffix*)

Replace old_prefix with new_prefix and old_suffix with new_suffix.

env - Environment used to interpolate variables. path - the path that will be modified. old_prefix - construction variable for the old prefix. old_suffix - construction variable for the old suffix. new_prefix - construction variable for the new prefix. new_suffix - construction variable for the new suffix.

Repository(*self*, **dirs*, ***kw*)

Requires(*self*, *target*, *prerequisite*)

Specify that 'prerequisite' must be built before 'target', (but 'target' does not actually depend on 'prerequisite' and need not be rebuilt if it changes).

SConsignFile(*self*, *name*=`'.sconsign'`, *dbm_module*=`None`)

Scanner(*self*, **args*, ***kw*)

SetDefault(*self*, ***kw*)

SideEffect(*self*, *side_effect*, *target*)

Tell scons that side_effects are built as side effects of building targets.

SourceCode(*self*, *entry*, *builder*)

Arrange for a source code builder for (part of) a tree.

SourceSignatures(*self*, *type*)

Split(*self*, *arg*)

This function converts a string or list into a list of strings or Nodes. This makes things easier for users by allowing files to be specified as a white-space separated list to be split.

The input rules are:

- A single string containing names separated by spaces. These will be split apart at the spaces.
- A single Node instance
- A list containing either strings or Node instances. Any strings in the list are not split at spaces.

In all cases, the function returns a list of Nodes and strings.

TargetSignatures(*self*, *type*)

Tool(*self*, *tool*, *toolpath*=`None`, ***kw*)

Value(*self*, *value*, *built_value*=`None`)

VariantDir(*self*, *variant_dir*, *src_dir*, *duplicate*=`1`)

WhereIs(*self*, *prog*, *path*=`None`, *pathext*=`None`, *reject*=`[]`)

Find prog in the path.

__init__(*self*, *platform*=None, *tools*=None, *toolpath*=None, *variables*=None, *parse_flags*=None, ***kw*)

Initialization of a basic SCons construction environment, including setting up special construction variables like BUILDER, PLATFORM, etc., and searching for and applying available Tools.

Note that we do *not* call the underlying base class (SubsitutionEnvironment) initialization, because we need to initialize things in a very specific order that doesn't work with the much simpler base class initialization. Overrides: object.__init__

get_CacheDir(*self*)

get_builder(*self*, *name*)

Fetch the builder with the specified name from the environment.

get_factory(*self*, *factory*, *default*='File')

Return a factory function for creating Nodes for this construction environment.

get_scanner(*self*, *skey*)

Find the appropriate scanner given a key (usually a file suffix).

get_src_sig_type(*self*)

get_tgt_sig_type(*self*)

scanner_map_delete(*self*, *kw*=None)

Delete the cached scanner map (if we need to).

Inherited from SCons.Environment.SubstitutionEnvironment(Section 8.6)

AddMethod(), MergeFlags(), Override(), ParseFlags(), RemoveMethod(), __contains__(), __delitem__(), __eq__(), __getitem__(), __setitem__(), arg2nodes(), backtick(), get(), gvars(), has_key(), items(), lvars(), subst(), subst_kw(), subst_list(), subst_path(), subst_target_source()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

8.9.2 Properties

Name	Description
Inherited from object	
__class__	

9 Module SCons.Errors

SCons.Errors

This file contains the exception classes used to handle internal and user errors in SCons.

9.1 Functions

convert_to_BuildError(*status*, *exc_info*=None)

Convert any return code a BuildError Exception.

The buildError.status we set here will normally be used as the exit status of the "scons" process. **Parameters**
`status:` : can either be a return code or an Exception.

9.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Errors.py a56bbd8c09fb219ab8a9673330ffc...`
__package__	**Value:** `'SCons'`

9.3 Class BuildError

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.BuildError

Errors occurring while building.

BuildError have the following attributes:

Information about the cause of the build error: errstr : a description of the error message status : the return code of the action that caused the build error. Must be set to a non-zero value even if the build error is not due to an action returning a non-zero returned code.

exitstatus : SCons exit status due to this build error. Must be nonzero unless due to an explicit Exit() call. Not always the same as status, since actions return a status code that should be respected, but SCons typically exits with 2 irrespective of the return value of the failed action.

filename : The name of the file or directory that caused the build error. Set to None if no files are associated with this error. This might be different from the target being built. For example, failure to create the directory in which the target file will appear. It can be None if the error is not due to a particular filename.

exc_info : Info about exception that caused the build error. Set to (None, None, None) if this build error is not due to an exception.

Information about the cause of the location of the error: node : the error occured while building this target node(s)

executor (**the executor that caused the build to fail (might**) be None if the build failures is not due to the executor failing)

action (**the action that caused the build to fail (might be**) None if the build failures is not due to the an action failure)

command (**the command line for the action that caused the**) build to fail (might be None if the build failures is not due to the an action failure)

9.3.1 Methods

___init___(*self*, *node*=`None`, *errstr*=`'Unknown error'`, *status*=2, *exitstatus*=2, *filename*=`None`, *executor*=`None`, *action*=`None`, *command*=`None`, *exc_info*=`(None, None, None)`)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

Inherited from exceptions.Exception

___new___()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

9.3.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

9.4 Class InternalError

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.InternalError

9.4.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

9.4.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

9.5 Class UserError

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError

Known Subclasses: SCons.SConf.SConfError, SCons.Warnings.Warning

9.5.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

9.5.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

9.6 Class StopError

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.StopError

9.6.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

9.6.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

9.7 Class EnvironmentError

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.EnvironmentError

9.7.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

9.7.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

9.8 Class MSVCError

object
exceptions.BaseException
exceptions.Exception
exceptions.StandardError
exceptions.EnvironmentError
exceptions.IOError
SCons.Errors.MSVCError

9.8.1 Methods

Inherited from exceptions.IOError

__init__(), __new__()

Inherited from exceptions.EnvironmentError

__reduce__(), __str__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __repr__(), __setattr__(), __setstate__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

9.8.2 Properties

Name	Description
Inherited from exceptions.EnvironmentError errno, filename, strerror	
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

9.9 Class ExplicitExit

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.ExplicitExit

9.9.1 Methods

__init__(*self*, *node*=`None`, *status*=`None`, **args*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

Inherited from exceptions.Exception

___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

9.9.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object ___class___	

10 Module SCons.Executor

SCons.Executor

A module for executing actions with specific lists of target and source Nodes.

10.1 Functions

rfile(*node*)

A function to return the results of a Node's rfile() method, if it exists, and the Node itself otherwise (if it's a Value Node, e.g.).

execute_nothing(*obj, target, kw*)

execute_action_list(*obj, target, kw*)

Actually execute the action list.

execute_actions_str(*obj*)

execute_null_str(*obj*)

GetBatchExecutor(*key*)

AddBatchExecutor(*key, executor*)

get_NullEnvironment()

Use singleton pattern for Null Environments.

10.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Executor.py a56bbd8c09fb219ab8a9673330f...`

continued on next page

Name	Description
nullenv	**Value:** `None`
__package__	**Value:** `'SCons'`

10.3 Class Batch

object ─┐
SCons.Executor.Batch

Remembers exact association between targets and sources of executor.

10.3.1 Methods

__init__(*self*, *targets*=`[]`, *sources*=`[]`)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

10.3.2 Properties

Name	Description
sources	
targets	
Inherited from object __class__	

10.4 Class TSList

object
_abcoll.Sized
object
_abcoll.Iterable
object
_abcoll.Container
_abcoll.Sequence
_abcoll.MutableSequence
UserList.UserList
SCons.Executor.TSList

A class that implements $TARGETS or $SOURCES expansions by wrapping an executor Method. This class is used in the Executor.lvars() to delay creation of NodeList objects until they're needed.

Note that we subclass collections.UserList purely so that the is_Sequence() function will identify an object of this class as a list during variable expansion. We're not really using any collections.UserList methods in practice.

10.4.1 Methods

__init__(*self*, *func*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__getattr__(*self*, *attr*)

__getitem__(*self*, *i*)

Overrides: _abcoll.Sequence.__getitem__

___getslice___(*self*, *i*, *j*)

Overrides: UserList.UserList.___getslice___

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

___repr___(*self*)

repr(x) Overrides: object.___repr___ extit(inherited documentation)

Inherited from UserList.UserList

___add___(), ___cmp___(), ___contains___(), ___delitem___(), ___delslice___(), ___eq___(), ___ge___(), ___gt___(), ___iadd___(), ___imul___(), ___le___(), ___len___(), ___lt___(), ___mul___(), ___ne___(), ___radd___(), ___rmul___(), ___setitem___(), ___setslice___(), append(), count(), extend(), index(), insert(), pop(), remove(), reverse(), sort()

Inherited from _abcoll.Sequence

___iter___(), ___reversed___()

Inherited from _abcoll.Sized

___subclasshook___()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___()

10.4.2 Properties

Name	Description
Inherited from object	
___class___	

10.4.3 Class Variables

Name	Description
Inherited from UserList.UserList	
___abstractmethods___, ___hash___	

10.5 Class TSObject

object ─┐
SCons.Executor.TSObject

A class that implements $TARGET or $SOURCE expansions by wrapping an Executor method.

10.5.1 Methods

___init___(*self*, *func*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

___getattr___(*self*, *attr*)

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

___repr___(*self*)

repr(x) Overrides: object.___repr___ extit(inherited documentation)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

10.5.2 Properties

Name	Description
Inherited from object	
___class___	

10.6 Class Executor

object ─┐
SCons.Executor.Executor

A class for controlling instances of executing an action.

This largely exists to hold a single association of an action, environment, list of environment override dictionaries, targets and sources for later processing as needed.

10.6.1 Methods

__init__(*self*, *action*, *env*=`None`, *overridelist*=`[{}]`, *targets*=`[]`, *sources*=`[]`, *builder_kw*=`{}`)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

get_lvars(*self*)

get_action_targets(*self*)

set_action_list(*self*, *action*)

get_action_list(*self*)

get_all_targets(*self*)

Returns all targets for all batches of this Executor.

get_all_sources(*self*)

Returns all sources for all batches of this Executor.

get_all_children(*self*)

Returns all unique children (dependencies) for all batches of this Executor.

The Taskmaster can recognize when it's already evaluated a Node, so we don't have to make this list unique for its intended canonical use case, but we expect there to be a lot of redundancy (long lists of batched .cc files #including the same .h files over and over), so removing the duplicates once up front should save the Taskmaster a lot of work.

get_all_prerequisites(*self*)

Returns all unique (order-only) prerequisites for all batches of this Executor.

get_action_side_effects(*self*)

Returns all side effects for all batches of this Executor used by the underlying Action.

get_build_env(*self*)

Fetch or create the appropriate build Environment for this Executor.

get_build_scanner_path(*self*, *scanner*)

Fetch the scanner path for this executor's targets and sources.

get_kw(*self*, *kw*={})

__call__(*self*, *target*, ***kw*)

cleanup(*self*)

add_sources(*self*, *sources*)

Add source files to this Executor's list. This is necessary for "multi" Builders that can be called repeatedly to build up a source file list for a given target.

get_sources(*self*)

add_batch(*self*, *targets*, *sources*)

Add pair of associated target and source to this Executor's list. This is necessary for "batch" Builders that can be called repeatedly to build up a list of matching target and source files that will be used in order to update multiple target files at once from multiple corresponding source files, for tools like MSVC that support it.

prepare(*self*)

Preparatory checks for whether this Executor can go ahead and (try to) build its targets.

add_pre_action(*self*, *action*)

add_post_action(*self*, *action*)

__str__(*self*)

str(x) Overrides: object.__str__ extit(inherited documentation)

nullify(*self*)

get_contents(*self*)

Fetch the signature contents. This is the main reason this class exists, so we can compute this once and cache it regardless of how many target or source Nodes there are.

Returns bytes

get_timestamp(*self*)

Fetch a time stamp for this Executor. We don't have one, of course (only files do), but this is the interface used by the timestamp module.

scan_targets(*self*, *scanner*)

scan_sources(*self*, *scanner*)

scan(*self*, *scanner*, *node_list*)

Scan a list of this Executor's files (targets or sources) for implicit dependencies and update all of the targets with them. This essentially short-circuits an N*M scan of the sources for each individual target, which is a hell of a lot more efficient.

get_unignored_sources(*self*, *node*, *ignore*=())

get_implicit_deps(*self*)

Return the executor's implicit dependencies, i.e. the nodes of the commands to be executed.

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __subclasshook__()

10.6.2 Properties

Name	Description
action_list	
batches	
builder_kw	
env	
lvars	
overridelist	
post_actions	
pre_actions	
Inherited from object __class__	

10.7 Class NullEnvironment

object ─┐
SCons.Util.Null ─┐
SCons.Executor.NullEnvironment

10.7.1 Methods

get_CacheDir(*self*)

Inherited from SCons.Util.Null(Section 48.15)

___bool___(), ___call___(), ___delattr___(), ___getattr___(), ___init___(), ___new___(), ___nonzero___(), ___repr___(), ___setattr___()

Inherited from object

___format___(), ___getattribute___(), ___hash___(), ___reduce___(), ___reduce_ex___(), ___sizeof___(), ___str___(), ___subclasshook___()

10.7.2 Properties

Name	Description
Inherited from object	
___class___	

10.8 Class Null

object ─┐
SCons.Executor.Null

A null Executor, with a null build Environment, that does nothing when the rest of the methods call it.

This might be able to disappear when we refactor things to disassociate Builders from Nodes entirely, so we're not going to worry about unit tests for this--at least for now.

10.8.1 Methods

__init__(*self*, **args*, ***kw*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

get_build_env(*self*)

get_build_scanner_path(*self*)

cleanup(*self*)

prepare(*self*)

get_unignored_sources(*self*, **args*, ***kw*)

get_action_targets(*self*)

get_action_list(*self*)

get_all_targets(*self*)

get_all_sources(*self*)

get_all_children(*self*)

get_all_prerequisites(*self*)

get_action_side_effects(*self*)

__call__(*self*, **args*, ***kw*)

get_contents(*self*)

add_pre_action(*self*, *action*)

add_post_action(*self*, *action*)

set_action_list(*self*, *action*)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

10.8.2 Properties

Name	Description
action_list	
batches	
builder_kw	
env	
lvars	
overridelist	
post_actions	
pre_actions	
Inherited from object	
___class___	

11 Module SCons.Job

SCons.Job

This module defines the Serial and Parallel classes that execute tasks to complete a build. The Jobs class provides a higher level interface to start, stop, and wait on jobs.

11.1 Variables

Name	Description
___revision___	**Value:** `'src/engine/SCons/Job.py a56bbd8c09fb219ab8a9673330ffcd55...`
explicit__stack__size	**Value:** `None`
default__stack__size	**Value:** `256`
interrupt__msg	**Value:** `'Build interrupted.'`
___package___	**Value:** `'SCons'`

11.2 Class InterruptState

object ─┐
SCons.Job.InterruptState

11.2.1 Methods

___init___(*self*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

set(*self*)

___call___(*self*)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

11.2.2 Properties

Name	Description
Inherited from object	
__class__	

11.3 Class Jobs

object ─┐
SCons.Job.Jobs

An instance of this class initializes N jobs, and provides methods for starting, stopping, and waiting on all N jobs.

11.3.1 Methods

__init__(*self, num, taskmaster*)

Create 'num' jobs using the given taskmaster.

If 'num' is 1 or less, then a serial job will be used, otherwise a parallel job with 'num' worker threads will be used.

The 'num_jobs' attribute will be set to the actual number of jobs allocated. If more than one job is requested but the Parallel class can't do it, it gets reset to 1. Wrapping interfaces that care should check the value of 'num_jobs' after initialization. Overrides: object.__init__

run(*self, postfunc*=`<__builtin__.function object>`)

Run the jobs.

postfunc() will be invoked after the jobs has run. It will be invoked even if the jobs are interrupted by a keyboard interrupt (well, in fact by a signal such as either SIGINT, SIGTERM or SIGHUP). The execution of postfunc() is protected against keyboard interrupts and is guaranteed to run to completion.

were_interrupted(*self*)
Returns whether the jobs were interrupted by a signal.

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

11.3.2 Properties

Name	Description
Inherited from object	
___class___	

11.4 Class Serial

object ┐
SCons.Job.Serial

This class is used to execute tasks in series, and is more efficient than Parallel, but is only appropriate for non-parallel builds. Only one instance of this class should be in existence at a time.

This class is not thread safe.

11.4.1 Methods

___init___(*self*, *taskmaster*)
Create a new serial job given a taskmaster. The taskmaster's next_task() method should return the next task that needs to be executed, or None if there are no more tasks. The taskmaster's executed() method will be called for each task when it is successfully executed, or failed() will be called if it failed to execute (e.g. execute() raised an exception). Overrides: object.___init___

start(*self*)

Start the job. This will begin pulling tasks from the taskmaster and executing them, and return when there are no more tasks. If a task fails to execute (i.e. execute() raises an exception), then the job will stop.

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

11.4.2 Properties

Name	Description
Inherited from object	
__class__	

11.5 Class Worker

object
threading._Verbose
threading.Thread
SCons.Job.Worker

A worker thread waits on a task to be posted to its request queue, dequeues the task, executes it, and posts a tuple including the task and a boolean indicating whether the task executed successfully.

11.5.1 Methods

__init__(*self*, *requestQueue*, *resultsQueue*, *interrupted*)

This constructor should always be called with keyword arguments. Arguments are:

group should be None; reserved for future extension when a ThreadGroup class is implemented.

target is the callable object to be invoked by the run() method. Defaults to None, meaning nothing is called.

name is the thread name. By default, a unique name is constructed of the form "Thread-N" where N is a small decimal number.

args is the argument tuple for the target invocation. Defaults to ().

kwargs is a dictionary of keyword arguments for the target invocation. Defaults to {}.

If a subclass overrides the constructor, it must make sure to invoke the base class constructor (Thread.__init__()) before doing anything else to the thread. Overrides: object.__init__ extit(inherited documentation)

run(*self*)

Method representing the thread's activity.

You may override this method in a subclass. The standard run() method invokes the callable object passed to the object's constructor as the target argument, if any, with sequential and keyword arguments taken from the args and kwargs arguments, respectively. Overrides: threading.Thread.run extit(inherited documentation)

Inherited from threading.Thread

__repr__(), getName(), isAlive(), isDaemon(), is_alive(), join(), setDaemon(), setName(), start()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

11.5.2 Properties

Name	Description
Inherited from threading.Thread daemon, ident, name	
Inherited from object __class__	

11.6 Class ThreadPool

object ┐
  SCons.Job.ThreadPool

This class is responsible for spawning and managing worker threads.

11.6.1 Methods

__init__(*self*, *num*, *stack_size*, *interrupted*)

Create the request and reply queues, and 'num' worker threads.

One must specify the stack size of the worker threads. The stack size is specified in kilobytes. Overrides: object.__init__

put(*self*, *task*)

Put task into request queue.

get(*self*)

Remove and return a result tuple from the results queue.

preparation_failed(*self*, *task*)

cleanup(*self*)

Shuts down the thread pool, giving each worker thread a chance to shut down gracefully.

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

11.6.2 Properties

Name	Description
Inherited from object	
__class__	

11.7 Class Parallel

object ┐
  SCons.Job.Parallel

This class is used to execute tasks in parallel, and is somewhat less efficient than Serial, but is appropriate for parallel builds.

This class is thread safe.

11.7.1 Methods

___init___(*self*, *taskmaster*, *num*, *stack_size*)

Create a new parallel job given a taskmaster.

The taskmaster's next_task() method should return the next task that needs to be executed, or None if there are no more tasks. The taskmaster's executed() method will be called for each task when it is successfully executed, or failed() will be called if the task failed to execute (i.e. execute() raised an exception).

Note: calls to taskmaster are serialized, but calls to execute() on distinct tasks are not serialized, because that is the whole point of parallel jobs: they can execute multiple tasks simultaneously. Overrides: object.___init___

start(*self*)

Start the job. This will begin pulling tasks from the taskmaster and executing them, and return when there are no more tasks. If a task fails to execute (i.e. execute() raises an exception), then the job will stop.

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

11.7.2 Properties

Name	Description
Inherited from object	
___class___	

12 Module SCons.Memoize

Memoizer

A decorator-based implementation to count hits and misses of the computed values that various methods cache in memory.

Use of this modules assumes that wrapped methods be coded to cache their values in a consistent way. In particular, it requires that the class uses a dictionary named "_memo" to store the cached values.

Here is an example of wrapping a method that returns a computed value, with no input parameters:

```
@SCons.Memoize.CountMethodCall
def foo(self):

    try:                                                # Memoization
        return self._memo['foo']                        # Memoization
    except KeyError:                                    # Memoization
        pass                                            # Memoization

    result = self.compute_foo_value()

    self._memo['foo'] = result                          # Memoization

    return result
```

Here is an example of wrapping a method that will return different values based on one or more input arguments:

```
def _bar_key(self, argument):                           # Memoization
    return argument                                     # Memoization

@SCons.Memoize.CountDictCall(_bar_key)
def bar(self, argument):

    memo_key = argument                                 # Memoization
    try:                                                # Memoization
        memo_dict = self._memo['bar']                   # Memoization
    except KeyError:                                    # Memoization
        memo_dict = {}                                  # Memoization
        self._memo['dict'] = memo_dict                  # Memoization
    else:                                               # Memoization
        try:                                            # Memoization
            return memo_dict[memo_key]                  # Memoization
```

```
        except KeyError:                                # Memoization
            pass                                        # Memoization

    result = self.compute_bar_value(argument)

    memo_dict[memo_key] = result                        # Memoization

    return result
```

Deciding what to cache is tricky, because different configurations can have radically different performance tradeoffs, and because the tradeoffs involved are often so non-obvious. Consequently, deciding whether or not to cache a given method will likely be more of an art than a science, but should still be based on available data from this module. Here are some VERY GENERAL guidelines about deciding whether or not to cache return values from a method that's being called a lot:

-- The first question to ask is, "Can we change the calling code so this method isn't called so often?" Sometimes this can be done by changing the algorithm. Sometimes the *caller* should be memoized, not the method you're looking at.

—The memoized function should be timed with multiple configurations to make sure it doesn't inadvertently slow down some other configuration.

-- When memoizing values based on a dictionary key composed of input arguments, you don't need to use all of the arguments if some of them don't affect the return values.

12.1 Functions

Dump(*title*=`None`)

Dump the hit/miss count for all the counters collected so far.

EnableMemoization()

CountMethodCall(*fn*)

Decorator for counting memoizer hits/misses while retrieving a simple value in a class method. It wraps the given method fn and uses a CountValue object to keep track of the caching statistics. Wrapping gets enabled by calling EnableMemoization().

CountDictCall(*keyfunc*)

Decorator for counting memoizer hits/misses while accessing dictionary values with a key-generating function. Like CountMethodCall above, it wraps the given method fn and uses a CountDict object to keep track of the caching statistics. The dict-key function keyfunc has to get passed in the decorator call and gets stored in the CountDict instance. Wrapping gets enabled by calling EnableMemoization().

12.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Memoize.py a56bbd8c09fb219ab8a9673330ff...`
__doc__	**Value:** `"""Memoi...`
use_memoizer	**Value:** `None`
CounterList	**Value:** `{}`
__package__	**Value:** `'SCons'`

12.3 Class Counter

object
└ **SCons.Memoize.Counter**

Known Subclasses: SCons.Memoize.CountDict, SCons.Memoize.CountValue

Base class for counting memoization hits and misses.

We expect that the initialization in a matching decorator will fill in the correct class name and method name that represents the name of the function being counted.

12.3.1 Methods

__init__(*self*, *cls_name*, *method_name*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__

key(*self*)

display(*self*)

___eq___(*self*, *other*)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

12.3.2 Properties

Name	Description
Inherited from object	
___class___	

12.4 Class CountValue

object ┐
SCons.Memoize.Counter ┐
SCons.Memoize.CountValue

A counter class for simple, atomic memoized values.

A CountValue object should be instantiated in a decorator for each of the class's methods that memoizes its return value by simply storing the return value in its _memo dictionary.

12.4.1 Methods

count(*self*, **args*, ***kw*)

Counts whether the memoized value has already been set (a hit) or not (a miss).

Inherited from SCons.Memoize.Counter(Section 12.3)

___eq___(), ___init___(), display(), key()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

12.4.2 Properties

Name	Description
Inherited from object	
___class___	

12.5 Class CountDict

object
SCons.Memoize.Counter
SCons.Memoize.CountDict

A counter class for memoized values stored in a dictionary, with keys based on the method's input arguments.

A CountDict object is instantiated in a decorator for each of the class's methods that memoizes its return value in a dictionary, indexed by some key that can be computed from one or more of its input arguments.

12.5.1 Methods

___init___(*self*, *cls_name*, *method_name*, *keymaker*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___

count(*self*, **args*, ***kw*)

Counts whether the computed key value is already present in the memoization dictionary (a hit) or not (a miss).

Inherited from SCons.Memoize.Counter(Section 12.3)

___eq___(), display(), key()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

12.5.2 Properties

Name	Description
Inherited from object	
___class___	

13 Package SCons.Node

SCons.Node

The Node package for the SCons software construction utility.

This is, in many ways, the heart of SCons.

A Node is where we encapsulate all of the dependency information about any thing that SCons can build, or about any thing which SCons can use to build some other thing. The canonical "thing," of course, is a file, but a Node can also represent something remote (like a web page) or something completely abstract (like an Alias).

Each specific type of "thing" is specifically represented by a subclass of the Node base class: Node.FS.File for files, Node.Alias for aliases, etc. Dependency information is kept here in the base class, and information specific to files/aliases/etc. is in the subclass. The goal, if we've done this correctly, is that any type of "thing" should be able to depend on any other type of "thing."

13.1 Modules

- **Alias**: scons.Node.Alias
  (Section 14, p. 135)
- **FS**: scons.Node.FS
  (Section 15, p. 141)
- **Python**: scons.Node.Python
  (Section 16, p. 192)

13.2 Functions

classname(*obj*)

Annotate(*node*)

is_derived_none(*node*)

is_derived_node(*node*)

Returns true if this node is derived (i.e. built).

exists_none(*node*)

exists_always(*node*)

exists_base(*node*)

exists_entry(*node*)

Return if the Entry exists. Check the file system to see what we should turn into first. Assume a file if there's no directory.

exists_file(*node*)

rexists_none(*node*)

rexists_node(*node*)

rexists_base(*node*)

get_contents_none(*node*)

get_contents_entry(*node*)

Fetch the contents of the entry. Returns the exact binary contents of the file.

get_contents_dir(*node*)

Return content signatures and names of all our children separated by new-lines. Ensure that the nodes are sorted.

get_contents_file(*node*)

target_from_source_none(*node*, *prefix*, *suffix*, *splitext*)

target_from_source_base(*node*, *prefix*, *suffix*, *splitext*)

changed_since_last_build_node(*node*, *target*, *prev_ni*)

Must be overridden in a specific subclass to return True if this Node (a dependency) has changed since the last time it was used to build the specified target. prev_ni is this Node's state (for example, its file timestamp, length, maybe content signature) as of the last time the target was built.

Note that this method is called through the dependency, not the target, because a dependency Node must be able to use its own logic to decide if it changed. For example, File Nodes need to obey if we're configured to use timestamps, but Python Value Nodes never use timestamps and always use the content. If this method were called through the target, then each Node's implementation of this method would have to have more complicated logic to handle all the different Node types on which it might depend.

changed_since_last_build_alias(*node*, *target*, *prev_ni*)

changed_since_last_build_entry(*node*, *target*, *prev_ni*)

changed_since_last_build_state_changed(*node*, *target*, *prev_ni*)

decide_source(*node*, *target*, *prev_ni*)

decide_target(*node*, *target*, *prev_ni*)

changed_since_last_build_python(*node*, *target*, *prev_ni*)

store_info_pass(*node*)

store_info_file(*node*)

get_children(*node*, *parent*)

ignore_cycle(*node*, *stack*)

do_nothing(*node*, *parent*)

13.3 Variables

Name	Description
__revision__	**Value:** 'src/engine/SCons/Node/__init__.py a56bbd8c09fb219ab8a967...
print_duplicate	**Value:** 0
no_state	**Value:** 0
pending	**Value:** 1
executing	**Value:** 2
up_to_date	**Value:** 3
executed	**Value:** 4
failed	**Value:** 5
StateString	**Value:** {0: 'no_state', 1: 'pending', 2: 'executing', 3: 'up_to_d...
implicit_cache	**Value:** 0
implicit_deps_unchanged	**Value:** 0
implicit_deps_changed	**Value:** 0
interactive	**Value:** False
do_store_info	**Value:** True
store_info_map	**Value:** {0: <__builtin__.function object>, 1: <__builtin__.functi...
arg2nodes_lookups	**Value:** [<bound method AliasNameSpace.lookup of {}>]
__package__	**Value:** 'SCons.Node'

13.4 Class DeciderNeedsNode

object
exceptions.BaseException
exceptions.Exception
SCons.Node.DeciderNeedsNode

Indicate that the decider needs the node as well as the target and the dependency. Normally the node and the target are the same, but in the case of repository They may be different. Also the NodeInfo is retrieved from the node

13.4.1 Methods

__init__(*self*, *call_this_decider*)

x.__init__(...) initializes x; see help(type(x)) for signature **Parameters**

`call_this_decider`: to return the decider to call directly since deciders are called through several levels of indirection

Overrides: object.__init__

Inherited from exceptions.Exception

__new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

13.4.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

13.5 Class NodeInfoBase

object
 └ **SCons.Node.NodeInfoBase**

Known Subclasses: SCons.Node.Alias.AliasNodeInfo, SCons.Node.FS.DirNodeInfo, SCons.Node.FS.FileNodeInfo, SCons.Node.Python.ValueNodeInfo

The generic base class for signature information for a Node.

Node subclasses should subclass NodeInfoBase to provide their own logic for dealing with their own Node-specific signature information.

13.5.1 Methods

__getstate__(*self*)

Return all fields that shall be pickled. Walk the slots in the class hierarchy and add those to the state dictionary. If a '__dict__' slot is available, copy all entries to the dictionary. Also include the version id, which is fixed for all instances of a class.

__setstate__(*self*, *state*)

Restore the attributes from a pickled state. The version is discarded.

convert(*self*, *node*, *val*)

format(*self*, *field_list*=`None`, *names*=`0`)

merge(*self*, *other*)

Merge the fields of another object into this object. Already existing information is overwritten by the other instance's data. WARNING: If a '__dict__' slot is added, it should be updated instead of replaced.

update(*self*, *node*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __init__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

13.5.2 Properties

Name	Description
Inherited from object	
__class__	

13.5.3 Class Variables

Name	Description
current_version_id	**Value:** 2

13.6 Class BuildInfoBase

object ┐
SCons.Node.BuildInfoBase

Known Subclasses: SCons.Node.Alias.AliasBuildInfo, SCons.Node.FS.DirBuildInfo, SCons.Node.FS.FileBuildInfo, SCons.Node.Python.ValueBuildInfo

The generic base class for build information for a Node.

This is what gets stored in a .sconsign file for each target file. It contains a NodeInfo instance for this node (signature information that's specific to the type of Node) and direct attributes for the generic build stuff we have to track: sources, explicit dependencies, implicit dependencies, and action information.

13.6.1 Methods

__getstate__(*self*)

Return all fields that shall be pickled. Walk the slots in the class hierarchy and add those to the state dictionary. If a '__dict__' slot is available, copy all entries to the dictionary. Also include the version id, which is fixed for all instances of a class.

__init__(*self*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__setstate__(*self*, *state*)

Restore the attributes from a pickled state.

merge(*self*, *other*)

Merge the fields of another object into this object. Already existing information is overwritten by the other instance's data. WARNING: If a '__dict__' slot is added, it should be updated instead of replaced.

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

13.6.2 Properties

Name	Description
bact	
bactsig	
bdepends	
bdependsigs	
bimplicit	
bimplicitsigs	
bsources	
bsourcesigs	
Inherited from object __class__	

13.6.3 Class Variables

Name	Description
current_version_id	**Value:** 2

13.7 Class Node

object ┐
  SCons.Node.Node

Known Subclasses: SCons.Node.Alias.Alias, SCons.Node.FS.Base, SCons.Node.Python.Value

The base Node class, for entities that we know how to build, or use to build other Nodes.

13.7.1 Methods

Decider(*self*, *function*)

GetTag(*self*, *key*)

Return a user-defined tag.

Tag(*self*, *key*, *value*)

Add a user-defined tag.

__init__(*self*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

add_dependency(*self*, *depend*)

Adds dependencies.

add_ignore(*self*, *depend*)

Adds dependencies to ignore.

add_prerequisite(*self*, *prerequisite*)

Adds prerequisites

add_source(*self*, *source*)

Adds sources.

add_to_implicit(*self*, *deps*)

add_to_waiting_parents(*self*, *node*)

Returns the number of nodes added to our waiting parents list: 1 if we add a unique waiting parent, 0 if not. (Note that the returned values are intended to be used to increment a reference count, so don't think you can "clean up" this function by using True and False instead...)

add_to_waiting_s_e(*self*, *node*)

add_wkid(*self*, *wkid*)

Add a node to the list of kids waiting to be evaluated

all_children(*self*, *scan*=1)

Return a list of all the node's direct children.

alter_targets(*self*)

Return a list of alternate targets for this Node.

build(*self*, ***kw*)

Actually build the node.

This is called by the Taskmaster after it's decided that the Node is out-of-date and must be rebuilt, and after the prepare() method has gotten everything, uh, prepared.

This method is called from multiple threads in a parallel build, so only do thread safe stuff here. Do thread unsafe stuff in built().

builder_set(*self*, *builder*)

built(*self*)

Called just after this node is successfully built.

changed(*self*, *node*=`None`, *allowcache*=`False`)

Returns if the node is up-to-date with respect to the BuildInfo stored last time it was built. The default behavior is to compare it against our own previously stored BuildInfo, but the stored BuildInfo from another Node (typically one in a Repository) can be used instead.

Note that we now *always* check every dependency. We used to short-circuit the check by returning as soon as we detected any difference, but we now rely on checking every dependency to make sure that any necessary Node information (for example, the content signature of an #included .h file) is updated.

The allowcache option was added for supporting the early release of the executor/builder structures, right after a File target was built. When set to true, the return value of this changed method gets cached for File nodes. Like this, the executor isn't needed any longer for subsequent calls to changed().

@see: FS.File.changed(), FS.File.release_target_info()

children(*self*, *scan*=`1`)

Return a list of the node's direct children, minus those that are ignored by this node.

children_are_up_to_date(*self*)

Alternate check for whether the Node is current: If all of our children were up-to-date, then this Node was up-to-date, too.

The SCons.Node.Alias and SCons.Node.Python.Value subclasses rebind their current() method to this method.

clear(*self*)

Completely clear a Node of all its cached state (so that it can be re-evaluated by interfaces that do continuous integration builds).

clear_memoized_values(*self*)

del_binfo(*self*)

Delete the build info from this node.

disambiguate(*self*, *must_exist*=`None`)

env_set(*self*, *env*, *safe*=`0`)

executor_cleanup(*self*)

Let the executor clean up any cached information.

exists(*self*)

Does this node exists?

explain(*self*)

for_signature(*self*)

Return a string representation of the Node that will always be the same for this particular Node, no matter what. This is by contrast to the __str__() method, which might, for instance, return a relative path for a file Node. The purpose of this method is to generate a value to be used in signature calculation for the command line used to build a target, and we use this method instead of str() to avoid unnecessary rebuilds. This method does not need to return something that would actually work in a command line; it can return any kind of nonsense, so long as it does not change.

get_abspath(*self*)

Return an absolute path to the Node. This will return simply str(Node) by default, but for Node types that have a concept of relative path, this might return something different.

get_binfo(*self*)

Fetch a node's build information.

node - the node whose sources will be collected cache - alternate node to use for the signature cache returns - the build signature

This no longer handles the recursive descent of the node's children's signatures. We expect that they're already built and updated by someone else, if that's what's wanted.

get_build_env(*self*)

Fetch the appropriate Environment to build this node.

get_build_scanner_path(*self*, *scanner*)

Fetch the appropriate scanner path for this node.

get_builder(*self*, *default_builder*=`None`)

Return the set builder, or a specified default value

get_cachedir_csig(*self*)

get_contents(*self*)

Fetch the contents of the entry.

get_csig(*self*)

get_env(*self*)

get_env_scanner(*self*, *env*, *kw*={})

get_executor(*self*, *create*=1)

Fetch the action executor for this node. Create one if there isn't already one, and requested to do so.

get_found_includes(*self*, *env*, *scanner*, *path*)

Return the scanned include lines (implicit dependencies) found in this node.

The default is no implicit dependencies. We expect this method to be overridden by any subclass that can be scanned for implicit dependencies.

get_implicit_deps(*self*, *env*, *initial_scanner*, *path_func*, *kw*={})

Return a list of implicit dependencies for this node.

This method exists to handle recursive invocation of the scanner on the implicit dependencies returned by the scanner, if the scanner's recursive flag says that we should.

get_ninfo(*self*)

get_source_scanner(*self*, *node*)

Fetch the source scanner for the specified node

NOTE: "self" is the target being built, "node" is the source file for which we want to fetch the scanner.

Implies self.has_builder() is true; again, expect to only be called from locations where this is already verified.

This function may be called very often; it attempts to cache the scanner found to improve performance.

get_state(*self*)

get_stored_implicit(*self*)

Fetch the stored implicit dependencies

get_stored_info(*self*)

get_string(*self, for_signature*)

This is a convenience function designed primarily to be used in command generators (i.e., CommandGeneratorActions or Environment variables that are callable), which are called with a for_signature argument that is nonzero if the command generator is being called to generate a signature for the command line, which determines if we should rebuild or not.

Such command generators should use this method in preference to str(Node) when converting a Node to a string, passing in the for_signature parameter, such that we will call Node.for_signature() or str(Node) properly, depending on whether we are calculating a signature or actually constructing a command line.

get_subst_proxy(*self*)

This method is expected to return an object that will function exactly like this Node, except that it implements any additional special features that we would like to be in effect for Environment variable substitution. The principle use is that some Nodes would like to implement a __getattr__() method, but putting that in the Node type itself has a tendency to kill performance. We instead put it in a proxy and return it from this method. It is legal for this method to return self if no new functionality is needed for Environment substitution.

get_suffix(*self*)

get_target_scanner(*self*)

has_builder(*self*)

Return whether this Node has a builder or not.

In Boolean tests, this turns out to be a *lot* more efficient than simply examining the builder attribute directly ("if node.builder: ..."). When the builder attribute is examined directly, it ends up calling __getattr__ for both the __len__ and __nonzero__ attributes on instances of our Builder Proxy class(es), generating a bazillion extra calls and slowing things down immensely.

has_explicit_builder(*self*)

Return whether this Node has an explicit builder

This allows an internal Builder created by SCons to be marked non-explicit, so that it can be overridden by an explicit builder that the user supplies (the canonical example being directories).

is_derived(*self*)

Returns true if this node is derived (i.e. built).

This should return true only for nodes whose path should be in the variant directory when duplicate=0 and should contribute their build signatures when they are used as source files to other derived files. For example: source with source builders are not derived in this sense, and hence should not return true.

is_literal(*self*)

Always pass the string representation of a Node to the command interpreter literally.

is_up_to_date(*self*)

Default check for whether the Node is current: unknown Node subtypes are always out of date, so they will always get built.

make_ready(*self*)

Get a Node ready for evaluation.

This is called before the Taskmaster decides if the Node is up-to-date or not. Overriding this method allows for a Node subclass to be disambiguated if necessary, or for an implicit source builder to be attached.

missing(*self*)

multiple_side_effect_has_builder(*self*)

Return whether this Node has a builder or not.

In Boolean tests, this turns out to be a *lot* more efficient than simply examining the builder attribute directly ("if node.builder: ..."). When the builder attribute is examined directly, it ends up calling __getattr__ for both the __len__ and __nonzero__ attributes on instances of our Builder Proxy class(es), generating a bazillion extra calls and slowing things down immensely.

new_binfo(*self*)

new_ninfo(*self*)

postprocess(*self*)

Clean up anything we don't need to hang onto after we've been built.

prepare(*self*)

Prepare for this Node to be built.

This is called after the Taskmaster has decided that the Node is out-of-date and must be rebuilt, but before actually calling the method to build the Node.

This default implementation checks that explicit or implicit dependencies either exist or are derived, and initializes the BuildInfo structure that will hold the information about how this node is, uh, built.

(The existence of source files is checked separately by the Executor, which aggregates checks for all of the targets built by a specific action.)

Overriding this method allows for for a Node subclass to remove the underlying file from the file system. Note that subclass methods should call this base class method to get the child check and the BuildInfo structure.

push_to_cache(*self*)

Try to push a node into a cache

release_target_info(*self*)

Called just after this node has been marked up-to-date or was built completely.

This is where we try to release as many target node infos as possible for clean builds and update runs, in order to minimize the overall memory consumption.

By purging attributes that aren't needed any longer after a Node (=File) got built, we don't have to care that much how many KBytes a Node actually requires...as long as we free the memory shortly afterwards.

@see: built() and File.release_target_info()

remove(*self*)

Remove this Node: no-op by default.

render_include_tree(*self*)

Return a text representation, suitable for displaying to the user, of the include tree for the sources of this node.

reset_executor(*self*)

Remove cached executor; forces recompute when needed.

retrieve_from_cache(*self*)

Try to retrieve the node's content from a cache

This method is called from multiple threads in a parallel build, so only do thread safe stuff here. Do thread unsafe stuff in built().

Returns true if the node was successfully retrieved.

rexists(*self*)

Does this node exist locally or in a repository?

scan(*self*)

Scan this node's dependents for implicit dependencies.

scanner_key(*self*)

select_scanner(*self*, *scanner*)

Selects a scanner for this Node.

This is a separate method so it can be overridden by Node subclasses (specifically, Node.FS.Dir) that *must* use their own Scanner and don't select one the Scanner.Selector that's configured for the target.

set_always_build(*self*, *always_build*=1)

Set the Node's always_build value.

set_executor(*self*, *executor*)

Set the action executor for this node.

set_explicit(*self*, *is_explicit*)

set_nocache(*self*, *nocache*=1)

Set the Node's nocache value.

set_noclean(*self*, *noclean*=1)

Set the Node's noclean value.

set_precious(*self*, *precious*=1)

Set the Node's precious value.

set_pseudo(*self*, *pseudo*=`True`)

Set the Node's precious value.

set_specific_source(*self*, *source*)

set_state(*self*, *state*)

visited(*self*)

Called just after this node has been visited (with or without a build).

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

13.7.2 Properties

Name	Description
always_build	
attributes	
binfo	
builder	
cached	
changed_since_last_build	
depends	
depends_set	
env	
executor	
ignore	
ignore_set	
implicit	
implicit_set	
includes	
is_explicit	
linked	
ninfo	
nocache	
noclean	
precious	
prerequisites	
pseudo	
ref_count	
side_effect	
side_effects	
sources	
sources_set	
state	
store_info	
waiting_parents	
waiting_s_e	
wkids	
Inherited from object	

continued on next page

Name	Description
__class__	

13.8 Class NodeList

```
object
  _abcoll.Sized
object
  _abcoll.Iterable
object
  _abcoll.Container
    _abcoll.Sequence
      _abcoll.MutableSequence
        UserList.UserList
          SCons.Node.NodeList
```

13.8.1 Methods

__str__(*self*)

str(x) Overrides: object.__str__ extit(inherited documentation)

Inherited from UserList.UserList

__add__(), __cmp__(), __contains__(), __delitem__(), __delslice__(), __eq__(), __ge__(), __getitem__(), __getslice__(), __gt__(), __iadd__(), __imul__(), __init__(), __le__(), __len__(), __lt__(), __mul__(), __ne__(), __radd__(), __repr__(), __rmul__(), __setitem__(), __setslice__(), append(), count(), extend(), index(), insert(), pop(), remove(), reverse(), sort()

Inherited from _abcoll.Sequence

__iter__(), __reversed__()

Inherited from _abcoll.Sized

___subclasshook___()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___()

13.8.2 Properties

Name	Description
Inherited from object	
___class___	

13.8.3 Class Variables

Name	Description
Inherited from UserList.UserList	
___abstractmethods___, ___hash___	

13.9 Class Walker

object
  SCons.Node.Walker

An iterator for walking a Node tree.

This is depth-first, children are visited before the parent. The Walker object can be initialized with any node, and returns the next node on the descent with each get_next() call. 'kids_func' is an optional function that will be called to get the children of a node instead of calling 'children'. 'cycle_func' is an optional function that will be called when a cycle is detected.

This class does not get caught in node cycles caused, for example, by C header file include loops.

13.9.1 Methods

__init__(*self*, *node*, *kids_func*=<__builtin__.function object>, *cycle_func*=<__builtin__.function object>, *eval_func*=<__builtin__.function object>)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

---

get_next(*self*)

Return the next node for this walk of the tree.

This function is intentionally iterative, not recursive, to sidestep any issues of stack size limitations.

---

is_done(*self*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

13.9.2 Properties

Name	Description
Inherited from object	
__class__	

14 Module SCons.Node.Alias

scons.Node.Alias

Alias nodes.

This creates a hash of global Aliases (dummy targets).

14.1 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Node/Alias.py a56bbd8c09fb219ab8a967333...`
default_ans	**Value:** `{}`
__package__	**Value:** `'SCons.Node'`

14.2 Class AliasNameSpace

UserDict.UserDict
  SCons.Node.Alias.AliasNameSpace

14.2.1 Methods

Alias(*self*, *name*, ***kw*)

lookup(*self*, *name*, ***kw*)

Inherited from UserDict.UserDict

__cmp__(), __contains__(), __delitem__(), __getitem__(), __init__(), __len__(), __repr__(), __setitem__(), clear(), copy(), fromkeys(), get(), has_key(), items(), iteritems(), iterkeys(), itervalues(), keys(), pop(), popitem(), setdefault(), update(), values()

14.2.2 Class Variables

Name	Description
Inherited from UserDict.UserDict	
__hash__	

14.3 Class AliasNodeInfo

object
SCons.Node.NodeInfoBase
SCons.Node.Alias.AliasNodeInfo

The generic base class for signature information for a Node.

Node subclasses should subclass NodeInfoBase to provide their own logic for dealing with their own Node-specific signature information.

14.3.1 Methods

str_to_node(*self*, *s*)

__getstate__(*self*)

Return all fields that shall be pickled. Walk the slots in the class hierarchy and add those to the state dictionary. If a '__dict__' slot is available, copy all entries to the dictionary. Also include the version id, which is fixed for all instances of a class. Overrides: SCons.Node.NodeInfoBase.__getstate__

__setstate__(*self*, *state*)

Restore the attributes from a pickled state. Overrides: SCons.Node.NodeInfoBase.__setstate__

Inherited from SCons.Node.NodeInfoBase(Section 13.5)

convert(), format(), merge(), update()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __init__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

14.3.2 Properties

Name	Description
csig	
Inherited from object	
__class__	

14.3.3 Class Variables

Name	Description
current_version_id	**Value:** `2`
field_list	**Value:** `['csig']`

14.4 Class AliasBuildInfo

object
SCons.Node.BuildInfoBase
SCons.Node.Alias.AliasBuildInfo

The generic base class for build information for a Node.

This is what gets stored in a .sconsign file for each target file. It contains a NodeInfo instance for this node (signature information that's specific to the type of Node) and direct attributes for the generic build stuff we have to track: sources, explicit dependencies, implicit dependencies, and action information.

14.4.1 Methods

Inherited from SCons.Node.BuildInfoBase(Section 13.6)

__getstate__(), __init__(), __setstate__(), merge()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

14.4.2 Properties

Name	Description
Inherited from SCons.Node.BuildInfoBase (Section 13.6)	

continued on next page

Name	Description
bact, bactsig, bdepends, bdependsigs, bimplicit, bimplicitsigs, bsources, bsourcesigs	
Inherited from object __class__	

14.4.3 Class Variables

Name	Description
current_version_id	**Value:** 2

14.5 Class Alias

object
SCons.Node.Node
SCons.Node.Alias.Alias

14.5.1 Methods

__init__(*self*, *name*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

str_for_display(*self*)

__str__(*self*)

str(x) Overrides: object.__str__ extit(inherited documentation)

make_ready(*self*)

Get a Node ready for evaluation.

This is called before the Taskmaster decides if the Node is up-to-date or not. Overriding this method allows for a Node subclass to be disambiguated if necessary, or for an implicit source builder to be attached. Overrides: SCons.Node.Node.make_ready extit(inherited documentation)

really_build(*self*, ****kw**)

Actually build the node.

This is called by the Taskmaster after it's decided that the Node is out-of-date and must be rebuilt, and after the prepare() method has gotten everything, uh, prepared.

This method is called from multiple threads in a parallel build, so only do thread safe stuff here. Do thread unsafe stuff in built().

is_up_to_date(*self*)

Alternate check for whether the Node is current: If all of our children were up-to-date, then this Node was up-to-date, too.

The SCons.Node.Alias and SCons.Node.Python.Value subclasses rebind their current() method to this method. Overrides: SCons.Node.Node.is_up_to_date

is_under(*self*, *dir*)

get_contents(*self*)

The contents of an alias is the concatenation of the content signatures of all its sources. Overrides: SCons.Node.Node.get_contents

sconsign(*self*)

An Alias is not recorded in .sconsign files

build(*self*)

A "builder" for aliases. Overrides: SCons.Node.Node.build

convert(*self*)

get_csig(*self*)

Generate a node's content signature, the digested signature of its content.

node - the node cache - alternate node to use for the signature cache returns - the content signature Overrides: SCons.Node.Node.get_csig

Inherited from SCons.Node.Node(Section 13.7)

Decider(), GetTag(), Tag(), add_dependency(), add_ignore(), add_prerequisite(), add_source(), add_to_implicit(), add_to_waiting_parents(), add_to_waiting_s_e(), add_wkid(), all_children(), alter_targets(), builder_set(), built(), changed(), children(), children_are_up_to_date(), clear(), clear_memoized_values(), del_binfo(), disambiguate(), env_set(), executor_cleanup(), exists(), explain(), for_signature(), get_abspath(), get_binfo(), get_build_env(), get_build_scanner_path(), get_builder(), get_cachedir_csig(), get_env(), get_env_scanner(), get_executor(), get_found_includes(), get_implicit_deps(), get_ninfo(), get_source_scanner(), get_state(), get_stored_implicit(), get_stored_info(), get_string(), get_subst_proxy(), get_suffix(), get_target_scanner(), has_builder(), has_explicit_builder(), is_derived(), is_literal(), missing(), multiple_side_effect_has_builder(), new_binfo(), new_ninfo(), postprocess(), prepare(), push_to_cache(), release_target_info(), remove(), render_include_tree(), reset_executor(), retrieve_from_cache(), rexists(), scan(), scanner_key(), select_scanner(), set_always_build(), set_executor(), set_explicit(), set_nocache(), set_noclean(), set_precious(), set_pseudo(), set_specific_source(), set_state(), visited()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __subclasshook__()

14.5.2 Properties

Name	Description
Inherited from SCons.Node.Node (Section 13.7)	
always_build, attributes, binfo, builder, cached, changed_since_last_build, depends, depends_set, env, executor, ignore, ignore_set, implicit, implicit_set, includes, is_explicit, linked, ninfo, nocache, noclean, precious, prerequisites, pseudo, ref_count, side_effect, side_effects, sources, sources_set, state, store_info, waiting_parents, waiting_s_e, wkids	
Inherited from object	
__class__	

15 Module SCons.Node.FS

scons.Node.FS

File system nodes.

These Nodes represent the canonical external objects that people think of when they think of building software: files and directories.

This holds a "default_fs" variable that should be initialized with an FS that can be used by scripts or modules looking for the canonical default.

15.1 Functions

sconsign_none(*node*)

---

sconsign_dir(*node*)

Return the .sconsign file info for this directory, creating it first if necessary.

---

save_strings(*val*)

---

initialize_do_splitdrive()

---

needs_normpath_match(*...*)

match(string[, pos[, endpos]]) --> match object or None. Matches zero or more characters at the beginning of the string

---

set_duplicate(*duplicate*)

LinkFunc(*target, source, env*)

Relative paths cause problems with symbolic links, so we use absolute paths, which may be a problem for people who want to move their soft-linked src-trees around. Those people should use the 'hard-copy' mode, softlinks cannot be used for that; at least I have no idea how ...

LocalString(*target*, *source*, *env*)

UnlinkFunc(*target*, *source*, *env*)

MkdirFunc(*target*, *source*, *env*)

get_MkdirBuilder()

do_diskcheck_match(*node*, *predicate*, *errorfmt*)

ignore_diskcheck_match(*node*, *predicate*, *errorfmt*)

set_diskcheck(*list*)

diskcheck_types()

has_glob_magic(*s*)

get_default_fs()

find_file(*filename*, *paths*, *verbose*=`None`)

Find a node corresponding to either a derived file or a file that exists already.

Only the first file found is returned, and none is returned if no file is found.

filename: A filename to find paths: A list of directory path *nodes* to search in. Can be represented as a list, a tuple, or a callable that is called with no arguments and returns the list or tuple.

returns The node created from the found file.

invalidate_node_memos(*targets*)

Invalidate the memoized values of all Nodes (files or directories) that are associated with the given entries. Has been added to clear the cache of nodes affected by a direct execution of an action (e.g. Delete/Copy/Chmod). Existing Node caches become inconsistent if the action is run through Execute(). The argument `targets` can be a single Node object or filename, or a sequence of Nodes/filenames.

15.2 Variables

<table>
<tr><th>Name</th><th>Description</th></tr>
<tr><td>__revision__</td><td>Value: <code>'src/engine/SCons/Node/FS.py a56bbd8c09fb219ab8a9673330ff...</code></td></tr>
<tr><td>print_duplicate</td><td>Value: <code>0</code></td></tr>
<tr><td>MD5_TIMESTAMP_DEBUG</td><td>Value: <code>False</code></td></tr>
<tr><td>default_max_drift</td><td>Value: <code>172800</code></td></tr>
<tr><td>Save_Strings</td><td>Value: <code>None</code></td></tr>
<tr><td>do_splitdrive</td><td>Value: <code>False</code></td></tr>
<tr><td>needs_normpath_check</td><td>Value: <code>re.compile(r'(?x).*//|(.*/)?\.\.(?:/|$)|\./|.*/\.(?:/|$)')</code></td></tr>
<tr><td>Valid_Duplicates</td><td>Value: <code>['hard-soft-copy', 'soft-hard-copy', 'hard-copy', 'soft-c...</code></td></tr>
<tr><td>Link_Funcs</td><td>Value: <code>[]</code></td></tr>
<tr><td>Link</td><td>Value: <code><SCons.Action.FunctionAction object></code></td></tr>
<tr><td>LocalCopy</td><td>Value: <code><SCons.Action.FunctionAction object></code></td></tr>
<tr><td>Unlink</td><td>Value: <code><SCons.Action.FunctionAction object></code></td></tr>
<tr><td>Mkdir</td><td>Value: <code><SCons.Action.FunctionAction object></code></td></tr>
<tr><td>MkdirBuilder</td><td>Value: <code>None</code></td></tr>
<tr><td>diskcheck_match</td><td>Value: <code><SCons.Node.FS.DiskChecker object></code></td></tr>
<tr><td>diskcheckers</td><td>Value: <code>[<SCons.Node.FS.DiskChecker object>]</code></td></tr>
<tr><td>node_bwcomp</td><td>Value: <code>{'abspath': <unbound method Base.get_abspath>, 'labspath'...</code></td></tr>
<tr><td>glob_magic_check</td><td>Value: <code>re.compile(r'[*\?\[]')</code></td></tr>
</table>

continued on next page

Name	Description
default_fs	**Value:** `None`
OS_SEP	**Value:** `'/'`
UNC_PREFIX	**Value:** `'//'`
__package__	**Value:** `'SCons.Node'`
has_unc	**Value:** `False`
os_sep_is_slash	**Value:** `True`

15.3 Class FileBuildInfoFileToCsigMappingError

object
exceptions.BaseException
exceptions.Exception
SCons.Node.FS.FileBuildInfoFileToCsigMappingError

15.3.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

15.3.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

15.4 Class EntryProxyAttributeError

object
exceptions.BaseException
exceptions.Exception
exceptions.StandardError
exceptions.AttributeError
SCons.Node.FS.EntryProxyAttributeError

An AttributeError subclass for recording and displaying the name of the underlying Entry involved in an AttributeError exception.

15.4.1 Methods

__init__(*self*, *entry_proxy*, *attribute*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__str__(*self*)

str(x) Overrides: object.__str__ extit(inherited documentation)

Inherited from exceptions.AttributeError

__new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

15.4.2 Properties

Name	Description
Inherited from exceptions.BaseException	

continued on next page

Name	Description
args, message	
Inherited from object	
___class___	

15.5 Class DiskChecker

object ─┐
SCons.Node.FS.DiskChecker

15.5.1 Methods

___init___(*self*, *type*, *do*, *ignore*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*, ***kw*)

set(*self*, *list*)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

15.5.2 Properties

Name	Description
Inherited from object	
___class___	

15.6 Class EntryProxy

object
SCons.Util.Proxy
SCons.Node.FS.EntryProxy

15.6.1 Methods

__str__(*...*)

A Python Descriptor class that delegates attribute fetches to an underlying wrapped subject of a Proxy. Typical use:

class Foo(Proxy): __str__ = Delegate('__str__')

Overrides: object.__str__

__hash__(*...*)

A Python Descriptor class that delegates attribute fetches to an underlying wrapped subject of a Proxy. Typical use:

class Foo(Proxy): __str__ = Delegate('__str__')

Overrides: object.__hash__

__getattr__(*self*, *name*)

Retrieve an attribute from the wrapped object. If the named attribute doesn't exist, AttributeError is raised Overrides: SCons.Util.Proxy.__getattr__ extit(inherited documentation)

Inherited from SCons.Util.Proxy(Section 48.5)

__eq__(), __init__(), get()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __subclasshook__()

15.6.2 Properties

Name	Description
Inherited from object	
__class__	

15.6.3 Class Variables

Name	Description
dictSpecialAttrs	**Value:** {'abspath': <__builtin__.function object>, 'base': <__bui...

15.7 Class Base

object
SCons.Node.Node
SCons.Node.FS.Base

Known Subclasses: SCons.Node.FS.Dir, SCons.Node.FS.Entry, SCons.Node.FS.File

A generic class for file system entries. This class is for when we don't know yet whether the entry being looked up is a file or a directory. Instances of this class can morph into either Dir or File objects by a later, more precise lookup.

Note: this class does not define __cmp__ and __hash__ for efficiency reasons. SCons does a lot of comparing of Node.FS.{Base,Entry,File,Dir} objects, so those operations must be as fast as possible, which means we want to use Python's built-in object identity comparisons.

15.7.1 Methods

__init__(*self*, *name*, *directory*, *fs*)

Initialize a generic Node.FS.Base object.

Call the superclass initialization, take care of setting up our relative and absolute paths, identify our parent directory, and indicate that this node should use signatures. Overrides: object.__init__

str_for_display(*self*)

must_be_same(*self*, *klass*)

This node, which already existed, is being looked up as the specified klass. Raise an exception if it isn't.

get_dir(*self*)

get_suffix(*self*)

Overrides: SCons.Node.Node.get_suffix

rfile(*self*)

__getattr__(*self*, *attr*)

Together with the node_bwcomp dict defined below, this method provides a simple backward compatibility layer for the Node attributes 'abspath', 'labspath', 'path', 'tpath', 'suffix' and 'path_elements'. These Node attributes used to be directly available in v2.3 and earlier, but have been replaced by getter methods that initialize the single variables lazily when required, in order to save memory. The redirection to the getters lets older Tools and SConstruct continue to work without any additional changes, fully transparent to the user. Note, that __getattr__ is only called as fallback when the requested attribute can't be found, so there should be no speed performance penalty involved for standard builds.

__str__(*self*)

A Node.FS.Base object's string representation is its path name. Overrides: object.__str__

__lt__(*self*, *other*)

less than operator used by sorting on py3

rstr(*self*)

A Node.FS.Base object's string representation is its path name.

stat(*self*)

exists(*self*)

Does this node exists? Overrides: SCons.Node.Node.exists extit(inherited documentation)

rexists(*self*)

Does this node exist locally or in a repository? Overrides: SCons.Node.Node.rexists extit(inherited documentation)

getmtime(*self*)

getsize(*self*)

isdir(*self*)

isfile(*self*)

islink(*self*)

is_under(*self, dir*)

set_local(*self*)

srcnode(*self*)

If this node is in a build path, return the node corresponding to its source file. Otherwise, return ourself.

get_path(*self*, *dir*=`None`)

Return path relative to the current working directory of the Node.FS.Base object that owns us.

set_src_builder(*self*, *builder*)

Set the source code builder for this node.

src_builder(*self*)

Fetch the source code builder for this node.

If there isn't one, we cache the source code builder specified for the directory (which in turn will cache the value from its parent directory, and so on up to the file system root).

get_abspath(*self*)

Get the absolute path of the file. Overrides: SCons.Node.Node.get_abspath

get_labspath(*self*)

Get the absolute path of the file.

get_internal_path(*self*)

get_tpath(*self*)

get_path_elements(*self*)

for_signature(*self*)

Return a string representation of the Node that will always be the same for this particular Node, no matter what. This is by contrast to the ___str___() method, which might, for instance, return a relative path for a file Node. The purpose of this method is to generate a value to be used in signature calculation for the command line used to build a target, and we use this method instead of str() to avoid unnecessary rebuilds. This method does not need to return something that would actually work in a command line; it can return any kind of nonsense, so long as it does not change. Overrides: SCons.Node.Node.for_signature extit(inherited documentation)

get_subst_proxy(*self*)

This method is expected to return an object that will function exactly like this Node, except that it implements any additional special features that we would like to be in effect for Environment variable substitution. The principle use is that some Nodes would like to implement a ___getattr___() method, but putting that in the Node type itself has a tendency to kill performance. We instead put it in a proxy and return it from this method. It is legal for this method to return self if no new functionality is needed for Environment substitution. Overrides: SCons.Node.Node.get_subst_proxy extit(inherited documentation)

target_from_source(*self*, *prefix*, *suffix*, *splitext*=`<__builtin__.function object>`)

Generates a target entry that corresponds to this entry (usually a source file) with the specified prefix and suffix.

Note that this method can be overridden dynamically for generated files that need different behavior. See Tool/swig.py for an example.

Rfindalldirs(*self*, *pathlist*)

Return all of the directories for a given path list, including corresponding "backing" directories in any repositories.

The Node lookups are relative to this Node (typically a directory), so memoizing result saves cycles from looking up the same path for each target in a given directory.

RDirs(*self, pathlist*)

Search for a list of directories in the Repository list.

rentry(*self*)

Inherited from SCons.Node.Node(Section 13.7)

Decider(), GetTag(), Tag(), add_dependency(), add_ignore(), add_prerequisite(), add_source(), add_to_implicit(), add_to_waiting_parents(), add_to_waiting_s_e(), add_wkid(), all_children(), alter_targets(), build(), builder_set(), built(), changed(), children(), children_are_up_to_date(), clear(), clear_memoized_values(), del_binfo(), disambiguate(), env_set(), executor_cleanup(), explain(), get_binfo(), get_build_env(), get_build_scanner_path(), get_builder(), get_cachedir_csig(), get_contents(), get_csig(), get_env(), get_env_scanner(), get_executor(), get_found_includes(), get_implicit_deps(), get_ninfo(), get_source_scanner(), get_state(), get_stored_implicit(), get_stored_info(), get_string(), get_target_scanner(), has_builder(), has_explicit_builder(), is_derived(), is_literal(), is_up_to_date(), make_ready(), missing(), multiple_side_effect_has_builder(), new_binfo(), new_ninfo(), postprocess(), prepare(), push_to_cache(), release_target_info(), remove(), render_include_tree(), reset_executor(), retrieve_from_cache(), scan(), scanner_key(), select_scanner(), set_always_build(), set_executor(), set_explicit(), set_nocache(), set_noclean(), set_precious(), set_pseudo(), set_specific_source(), set_state(), visited()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __subclasshook__()

15.7.2 Properties

Name	Description
cwd	
dir	
duplicate	
name	
sbuilder	
Inherited from SCons.Node.Node (Section 13.7)	

continued on next page

Name	Description
always_build, attributes, binfo, builder, cached, changed_since_last_build, depends, depends_set, env, executor, ignore, ignore_set, implicit, implicit_set, includes, is_explicit, linked, ninfo, nocache, noclean, precious, prerequisites, pseudo, ref_count, side_effect, side_effects, sources, sources_set, state, store_info, waiting_parents, waiting_s_e, wkids	
Inherited from object __class__	

15.7.3 Instance Variables

Name	Description
fs	

15.8 Class Entry

object
SCons.Node.Node
SCons.Node.FS.Base
SCons.Node.FS.Entry

This is the class for generic Node.FS entries--that is, things that could be a File or a Dir, but we're just not sure yet. Consequently, the methods in this class really exist just to transform their associated object into the right class when the time comes, and then call the same-named method in the transformed class.

15.8.1 Methods

__init__(*self*, *name*, *directory*, *fs*)

Initialize a generic Node.FS.Base object.

Call the superclass initialization, take care of setting up our relative and absolute paths, identify our parent directory, and indicate that this node should use signatures. Overrides: object.__init__ extit(inherited documentation)

diskcheck_match(*self*)

disambiguate(*self*, *must_exist*=`None`)

Overrides: SCons.Node.Node.disambiguate

rfile(*self*)

We're a generic Entry, but the caller is actually looking for a File at this point, so morph into one. Overrides: SCons.Node.FS.Base.rfile

scanner_key(*self*)

Overrides: SCons.Node.Node.scanner_key

get_contents(*self*)

Fetch the contents of the entry. Returns the exact binary contents of the file. Overrides: SCons.Node.Node.get_contents

get_text_contents(*self*)

Fetch the decoded text contents of a Unicode encoded Entry.

Since this should return the text contents from the file system, we check to see into what sort of subclass we should morph this Entry.

must_be_same(*self*, *klass*)

Called to make sure a Node is a Dir. Since we're an Entry, we can morph into one. Overrides: SCons.Node.FS.Base.must_be_same

exists(*self*)

Does this node exists? Overrides: SCons.Node.Node.exists extit(inherited documentation)

rel_path(*self*, *other*)

new__ninfo(*self*)

Overrides: SCons.Node.Node.new__ninfo

get__subst__proxy(*self*)

This method is expected to return an object that will function exactly like this Node, except that it implements any additional special features that we would like to be in effect for Environment variable substitution. The principle use is that some Nodes would like to implement a ___getattr___() method, but putting that in the Node type itself has a tendency to kill performance. We instead put it in a proxy and return it from this method. It is legal for this method to return self if no new functionality is needed for Environment substitution. Overrides: SCons.Node.Node.get__subst__proxy extit(inherited documentation)

Inherited from SCons.Node.FS.Base(Section 15.7)

RDirs(), Rfindalldirs(), ___getattr___(), ___lt___(), ___str___(), for__signature(), get__abspath(), get__dir(), get__internal__path(), get__labspath(), get__path(), get__path__elements(), get__suffix(), get__tpath(), getmtime(), getsize(), is__under(), isdir(), isfile(), islink(), rentry(), rexists(), rstr(), set__local(), set__src__builder(), src__builder(), srcnode(), stat(), str__for__display(), target__from__source()

Inherited from SCons.Node.Node(Section 13.7)

Decider(), GetTag(), Tag(), add__dependency(), add__ignore(), add__prerequisite(), add__source(), add__to__implicit(), add__to__waiting__parents(), add__to__waiting__s__e(), add__wkid(), all__children(), alter__targets(), build(), builder__set(), built(), changed(), children(), children__are__up__to__date(), clear(), clear__memoized__values(), del__binfo(), env__set(), executor__cleanup(), explain(), get__binfo(), get__build__env(), get__build__scanner__path(), get__builder(), get__cachedir__csig(), get__csig(), get__env(), get__env__scanner(), get__executor(), get__found__includes(), get__implicit__deps(), get__ninfo(), get__source__scanner(), get__state(), get__stored__implicit(), get__stored__info(), get__string(), get__target__scanner(), has__builder(), has__explicit__builder(), is__derived(), is__literal(), is__up__to__date(), make__ready(), missing(), multiple__side__effect__has__builder(), new__binfo(), postprocess(), prepare(), push__to__cache(), release__target__info(), remove(), render__include__tree(), reset__executor(), retrieve__from__cache(), scan(), select__scanner(), set__always__build(), set__executor(), set__explicit(), set__nocache(), set__noclean(), set__precious(), set__pseudo(), set__specific__source(), set__state(), visited()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce__ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

15.8.2 Properties

Name	Description
cachedir_csig	
cachesig	
contentsig	
dirname	
entries	
on_disk_entries	
released_target_info	
repositories	
root	
scanner_paths	
searched	
srcdir	
variant_dirs	
Inherited from SCons.Node.FS.Base (Section 15.7) cwd, dir, duplicate, name, sbuilder	
Inherited from SCons.Node.Node (Section 13.7) always_build, attributes, binfo, builder, cached, changed_since_last_build, depends, depends_set, env, executor, ignore, ignore_set, implicit, implicit_set, includes, is_explicit, linked, ninfo, nocache, noclean, precious, prerequisites, pseudo, ref_count, side_effect, side_effects, sources, sources_set, state, store_info, waiting_parents, waiting_s_e, wkids	
Inherited from object __class__	

15.8.3 Instance Variables

Name	Description
Inherited from SCons.Node.FS.Base (Section 15.7) fs	

15.9 Class LocalFS

object
  SCons.Node.FS.LocalFS

Known Subclasses: SCons.Node.FS.FS

This class implements an abstraction layer for operations involving a local file system. Essentially, this wraps any function in the os, os.path or shutil modules that we use to actually go do anything with or to the local file system.

Note that there's a very good chance we'll refactor this part of the architecture in some way as we really implement the interface(s) for remote file system Nodes. For example, the right architecture might be to have this be a subclass instead of a base class. Nevertheless, we're using this as a first step in that direction.

We're not using chdir() yet because the calling subclass method needs to use os.chdir() directly to avoid recursion. Will we really need this one?

15.9.1 Methods

chmod(*self*, *path*, *mode*)

copy(*self*, *src*, *dst*)

copy2(*self*, *src*, *dst*)

exists(*self*, *path*)

getmtime(*self*, *path*)

getsize(*self*, *path*)

isdir(*self*, *path*)

isfile(*self*, *path*)

link(*self*, *src*, *dst*)

lstat(*self*, *path*)

listdir(*self*, *path*)

makedirs(*self*, *path*)

mkdir(*self*, *path*)

rename(*self*, *old*, *new*)

stat(*self*, *path*)

symlink(*self*, *src*, *dst*)

open(*self*, *path*)

unlink(*self*, *path*)

islink(*self*, *path*)

readlink(*self*, *file*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __init__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

15.9.2 Properties

Name	Description
Inherited from object	
__class__	

15.10 Class FS

object

SCons.Node.FS.LocalFS

SCons.Node.FS.FS

15.10.1 Methods

__init__(*self*, *path*=`None`)

Initialize the Node.FS subsystem.

The supplied path is the top of the source tree, where we expect to find the top-level build file. If no path is supplied, the current directory is the default.

The path argument must be a valid absolute path. Overrides: object.__init__

set_SConstruct_dir(*self*, *dir*)

get_max_drift(*self*)

set_max_drift(*self*, *max_drift*)

getcwd(*self*)

chdir(*self*, *dir*, *change_os_dir*=`0`)

Change the current working directory for lookups. If change_os_dir is true, we will also change the "real" cwd to match.

get_root(*self*, *drive*)

Returns the root directory for the specified drive, creating it if necessary.

Entry(*self*, *name*, *directory*=`None`, *create*=`1`)

Look up or create a generic Entry node with the specified name. If the name is a relative path (begins with ./, ../, or a file name), then it is looked up relative to the supplied directory node, or to the top level directory of the FS (supplied at construction time) if no directory is supplied.

File(*self*, *name*, *directory*=`None`, *create*=`1`)

Look up or create a File node with the specified name. If the name is a relative path (begins with ./, ../, or a file name), then it is looked up relative to the supplied directory node, or to the top level directory of the FS (supplied at construction time) if no directory is supplied.

This method will raise TypeError if a directory is found at the specified path.

Dir(*self*, *name*, *directory*=`None`, *create*=`True`)

Look up or create a Dir node with the specified name. If the name is a relative path (begins with ./, ../, or a file name), then it is looked up relative to the supplied directory node, or to the top level directory of the FS (supplied at construction time) if no directory is supplied.

This method will raise TypeError if a normal file is found at the specified path.

VariantDir(*self*, *variant_dir*, *src_dir*, *duplicate*=`1`)

Link the supplied variant directory to the source directory for purposes of building files.

Repository(*self*, **dirs*)

Specify Repository directories to search.

PyPackageDir(*self*, *modulename*)

Locate the directory of a given python module name

For example scons might resolve to Windows: C:Python27Libsite-packagesscons-2.5.1 Linux: /usr/lib/scons

This can be useful when we want to determine a toolpath based on a python module name

variant_dir_target_climb(*self*, *orig*, *dir*, *tail*)

Create targets in corresponding variant directories

Climb the directory tree, and look up path names relative to any linked variant directories we find.

Even though this loops and walks up the tree, we don't memoize the return value because this is really only used to process the command-line targets.

Glob(*self*, *pathname*, *ondisk*=`True`, *source*=`True`, *strings*=`False`, *exclude*=`None`, *cwd*=`None`)

Globs

This is mainly a shim layer

Inherited from SCons.Node.FS.LocalFS(Section 15.9)

chmod(), copy(), copy2(), exists(), getmtime(), getsize(), isdir(), isfile(), islink(), link(), listdir(), lstat(), makedirs(), mkdir(), open(), readlink(), rename(), stat(), symlink(), unlink()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

15.10.2 Properties

Name	Description
Inherited from object	
___class___	

15.11 Class DirNodeInfo

object ┐
SCons.Node.NodeInfoBase ┐
SCons.Node.FS.DirNodeInfo

The generic base class for signature information for a Node.

Node subclasses should subclass NodeInfoBase to provide their own logic for dealing with their own Node-specific signature information.

15.11.1 Methods

str_to_node(*self*, *s*)

Inherited from SCons.Node.NodeInfoBase(Section 13.5)

__getstate__(), __setstate__(), convert(), format(), merge(), update()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __init__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

15.11.2 Properties

Name	Description
Inherited from object	
__class__	

15.11.3 Class Variables

Name	Description
current_version_id	**Value:** `2`
fs	**Value:** `None`

15.12 Class DirBuildInfo

object
SCons.Node.BuildInfoBase
SCons.Node.FS.DirBuildInfo

The generic base class for build information for a Node.

This is what gets stored in a .sconsign file for each target file. It contains a NodeInfo instance for this node (signature information that's specific to the type of Node) and direct attributes for the generic build stuff we have to track: sources, explicit dependencies, implicit dependencies, and action information.

15.12.1 Methods

Inherited from SCons.Node.BuildInfoBase(Section 13.6)

__getstate__(), __init__(), __setstate__(), merge()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

15.12.2 Properties

Name	Description
Inherited from SCons.Node.BuildInfoBase (Section 13.6)	
bact, bactsig, bdepends, bdependsigs, bimplicit, bimplicitsigs, bsources, bsourcesigs	
Inherited from object	
__class__	

15.12.3 Class Variables

Name	Description
current_version_id	**Value:** 2

15.13 Class Dir

```
object ─┐
        │
SCons.Node.Node ─┐
                 │
  SCons.Node.FS.Base ─┐
                      │
                      SCons.Node.FS.Dir
```

Known Subclasses: SCons.Node.FS.RootDir

A class for directories in a file system.

15.13.1 Methods

___init___(*self*, *name*, *directory*, *fs*)

Initialize a generic Node.FS.Base object.

Call the superclass initialization, take care of setting up our relative and absolute paths, identify our parent directory, and indicate that this node should use signatures. Overrides: object.___init___ extit(inherited documentation)

diskcheck_match(*self*)

Entry(*self*, *name*)

Looks up or creates an entry node named 'name' relative to this directory.

Dir(*self*, *name*, *create*=`True`)

Looks up or creates a directory node named 'name' relative to this directory.

File(*self*, *name*)

Looks up or creates a file node named 'name' relative to this directory.

link(*self*, *srcdir*, *duplicate*)

Set this directory as the variant directory for the supplied source directory.

getRepositories(*self*)

Returns a list of repositories for this directory.

get_all_rdirs(*self*)

addRepository(*self*, *dir*)

up(*self*)

rel_path(*self*, *other*)

Return a path to "other" relative to this directory.

get_env_scanner(*self*, *env*, *kw*={})

Overrides: SCons.Node.Node.get_env_scanner

get_target_scanner(*self*)

Overrides: SCons.Node.Node.get_target_scanner

get_found_includes(*self*, *env*, *scanner*, *path*)

Return this directory's implicit dependencies.

We don't bother caching the results because the scan typically shouldn't be requested more than once (as opposed to scanning .h file contents, which can be requested as many times as the files is #included by other files).
Overrides: SCons.Node.Node.get_found_includes

prepare(*self*)

Prepare for this Node to be built.

This is called after the Taskmaster has decided that the Node is out-of-date and must be rebuilt, but before actually calling the method to build the Node.

This default implementation checks that explicit or implicit dependencies either exist or are derived, and initializes the BuildInfo structure that will hold the information about how this node is, uh, built.

(The existence of source files is checked separately by the Executor, which aggregates checks for all of the targets built by a specific action.)

Overriding this method allows for for a Node subclass to remove the underlying file from the file system. Note that subclass methods should call this base class method to get the child check and the BuildInfo structure. Overrides: SCons.Node.Node.prepare extit(inherited documentation)

build(*self*, ***kw*)

A null "builder" for directories. Overrides: SCons.Node.Node.build

multiple_side_effect_has_builder(*self*)

Return whether this Node has a builder or not.

In Boolean tests, this turns out to be a *lot* more efficient than simply examining the builder attribute directly ("if node.builder: ..."). When the builder attribute is examined directly, it ends up calling ___getattr___ for both the ___len___ and ___nonzero___ attributes on instances of our Builder Proxy class(es), generating a bazillion extra calls and slowing things down immensely. Overrides: SCons.Node.Node.multiple_side_effect_has_builder extit(inherited documentation)

alter_targets(*self*)

Return any corresponding targets in a variant directory. Overrides: SCons.Node.Node.alter_targets

scanner_key(*self*)

A directory does not get scanned. Overrides: SCons.Node.Node.scanner_key

get_text_contents(*self*)

We already emit things in text, so just return the binary version.

get_contents(*self*)

Return content signatures and names of all our children separated by new-lines. Ensure that the nodes are sorted. Overrides: SCons.Node.Node.get_contents

get_csig(*self*)

Compute the content signature for Directory nodes. In general, this is not needed and the content signature is not stored in the DirNodeInfo. However, if get_contents on a Dir node is called which has a child directory, the child directory should return the hash of its contents. Overrides: SCons.Node.Node.get_csig

do_duplicate(*self, src*)

is_up_to_date(*self*)

If any child is not up-to-date, then this directory isn't, either. Overrides: SCons.Node.Node.is_up_to_date

rdir(*self*)

sconsign(*self*)

Return the .sconsign file info for this directory.

srcnode(*self*)

Dir has a special need for srcnode()...if we have a srcdir attribute set, then that *is* our srcnode. Overrides: SCons.Node.FS.Base.srcnode

get_timestamp(*self*)

Return the latest timestamp from among our children

get_abspath(*self*)

Get the absolute path of the file. Overrides: SCons.Node.Node.get_abspath

get_labspath(*self*)

Get the absolute path of the file. Overrides: SCons.Node.FS.Base.get_labspath

get_internal_path(*self*)

Overrides: SCons.Node.FS.Base.get_internal_path

get_tpath(*self*)

Overrides: SCons.Node.FS.Base.get_tpath

get_path_elements(*self*)

Overrides: SCons.Node.FS.Base.get_path_elements

entry_abspath(*self*, *name*)

entry_labspath(*self*, *name*)

entry_path(*self*, *name*)

entry_tpath(*self*, *name*)

entry_exists_on_disk(*self*, *name*)

Searches through the file/dir entries of the current directory, and returns True if a physical entry with the given name could be found.

@see rentry_exists_on_disk

rentry_exists_on_disk(*self*, *name*)

Searches through the file/dir entries of the current *and* all its remote directories (repos), and returns True if a physical entry with the given name could be found. The local directory (self) gets searched first, so repositories take a lower precedence regarding the searching order.

@see entry_exists_on_disk

srcdir_list(*self*)

srcdir_duplicate(*self*, *name*)

srcdir_find_file(*self*, *filename*)

dir_on_disk(*self*, *name*)

file_on_disk(*self*, *name*)

walk(*self*, *func*, *arg*)

Walk this directory tree by calling the specified function for each directory in the tree.

This behaves like the os.path.walk() function, but for in-memory Node.FS.Dir objects. The function takes the same arguments as the functions passed to os.path.walk():

> func(arg, dirname, fnames)

Except that "dirname" will actually be the directory *Node*, not the string. The '.' and '..' entries are excluded from fnames. The fnames list may be modified in-place to filter the subdirectories visited or otherwise impose a specific order. The "arg" argument is always passed to func() and may be used in any way (or ignored, passing None is common).

glob(*self*, *pathname*, *ondisk*=`True`, *source*=`False`, *strings*=`False`, *exclude*=`None`)

Returns a list of Nodes (or strings) matching a specified pathname pattern.

Pathname patterns follow UNIX shell semantics: * matches any-length strings of any characters, ? matches any character, and [] can enclose lists or ranges of characters. Matches do not span directory separators.

The matches take into account Repositories, returning local Nodes if a corresponding entry exists in a Repository (either an in-memory Node or something on disk).

By defafult, the glob() function matches entries that exist on-disk, in addition to in-memory Nodes. Setting the "ondisk" argument to False (or some other non-true value) causes the glob() function to only match in-memory Nodes. The default behavior is to return both the on-disk and in-memory Nodes.

The "source" argument, when true, specifies that corresponding source Nodes must be returned if you're globbing in a build directory (initialized with VariantDir()). The default behavior is to return Nodes local to the VariantDir().

The "strings" argument, when true, returns the matches as strings, not Nodes. The strings are path names relative to this directory.

The "exclude" argument, if not None, must be a pattern or a list of patterns following the same UNIX shell semantics. Elements matching a least one pattern of this list will be excluded from the result.

The underlying algorithm is adapted from the glob.glob() function in the Python library (but heavily modified), and uses fnmatch() under the covers.

Inherited from SCons.Node.FS.Base(Section 15.7)

RDirs(), Rfindalldirs(), __getattr__(), __lt__(), __str__(), exists(), for_signature(), get_dir(), get_path(), get_subst_proxy(), get_suffix(), getmtime(), getsize(), is_under(), isdir(), isfile(), islink(), must_be_same(), rentry(), rexists(), rfile(), rstr(), set_local(), set_src_builder(), src_builder(), stat(), str_for_display(), target_from_source()

Inherited from SCons.Node.Node(Section 13.7)

Decider(), GetTag(), Tag(), add_dependency(), add_ignore(), add_prerequisite(), add_source(), add_to_implicit(), add_to_waiting_parents(), add_to_waiting_s_e(), add_wkid(), all_children(), builder_set(), built(), changed(), children(), children_are_up_to_date(), clear(), clear_memoized_values(), del_binfo(), disambiguate(), env_set(), executor_cleanup(), explain(), get_binfo(), get_build_env(), get_build_scanner_path(), get_builder(), get_cachedir_csig(), get_env(), get_executor(), get_implicit_deps(), get_ninfo(), get_source_scanner(), get_state(), get_stored_implicit(), get_stored_info(), get_string(), has_builder(), has_explicit_builder(), is_derived(), is_literal(), make_ready(), missing(), new_binfo(), new_ninfo(), postprocess(), push_to_cache(), release_target_info(), remove(), render_include_tree(), reset_executor(), retrieve_from_cache(), scan(), select_scanner(), set_always_build(), set_executor(), set_explicit(), set_nocache(), set_noclean(), set_precious(), set_pseudo(), set_specific_source(), set_state(), visited()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

15.13.2 Properties

Name	Description
cachedir_csig	
cachesig	
contentsig	
dirname	
entries	
on_disk_entries	
released_target_info	
repositories	
root	
scanner_paths	
searched	
srcdir	
variant_dirs	
Inherited from SCons.Node.FS.Base (Section 15.7) cwd, dir, duplicate, name, sbuilder	
Inherited from SCons.Node.Node (Section 13.7) always_build, attributes, binfo, builder, cached, changed_since_last_build, depends, depends_set, env, executor, ignore, ignore_set, implicit, implicit_set, includes, is_explicit, linked, ninfo, nocache, noclean, precious, prerequisites, pseudo, ref_count, side_effect, side_effects, sources, sources_set, state, store_info, waiting_parents, waiting_s_e, wkids	
Inherited from object ___class___	

15.13.3 Instance Variables

Name	Description
Inherited from SCons.Node.FS.Base (Section 15.7)	
fs	

15.14 Class RootDir

```
object ─┐
SCons.Node.Node ─┐
  SCons.Node.FS.Base ─┐
        SCons.Node.FS.Dir ─┐
                           SCons.Node.FS.RootDir
```

A class for the root directory of a file system.

This is the same as a Dir class, except that the path separator ('/' or '') is actually part of the name, so we don't need to add a separator when creating the path names of entries within this directory.

15.14.1 Methods

__init__(*self*, *drive*, *fs*)

Initialize a generic Node.FS.Base object.

Call the superclass initialization, take care of setting up our relative and absolute paths, identify our parent directory, and indicate that this node should use signatures. Overrides: object.__init__ extit(inherited documentation)

must_be_same(*self*, *klass*)

This node, which already existed, is being looked up as the specified klass. Raise an exception if it isn't. Overrides: SCons.Node.FS.Base.must_be_same extit(inherited documentation)

___str___(*self*)

A Node.FS.Base object's string representation is its path name. Overrides: object.___str___ extit(inherited documentation)

entry_abspath(*self*, *name*)

Overrides: SCons.Node.FS.Dir.entry_abspath

entry_labspath(*self*, *name*)

Overrides: SCons.Node.FS.Dir.entry_labspath

entry_path(*self*, *name*)

Overrides: SCons.Node.FS.Dir.entry_path

entry_tpath(*self*, *name*)

Overrides: SCons.Node.FS.Dir.entry_tpath

is_under(*self*, *dir*)

Overrides: SCons.Node.FS.Base.is_under

up(*self*)

Overrides: SCons.Node.FS.Dir.up

get_dir(*self*)

Overrides: SCons.Node.FS.Base.get_dir

src_builder(*self*)

Fetch the source code builder for this node.

If there isn't one, we cache the source code builder specified for the directory (which in turn will cache the value from its parent directory, and so on up to the file system root). Overrides: SCons.Node.FS.Base.src_builder extit(inherited documentation)

Inherited from SCons.Node.FS.Dir(Section 15.13)

Dir(), Entry(), File(), addRepository(), alter_targets(), build(), dir_on_disk(), diskcheck_match(), do_duplicate(), entry_exists_on_disk(), file_on_disk(), getRepositories(), get_abspath(), get_all_rdirs(), get_contents(), get_csig(), get_env_scanner(), get_found_includes(), get_internal_path(), get_labspath(), get_path_elements(), get_target_scanner(), get_text_contents(), get_timestamp(), get_tpath(), glob(), is_up_to_date(), link(), multiple_side_effect_has_builder(), prepare(), rdir(), rel_path(), rentry_exists_on_disk(), scanner_key(), sconsign(), srcdir_duplicate(), srcdir_find_file(), srcdir_list(), srcnode(), walk()

Inherited from SCons.Node.FS.Base(Section 15.7)

RDirs(), Rfindalldirs(), __getattr__(), __lt__(), exists(), for_signature(), get_path(), get_subst_proxy(), get_suffix(), getmtime(), getsize(), isdir(), isfile(), islink(), rentry(), rexists(), rfile(), rstr(), set_local(), set_src_builder(), stat(), str_for_display(), target_from_source()

Inherited from SCons.Node.Node(Section 13.7)

Decider(), GetTag(), Tag(), add_dependency(), add_ignore(), add_prerequisite(), add_source(), add_to_implicit(), add_to_waiting_parents(), add_to_waiting_s_e(), add_wkid(), all_children(), builder_set(), built(), changed(), children(), children_are_up_to_date(), clear(), clear_memoized_values(), del_binfo(), disambiguate(), env_set(), executor_cleanup(), explain(), get_binfo(), get_build_env(), get_build_scanner_path(), get_builder(), get_cachedir_csig(), get_env(), get_executor(), get_implicit_deps(), get_ninfo(), get_source_scanner(), get_state(), get_stored_implicit(), get_stored_info(), get_string(), has_builder(), has_explicit_builder(), is_derived(), is_literal(), make_ready(), missing(), new_binfo(), new_ninfo(), postprocess(), push_to_cache(), release_target_info(), remove(), render_include_tree(), reset_executor(), retrieve_from_cache(), scan(), select_scanner(), set_always_build(), set_executor(), set_explicit(), set_nocache(), set_noclean(), set_precious(), set_pseudo(), set_specific_source(), set_state(), visited()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __subclasshook__()

15.14.2 Properties

Name	Description
Inherited from SCons.Node.FS.Dir (Section 15.13)	
cachedir_csig, cachesig, contentsig, dirname, entries, on_disk_entries, released_target_info, repositories, root, scanner_paths, searched, srcdir, variant_dirs	
Inherited from SCons.Node.FS.Base (Section 15.7)	
cwd, dir, duplicate, name, sbuilder	
Inherited from SCons.Node.Node (Section 13.7)	

continued on next page

Name	Description
always_build, attributes, binfo, builder, cached, changed_since_last_build, depends, depends_set, env, executor, ignore, ignore_set, implicit, implicit_set, includes, is_explicit, linked, ninfo, nocache, noclean, precious, prerequisites, pseudo, ref_count, side_effect, side_effects, sources, sources_set, state, store_info, waiting_parents, waiting_s_e, wkids	
Inherited from object	
__class__	

15.14.3 Instance Variables

Name	Description
fs	Reference to parent Node.FS object

15.15 Class FileNodeInfo

object
SCons.Node.NodeInfoBase
SCons.Node.FS.FileNodeInfo

The generic base class for signature information for a Node.

Node subclasses should subclass NodeInfoBase to provide their own logic for dealing with their own Node-specific signature information.

15.15.1 Methods

str_to_node(*self*, *s*)

__getstate__(*self*)

Return all fields that shall be pickled. Walk the slots in the class hierarchy and add those to the state dictionary. If a '__dict__' slot is available, copy all entries to the dictionary. Also include the version id, which is fixed for all instances of a class. Overrides: SCons.Node.NodeInfoBase.__getstate__

__setstate__(*self*, *state*)

Restore the attributes from a pickled state. Overrides: SCons.Node.NodeInfoBase.__setstate__

__eq__(*self*, *other*)

__ne__(*self*, *other*)

Inherited from SCons.Node.NodeInfoBase(Section 13.5)

convert(), format(), merge(), update()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __init__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

15.15.2 Properties

Name	Description
csig	
size	
timestamp	
Inherited from object __class__	

15.15.3 Class Variables

Name	Description
current_version_id	**Value:** `2`
field_list	**Value:** `['csig', 'timestamp', 'size']`
fs	**Value:** `None`

15.16 Class FileBuildInfo

object ┐
SCons.Node.BuildInfoBase ┐
SCons.Node.FS.FileBuildInfo

Known Subclasses: SCons.SConf.SConfBuildInfo

This is info loaded from sconsign.

Attributes unique to FileBuildInfo:

dependency_map (**Caches file->csig mapping**) for all dependencies. Currently this is only used when using MD5-timestamp decider. It's used to ensure that we copy the correct csig from previous build to be written to .sconsign when current build is done. Previously the matching of csig to file was strictly by order they appeared in bdepends, bsources, or bimplicit, and so a change in order or count of any of these could yield writing wrong csig, and then false positive rebuilds

15.16.1 Methods

___setattr___(*self*, *key*, *value*)

x.___setattr___('name', value) <==> x.name = value Overrides: object.___setattr___ extit(inherited documentation)

convert_from_sconsign(*self*, *dir*, *name*)

Converts a newly-read FileBuildInfo object for in-SCons use

For normal up-to-date checking, we don't have any conversion to perform--but we're leaving this method here to make that clear.

convert_to_sconsign(*self*)

Converts this FileBuildInfo object for writing to a .sconsign file

This replaces each Node in our various dependency lists with its usual string representation: relative to the top-level SConstruct directory, or an absolute path if it's outside.

format(*self*, *names*=0)

prepare_dependencies(*self*)

Prepares a FileBuildInfo object for explaining what changed

The bsources, bdepends and bimplicit lists have all been stored on disk as paths relative to the top-level SConstruct directory. Convert the strings to actual Nodes (for use by the --debug=explain code and --implicit-cache).

Inherited from SCons.Node.BuildInfoBase(Section 13.6)

__getstate__(), __init__(), __setstate__(), merge()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __sizeof__(), __str__(), __subclasshook__()

15.16.2 Properties

Name	Description
dependency_map	
Inherited from SCons.Node.BuildInfoBase (Section 13.6) bact, bactsig, bdepends, bdependsigs, bimplicit, bimplicitsigs, bsources, bsourcesigs	
Inherited from object __class__	

15.16.3 Class Variables

Name	Description
current_version_id	**Value:** 2

15.17 Class File

object
SCons.Node.Node
SCons.Node.FS.Base
SCons.Node.FS.File

A class for files in a file system.

15.17.1 Methods

diskcheck_match(*self*)

___init___(*self*, *name*, *directory*, *fs*)

Initialize a generic Node.FS.Base object.

Call the superclass initialization, take care of setting up our relative and absolute paths, identify our parent directory, and indicate that this node should use signatures. Overrides: object.___init___ extit(inherited documentation)

Entry(*self*, *name*)

Create an entry node named 'name' relative to the directory of this file.

Dir(*self*, *name*, *create*=`True`)

Create a directory node named 'name' relative to the directory of this file.

Dirs(*self*, *pathlist*)

Create a list of directories relative to the SConscript directory of this file.

File(*self*, *name*)

Create a file node named 'name' relative to the directory of this file.

scanner_key(*self*)

Overrides: SCons.Node.Node.scanner_key

get_contents(*self*)

Fetch the contents of the entry. Overrides: SCons.Node.Node.get_contents extit(inherited documentation)

get_text_contents(*self*)

This attempts to figure out what the encoding of the text is based upon the BOM bytes, and then decodes the contents so that it's a valid python string.

get_content_hash(*self*)

Compute and return the MD5 hash for this file.

get_size(*self*)

get_timestamp(*self*)

convert_old_entry(*self*, *old_entry*)

get_stored_info(*self*)

Overrides: SCons.Node.Node.get_stored_info

get_stored_implicit(*self*)

Fetch the stored implicit dependencies Overrides: SCons.Node.Node.get_stored_implicit extit(inherited documentation)

rel_path(*self*, *other*)

get_found_includes(*self*, *env*, *scanner*, *path*)

Return the included implicit dependencies in this file. Cache results so we only scan the file once per path regardless of how many times this information is requested. Overrides: SCons.Node.Node.get_found_includes

push_to_cache(*self*)

Try to push the node into a cache Overrides: SCons.Node.Node.push_to_cache

retrieve_from_cache(*self*)

Try to retrieve the node's content from a cache

This method is called from multiple threads in a parallel build, so only do thread safe stuff here. Do thread unsafe stuff in built().

Returns true if the node was successfully retrieved. Overrides: SCons.Node.Node.retrieve_from_cache

visited(*self*)

Called just after this node has been visited (with or without a build). Overrides: SCons.Node.Node.visited extit(inherited documentation)

release_target_info(*self*)

Called just after this node has been marked up-to-date or was built completely.

This is where we try to release as many target node infos as possible for clean builds and update runs, in order to minimize the overall memory consumption.

We'd like to remove a lot more attributes like self.sources and self.sources_set, but they might get used in a next build step. For example, during configuration the source files for a built E{*}.o file are used to figure out which linker to use for the resulting Program (gcc vs. g++)! That's why we check for the 'keep_targetinfo' attribute, config Nodes and the Interactive mode just don't allow an early release of most variables.

In the same manner, we can't simply remove the self.attributes here. The smart linking relies on the shared flag, and some parts of the java Tool use it to transport information about nodes...

@see: built() and Node.release_target_info() Overrides: SCons.Node.Node.release_target_info

find_src_builder(*self*)

has_src_builder(*self*)

Return whether this Node has a source builder or not.

If this Node doesn't have an explicit source code builder, this is where we figure out, on the fly, if there's a transparent source code builder for it.

Note that if we found a source builder, we also set the self.builder attribute, so that all of the methods that actually *build* this file don't have to do anything different.

alter_targets(*self*)

Return any corresponding targets in a variant directory. Overrides: SCons.Node.Node.alter_targets

make_ready(*self*)

Get a Node ready for evaluation.

This is called before the Taskmaster decides if the Node is up-to-date or not. Overriding this method allows for a Node subclass to be disambiguated if necessary, or for an implicit source builder to be attached. Overrides: SCons.Node.Node.make_ready extit(inherited documentation)

prepare(*self*)

Prepare for this file to be created. Overrides: SCons.Node.Node.prepare

remove(*self*)

Remove this file. Overrides: SCons.Node.Node.remove

do_duplicate(*self, src*)

exists(*self*)

Does this node exists? Overrides: SCons.Node.Node.exists extit(inherited documentation)

get_max_drift_csig(*self*)

Returns the content signature currently stored for this node if it's been unmodified longer than the max_drift value, or the max_drift value is 0. Returns None otherwise.

get_csig(*self*)

Generate a node's content signature, the digested signature of its content.

node - the node cache - alternate node to use for the signature cache returns - the content signature Overrides: SCons.Node.Node.get_csig

builder_set(*self*, *builder*)

Overrides: SCons.Node.Node.builder_set

built(*self*)

Called just after this File node is successfully built.

Just like for 'release_target_info' we try to release some more target node attributes in order to minimize the overall memory consumption.

@see: release_target_info Overrides: SCons.Node.Node.built

changed(*self*, *node*=`None`, *allowcache*=`False`)

Returns if the node is up-to-date with respect to the BuildInfo stored last time it was built.

For File nodes this is basically a wrapper around Node.changed(), but we allow the return value to get cached after the reference to the Executor got released in release_target_info().

@see: Node.changed() Overrides: SCons.Node.Node.changed

changed_content(*self*, *target*, *prev_ni*)

changed_state(*self*, *target*, *prev_ni*)

changed__timestamp__then__content(*self*, *target*, *prev_ni*, *node*=None)

```
Used when decider for file is Timestamp-MD5

NOTE: If the timestamp hasn't changed this will skip md5'ing the
      file and just copy the prev_ni provided.  If the prev_ni
      is wrong. It will propagate it.
      See: https://github.com/SCons/scons/issues/2980

Args:
    self - dependency
    target - target
    prev_ni - The NodeInfo object loaded from previous builds .sconsign
    node - Node instance.  This is the only changed* function which requires
           node to function. So if we detect that it's not passed.
           we throw DeciderNeedsNode, and caller should handle this and pass node.

Returns:
    Boolean - Indicates if node(File) has changed.
```

changed__timestamp__newer(*self*, *target*, *prev_ni*)

changed__timestamp__match(*self*, *target*, *prev_ni*)

Return True if the timestamps don't match or if there is no previous timestamp :param target: :param prev_ni: Information about the node from the previous build :return:

is__up__to__date(*self*)

Default check for whether the Node is current: unknown Node subtypes are always out of date, so they will always get built. Overrides: SCons.Node.Node.is_up_to_date extit(inherited documentation)

rfile(*self*)

Overrides: SCons.Node.FS.Base.rfile

find_repo_file(*self*)

For this node, find if there exists a corresponding file in one or more repositories :return: list of corresponding files in repositories

rstr(*self*)

A Node.FS.Base object's string representation is its path name. Overrides: SCons.Node.FS.Base.rstr extit(inherited documentation)

get_cachedir_csig(*self*)

Fetch a Node's content signature for purposes of computing another Node's cachesig.

This is a wrapper around the normal get_csig() method that handles the somewhat obscure case of using CacheDir with the -n option. Any files that don't exist would normally be "built" by fetching them from the cache, but the normal get_csig() method will try to open up the local file, which doesn't exist because the -n option meant we didn't actually pull the file from cachedir. But since the file *does* actually exist in the cachedir, we can use its contents for the csig. Overrides: SCons.Node.Node.get_cachedir_csig

get_contents_sig(*self*)

A helper method for get_cachedir_bsig.

It computes and returns the signature for this node's contents.

get_cachedir_bsig(*self*)

Return the signature for a cached file, including its children.

It adds the path of the cached file to the cache signature, because multiple targets built by the same action will all have the same build signature, and we have to differentiate them somehow.

Signature should normally be string of hex digits.

Inherited from SCons.Node.FS.Base(Section 15.7)

RDirs(), Rfindalldirs(), ___getattr___(), ___lt___(), ___str___(), for_signature(), get_abspath(), get_dir(), get_internal_path(), get_labspath(), get_path(), get_path_elements(), get_subst_proxy(), get_suffix(), get_tpath(), getmtime(), getsize(), is_under(), isdir(), isfile(), islink(), must_be_same(), rentry(), rexists(), set_local(), set_src_builder(), src_builder(), srcnode(), stat(), str_for_display(), target_from_source()

Inherited from SCons.Node.Node(Section 13.7)

Decider(), GetTag(), Tag(), add_dependency(), add_ignore(), add_prerequisite(), add_source(), add_to_implicit(), add_to_waiting_parents(), add_to_waiting_s_e(), add_wkid(), all_children(), build(), children(), children_are_up_to_date(), clear(), clear_memoized_values(), del_binfo(), disambiguate(), env_set(), executor_cleanup(), explain(), get_binfo(), get_build_env(), get_build_scanner_path(), get_builder(), get_env(), get_env_scanner(), get_executor(), get_implicit_deps(), get_ninfo(), get_source_scanner(), get_state(), get_string(), get_target_scanner(), has_builder(), has_explicit_builder(), is_derived(), is_literal(), missing(), multiple_side_effect_has_builder(), new_binfo(), new_ninfo(), postprocess(), render_include_tree(), reset_executor(), scan(), select_scanner(), set_always_build(), set_executor(), set_explicit(), set_nocache(), set_noclean(), set_precious(), set_pseudo(), set_specific_source(), set_state()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

15.17.2 Properties

Name	Description
cachedir_csig	
cachesig	
contentsig	
dirname	
entries	
on_disk_entries	
released_target_info	
repositories	
root	
scanner_paths	
searched	
srcdir	
variant_dirs	
Inherited from SCons.Node.FS.Base (Section 15.7) cwd, dir, duplicate, name, sbuilder	
Inherited from SCons.Node.Node (Section 13.7)	

continued on next page

Name	Description
always_build, attributes, binfo, builder, cached, changed_since_last_build, depends, depends_set, env, executor, ignore, ignore_set, implicit, implicit_set, includes, is_explicit, linked, ninfo, nocache, noclean, precious, prerequisites, pseudo, ref_count, side_effect, side_effects, sources, sources_set, state, store_info, waiting_parents, waiting_s_e, wkids	
Inherited from object __class__	

15.17.3 Class Variables

Name	Description
md5_chunksize	**Value:** `64`
convert_copy_attrs	**Value:** `['bsources', 'bimplicit', 'bdepends', 'bact', 'bactsig', ...`
convert_sig_attrs	**Value:** `['bsourcesigs', 'bimplicitsigs', 'bdependsigs']`

15.17.4 Instance Variables

Name	Description
Inherited from SCons.Node.FS.Base (Section 15.7) fs	

15.18 Class FileFinder

object ─┐
SCons.Node.FS.FileFinder

15.18.1 Methods

__init__(*self*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

filedir__lookup(*self*, *p*, *fd*=`None`)

A helper method for find_file() that looks up a directory for a file we're trying to find. This only creates the Dir Node if it exists on-disk, since if the directory doesn't exist we know we won't find any files in it... :-)

It would be more compact to just use this as a nested function with a default keyword argument (see the commented-out version below), but that doesn't work unless you have nested scopes, so we define it here just so this work under Python 1.5.2.

find_file(*self*, *filename*, *paths*, *verbose*=`None`)

Find a node corresponding to either a derived file or a file that exists already.

Only the first file found is returned, and none is returned if no file is found.

filename: A filename to find paths: A list of directory path *nodes* to search in. Can be represented as a list, a tuple, or a callable that is called with no arguments and returns the list or tuple.

returns The node created from the found file.

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

15.18.2 Properties

Name	Description
Inherited from object	
___class___	

16 Module SCons.Node.Python

scons.Node.Python

Python nodes.

16.1 Variables

Name	Description
___revision___	**Value:** `'src/engine/SCons/Node/Python.py a56bbd8c09fb219ab8a96733...`
___package___	**Value:** `'SCons.Node'`

16.2 Class ValueNodeInfo

object ─┐
SCons.Node.NodeInfoBase ─┐
SCons.Node.Python.ValueNodeInfo

The generic base class for signature information for a Node.

Node subclasses should subclass NodeInfoBase to provide their own logic for dealing with their own Node-specific signature information.

16.2.1 Methods

str__to__node(*self*, *s*)

___getstate___(*self*)

Return all fields that shall be pickled. Walk the slots in the class hierarchy and add those to the state dictionary. If a '___dict___' slot is available, copy all entries to the dictionary. Also include the version id, which is fixed for all instances of a class. Overrides: SCons.Node.NodeInfoBase.___getstate___

___setstate___(*self*, *state*)

Restore the attributes from a pickled state. Overrides: SCons.Node.NodeInfoBase.___setstate___

Inherited from SCons.Node.NodeInfoBase(Section 13.5)

convert(), format(), merge(), update()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___init___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

16.2.2 Properties

Name	Description
csig	
Inherited from object ___class___	

16.2.3 Class Variables

Name	Description
current_version_id	**Value:** `2`
field_list	**Value:** `['csig']`

16.3 Class ValueBuildInfo

object
SCons.Node.BuildInfoBase
SCons.Node.Python.ValueBuildInfo

The generic base class for build information for a Node.

This is what gets stored in a .sconsign file for each target file. It contains a NodeInfo instance for this node (signature information that's specific to the type of Node) and direct attributes for the generic build stuff we have to track: sources, explicit dependencies, implicit dependencies, and action information.

16.3.1 Methods

Inherited from SCons.Node.BuildInfoBase(Section 13.6)

__getstate__(), __init__(), __setstate__(), merge()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

16.3.2 Properties

Name	Description
Inherited from SCons.Node.BuildInfoBase (Section 13.6)	
bact, bactsig, bdepends, bdependsigs, bimplicit, bimplicitsigs, bsources, bsourcesigs	
Inherited from object	
__class__	

16.3.3 Class Variables

Name	Description
current_version_id	**Value:** 2

16.4 Class Value

object
SCons.Node.Node
SCons.Node.Python.Value

A class for Python variables, typically passed on the command line or generated by a script, but not from a file or some other source.

16.4.1 Methods

___init___(*self*, *value*, *built_value*=`None`)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

str_for_display(*self*)

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

make_ready(*self*)

Get a Node ready for evaluation.

This is called before the Taskmaster decides if the Node is up-to-date or not. Overriding this method allows for a Node subclass to be disambiguated if necessary, or for an implicit source builder to be attached. Overrides: SCons.Node.Node.make_ready extit(inherited documentation)

build(*self*, ***kw*)

Actually build the node.

This is called by the Taskmaster after it's decided that the Node is out-of-date and must be rebuilt, and after the prepare() method has gotten everything, uh, prepared.

This method is called from multiple threads in a parallel build, so only do thread safe stuff here. Do thread unsafe stuff in built(). Overrides: SCons.Node.Node.build extit(inherited documentation)

is_up_to_date(*self*)

Alternate check for whether the Node is current: If all of our children were up-to-date, then this Node was up-to-date, too.

The SCons.Node.Alias and SCons.Node.Python.Value subclasses rebind their current() method to this method. Overrides: SCons.Node.Node.is_up_to_date

is_under(*self*, *dir*)

write(*self*, *built_value*)

Set the value of the node.

read(*self*)

Return the value. If necessary, the value is built.

get_text_contents(*self*)

By the assumption that the node.built_value is a deterministic product of the sources, the contents of a Value are the concatenation of all the contents of its sources. As the value need not be built when get_contents() is called, we cannot use the actual node.built_value.

get_contents(*self*)

Get contents for signature calculations. :return: bytes Overrides: SCons.Node.Node.get_contents

changed_since_last_build(*self*, *target*, *prev_ni*)

Overrides: SCons.Node.Node.changed_since_last_build

get_csig(*self*, *calc*=`None`)

Because we're a Python value node and don't have a real timestamp, we get to ignore the calculator and just use the value contents.

Returns string. Ideally string of hex digits. (Not bytes) Overrides: SCons.Node.Node.get_csig

Inherited from SCons.Node.Node(Section 13.7)

Decider(), GetTag(), Tag(), add_dependency(), add_ignore(), add_prerequisite(), add_source(), add_to_implicit(), add_to_waiting_parents(), add_to_waiting_s_e(), add_wkid(), all_children(), alter_targets(), builder_set(), built(), changed(), children(), children_are_up_to_date(), clear(), clear_memoized_values(), del_binfo(), disambiguate(), env_set(), executor_cleanup(), exists(), explain(), for_signature(), get_abspath(), get_binfo(), get_build_env(), get_build_scanner_path(), get_builder(), get_cachedir_csig(), get_env(), get_env_scanner(), get_executor(), get_found_includes(), get_implicit_deps(), get_ninfo(), get_source_scanner(), get_state(), get_stored_implicit(), get_stored_info(), get_string(), get_subst_proxy(), get_suffix(), get_target_scanner(), has_builder(), has_explicit_builder(), is_derived(), is_literal(), missing(), multiple_side_effect_has_builder(), new_binfo(), new_ninfo(), postprocess(), prepare(), push_to_cache(), release_target_info(), remove(), render_include_tree(), reset_executor(), retrieve_from_cache(), rexists(), scan(), scanner_key(), select_scanner(), set_always_build(), set_executor(), set_explicit(), set_nocache(), set_noclean(), set_precious(), set_pseudo(), set_specific_source(), set_state(), visited()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __subclasshook__()

16.4.2 Properties

Name	Description
Inherited from SCons.Node.Node (Section 13.7)	
always_build, attributes, binfo, builder, cached, depends, depends_set, env, executor, ignore, ignore_set, implicit, implicit_set, includes, is_explicit, linked, ninfo, nocache, noclean, precious, prerequisites, pseudo, ref_count, side_effect, side_effects, sources, sources_set, state, store_info, waiting_parents, waiting_s_e, wkids	
Inherited from object	
__class__	

17 Module SCons.PathList

SCons.PathList

A module for handling lists of directory paths (the sort of things that get set as CPPPATH, LIBPATH, etc.) with as much caching of data and efficiency as we can, while still keeping the evaluation delayed so that we Do the Right Thing (almost) regardless of how the variable is specified.

17.1 Functions

node_conv(*obj*)

This is the "string conversion" routine that we have our substitutions use to return Nodes, not strings. This relies on the fact that an EntryProxy object has a get() method that returns the underlying Node that it wraps, which is a bit of architectural dependence that we might need to break or modify in the future in response to additional requirements.

PathList(*pathlist*)

Returns the cached _PathList object for the specified pathlist, creating and caching a new object as necessary.

17.2 Variables

Name	Description
___revision___	**Value:** `'src/engine/SCons/PathList.py a56bbd8c09fb219ab8a9673330f...`
___doc___	**Value:** `"""SCons.PathL...`
TYPE_STRING_NO_SUBST	**Value:** `0`
TYPE_STRING_SUBST	**Value:** `1`
TYPE_OBJECT	**Value:** `2`
___package___	**Value:** `'SCons'`

18 Package SCons.Platform

SCons.Platform

SCons platform selection.

This looks for modules that define a callable object that can modify a construction environment as appropriate for a given platform.

Note that we take a more simplistic view of "platform" than Python does. We're looking for a single string that determines a set of tool-independent variables with which to initialize a construction environment. Consequently, we'll examine both sys.platform and os.name (and anything else that might come in to play) in order to return some specification which is unique enough for our purposes.

Note that because this subsystem just *selects* a callable that can modify a construction environment, it's possible for people to define their own "platform specification" in an arbitrary callable function. No one needs to use or tie in to this subsystem in order to roll their own platform definition.

18.1 Modules

- **aix**: engine.SCons.Platform.aix
  (Section 19, p. 203)
- **cygwin**: SCons.Platform.cygwin
  (Section 20, p. 204)
- **darwin**: engine.SCons.Platform.darwin
  (Section 21, p. 205)
- **hpux**: engine.SCons.Platform.hpux
  (Section 22, p. 206)
- **irix**: SCons.Platform.irix
  (Section 23, p. 207)
- **mingw**: SCons.Platform.mingw
  (Section 24, p. 208)
- **os2**: SCons.Platform.os2
  (Section 25, p. 209)
- **posix**: SCons.Platform.posix
  (Section 26, p. 210)
- **sunos**: engine.SCons.Platform.sunos
  (Section 27, p. 211)
- **virtualenv**: SCons.Platform.virtualenv
  (Section 28, p. 212)
- **win32**: SCons.Platform.win32
  (Section 29, p. 214)

18.2 Functions

platform_default()

Return the platform string for our execution environment.

The returned value should map to one of the SCons/Platform/*.py files. Since we're architecture independent, though, we don't care about the machine architecture.

platform_module(*name*='posix')

Return the imported module for the platform.

This looks for a module name that matches the specified argument. If the name is unspecified, we fetch the appropriate default for our execution environment.

DefaultToolList(*platform*, *env*)

Select a default tool list for the specified platform.

Platform(*name*='posix')

Select a canned Platform specification.

18.3 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Platform/__init__.py a56bbd8c09fb219ab8...`
__package__	**Value:** `'SCons.Platform'`

18.4 Class PlatformSpec

object ─┐
  SCons.Platform.PlatformSpec

18.4.1 Methods

___init___(*self*, *name*, *generate*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*, ***kw*)

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

18.4.2 Properties

Name	Description
Inherited from object	
___class___	

18.5 Class TempFileMunge

object ─┐
  SCons.Platform.TempFileMunge

```
A callable class.  You can set an Environment variable to this,
then call it with a string argument, then it will perform temporary
file substitution on it.  This is used to circumvent the long command
line limitation.
```

```
Example usage:
    env["TEMPFILE"] = TempFileMunge
    env["LINKCOM"] = "${TEMPFILE('$LINK $TARGET $SOURCES','$LINKCOMSTR')}"

By default, the name of the temporary file used begins with a
prefix of '@'.  This may be configured for other tool chains by
setting '$TEMPFILEPREFIX':
    env["TEMPFILEPREFIX"] = '-@'        # diab compiler
    env["TEMPFILEPREFIX"] = '-via'      # arm tool chain
    env["TEMPFILEPREFIX"] = ''          # (the empty string) PC Lint

You can configure the extension of the temporary file through the
TEMPFILESUFFIX variable, which defaults to '.lnk' (see comments
in the code below):
    env["TEMPFILESUFFIX"] = '.lnt'   # PC Lint
```

18.5.1 Methods

__init__(*self*, *cmd*, *cmdstr*=None)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__call__(*self*, *target*, *source*, *env*, *for_signature*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

18.5.2 Properties

Name	Description
Inherited from object	
__class__	

19 Module SCons.Platform.aix

engine.SCons.Platform.aix

Platform-specific initialization for IBM AIX systems.

There normally shouldn't be any need to import this module directly. It will usually be imported through the generic SCons.Platform.Platform() selection method.

19.1 Functions

get_xlc(*env*, *xlc*=`None`, *packages*=`[]`)

generate(*env*)

19.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Platform/aix.py a56bbd8c09fb219ab8a9673...`
__package__	**Value:** `'SCons.Platform'`

20 Module SCons.Platform.cygwin

SCons.Platform.cygwin

Platform-specific initialization for Cygwin systems.

There normally shouldn't be any need to import this module directly. It will usually be imported through the generic SCons.Platform.Platform() selection method.

20.1 Functions

generate(*env*)

20.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Platform/cygwin.py a56bbd8c09fb219ab8a9...`
CYGWIN_DEFAULT_PATHS	**Value:** `[]`
__package__	**Value:** `'SCons.Platform'`

21 Module SCons.Platform.darwin

engine.SCons.Platform.darwin

Platform-specific initialization for Mac OS X systems.

There normally shouldn't be any need to import this module directly. It will usually be imported through the generic SCons.Platform.Platform() selection method.

21.1 Functions

generate(*env*)

21.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Platform/darwin.py a56bbd8c09fb219ab8a9...`
__package__	**Value:** `'SCons.Platform'`

22 Module SCons.Platform.hpux

engine.SCons.Platform.hpux

Platform-specific initialization for HP-UX systems.

There normally shouldn't be any need to import this module directly. It will usually be imported through the generic SCons.Platform.Platform() selection method.

22.1 Functions

generate(*env*)

22.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Platform/hpux.py a56bbd8c09fb219ab8a967...`
__package__	**Value:** `'SCons.Platform'`

23 Module SCons.Platform.irix

SCons.Platform.irix

Platform-specific initialization for SGI IRIX systems.

There normally shouldn't be any need to import this module directly. It will usually be imported through the generic SCons.Platform.Platform() selection method.

23.1 Functions

generate(*env*)

23.2 Variables

Name	Description
___revision___	**Value:** `'src/engine/SCons/Platform/irix.py a56bbd8c09fb219ab8a967...`
___package___	**Value:** `'SCons.Platform'`

24 Module SCons.Platform.mingw

SCons.Platform.mingw

Platform-specific initialization for the MinGW system.

24.1 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Platform/mingw.py a56bbd8c09fb219ab8a96...`
MINGW_DEFAULT_P-ATHS	**Value:** `[]`
__package__	**Value:** `'SCons.Platform'`

25 Module SCons.Platform.os2

SCons.Platform.os2

Platform-specific initialization for OS/2 systems.

There normally shouldn't be any need to import this module directly. It will usually be imported through the generic SCons.Platform.Platform() selection method.

25.1 Functions

generate(*env*)

25.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Platform/os2.py a56bbd8c09fb219ab8a9673...`
__package__	**Value:** `'SCons.Platform'`

26 Module SCons.Platform.posix

SCons.Platform.posix

Platform-specific initialization for POSIX (Linux, UNIX, etc.) systems.

There normally shouldn't be any need to import this module directly. It will usually be imported through the generic SCons.Platform.Platform() selection method.

26.1 Functions

escape(*arg*)

escape shell special characters

exec_subprocess(*l*, *env*)

subprocess_spawn(*sh*, *escape*, *cmd*, *args*, *env*)

exec_popen3(*l*, *env*, *stdout*, *stderr*)

piped_env_spawn(*sh*, *escape*, *cmd*, *args*, *env*, *stdout*, *stderr*)

generate(*env*)

26.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Platform/posix.py a56bbd8c09fb219ab8a96...`
exitvalmap	**Value:** `{2: 127, 13: 126}`
__package__	**Value:** `'SCons.Platform'`

27 Module SCons.Platform.sunos

engine.SCons.Platform.sunos

Platform-specific initialization for Sun systems.

There normally shouldn't be any need to import this module directly. It will usually be imported through the generic SCons.Platform.Platform() selection method.

27.1 Functions

generate(*env*)

27.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Platform/sunos.py a56bbd8c09fb219ab8a96...`
__package__	**Value:** `'SCons.Platform'`

28 Module SCons.Platform.virtualenv

SCons.Platform.virtualenv

Support for virtualenv.

28.1 Functions

select_paths_in_venv(*path_list*)

Returns a list of paths from **path_list** which are under virtualenv's home directory.

ImportVirtualenv(*env*)

Copies virtualenv-related environment variables from OS environment to `env['ENV']` and prepends virtualenv's PATH to `env['ENV']['PATH']`.

Virtualenv()

Returns path to the virtualenv home if scons is executing within a virtualenv or None, if not.

IsInVirtualenv(*path*)

Returns True, if **path** is under virtualenv's home directory. If not, or if we don't use virtualenv, returns False.

28.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Platform/virtualenv.py a56bbd8c09fb219a...`
virtualenv_enabled_by_-default	**Value:** `False`

continued on next page

Name	Description
enable_virtualenv	**Value:** `False`
ignore_virtualenv	**Value:** `False`
virtualenv_variables	**Value:** `['VIRTUAL_ENV', 'PIPENV_ACTIVE']`
__package__	**Value:** `'SCons.Platform'`

29 Module SCons.Platform.win32

SCons.Platform.win32

Platform-specific initialization for Win32 systems.

There normally shouldn't be any need to import this module directly. It will usually be imported through the generic SCons.Platform.Platform() selection method.

29.1 Functions

open(**args*, ***kw*)

win_api_copyfile(*src*, *dst*)

spawnve(*mode*, *file*, *args*, *env*)

piped_spawn(*sh*, *escape*, *cmd*, *args*, *env*, *stdout*, *stderr*)

exec_spawn(*l*, *env*)

spawn(*sh*, *escape*, *cmd*, *args*, *env*)

escape(*x*)

get_system_root()

get_program_files_dir()

Get the location of the program files directory Returns -------

get_architecture(*arch*=`None`)

Returns the definition for the specified architecture string.

If no string is specified, the system default is returned (as defined by the PROCESSOR_ARCHITEW6432 or PROCESSOR_ARCHITECTURE environment variables).

generate(*env*)

29.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Platform/win32.py a56bbd8c09fb219ab8a96...`
CHOCO_DEFAULT_PATH	**Value:** `['C:\\ProgramData\\chocolatey\\bin']`
CopyFile	**Value:** `windll.kernel32.CopyFileA`
SetFileTime	**Value:** `windll.kernel32.SetFileTime`
parallel_msg	**Value:** `'you do not seem to have the pywin32 extensions installed...`
spawn_lock	**Value:** `<thread.lock object>`
SupportedArchitectureList	**Value:** `[<SCons.Platform.win32.ArchDefinition object>, <SCons.Pla...`
SupportedArchitectureMap	**Value:** `{'AMD64': <SCons.Platform.win32.ArchDefinition object>, '...`
__package__	**Value:** `'SCons.Platform'`
a	**Value:** `<SCons.Platform.win32.ArchDefinition object>`
s	**Value:** `'IA64'`

29.3 Class _scons_file

object
  file
    SCons.Platform.win32._scons_file

29.3.1 Methods

__init__(*self*, **args*, ***kw*)

x.__init__(...) initializes x; see help(type(x)) for signature **Return Value**
file object

Overrides: object.__init__ extit(inherited documentation)

Inherited from file

__delattr__(), __enter__(), __exit__(), __getattribute__(), __iter__(), __new__(), __repr__(), __setattr__(), close(), fileno(), flush(), isatty(), next(), read(), readinto(), readline(), readlines(), seek(), tell(), truncate(), write(), writelines(), xreadlines()

Inherited from object

__format__(), __hash__(), __reduce__(), __reduce_ex__(), __sizeof__(), __str__(), __subclasshook__()

29.3.2 Properties

Name	Description
Inherited from file	
closed, encoding, errors, mode, name, newlines, softspace	
Inherited from object	
__class__	

29.4 Class ArchDefinition

object ─┐
SCons.Platform.win32.ArchDefinition

Determine which windows CPU were running on. A class for defining architecture-specific settings and logic.

29.4.1 Methods

___init___(*self*, *arch*, *synonyms*=`[]`)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

29.4.2 Properties

Name	Description
Inherited from object	
___class___	

30 Module SCons.SConf

SCons.SConf

Autoconf-like configuration support.

In other words, SConf allows to run tests on the build machine to detect capabilities of system and do some things based on result: generate config files, header files for C/C++, update variables in environment.

Tests on the build system can detect if compiler sees header files, if libraries are installed, if some command line options are supported etc.

30.1 Functions

SetBuildType(*type*)

SetCacheMode(*mode*)

Set the Configure cache mode. mode must be one of "auto", "force", or "cache".

SetProgressDisplay(*display*)

Set the progress display to use (called from SCons.Script)

NeedConfigHBuilder()

CreateConfigHBuilder(*env*)

Called if necessary just before the building targets phase begins.

SConf(**args*, ***kw*)

CheckFunc(*context*, *function_name*, *header*=`None`, *language*=`None`)

CheckType(*context*, *type_name*, *includes*=`''`, *language*=`None`)

CheckTypeSize(*context*, *type_name*, *includes*=`''`, *language*=`None`, *expect*=`None`)

CheckDeclaration(*context*, *declaration*, *includes*=`''`, *language*=`None`)

createIncludesFromHeaders(*headers*, *leaveLast*, *include_quotes*=`'""'`)

CheckHeader(*context*, *header*, *include_quotes*=`'<>'`, *language*=`None`)

A test for a C or C++ header file.

CheckCC(*context*)

CheckCXX(*context*)

CheckSHCC(*context*)

CheckSHCXX(*context*)

CheckCHeader(*context*, *header*, *include_quotes*=`'""'`)

A test for a C header file.

CheckCXXHeader(*context*, *header*, *include_quotes*=`'""'`)

A test for a C++ header file.

CheckLib(*context*, *library*=`None`, *symbol*=`'main'`, *header*=`None`, *language*=`None`, *autoadd*=`1`)

A test for a library. See also CheckLibWithHeader. Note that library may also be None to test whether the given symbol compiles without flags.

CheckLibWithHeader(*context*, *libs*, *header*, *language*, *call*=`None`, *autoadd*=`1`)

Another (more sophisticated) test for a library. Checks, if library and header is available for language (may be 'C' or 'CXX'). Call maybe be a valid expression _with_ a trailing ';'. As in CheckLib, we support library=None, to test if the call compiles without extra link flags.

CheckProg(*context*, *prog_name*)

Simple check if a program exists in the path. Returns the path for the application, or None if not found.

30.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/SConf.py a56bbd8c09fb219ab8a9673330ffcd...`
build_type	**Value:** `None`
build_types	**Value:** `['clean', 'help']`
dryrun	**Value:** `0`
AUTO	**Value:** `0`
FORCE	**Value:** `1`
CACHE	**Value:** `2`
cache_mode	**Value:** `0`
progress_display	**Value:** `<SCons.Util.DisplayEngine object>`
SConfFS	**Value:** `None`
sconf_global	**Value:** `None`
__package__	**Value:** `'SCons'`

30.3 Class SConfWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.SConf.SConfWarning

30.3.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

30.3.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

30.4 Class SConfError

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.SConf.SConfError

Known Subclasses: SCons.SConf.ConfigureCacheError, SCons.SConf.ConfigureDryRunError

30.4.1 Methods

___init___(*self*, *msg*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

Inherited from exceptions.Exception

___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

30.4.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

30.5 Class ConfigureDryRunError

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.SConf.SConfError
SCons.SConf.ConfigureDryRunError

Raised when a file or directory needs to be updated during a Configure process, but the user requested a dry-run

30.5.1 Methods

__init__(*self*, *target*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

Inherited from exceptions.Exception

__new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

30.5.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

30.6 Class ConfigureCacheError

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.SConf.SConfError
SCons.SConf.ConfigureCacheError

Raised when a use explicitely requested the cache feature, but the test is run the first time.

30.6.1 Methods

___init___(*self*, *target*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

Inherited from exceptions.Exception

___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

30.6.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object ___class___	

30.7 Class SConfBuildInfo

object
SCons.Node.BuildInfoBase
SCons.Node.FS.FileBuildInfo
SCons.SConf.SConfBuildInfo

Special build info for targets of configure tests. Additional members are result (did the builder succeed last time?) and string, which contains messages of the original build phase.

30.7.1 Methods

__init__(*self*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

set_build_result(*self*, *result*, *string*)

Inherited from SCons.Node.FS.FileBuildInfo(Section 15.16)

__setattr__(), convert_from_sconsign(), convert_to_sconsign(), format(), prepare_dependencies()

Inherited from SCons.Node.BuildInfoBase(Section 13.6)

__getstate__(), __setstate__(), merge()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __sizeof__(), __str__(), __subclasshook__()

30.7.2 Properties

Name	Description
result	
string	
Inherited from SCons.Node.FS.FileBuildInfo (Section 15.16) dependency_map	
Inherited from SCons.Node.BuildInfoBase (Section 13.6)	

continued on next page

Name	Description
bact, bactsig, bdepends, bdependsigs, bimplicit, bimplicitsigs, bsources, bsourcesigs	
Inherited from object	
___class___	

30.7.3 Class Variables

Name	Description
Inherited from SCons.Node.FS.FileBuildInfo (Section 15.16)	
current_version_id	

30.8 Class Streamer

object ─┐
SCons.SConf.Streamer

'Sniffer' for a file-like writable object. Similar to the unix tool tee.

30.8.1 Methods

___init___(*self*, *orig*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

write(*self*, *str*)

writelines(*self*, *lines*)

getvalue(*self*)

Return everything written to orig since the Streamer was created.

flush(*self*)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

30.8.2 Properties

Name	Description
Inherited from object	
___class___	

30.9 Class SConfBuildTask

object
SCons.Taskmaster.Task
SCons.Taskmaster.AlwaysTask
SCons.SConf.SConfBuildTask

This is almost the same as SCons.Script.BuildTask. Handles SConfErrors correctly and knows about the current cache_mode.

30.9.1 Methods

display(*self*, *message*)

Hook to allow the calling interface to display a message.

This hook gets called as part of preparing a task for execution (that is, a Node to be built). As part of figuring out what Node should be built next, the actual target list may be altered, along with a message describing the alteration. The calling interface can subclass Task and provide a concrete implementation of this method to see those messages. Overrides: SCons.Taskmaster.Task.display extit(inherited documentation)

display_cached_string(*self*, *bi*)

Logs the original builder messages, given the SConfBuildInfo instance bi.

failed(*self*)

Default action when a task fails: stop the build.

Note: Although this function is normally invoked on nodes in the executing state, it might also be invoked on up-to-date nodes when using Configure(). Overrides: SCons.Taskmaster.Task.failed extit(inherited documentation)

collect_node_states(*self*)

execute(*self*)

Called to execute the task.

This method is called from multiple threads in a parallel build, so only do thread safe stuff here. Do thread unsafe stuff in prepare(), executed() or failed(). Overrides: SCons.Taskmaster.Task.execute extit(inherited documentation)

Inherited from SCons.Taskmaster.AlwaysTask(Section 47.5)

needs_execute()

Inherited from SCons.Taskmaster.Task(Section 47.4)

__init__(), exc_clear(), exc_info(), exception_set(), executed(), executed_with_callbacks(), executed_without_callbacks(), fail_continue(), fail_stop(), get_target(), make_ready(), make_ready_all(), make_ready_current(), postprocess(), prepare(), trace_message()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

30.9.2 Properties

Name	Description
Inherited from object	
__class__	

30.10 Class SConfBase

object ─┐
SCons.SConf.SConfBase

This is simply a class to represent a configure context. After creating a SConf object, you can call any tests. After finished with your tests, be sure to call the Finish() method, which returns the modified environment. Some words about caching: In most cases, it is not necessary to cache Test results explicitly. Instead, we use the scons dependency checking mechanism. For example, if one wants to compile a test program (SConf.TryLink), the compiler is only called, if the program dependencies have changed. However, if the program could not be compiled in a former SConf run, we need to explicitly cache this error.

30.10.1 Methods

__init__(*self*, *env*, *custom_tests*=`{}`, *conf_dir*=`'$CONFIGUREDIR'`, *log_file*=`'$CONFIGURELOG'`, *config_h*=`None`, *_depth*=`0`)

Constructor. Pass additional tests in the custom_tests-dictionary, e.g. custom_tests={'CheckPrivate':MyPrivateTest}, where MyPrivateTest defines a custom test. Note also the conf_dir and log_file arguments (you may want to build tests in the VariantDir, not in the SourceDir) Overrides: object.__init__

Finish(*self*)

Call this method after finished with your tests: env = sconf.Finish()

Define(*self*, *name*, *value*=`None`, *comment*=`None`)

Define a pre processor symbol name, with the optional given value in the current config header.

If value is None (default), then #define name is written. If value is not none, then #define name value is written.

comment is a string which will be put as a C comment in the header, to explain the meaning of the value (appropriate C comments will be added automatically).

BuildNodes(*self*, *nodes*)

Tries to build the given nodes immediately. Returns 1 on success, 0 on error.

pspawn_wrapper(*self*, *sh*, *escape*, *cmd*, *args*, *env*)

Wrapper function for handling piped spawns.

This looks to the calling interface (in Action.py) like a "normal" spawn, but associates the call with the PSPAWN variable from the construction environment and with the streams to which we want the output logged. This gets slid into the construction environment as the SPAWN variable so Action.py doesn't have to know or care whether it's spawning a piped command or not.

TryBuild(*self*, *builder*, *text*=`None`, *extension*=`''`)

Low level TryBuild implementation. Normally you don't need to call that - you can use TryCompile / TryLink / TryRun instead

TryAction(*self*, *action*, *text*=`None`, *extension*=`''`)

Tries to execute the given action with optional source file contents <text> and optional source file extension <extension>, Returns the status (0 : failed, 1 : ok) and the contents of the output file.

TryCompile(*self*, *text*, *extension*)

Compiles the program given in text to an env.Object, using extension as file extension (e.g. '.c'). Returns 1, if compilation was successful, 0 otherwise. The target is saved in self.lastTarget (for further processing).

TryLink(*self*, *text*, *extension*)

Compiles the program given in text to an executable env.Program, using extension as file extension (e.g. '.c'). Returns 1, if compilation was successful, 0 otherwise. The target is saved in self.lastTarget (for further processing).

TryRun(*self*, *text*, *extension*)

Compiles and runs the program given in text, using extension as file extension (e.g. '.c'). Returns (1, outputStr) on success, (0, '') otherwise. The target (a file containing the program's stdout) is saved in self.lastTarget (for further processing).

AddTest(*self*, *test_name*, *test_instance*)

Adds test_class to this SConf instance. It can be called with self.test_name(...)

AddTests(*self*, *tests*)

Adds all the tests given in the tests dictionary to this SConf instance

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

30.10.2 Properties

Name	Description
Inherited from object	
__class__	

30.11 Class CheckContext

object ─┐
SCons.SConf.CheckContext

Provides a context for configure tests. Defines how a test writes to the screen and log file.

A typical test is just a callable with an instance of CheckContext as first argument:

def CheckCustom(context, ...): context.Message('Checking my weird test ... ') ret = myWeirdTestFunction(...) context.Result(ret)

Often, myWeirdTestFunction will be one of context.TryCompile/context.TryLink/context.TryRun. The results of those are cached, for they are only rebuild, if the dependencies have changed.

30.11.1 Methods

__init__(*self*, *sconf*)

Constructor. Pass the corresponding SConf instance. Overrides: object.__init__

Message(*self*, *text*)

Inform about what we are doing right now, e.g. 'Checking for SOMETHING ... '

Result(*self*, *res*)

Inform about the result of the test. If res is not a string, displays 'yes' or 'no' depending on whether res is evaluated as true or false. The result is only displayed when self.did_show_result is not set.

TryBuild(*self*, **args*, ***kw*)

TryAction(*self*, **args*, ***kw*)

TryCompile(*self*, **args*, ***kw*)

TryLink(*self*, **args*, ***kw*)

TryRun(*self*, **args*, ***kw*)

__getattr__(*self*, *attr*)

BuildProg(*self*, *text*, *ext*)

CompileProg(*self*, *text*, *ext*)

CompileSharedObject(*self*, *text*, *ext*)

RunProg(*self*, *text*, *ext*)

AppendLIBS(*self*, *lib_name_list*)

PrependLIBS(*self*, *lib_name_list*)

SetLIBS(*self*, *val*)

Display(*self*, *msg*)

Log(*self*, *msg*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

30.11.2 Properties

Name	Description
Inherited from object	
__class__	

31 Module SCons.SConsign

SCons.SConsign

Writing and reading information to the .sconsign file or files.

31.1 Functions

corrupt_dblite_warning(*filename*)

Get_DataBase(*dir*)

Reset()

Reset global state. Used by unit tests that end up using SConsign multiple times to get a clean slate for each test.

write()

File(*name*, *dbm_module*=`None`)

Arrange for all signatures to be stored in a global .sconsign.db* file.

31.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/SConsign.py a56bbd8c09fb219ab8a9673330f...`
sig_files	**Value:** `[]`
DataBase	**Value:** `{}`
DB_Name	**Value:** `'.sconsign'`
DB_sync_list	**Value:** `[]`
__package__	**Value:** `'SCons'`

31.3 Class SConsignEntry

object ─┐
SCons.SConsign.SConsignEntry

Wrapper class for the generic entry in a .sconsign file. The Node subclass populates it with attributes as it pleases.

XXX As coded below, we do expect a '.binfo' attribute to be added, but we'll probably generalize this in the next refactorings.

31.3.1 Methods

__init__(*self*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

convert_to_sconsign(*self*)

convert_from_sconsign(*self*, *dir*, *name*)

__getstate__(*self*)

__setstate__(*self*, *state*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

31.3.2 Properties

Name	Description
binfo	
ninfo	
Inherited from object __class__	

31.3.3 Class Variables

Name	Description
current_version_id	**Value:** 2

31.4 Class Base

object ┐
  SCons.SConsign.Base

Known Subclasses: SCons.SConsign.DB, SCons.SConsign.Dir

This is the controlling class for the signatures for the collection of entries associated with a specific directory. The actual directory association will be maintained by a subclass that is specific to the underlying storage method. This class provides a common set of methods for fetching and storing the individual bits of information that make up signature entry.

31.4.1 Methods

__init__(*self*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

get_entry(*self*, *filename*)

Fetch the specified entry attribute.

set_entry(*self*, *filename*, *obj*)

Set the entry.

do_not_set_entry(*self*, *filename*, *obj*)

store_info(*self*, *filename*, *node*)

do_not_store_info(*self*, *filename*, *node*)

merge(*self*)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.4.2 Properties

Name	Description
Inherited from object	
___class___	

31.5 Class DB

```
object ─┐
        │
SCons.SConsign.Base ─┐
                     │
                     SCons.SConsign.DB
```

A Base subclass that reads and writes signature information from a global .sconsign.db* file--the actual file suffix is determined by the database module.

31.5.1 Methods

___init___(*self*, *dir*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

write(*self*, *sync*=1)

Inherited from SCons.SConsign.Base(Section 31.4)

do_not_set_entry(), do_not_store_info(), get_entry(), merge(), set_entry(), store_info()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.5.2 Properties

Name	Description
Inherited from object	
___class___	

31.6 Class Dir

object
SCons.SConsign.Base
SCons.SConsign.Dir

Known Subclasses: SCons.SConsign.DirFile

31.6.1 Methods

___init___(*self*, *fp*=`None`, *dir*=`None`)

fp - file pointer to read entries from Overrides: object.___init___

Inherited from SCons.SConsign.Base(Section 31.4)

do_not_set_entry(), do_not_store_info(), get_entry(), merge(), set_entry(), store_info()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.6.2 Properties

Name	Description
Inherited from object	
___class___	

31.7 Class DirFile

object
SCons.SConsign.Base
SCons.SConsign.Dir
SCons.SConsign.DirFile

Encapsulates reading and writing a per-directory .sconsign file.

31.7.1 Methods

___init___(*self*, *dir*)

dir - the directory for the file Overrides: object.___init___

write(*self*, *sync*=1)

Write the .sconsign file to disk.

Try to write to a temporary file first, and rename it if we succeed. If we can't write to the temporary file, it's probably because the directory isn't writable (and if so, how did we build anything in this directory, anyway?), so try to write directly to the .sconsign file as a backup. If we can't rename, try to copy the temporary contents back to the .sconsign file. Either way, always try to remove the temporary file at the end.

Inherited from SCons.SConsign.Base(Section 31.4)

do_not_set_entry(), do_not_store_info(), get_entry(), merge(), set_entry(), store_info()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.7.2 Properties

Name	Description
Inherited from object	
___class___	

31.8 Class DB

object ┐
SCons.SConsign.Base ┐
SCons.SConsign.DB

A Base subclass that reads and writes signature information from a global .sconsign.db* file--the actual file suffix is determined by the database module.

31.8.1 Methods

___init___(*self*, *dir*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

write(*self*, *sync*=1)

Inherited from SCons.SConsign.Base(Section 31.4)

do_not_set_entry(), do_not_store_info(), get_entry(), merge(), set_entry(), store_info()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.8.2 Properties

Name	Description
Inherited from object	
___class___	

32 Package SCons.Scanner

SCons.Scanner

The Scanner package for the SCons software construction utility.

32.1 Modules

32.2 Functions

Scanner(*function*, **args*, ***kw*)

Public interface factory function for creating different types of Scanners based on the different types of "functions" that may be supplied.

TODO: Deprecate this some day. We've moved the functionality inside the Base class and really don't need this factory function any more. It was, however, used by some of our Tool modules, so the call probably ended up in various people's custom modules patterned on SCons code.

32.3 Variables

Name	Description
___revision___	**Value:** `'src/engine/SCons/Scanner/__init__.py a56bbd8c09fb219ab8a...`
___package___	**Value:** `'SCons.Scanner'`

32.4 Class FindPathDirs

object ┐
SCons.Scanner.FindPathDirs

A class to bind a specific E{*}PATH variable name to a function that will return all of the E{*}path directories.

32.4.1 Methods

___init___(*self*, *variable*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, *env*, *dir*=`None`, *target*=`None`, *source*=`None`, *argument*=`None`)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

32.4.2 Properties

Name	Description
Inherited from object	
___class___	

32.5 Class Base

object ┐
  SCons.Scanner.Base

Known Subclasses: SCons.Scanner.Current, SCons.Scanner.Selector, SCons.Scanner.LaTeX.LaTeX

The base class for dependency scanners. This implements straightforward, single-pass scanning of a single file.

32.5.1 Methods

___call___(*self*, *node*, *env*, *path*=())

This method scans a single object. 'node' is the node that will be passed to the scanner function, and 'env' is the environment that will be passed to the scanner function. A list of direct dependency nodes for the specified node will be returned.

___eq___(*self*, *other*)

___hash___(*self*)

hash(x) Overrides: object.___hash___ extit(inherited documentation)

__init__(*self*, *function*, *name*='NONE', *argument*=<class 'SCons.Scanner._Null'>, *skeys*=<class 'SCons.Scanner._Null'>, *path_function*=None, *node_class*=<class 'SCons.Node.FS.Base'>, *node_factory*=None, *scan_check*=None, *recursive*=None)

Construct a new scanner object given a scanner function.

'function' - a scanner function taking two or three arguments and returning a list of strings.

'name' - a name for identifying this scanner object.

'argument' - an optional argument that, if specified, will be passed to both the scanner function and the path_function.

'skeys' - an optional list argument that can be used to determine which scanner should be used for a given Node. In the case of File nodes, for example, the 'skeys' would be file suffixes.

'path_function' - a function that takes four or five arguments (a construction environment, Node for the directory containing the SConscript file that defined the primary target, list of target nodes, list of source nodes, and optional argument for this instance) and returns a tuple of the directories that can be searched for implicit dependency files. May also return a callable() which is called with no args and returns the tuple (supporting Bindable class).

'node_class' - the class of Nodes which this scan will return. If node_class is None, then this scanner will not enforce any Node conversion and will return the raw results from the underlying scanner function.

'node_factory' - the factory function to be called to translate the raw results returned by the scanner function into the expected node_class objects.

'scan_check' - a function to be called to first check whether this node really needs to be scanned.

'recursive' - specifies that this scanner should be invoked recursively on all of the implicit dependencies it returns (the canonical example being #include lines in C source files). May be a callable, which will be called to filter the list of nodes found to select a subset for recursive scanning (the canonical example being only recursively scanning subdirectories within a directory).

The scanner function's first argument will be a Node that should be scanned for dependencies, the second argument will be an Environment object, the third argument will be the tuple of paths returned by the path_function, and the fourth argument will be the value passed into 'argument', and the returned list should contain the Nodes for all the direct dependencies of the file.

Examples:

s = Scanner(my_scanner_function)

s = Scanner(function = my_scanner_function)

s = Scanner(function = my_scanner_function, argument = 'foo') Overrides: object.__init__

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

add_scanner(*self*, *skey*, *scanner*)

add_skey(*self*, *skey*)

Add a skey to the list of skeys

get_skeys(*self*, *env*=`None`)

path(*self*, *env*, *dir*=`None`, *target*=`None`, *source*=`None`)

select(*self*, *node*)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

32.5.2 Properties

Name	Description
Inherited from object	
___class___	

32.6 Class Selector

object ┐
SCons.Scanner.Base ┐
SCons.Scanner.Selector

A class for selecting a more specific scanner based on the scanner_key() (suffix) for a specific Node.

TODO: This functionality has been moved into the inner workings of the Base class, and this class will be deprecated at some point. (It was never exposed directly as part of the public interface, although it is used by the Scanner() factory function that was used by various Tool modules and therefore was likely a template for custom modules that may be out there.)

32.6.1 Methods

__init__(*self*, *dict*, **args*, ***kw*)

Construct a new scanner object given a scanner function.

'function' - a scanner function taking two or three arguments and returning a list of strings.

'name' - a name for identifying this scanner object.

'argument' - an optional argument that, if specified, will be passed to both the scanner function and the path_function.

'skeys' - an optional list argument that can be used to determine which scanner should be used for a given Node. In the case of File nodes, for example, the 'skeys' would be file suffixes.

'path_function' - a function that takes four or five arguments (a construction environment, Node for the directory containing the SConscript file that defined the primary target, list of target nodes, list of source nodes, and optional argument for this instance) and returns a tuple of the directories that can be searched for implicit dependency files. May also return a callable() which is called with no args and returns the tuple (supporting Bindable class).

'node_class' - the class of Nodes which this scan will return. If node_class is None, then this scanner will not enforce any Node conversion and will return the raw results from the underlying scanner function.

'node_factory' - the factory function to be called to translate the raw results returned by the scanner function into the expected node_class objects.

'scan_check' - a function to be called to first check whether this node really needs to be scanned.

'recursive' - specifies that this scanner should be invoked recursively on all of the implicit dependencies it returns (the canonical example being #include lines in C source files). May be a callable, which will be called to filter the list of nodes found to select a subset for recursive scanning (the canonical example being only recursively scanning subdirectories within a directory).

The scanner function's first argument will be a Node that should be scanned for dependencies, the second argument will be an Environment object, the third argument will be the tuple of paths returned by the path_function, and the fourth argument will be the value passed into 'argument', and the returned list should contain the Nodes for all the direct dependencies of the file.

Examples:

s = Scanner(my_scanner_function)

s = Scanner(function = my_scanner_function)

s = Scanner(function = my_scanner_function, argument = 'foo') Overrides: object.__init__ extit(inherited documentation)

___call___(*self*, *node*, *env*, *path*=())

This method scans a single object. 'node' is the node that will be passed to the scanner function, and 'env' is the environment that will be passed to the scanner function. A list of direct dependency nodes for the specified node will be returned. Overrides: SCons.Scanner.Base.___call___ extit(inherited documentation)

select(*self*, *node*)

Overrides: SCons.Scanner.Base.select

add_scanner(*self*, *skey*, *scanner*)

Overrides: SCons.Scanner.Base.add_scanner

Inherited from SCons.Scanner.Base(Section 32.5)

___eq___(), ___hash___(), ___str___(), add_skey(), get_skeys(), path()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

32.6.2 Properties

Name	Description
Inherited from object	
___class___	

32.7 Class Current

object
SCons.Scanner.Base
SCons.Scanner.Current

Known Subclasses: SCons.Scanner.Classic

A class for scanning files that are source files (have no builder) or are derived files and are current (which implies that they exist, either locally or in a repository).

32.7.1 Methods

__init__(*self*, **args*, ***kw*)

Construct a new scanner object given a scanner function.

'function' - a scanner function taking two or three arguments and returning a list of strings.

'name' - a name for identifying this scanner object.

'argument' - an optional argument that, if specified, will be passed to both the scanner function and the path_function.

'skeys' - an optional list argument that can be used to determine which scanner should be used for a given Node. In the case of File nodes, for example, the 'skeys' would be file suffixes.

'path_function' - a function that takes four or five arguments (a construction environment, Node for the directory containing the SConscript file that defined the primary target, list of target nodes, list of source nodes, and optional argument for this instance) and returns a tuple of the directories that can be searched for implicit dependency files. May also return a callable() which is called with no args and returns the tuple (supporting Bindable class).

'node_class' - the class of Nodes which this scan will return. If node_class is None, then this scanner will not enforce any Node conversion and will return the raw results from the underlying scanner function.

'node_factory' - the factory function to be called to translate the raw results returned by the scanner function into the expected node_class objects.

'scan_check' - a function to be called to first check whether this node really needs to be scanned.

'recursive' - specifies that this scanner should be invoked recursively on all of the implicit dependencies it returns (the canonical example being #include lines in C source files). May be a callable, which will be called to filter the list of nodes found to select a subset for recursive scanning (the canonical example being only recursively scanning subdirectories within a directory).

The scanner function's first argument will be a Node that should be scanned for dependencies, the second argument will be an Environment object, the third argument will be the tuple of paths returned by the path_function, and the fourth argument will be the value passed into 'argument', and the returned list should contain the Nodes for all the direct dependencies of the file.

Examples:

s = Scanner(my_scanner_function)

s = Scanner(function = my_scanner_function)

s = Scanner(function = my_scanner_function, argument = 'foo') Overrides: object.__init__ extit(inherited documentation)

Inherited from SCons.Scanner.Base(Section 32.5)

__call__(), __eq__(), __hash__(), __str__(), add_scanner(), add_skey(), get_skeys(), path(), select()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __subclasshook__()

32.7.2 Properties

Name	Description
Inherited from object	
__class__	

32.8 Class Classic

object
SCons.Scanner.Base
SCons.Scanner.Current
SCons.Scanner.Classic

Known Subclasses: SCons.Scanner.ClassicCPP, SCons.Scanner.D.D, SCons.Scanner.Fortran.F90Scanner

A Scanner subclass to contain the common logic for classic CPP-style include scanning, but which can be customized to use different regular expressions to find the includes.

Note that in order for this to work "out of the box" (without overriding the find_include() and sort_key() methods), the regular expression passed to the constructor must return the name of the include file in group 0.

32.8.1 Methods

___init___(*self*, *name*, *suffixes*, *path_variable*, *regex*, **args*, ***kw*)

Construct a new scanner object given a scanner function.

'function' - a scanner function taking two or three arguments and returning a list of strings.

'name' - a name for identifying this scanner object.

'argument' - an optional argument that, if specified, will be passed to both the scanner function and the path_function.

'skeys' - an optional list argument that can be used to determine which scanner should be used for a given Node. In the case of File nodes, for example, the 'skeys' would be file suffixes.

'path_function' - a function that takes four or five arguments (a construction environment, Node for the directory containing the SConscript file that defined the primary target, list of target nodes, list of source nodes, and optional argument for this instance) and returns a tuple of the directories that can be searched for implicit dependency files. May also return a callable() which is called with no args and returns the tuple (supporting Bindable class).

'node_class' - the class of Nodes which this scan will return. If node_class is None, then this scanner will not enforce any Node conversion and will return the raw results from the underlying scanner function.

'node_factory' - the factory function to be called to translate the raw results returned by the scanner function into the expected node_class objects.

'scan_check' - a function to be called to first check whether this node really needs to be scanned.

'recursive' - specifies that this scanner should be invoked recursively on all of the implicit dependencies it returns (the canonical example being #include lines in C source files). May be a callable, which will be called to filter the list of nodes found to select a subset for recursive scanning (the canonical example being only recursively scanning subdirectories within a directory).

The scanner function's first argument will be a Node that should be scanned for dependencies, the second argument will be an Environment object, the third argument will be the tuple of paths returned by the path_function, and the fourth argument will be the value passed into 'argument', and the returned list should contain the Nodes for all the direct dependencies of the file.

Examples:

s = Scanner(my_scanner_function)

s = Scanner(function = my_scanner_function)

s = Scanner(function = my_scanner_function, argument = 'foo') Overrides: object.___init___ extit(inherited documentation)

find_include(*self*, *include*, *source_dir*, *path*)

find_include_names(*self*, *node*)

scan(*self*, *node*, *path*=`()`)

sort_key(*self*, *include*)

Inherited from SCons.Scanner.Base(Section 32.5)

__call__(), __eq__(), __hash__(), __str__(), add_scanner(), add_skey(), get_skeys(), path(), select()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __subclasshook__()

32.8.2 Properties

Name	Description
Inherited from object __class__	

32.9 Class ClassicCPP

object
SCons.Scanner.Base
SCons.Scanner.Current
SCons.Scanner.Classic
SCons.Scanner.ClassicCPP

A Classic Scanner subclass which takes into account the type of bracketing used to include the file, and uses classic CPP rules for searching for the files based on the bracketing.

Note that in order for this to work, the regular expression passed to the constructor must return the leading bracket in group 0, and the contained filename in group 1.

32.9.1 Methods

find_include(*self*, *include*, *source_dir*, *path*)
Overrides: SCons.Scanner.Classic.find_include

sort_key(*self*, *include*)
Overrides: SCons.Scanner.Classic.sort_key

Inherited from SCons.Scanner.Classic(Section 32.8)

___init___(), find_include_names(), scan()

Inherited from SCons.Scanner.Base(Section 32.5)

___call___(), ___eq___(), ___hash___(), ___str___(), add_scanner(), add_skey(), get_skeys(), path(), select()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

32.9.2 Properties

Name	Description
Inherited from object ___class___	

33 Module SCons.Scanner.C

SCons.Scanner.C

This module implements the dependency scanner for C/C++ code.

33.1 Functions

dictify_CPPDEFINES(*env*)

CScanner()

Return a prototype Scanner instance for scanning source files that use the C pre-processor

33.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Scanner/C.py a56bbd8c09fb219ab8a9673330...`
__package__	**Value:** `'SCons.Scanner'`

33.3 Class SConsCPPScanner

object
SCons.cpp.PreProcessor
SCons.Scanner.C.SConsCPPScanner

SCons-specific subclass of the cpp.py module's processing.

We subclass this so that: 1) we can deal with files represented by Nodes, not strings; 2) we can keep track of the files that are missing.

33.3.1 Methods

___init___(*self*, **args*, ***kw*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

initialize_result(*self*, *fname*)

Overrides: SCons.cpp.PreProcessor.initialize_result

finalize_result(*self*, *fname*)

Overrides: SCons.cpp.PreProcessor.finalize_result

find_include_file(*self*, *t*)

Finds the #include file for a given preprocessor tuple. Overrides: SCons.cpp.PreProcessor.find_include_file extit(inherited documentation)

read_file(*self*, *file*)

Overrides: SCons.cpp.PreProcessor.read_file

Inherited from SCons.cpp.PreProcessor(Section 58.4)

___call___(), all_include(), do_define(), do_elif(), do_else(), do_endif(), do_if(), do_ifdef(), do_ifndef(), do_import(), do_include(), do_include_next(), do_nothing(), do_undef(), eval_expression(), process_contents(), resolve_include(), restore(), save(), scons_current_file(), start_handling_includes(), stop_handling_includes(), tupleize()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

33.3.2 Properties

Name	Description
Inherited from object	
___class___	

33.4 Class SConsCPPScannerWrapper

object ┐
SCons.Scanner.C.SConsCPPScannerWrapper

The SCons wrapper around a cpp.py scanner.

This is the actual glue between the calling conventions of generic SCons scanners, and the (subclass of) cpp.py class that knows how to look for #include lines with reasonably real C-preprocessor-like evaluation of #if/#ifdef/#else/#elif lines.

33.4.1 Methods

__init__(*self*, *name*, *variable*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__call__(*self*, *node*, *env*, *path*=())

recurse_nodes(*self*, *nodes*)

select(*self*, *node*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

33.4.2 Properties

Name	Description
Inherited from object	
__class__	

34 Module SCons.Scanner.D

SCons.Scanner.D

Scanner for the Digital Mars "D" programming language.

Coded by Andy Friesen 17 Nov 2003

34.1 Functions

DScanner()

Return a prototype Scanner instance for scanning D source files

34.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Scanner/D.py a56bbd8c09fb219ab8a9673330...`
__package__	**Value:** `'SCons.Scanner'`

34.3 Class D

object
SCons.Scanner.Base
SCons.Scanner.Current
SCons.Scanner.Classic
SCons.Scanner.D.D

34.3.1 Methods

__init__(*self*)

Construct a new scanner object given a scanner function.

'function' - a scanner function taking two or three arguments and returning a list of strings.

'name' - a name for identifying this scanner object.

'argument' - an optional argument that, if specified, will be passed to both the scanner function and the path_function.

'skeys' - an optional list argument that can be used to determine which scanner should be used for a given Node. In the case of File nodes, for example, the 'skeys' would be file suffixes.

'path_function' - a function that takes four or five arguments (a construction environment, Node for the directory containing the SConscript file that defined the primary target, list of target nodes, list of source nodes, and optional argument for this instance) and returns a tuple of the directories that can be searched for implicit dependency files. May also return a callable() which is called with no args and returns the tuple (supporting Bindable class).

'node_class' - the class of Nodes which this scan will return. If node_class is None, then this scanner will not enforce any Node conversion and will return the raw results from the underlying scanner function.

'node_factory' - the factory function to be called to translate the raw results returned by the scanner function into the expected node_class objects.

'scan_check' - a function to be called to first check whether this node really needs to be scanned.

'recursive' - specifies that this scanner should be invoked recursively on all of the implicit dependencies it returns (the canonical example being #include lines in C source files). May be a callable, which will be called to filter the list of nodes found to select a subset for recursive scanning (the canonical example being only recursively scanning subdirectories within a directory).

The scanner function's first argument will be a Node that should be scanned for dependencies, the second argument will be an Environment object, the third argument will be the tuple of paths returned by the path_function, and the fourth argument will be the value passed into 'argument', and the returned list should contain the Nodes for all the direct dependencies of the file.

Examples:

s = Scanner(my_scanner_function)

s = Scanner(function = my_scanner_function)

s = Scanner(function = my_scanner_function, argument = 'foo') Overrides: object.__init__ extit(inherited documentation)

find_include(*self*, *include*, *source_dir*, *path*)

Overrides: SCons.Scanner.Classic.find_include

find_include_names(*self*, *node*)

Overrides: SCons.Scanner.Classic.find_include_names

Inherited from SCons.Scanner.Classic(Section 32.8)

scan(), sort_key()

Inherited from SCons.Scanner.Base(Section 32.5)

___call___(), ___eq___(), ___hash___(), ___str___(), add_scanner(), add_skey(), get_skeys(), path(), select()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

34.3.2 Properties

Name	Description
Inherited from object	
___class___	

35 Module SCons.Scanner.Dir

35.1 Functions

only_dirs(*nodes*)

DirScanner(***kw*)

Return a prototype Scanner instance for scanning directories for on-disk files

DirEntryScanner(***kw*)

Return a prototype Scanner instance for "scanning" directory Nodes for their in-memory entries

do_not_scan(*k*)

scan_on_disk(*node*, *env*, *path*=`()`)

Scans a directory for on-disk files and directories therein.

Looking up the entries will add these to the in-memory Node tree representation of the file system, so all we have to do is just that and then call the in-memory scanning function.

scan_in_memory(*node*, *env*, *path*=`()`)

"Scans" a Node.FS.Dir for its in-memory entries.

35.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Scanner/Dir.py a56bbd8c09fb219ab8a96733...`
skip_entry	**Value:** `{'.': 1, '..': 1, '.sconsign': 1, '.sconsign.bak': 1, '.s...`

continued on next page

Name	Description
skip_entry_list	**Value:** `['.', '..', '.sconsign', '.sconsign.dblite', '.sconsign.d...`
___package___	**Value:** `'SCons.Scanner'`
skip	**Value:** `'.sconsign.db'`

36 Module SCons.Scanner.Fortran

SCons.Scanner.Fortran

This module implements the dependency scanner for Fortran code.

36.1 Functions

FortranScan(*path_variable*=`'FORTRANPATH'`)

Return a prototype Scanner instance for scanning source files for Fortran USE & INCLUDE statements

36.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Scanner/Fortran.py a56bbd8c09fb219ab8a9...`
__package__	**Value:** `'SCons.Scanner'`

36.3 Class F90Scanner

object
SCons.Scanner.Base
SCons.Scanner.Current
SCons.Scanner.Classic
SCons.Scanner.Fortran.F90Scanner

A Classic Scanner subclass for Fortran source files which takes into account both USE and INCLUDE statements. This scanner will work for both F77 and F90 (and beyond) compilers.

Currently, this scanner assumes that the include files do not contain USE statements. To enable the ability to deal with USE statements in include files, add logic right after the module names are found to loop over each include file, search for and locate each USE statement, and append each module name to the list of dependencies. Caching the search results in a common dictionary somewhere so that the same include file is not searched multiple times would be a smart thing to do.

36.3.1 Methods

__init__(*self*, *name*, *suffixes*, *path_variable*, *use_regex*, *incl_regex*, *def_regex*, **args*, ***kw*)

Construct a new scanner object given a scanner function.

'function' - a scanner function taking two or three arguments and returning a list of strings.

'name' - a name for identifying this scanner object.

'argument' - an optional argument that, if specified, will be passed to both the scanner function and the path_function.

'skeys' - an optional list argument that can be used to determine which scanner should be used for a given Node. In the case of File nodes, for example, the 'skeys' would be file suffixes.

'path_function' - a function that takes four or five arguments (a construction environment, Node for the directory containing the SConscript file that defined the primary target, list of target nodes, list of source nodes, and optional argument for this instance) and returns a tuple of the directories that can be searched for implicit dependency files. May also return a callable() which is called with no args and returns the tuple (supporting Bindable class).

'node_class' - the class of Nodes which this scan will return. If node_class is None, then this scanner will not enforce any Node conversion and will return the raw results from the underlying scanner function.

'node_factory' - the factory function to be called to translate the raw results returned by the scanner function into the expected node_class objects.

'scan_check' - a function to be called to first check whether this node really needs to be scanned.

'recursive' - specifies that this scanner should be invoked recursively on all of the implicit dependencies it returns (the canonical example being #include lines in C source files). May be a callable, which will be called to filter the list of nodes found to select a subset for recursive scanning (the canonical example being only recursively scanning subdirectories within a directory).

The scanner function's first argument will be a Node that should be scanned for dependencies, the second argument will be an Environment object, the third argument will be the tuple of paths returned by the path_function, and the fourth argument will be the value passed into 'argument', and the returned list should contain the Nodes for all the direct dependencies of the file.

Examples:

s = Scanner(my_scanner_function)

s = Scanner(function = my_scanner_function)

s = Scanner(function = my_scanner_function, argument = 'foo') Overrides: object.__init__ extit(inherited documentation)

scan(*self*, *node*, *env*, *path*=())
Overrides: SCons.Scanner.Classic.scan

Inherited from SCons.Scanner.Classic(Section 32.8)

find_include(), find_include_names(), sort_key()

Inherited from SCons.Scanner.Base(Section 32.5)

___call___(), ___eq___(), ___hash___(), ___str___(), add_scanner(), add_skey(), get_skeys(), path(), select()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

36.3.2 Properties

Name	Description
Inherited from object	
___class___	

37 Module SCons.Scanner.IDL

SCons.Scanner.IDL

This module implements the dependency scanner for IDL (Interface Definition Language) files.

37.1 Functions

IDLScan()

Return a prototype Scanner instance for scanning IDL source files

37.2 Variables

Name	Description
___revision___	**Value:** `'src/engine/SCons/Scanner/IDL.py a56bbd8c09fb219ab8a96733...`
___package___	**Value:** `'SCons.Scanner'`

38 Module SCons.Scanner.LaTeX

SCons.Scanner.LaTeX

This module implements the dependency scanner for LaTeX code.

38.1 Functions

modify_env_var(*env*, *var*, *abspath*)

LaTeXScanner()

Return a prototype Scanner instance for scanning LaTeX source files when built with latex.

PDFLaTeXScanner()

Return a prototype Scanner instance for scanning LaTeX source files when built with pdflatex.

38.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Scanner/LaTeX.py a56bbd8c09fb219ab8a967...`
TexGraphics	**Value:** `['.eps', '.ps']`
LatexGraphics	**Value:** `['.png', '.jpg', '.gif', '.tif']`
__package__	**Value:** `'SCons.Scanner'`

38.3 Class FindENVPathDirs

object ─┐
SCons.Scanner.LaTeX.FindENVPathDirs

A class to bind a specific E{*}PATH variable name to a function that will return all of the E{*}path directories.

38.3.1 Methods

__init__(*self*, *variable*) x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__call__(*self*, *env*, *dir*=`None`, *target*=`None`, *source*=`None`, *argument*=`None`)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

38.3.2 Properties

Name	Description
Inherited from object	
__class__	

38.4 Class LaTeX

object
SCons.Scanner.Base
SCons.Scanner.LaTeX.LaTeX

Class for scanning LaTeX files for included files.

Unlike most scanners, which use regular expressions that just return the included file name, this returns a tuple consisting of the keyword for the inclusion ("include", "includegraphics", "input", or "bibliography"), and then the file name itself. Based on a quick look at LaTeX documentation, it seems that we should append .tex suffix for the "include" keywords, append .tex if there is no extension for the "input" keyword, and need to add .bib for the "bibliography" keyword that does not accept extensions by itself.

Finally, if there is no extension for an "includegraphics" keyword latex will append .ps or .eps to find the file, while pdftex may use .pdf, .jpg, .tif, .mps, or .png.

The actual subset and search order may be altered by DeclareGraphicsExtensions command. This complication is ignored. The default order corresponds to experimentation with teTeX:

```
$ latex --version
pdfeTeX 3.141592-1.21a-2.2 (Web2C 7.5.4)
kpathsea version 3.5.4
```

The order is: ['.eps', '.ps'] for latex ['.png', '.pdf', '.jpg', '.tif'].

Another difference is that the search path is determined by the type of the file being searched: env['TEXINPUTS'] for "input" and "include" keywords env['TEXINPUTS'] for "includegraphics" keyword env['TEXINPUTS'] for "lstinputlisting" keyword env['BIBINPUTS'] for "bibliography" keyword env['BSTINPUTS'] for "bibliographystyle" keyword env['INDEXSTYLE'] for "makeindex" keyword, no scanning support needed just allows user to set it if needed.

FIXME: also look for the class or style in document[class|style]{} FIXME: also look for the argument of bibliographystyle{}

38.4.1 Methods

__init__(*self*, *name*, *suffixes*, *graphics_extensions*, **args*, ***kw*)

Construct a new scanner object given a scanner function.

'function' - a scanner function taking two or three arguments and returning a list of strings.

'name' - a name for identifying this scanner object.

'argument' - an optional argument that, if specified, will be passed to both the scanner function and the path_function.

'skeys' - an optional list argument that can be used to determine which scanner should be used for a given Node. In the case of File nodes, for example, the 'skeys' would be file suffixes.

'path_function' - a function that takes four or five arguments (a construction environment, Node for the directory containing the SConscript file that defined the primary target, list of target nodes, list of source nodes, and optional argument for this instance) and returns a tuple of the directories that can be searched for implicit dependency files. May also return a callable() which is called with no args and returns the tuple (supporting Bindable class).

'node_class' - the class of Nodes which this scan will return. If node_class is None, then this scanner will not enforce any Node conversion and will return the raw results from the underlying scanner function.

'node_factory' - the factory function to be called to translate the raw results returned by the scanner function into the expected node_class objects.

'scan_check' - a function to be called to first check whether this node really needs to be scanned.

'recursive' - specifies that this scanner should be invoked recursively on all of the implicit dependencies it returns (the canonical example being #include lines in C source files). May be a callable, which will be called to filter the list of nodes found to select a subset for recursive scanning (the canonical example being only recursively scanning subdirectories within a directory).

The scanner function's first argument will be a Node that should be scanned for dependencies, the second argument will be an Environment object, the third argument will be the tuple of paths returned by the path_function, and the fourth argument will be the value passed into 'argument', and the returned list should contain the Nodes for all the direct dependencies of the file.

Examples:

s = Scanner(my_scanner_function)

s = Scanner(function = my_scanner_function)

s = Scanner(function = my_scanner_function, argument = 'foo') Overrides: object.__init__ extit(inherited documentation)

sort__key(*self*, *include*)

find__include(*self*, *include*, *source__dir*, *path*)

canonical__text(*self*, *text*)

Standardize an input TeX-file contents.

Currently:

- removes comments, unwrapping comment-wrapped lines.

scan(*self*, *node*, *subdir*='.')

scan__recurse(*self*, *node*, *path*=())

do a recursive scan of the top level target file This lets us search for included files based on the directory of the main file just as latex does

Inherited from SCons.Scanner.Base(Section 32.5)

___call___(), ___eq___(), ___hash___(), ___str___(), add_scanner(), add_skey(), get_skeys(), path(), select()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

38.4.2 Properties

Name	Description
Inherited from object ___class___	

38.4.3 Class Variables

Name	Description
keyword_paths	**Value:** `{'addbibresource': 'BIBINPUTS', 'addglobalbib': 'BIBINPUT...`

continued on next page

Name	Description
env_variables	**Value:** `['INDEXSTYLE', 'BIBINPUTS', 'TEXINPUTS', 'BSTINPUTS']`
two_arg_commands	**Value:** `['import', 'subimport', 'includefrom', 'subincludefrom', ...`

39 Module SCons.Scanner.Prog

39.1 Functions

ProgramScanner(***kw*)

Return a prototype Scanner instance for scanning executable files for static-lib dependencies

scan(*node*, *env*, *libpath*=`()`)

This scanner scans program files for static-library dependencies. It will search the LIBPATH environment variable for libraries specified in the LIBS variable, returning any files it finds as dependencies.

39.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Scanner/Prog.py a56bbd8c09fb219ab8a9673...`
print_find_libs	**Value:** `None`
__package__	**Value:** `'SCons.Scanner'`

40 Module SCons.Scanner.RC

SCons.Scanner.RC

This module implements the dependency scanner for RC (Interface Definition Language) files.

40.1 Functions

no_tlb(*nodes*)

Filter out .tlb files as they are binary and shouldn't be scanned

RCScan()

Return a prototype Scanner instance for scanning RC source files

40.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Scanner/RC.py a56bbd8c09fb219ab8a967333...`
__package__	**Value:** `'SCons.Scanner'`

41 Module SCons.Scanner.SWIG

SCons.Scanner.SWIG

This module implements the dependency scanner for SWIG code.

41.1 Functions

SWIGScanner()

41.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Scanner/SWIG.py a56bbd8c09fb219ab8a9673...`
SWIGSuffixes	**Value:** `['.i']`
__package__	**Value:** `'SCons.Scanner'`

42 Package SCons.Script

SCons.Script

This file implements the main() function used by the scons script.

Architecturally, this *is* the scons script, and will likely only be called from the external "scons" wrapper. Consequently, anything here should not be, or be considered, part of the build engine. If it's something that we expect other software to want to use, it should go in some other module. If it's specific to the "scons" script invocation, it goes here.

42.1 Modules

- **Interactive**: SCons interactive mode
  (Section 43, p. 291)
- **Main**: SCons.Script
  (Section 44, p. 294)
- **SConscript'**: SCons.Script.SConscript
  (Section 45, p. 309)

42.2 Functions

HelpFunction(*text*, *append*=`False`)

set_missing_sconscript_error(*flag*=`1`)

Set behavior on missing file in SConscript() call. Returns previous value

Variables(*files*=`[]`, *args*=`{}`)

42.3 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Script/__init__.py a56bbd8c09fb219ab8a9...`
start_time	**Value:** `1553642263.95`
call_stack	**Value:** `[]`

continued on next page

Name	Description
PathVariable	**Value:** `<SCons.Variables.PathVariable._PathVariableClass object>`
Chmod	**Value:** `<SCons.Action.ActionFactory object>`
Copy	**Value:** `<SCons.Action.ActionFactory object>`
Delete	**Value:** `<SCons.Action.ActionFactory object>`
Mkdir	**Value:** `<SCons.Action.ActionFactory object>`
Move	**Value:** `<SCons.Action.ActionFactory object>`
Touch	**Value:** `<SCons.Action.ActionFactory object>`
CScanner	**Value:** `<SCons.Scanner.ClassicCPP object>`
DScanner	**Value:** `<SCons.Scanner.D.D object>`
DirScanner	**Value:** `<SCons.Scanner.Base object>`
ProgramScanner	**Value:** `<SCons.Scanner.Base object>`
SourceFileScanner	**Value:** `<SCons.Scanner.Base object>`
CScan	**Value:** `<SCons.Scanner.ClassicCPP object>`
ARGUMENTS	**Value:** `{}`
ARGLIST	**Value:** `[]`
BUILD_TARGETS	**Value:** `[]`
COMMAND_LINE_TARGETS	**Value:** `[]`
DEFAULT_TARGETS	**Value:** `[]`
help_text	**Value:** `None`
sconscript_reading	**Value:** `0`
GlobalDefaultEnvironmentFunctions	**Value:** `['Default', 'EnsurePythonVersion', 'EnsureSConsVersion', ...`
GlobalDefaultBuilders	**Value:** `['CFile', 'CXXFile', 'DVI', 'Jar', 'Java', 'JavaH', 'Libr...`
SConscript	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Command	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
AddPostAction	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`

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Name	Description
AddPreAction	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Alias	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
AlwaysBuild	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
BuildDir	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
CFile	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
CXXFile	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
CacheDir	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Clean	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
DVI	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Decider	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Default	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Depends	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Dir	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
EnsurePythonVersion	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`

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Name	Description
EnsureSConsVersion	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Entry	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Execute	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Exit	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Export	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
File	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
FindFile	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
FindInstalledFiles	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
FindSourceFiles	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Flatten	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
GetBuildPath	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
GetLaunchDir	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Glob	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Help	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>

continued on next page

Name	Description
Ignore	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Import	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Install	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
InstallAs	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
InstallVersionedLib	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Jar	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Java	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
JavaH	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Library	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Literal	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
LoadableModule	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Local	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
M4	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
MSVSProject	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`

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Name	Description
NoCache	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
NoClean	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Object	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
PCH	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
PDF	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Package	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
ParseDepends	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
PostScript	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Precious	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Program	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
PyPackageDir	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
RES	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
RMIC	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Repository	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>

continued on next page

Name	Description
Requires	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
SConscriptChdir	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
SConsignFile	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
SharedLibrary	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
SharedObject	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
SideEffect	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
SourceCode	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
SourceSignatures	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Split	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
StaticLibrary	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
StaticObject	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Substfile	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Tag	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>
Tar	**Value:** <SCons.Script.SConscript.DefaultEnvironmentCall object>

continued on next page

Name	Description
TargetSignatures	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Textfile	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
TypeLibrary	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Value	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
VariantDir	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
Zip	**Value:** `<SCons.Script.SConscript.DefaultEnvironmentCall object>`
__package__	**Value:** `'SCons.Script'`

42.4 Class TargetList

object

_abcoll.Sized

object

_abcoll.Iterable

object

_abcoll.Container

_abcoll.Sequence

_abcoll.MutableSequence

UserList.UserList

SCons.Script.TargetList

42.4.1 Methods

Inherited from UserList.UserList

__add__(), __cmp__(), __contains__(), __delitem__(), __delslice__(), __eq__(), __ge__(), __getitem__(), __getslice__(), __gt__(), __iadd__(), __imul__(), __init__(), __le__(), __len__(), __lt__(), __mul__(), __ne__(), __radd__(), __repr__(), __rmul__(), __setitem__(), __setslice__(), append(), count(), extend(), index(), insert(), pop(), remove(), reverse(), sort()

Inherited from _abcoll.Sequence

__iter__(), __reversed__()

Inherited from _abcoll.Sized

__subclasshook__()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__()

42.4.2 Properties

Name	Description
Inherited from object	
__class__	

42.4.3 Class Variables

Name	Description
Inherited from UserList.UserList	
__abstractmethods__, __hash__	

43 Module SCons.Script.Interactive

SCons interactive mode

43.1 Functions

interact(*fs*, *parser*, *options*, *targets*, *target_top*)

43.2 Variables

Name	Description
___revision___	**Value:** `'src/engine/SCons/Script/Interactive.py a56bbd8c09fb219ab...`
___doc___	**Value:** `...`
___package___	**Value:** `'SCons.Script'`

43.3 Class SConsInteractiveCmd

cmd.Cmd
└ **SCons.Script.Interactive.SConsInteractiveCmd**

build [TARGETS] Build the specified TARGETS and their dependencies. 'b' is a synonym. clean [TARGETS] Clean (remove) the specified TARGETS and their dependencies. 'c' is a synonym. exit Exit SCons interactive mode. help [COMMAND] Prints help for the specified COMMAND. 'h' and '?' are synonyms. shell [COMMANDLINE] Execute COMMANDLINE in a subshell. 'sh' and '!' are synonyms. version Prints SCons version information.

43.3.1 Methods

___init___(*self*, ***kw*)

Instantiate a line-oriented interpreter framework.

The optional argument 'completekey' is the readline name of a completion key; it defaults to the Tab key. If completekey is not None and the readline module is available, command completion is done automatically. The optional arguments stdin and stdout specify alternate input and output file objects; if not specified, sys.stdin and sys.stdout are used. Overrides: cmd.Cmd.___init___ extit(inherited documentation)

default(*self*, *argv*)

Called on an input line when the command prefix is not recognized.

If this method is not overridden, it prints an error message and returns. Overrides: cmd.Cmd.default extit(inherited documentation)

onecmd(*self*, *line*)

Interpret the argument as though it had been typed in response to the prompt.

This may be overridden, but should not normally need to be; see the precmd() and postcmd() methods for useful execution hooks. The return value is a flag indicating whether interpretation of commands by the interpreter should stop. Overrides: cmd.Cmd.onecmd extit(inherited documentation)

do_build(*self*, *argv*)

build [TARGETS] Build the specified TARGETS and their dependencies. 'b' is a synonym.

do_clean(*self*, *argv*)

clean [TARGETS] Clean (remove) the specified TARGETS and their dependencies. 'c' is a synonym.

do_EOF(*self*, *argv*)

do_exit(*self*, *argv*)

exit Exit SCons interactive mode.

do_help(*self*, *argv*)

help [COMMAND] Prints help for the specified COMMAND. 'h' and '?' are synonyms. Overrides: cmd.Cmd.do_help

do_shell(*self*, *argv*)

shell [COMMANDLINE] Execute COMMANDLINE in a subshell. 'sh' and '!' are synonyms.

do_version(*self*, *argv*)

version Prints SCons version information.

Inherited from cmd.Cmd

cmdloop(), columnize(), complete(), complete_help(), completedefault(), completenames(), emptyline(), get_names(), parseline(), postcmd(), postloop(), precmd(), preloop(), print_topics()

43.3.2 Class Variables

Name	Description
synonyms	**Value:** `{'b': 'build', 'c': 'clean', 'h': 'help', 'scons': 'build...`
Inherited from cmd.Cmd doc_header, doc_leader, identchars, intro, lastcmd, misc_header, nohelp, prompt, ruler, undoc_header, use_rawinput	

44 Module SCons.Script.Main

SCons.Script

This file implements the main() function used by the scons script.

Architecturally, this *is* the scons script, and will likely only be called from the external "scons" wrapper. Consequently, anything here should not be, or be considered, part of the build engine. If it's something that we expect other software to want to use, it should go in some other module. If it's specific to the "scons" script invocation, it goes here.

44.1 Functions

fetch_win32_parallel_msg()

revert_io()

Progress(**args*, ***kw*)

GetBuildFailures()

python_version_string()

python_version_unsupported(*version*=`sys.version_info(major=2, minor=7, micro=15, releaselevel...`)

python_version_deprecated(*version*=`sys.version_info(major=2, minor=7, micro=15, releaselevel...`)

AddOption(**args*, ***kw*)

GetOption(*name*)

SetOption(*name*, *value*)

PrintHelp(*file*=`None`)

find_deepest_user_frame(*tb*)

Find the deepest stack frame that is not part of SCons.

Input is a "pre-processed" stack trace in the form returned by traceback.extract_tb() or traceback.extract_stack()

test_load_all_site_scons_dirs(*d*)

version_string(*label*, *module*)

path_string(*label*, *module*)

main()

44.2 Variables

Name	Description
unsupported_python_version	**Value:** `(2, 6, 0)`
deprecated_python_version	**Value:** `(2, 7, 0)`
__revision__	**Value:** `'src/engine/SCons/Script/Main.py a56bbd8c09fb219ab8a96733...`
display	**Value:** `<SCons.Util.DisplayEngine object>`
progress_display	**Value:** `<SCons.Util.DisplayEngine object>`
first_command_start	**Value:** `None`
last_command_end	**Value:** `None`
ProgressObject	**Value:** `Null(0x7FF5C2067610)`
print_objects	**Value:** `0`
print_memoizer	**Value:** `0`
print_stacktrace	**Value:** `0`
print_time	**Value:** `0`
sconscript_time	**Value:** `0`
cumulative_command_time	**Value:** `0`
exit_status	**Value:** `0`
this_build_status	**Value:** `0`
num_jobs	**Value:** `None`
delayed_warnings	**Value:** `[]`

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Name	Description
OptionsParser	**Value:** `<SCons.Script.Main.FakeOptionParser object>`
count_stats	**Value:** `<SCons.Script.Main.CountStats object>`
memory_stats	**Value:** `<SCons.Script.Main.MemStats object>`
__package__	**Value:** `'SCons.Script'`

44.3 Class SConsPrintHelpException

object
exceptions.BaseException
exceptions.Exception
SCons.Script.Main.SConsPrintHelpException

44.3.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

44.3.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

44.4 Class Progressor

object ─┐
SCons.Script.Main.Progressor

44.4.1 Methods

__init__(*self*, *obj*, *interval*=`1`, *file*=`None`, *overwrite*=`False`)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

write(*self*, *s*)

erase_previous(*self*)

spinner(*self*, *node*)

string(*self*, *node*)

replace_string(*self*, *node*)

__call__(*self*, *node*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

44.4.2 Properties

Name	Description
Inherited from object	
__class__	

44.4.3 Class Variables

Name	Description
prev	**Value:** `''`

continued on next page

Name	Description
count	**Value:** `0`
target_string	**Value:** `'$TARGET'`

44.5 Class BuildTask

object
SCons.Taskmaster.Task
SCons.Taskmaster.OutOfDateTask
SCons.Script.Main.BuildTask

An SCons build task.

44.5.1 Methods

display(*self*, *message*)

Hook to allow the calling interface to display a message.

This hook gets called as part of preparing a task for execution (that is, a Node to be built). As part of figuring out what Node should be built next, the actual target list may be altered, along with a message describing the alteration. The calling interface can subclass Task and provide a concrete implementation of this method to see those messages. Overrides: SCons.Taskmaster.Task.display extit(inherited documentation)

prepare(*self*)

Called just before the task is executed.

This is mainly intended to give the target Nodes a chance to unlink underlying files and make all necessary directories before the Action is actually called to build the targets. Overrides: SCons.Taskmaster.Task.prepare extit(inherited documentation)

needs_execute(*self*)

Returns True (indicating this Task should be executed) if this Task's target state indicates it needs executing, which has already been determined by an earlier up-to-date check. Overrides: SCons.Taskmaster.Task.needs_execute

execute(*self*)

Called to execute the task.

This method is called from multiple threads in a parallel build, so only do thread safe stuff here. Do thread unsafe stuff in prepare(), executed() or failed(). Overrides: SCons.Taskmaster.Task.execute extit(inherited documentation)

do_failed(*self*, *status*=2)

executed(*self*)

Called when the task has been successfully executed and the Taskmaster instance wants to call the Node's callback methods.

This may have been a do-nothing operation (to preserve build order), so we must check the node's state before deciding whether it was "built", in which case we call the appropriate Node method. In any event, we always call "visited()", which will handle any post-visit actions that must take place regardless of whether or not the target was an actual built target or a source Node. Overrides: SCons.Taskmaster.Task.executed extit(inherited documentation)

failed(*self*)

Default action when a task fails: stop the build.

Note: Although this function is normally invoked on nodes in the executing state, it might also be invoked on up-to-date nodes when using Configure(). Overrides: SCons.Taskmaster.Task.failed extit(inherited documentation)

postprocess(*self*)

Post-processes a task after it's been executed.

This examines all the targets just built (or not, we don't care if the build was successful, or even if there was no build because everything was up-to-date) to see if they have any waiting parent Nodes, or Nodes waiting on a common side effect, that can be put back on the candidates list. Overrides: SCons.Taskmaster.Task.postprocess extit(inherited documentation)

make_ready(*self*)

Make a task ready for execution Overrides: SCons.Taskmaster.Task.make_ready

Inherited from SCons.Taskmaster.Task(Section 47.4)

___init___(), exc_clear(), exc_info(), exception_set(), executed_with_callbacks(), executed_without_callbacks(), fail_continue(), fail_stop(), get_target(), make_ready_all(), make_ready_current(), trace_message()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

44.5.2 Properties

Name	Description
Inherited from object	
___class___	

44.5.3 Class Variables

Name	Description
progress	**Value:** `Null(0x7FF5C2067610)`

44.6 Class CleanTask

object
SCons.Taskmaster.Task
SCons.Taskmaster.AlwaysTask
SCons.Script.Main.CleanTask

An SCons clean task.

44.6.1 Methods

fs_delete(*self*, *path*, *pathstr*, *remove*=`True`)

show(*self*)

remove(*self*)

Called to execute the task.

This method is called from multiple threads in a parallel build, so only do thread safe stuff here. Do thread unsafe stuff in prepare(), executed() or failed().

execute(*self*)

Called to execute the task.

This method is called from multiple threads in a parallel build, so only do thread safe stuff here. Do thread unsafe stuff in prepare(), executed() or failed(). Overrides: SCons.Taskmaster.Task.execute extit(inherited documentation)

executed(*self*)

Called when the task has been successfully executed and the Taskmaster instance doesn't want to call the Node's callback methods. Overrides: SCons.Taskmaster.Task.executed

make_ready(*self*)

Marks all targets in a task ready for execution.

This is used when the interface needs every target Node to be visited--the canonical example being the "scons -c" option. Overrides: SCons.Taskmaster.Task.make_ready

prepare(*self*)

Called just before the task is executed.

This is mainly intended to give the target Nodes a chance to unlink underlying files and make all necessary directories before the Action is actually called to build the targets. Overrides: SCons.Taskmaster.Task.prepare extit(inherited documentation)

Inherited from SCons.Taskmaster.AlwaysTask(Section 47.5)

needs_execute()

Inherited from SCons.Taskmaster.Task(Section 47.4)

___init___(), display(), exc_clear(), exc_info(), exception_set(), executed_with_callbacks(), executed_without_callbacks(), fail_continue(), fail_stop(), failed(), get_target(), make_ready_all(), make_ready_current(), postprocess(), trace_message()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

44.6.2 Properties

Name	Description
Inherited from object	
___class___	

44.7 Class QuestionTask

object

SCons.Taskmaster.Task

SCons.Taskmaster.AlwaysTask

SCons.Script.Main.QuestionTask

An SCons task for the -q (question) option.

44.7.1 Methods

prepare(*self*)

Called just before the task is executed.

This is mainly intended to give the target Nodes a chance to unlink underlying files and make all necessary directories before the Action is actually called to build the targets. Overrides: SCons.Taskmaster.Task.prepare extit(inherited documentation)

execute(*self*)

Called to execute the task.

This method is called from multiple threads in a parallel build, so only do thread safe stuff here. Do thread unsafe stuff in prepare(), executed() or failed(). Overrides: SCons.Taskmaster.Task.execute extit(inherited documentation)

executed(*self*)

Called when the task has been successfully executed and the Taskmaster instance wants to call the Node's callback methods.

This may have been a do-nothing operation (to preserve build order), so we must check the node's state before deciding whether it was "built", in which case we call the appropriate Node method. In any event, we always call "visited()", which will handle any post-visit actions that must take place regardless of whether or not the target was an actual built target or a source Node. Overrides: SCons.Taskmaster.Task.executed extit(inherited documentation)

Inherited from SCons.Taskmaster.AlwaysTask(Section 47.5)

needs_execute()

Inherited from SCons.Taskmaster.Task(Section 47.4)

__init__(), display(), exc_clear(), exc_info(), exception_set(), executed_with_callbacks(), executed_without_callbacks(), fail_continue(), fail_stop(), failed(), get_target(), make_ready(), make_ready_all(), make_ready_current(), postprocess(), trace_message()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), ___str___(), ___subclasshook___()

44.7.2 Properties

Name	Description
Inherited from object	
___class___	

44.8 Class TreePrinter

object
  SCons.Script.Main.TreePrinter

44.8.1 Methods

___init___(*self*, *derived*=`False`, *prune*=`False`, *status*=`False`)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

get_all_children(*self*, *node*)

get_derived_children(*self*, *node*)

display(*self*, *t*)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

44.8.2 Properties

Name	Description
Inherited from object	
___class___	

44.9 Class FakeOptionParser

object ─┐
SCons.Script.Main.FakeOptionParser

A do-nothing option parser, used for the initial OptionsParser variable.

During normal SCons operation, the OptionsParser is created right away by the main() function. Certain tests scripts however, can introspect on different Tool modules, the initialization of which can try to add a new, local option to an otherwise uninitialized OptionsParser object. This allows that introspection to happen without blowing up.

44.9.1 Methods

add_local_option(*self*, **args*, ***kw*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __init__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

44.9.2 Properties

Name	Description
Inherited from object	
__class__	

44.9.3 Class Variables

Name	Description
values	**Value:** `<SCons.Script.Main.FakeOptionValues object>`

44.10 Class Stats

object ─┐
SCons.Script.Main.Stats

Known Subclasses: SCons.Script.Main.CountStats, SCons.Script.Main.MemStats

44.10.1 Methods

__init__(*self*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

enable(*self*, *outfp*)

do_nothing(*self*, **args*, ***kw*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

44.10.2 Properties

Name	Description
Inherited from object	
__class__	

44.11 Class CountStats

object
SCons.Script.Main.Stats
SCons.Script.Main.CountStats

44.11.1 Methods

do_append(*self*, *label*)

do_print(*self*)

Inherited from SCons.Script.Main.Stats(Section 44.10)

___init___(), do_nothing(), enable()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

44.11.2 Properties

Name	Description
Inherited from object	
___class___	

44.12 Class MemStats

object
SCons.Script.Main.Stats
SCons.Script.Main.MemStats

44.12.1 Methods

do_append(*self*, *label*)

do_print(*self*)

Inherited from SCons.Script.Main.Stats(Section 44.10)

___init___(), do_nothing(), enable()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

44.12.2 Properties

Name	Description
Inherited from object	

continued on next page

Name	Description
__class__	

45 Module SCons.Script.SConscript'

SCons.Script.SConscript

This module defines the Python API provided to SConscript and SConstruct files.

45.1 Functions

get_calling_namespaces()

Return the locals and globals for the function that called into this module in the current call stack.

compute_exports(*exports*)

Compute a dictionary of exports given one of the parameters to the Export() function or the exports argument to SConscript().

Return(**vars*, ***kw*)

handle_missing_SConscript(*f*, *must_exist*=`None`)

Take appropriate action on missing file in SConscript() call.

Print a warning or raise an exception on missing file. On first warning, print a deprecation message.

Args: f (str): path of missing configuration file must_exist (bool): raise exception if file does not exist

Raises:

UserError if 'must_exist' is True or if global
SCons.Script._no_missing_sconscript is True.

SConscript_exception(*file*=`<epydoc.docintrospecter._DevNull object>`)

Print an exception stack trace just for the SConscript file(s). This will show users who have Python errors where the problem is, without cluttering the output with all of the internal calls leading up to where we exec the SConscript.

annotate(*node*)

Annotate a node with the stack frame describing the SConscript file and line number that created it.

Configure(**args*, ***kw*)

get_DefaultEnvironmentProxy()

BuildDefaultGlobals()

Create a dictionary containing all the default globals for SConstruct and SConscript files.

45.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Script/SConscript.py a56bbd8c09fb219ab8...`
launch_dir	**Value:** `'/home/bdeegan/devel/scons/git/as_scons'`
GlobalDict	**Value:** `None`
global_exports	**Value:** `{}`
sconscript_chdir	**Value:** `1`
call_stack	**Value:** `[]`
stack_bottom	**Value:** `'% Stack boTTom %'`
__package__	**Value:** `'SCons.Script'`

45.3 Class SConscriptReturn

object
exceptions.BaseException
exceptions.Exception
SCons.Script.SConscript'.SConscriptReturn

45.3.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

45.3.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

45.4 Class Frame

object
SCons.Script.SConscript'.Frame

A frame on the SConstruct/SConscript call stack

45.4.1 Methods

__init__(*self*, *fs*, *exports*, *sconscript*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

45.4.2 Properties

Name	Description
Inherited from object	
__class__	

45.5 Class SConsEnvironment

object
SCons.Environment.SubstitutionEnvironment
SCons.Environment.Base
SCons.Script.SConscript'.SConsEnvironment

An Environment subclass that contains all of the methods that are particular to the wrapper SCons interface and which aren't (or shouldn't be) part of the build engine itself.

Note that not all of the methods of this class have corresponding global functions, there are some private methods.

45.5.1 Methods

Configure(*self*, **args*, ***kw*)

Overrides: SCons.Environment.Base.Configure

Default(*self*, **targets*)

EnsureSConsVersion(*self*, *major*, *minor*, *revision*=`0`)

Exit abnormally if the SCons version is not late enough.

EnsurePythonVersion(*self*, *major*, *minor*)

Exit abnormally if the Python version is not late enough.

Exit(*self*, *value*=`0`)

Export(*self*, **vars*, ***kw*)

GetLaunchDir(*self*)

GetOption(*self*, *name*)

Help(*self*, *text*, *append*=`False`)

Import(*self*, **vars*)

SConscript(*self*, **ls*, ***kw*)

```
Execute SCons configuration files.

Parameters:
    *ls (str or list): configuration file(s) to execute.

Keyword arguments:
    dirs (list): execute SConscript in each listed directory.
    name (str): execute script 'name' (used only with 'dirs').
    exports (list or dict): locally export variables the
      called script(s) can import.
    variant_dir (str): mirror sources needed for the build in
     a variant directory to allow building in it.
    duplicate (bool): physically duplicate sources instead of just
      adjusting paths of derived files (used only with 'variant_dir')
      (default is True).
    must_exist (bool): fail if a requested script is missing
      (default is False, default is deprecated).

Returns:
    list of variables returned by the called script

Raises:
    UserError: a script is not found and such exceptions are enabled.
```

SConscriptChdir(*self*, *flag*)

SetOption(*self*, *name*, *value*)

Inherited from SCons.Environment.Base(Section 8.9)

Action(), AddPostAction(), AddPreAction(), Alias(), AlwaysBuild(), Append(), AppendENVPath(), AppendUnique(), BuildDir(), Builder(), CacheDir(), Clean(), Clone(), Command(), Copy(), Decider(), Depends(), Detect(), Dictionary(), Dir(), Dump(), Entry(), Environment(), Execute(), File(), FindFile(), FindInstalled-Files(), FindIxes(), FindSourceFiles(), Flatten(), GetBuildPath(), Glob(), Ignore(), Literal(), Local(), NoCache(), NoClean(), ParseConfig(), ParseDepends(), Plat-form(), Precious(), Prepend(), PrependENVPath(), PrependUnique(), Pseudo(), PyPackageDir(), Replace(), ReplaceIxes(), Repository(), Requires(), SConsign-File(), Scanner(), SetDefault(), SideEffect(), SourceCode(), SourceSignatures(), Split(), TargetSignatures(), Tool(), Value(), VariantDir(), WhereIs(), __init__(), get_CacheDir(), get_builder(), get_factory(), get_scanner(), get_src_sig_type(), get_tgt_sig_type(), scanner_map_delete()

Inherited from SCons.Environment.SubstitutionEnvironment(Section 8.6)

AddMethod(), MergeFlags(), Override(), ParseFlags(), RemoveMethod(), ___contains___(), ___delitem___(), ___eq___(), ___getitem___(), ___setitem___(), arg2nodes(), backtick(), get(), gvars(), has_key(), items(), lvars(), subst(), subst_kw(), subst_list(), subst_path(), subst_target_source()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

45.5.2 Properties

Name	Description
Inherited from object	
___class___	

45.6 Class DefaultEnvironmentCall

object ┐
SCons.Script.SConscript'.DefaultEnvironmentCall

A class that implements "global function" calls of Environment methods by fetching the specified method from the DefaultEnvironment's class. Note that this uses an intermediate proxy class instead of calling the DefaultEnvironment method directly so that the proxy can override the subst() method and thereby prevent expansion of construction variables (since from the user's point of view this was called as a global function, with no associated construction environment).

45.6.1 Methods

___init___(*self*, *method_name*, *subst*=0)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*, ***kw*)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

45.6.2 Properties

Name	Description
Inherited from object	
___class___	

46 Module SCons.Subst

SCons.Subst

SCons string substitution.

46.1 Functions

SetAllowableExceptions(**excepts*)

raise_exception(*exception*, *target*, *s*)

quote_spaces(*arg*)

Generic function for putting double quotes around any string that has white space in it.

escape_list(*mylist*, *escape_func*)

Escape a list of arguments by running the specified escape_func on every object in the list that has an escape() method.

subst_dict(*target*, *source*)

Create a dictionary for substitution of special construction variables.

This translates the following special arguments:

target - the target (object or array of objects), used to generate the TARGET and TARGETS construction variables

source - the source (object or array of objects), used to generate the SOURCES and SOURCE construction variables

scons_subst(*strSubst*, *env*, *mode*=`1`, *target*=`None`, *source*=`None`, *gvars*=`{}`, *lvars*=`{}`, *conv*=`None`)

Expand a string or list containing construction variable substitutions.

This is the work-horse function for substitutions in file names and the like. The companion scons_subst_list() function (below) handles separating command lines into lists of arguments, so see that function if that's what you're looking for.

scons_subst_list(*strSubst*, *env*, *mode*=`1`, *target*=`None`, *source*=`None`, *gvars*=`{}`, *lvars*=`{}`, *conv*=`None`)

Substitute construction variables in a string (or list or other object) and separate the arguments into a command list.

The companion scons_subst() function (above) handles basic substitutions within strings, so see that function instead if that's what you're looking for.

scons_subst_once(*strSubst*, *env*, *key*)

Perform single (non-recursive) substitution of a single construction variable keyword.

This is used when setting a variable when copying or overriding values in an Environment. We want to capture (expand) the old value before we override it, so people can do things like:

env2 = env.Clone(CCFLAGS = '$CCFLAGS -g')

We do this with some straightforward, brute-force code here...

46.2 Variables

Name	Description
___revision___	**Value:** `'src/engine/SCons/Subst.py a56bbd8c09fb219ab8a9673330ffcd...`
AllowableExceptions	**Value:** `(<type 'exceptions.IndexError'>, <type 'exceptions.NameEr...`
NullNodesList	**Value:** `Null(0x7FF5C30B7110)`

continued on next page

Name	Description
SUBST_CMD	**Value:** `0`
SUBST_RAW	**Value:** `1`
SUBST_SIG	**Value:** `2`
___package___	**Value:** `'SCons'`

46.3 Class Literal

object ─┐
SCons.Subst.Literal

A wrapper for a string. If you use this object wrapped around a string, then it will be interpreted as literal. When passed to the command interpreter, all special characters will be escaped.

46.3.1 Methods

___init___(*self*, *lstr*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

escape(*self*, *escape_func*)

for_signature(*self*)

is_literal(*self*)

___eq___(*self*, *other*)

___neq___(*self*, *other*)

___hash___(*self*)

hash(x) Overrides: object.___hash___ extit(inherited documentation)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

46.3.2 Properties

Name	Description
Inherited from object	
___class___	

46.4 Class SpecialAttrWrapper

object ─┐
    SCons.Subst.SpecialAttrWrapper

This is a wrapper for what we call a 'Node special attribute.' This is any of the attributes of a Node that we can reference from Environment variable substitution, such as $TARGET.abspath or $SOURCES[1].filebase. We implement the same methods as Literal so we can handle special characters, plus a for_signature method, such that we can return some canonical string during signature calculation to avoid unnecessary rebuilds.

46.4.1 Methods

___init___(*self*, *lstr*, *for_signature*=`None`)

The for_signature parameter, if supplied, will be the canonical string we return from for_signature(). Else we will simply return lstr. Overrides: object.___init___

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

escape(*self*, *escape_func*)

for_signature(*self*)

is_literal(*self*)

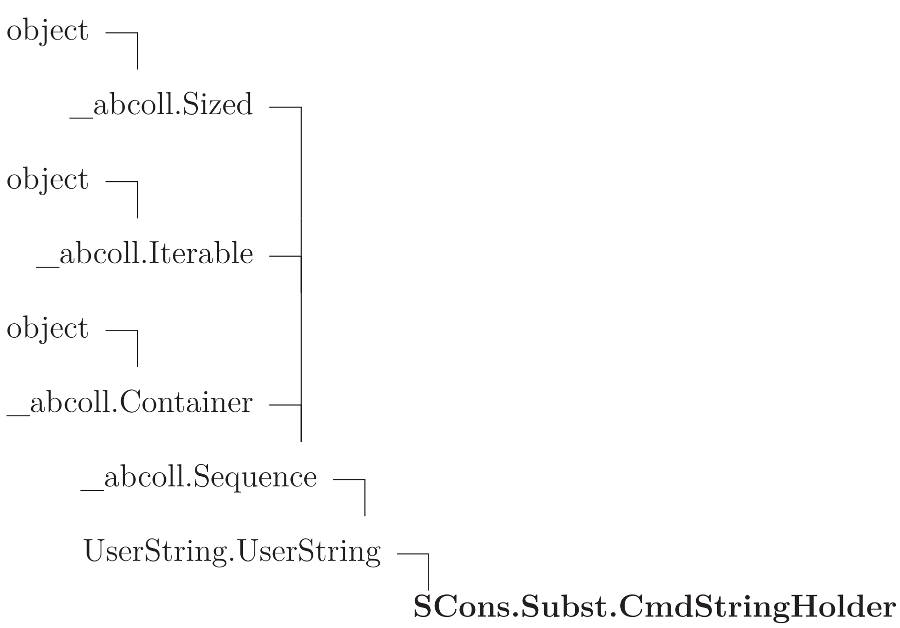
Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __subclasshook__()

46.4.2 Properties

Name	Description
Inherited from object	
__class__	

46.5 Class CmdStringHolder



This is a special class used to hold strings generated by scons_subst() and scons_subst_list(). It defines a special method escape(). When passed a function with an escape algorithm for a particular platform, it will return the contained string with the proper escape sequences inserted.

46.5.1 Methods

___init___(*self*, *cmd*, *literal*=`None`)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

is_literal(*self*)

escape(*self*, *escape_func*, *quote_func*=`<__builtin__.function object>`)

Escape the string with the supplied function. The function is expected to take an arbitrary string, then return it with all special characters escaped and ready for passing to the command interpreter.

After calling this function, the next call to str() will return the escaped string.

Inherited from UserString.UserString

___add___(), ___cmp___(), ___complex___(), ___contains___(), ___float___(), ___getitem___(), ___getslice___(), ___hash___(), ___int___(), ___len___(), ___long___(), ___mod___(), ___mul___(), ___radd___(), ___repr___(), ___rmul___(), ___str___(), capitalize(), center(), count(), decode(), encode(), endswith(), expandtabs(), find(), index(), isalnum(), isalpha(), isdecimal(), isdigit(), islower(), isnumeric(), isspace(), istitle(), isupper(), join(), ljust(), lower(), lstrip(), partition(), replace(), rfind(), rindex(), rjust(), rpartition(), rsplit(), rstrip(), split(), splitlines(), startswith(), strip(), swapcase(), title(), translate(), upper(), zfill()

Inherited from _abcoll.Sequence

___iter___(), ___reversed___()

Inherited from _abcoll.Sized

___subclasshook___()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___()

46.5.2 Properties

Name	Description
Inherited from object	

continued on next page

Name	Description
___class___	

46.5.3 Class Variables

Name	Description
Inherited from UserString.UserString	
___abstractmethods___	

46.6 Class NLWrapper

object ─┐
SCons.Subst.NLWrapper

A wrapper class that delays turning a list of sources or targets into a NodeList until it's needed. The specified function supplied when the object is initialized is responsible for turning raw nodes into proxies that implement the special attributes like .abspath, .source, etc. This way, we avoid creating those proxies just "in case" someone is going to use $TARGET or the like, and only go through the trouble if we really have to.

In practice, this might be a wash performance-wise, but it's a little cleaner conceptually...

46.6.1 Methods

___init___(*self*, *list*, *func*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

46.6.2 Properties

Name	Description
Inherited from object	
___class___	

46.7 Class Targets_or_Sources

```
object
  _abcoll.Sized
object
  _abcoll.Iterable
object
  _abcoll.Container
    _abcoll.Sequence
      _abcoll.MutableSequence
        UserList.UserList
          SCons.Subst.Targets_or_Sources
```

A class that implements $TARGETS or $SOURCES expansions by in turn wrapping a NLWrapper. This class handles the different methods used to access the list, calling the NLWrapper to create proxies on demand.

Note that we subclass collections.UserList purely so that the is_Sequence() function will identify an object of this class as a list during variable expansion. We're not really using any collections.UserList methods in practice.

46.7.1 Methods

__init__(*self*, *nl*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__getattr__(*self*, *attr*)

__getitem__(*self*, *i*)

Overrides: _abcoll.Sequence.__getitem__

___getslice___(*self*, *i*, *j*)
Overrides: UserList.UserList.___getslice___

___str___(*self*)
str(x) Overrides: object.___str___ extit(inherited documentation)

___repr___(*self*)
repr(x) Overrides: object.___repr___ extit(inherited documentation)

Inherited from UserList.UserList

___add___(), ___cmp___(), ___contains___(), ___delitem___(), ___delslice___(), ___eq___(), ___ge___(), ___gt___(), ___iadd___(), ___imul___(), ___le___(), ___len___(), ___lt___(), ___mul___(), ___ne___(), ___radd___(), ___rmul___(), ___setitem___(), ___setslice___(), append(), count(), extend(), index(), insert(), pop(), remove(), reverse(), sort()

Inherited from _abcoll.Sequence

___iter___(), ___reversed___()

Inherited from _abcoll.Sized

___subclasshook___()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___()

46.7.2 Properties

Name	Description
Inherited from object	
___class___	

46.7.3 Class Variables

Name	Description
Inherited from UserList.UserList	
___abstractmethods___, ___hash___	

46.8 Class Target__or__Source

object ─┐
SCons.Subst.Target__or__Source

A class that implements $TARGET or $SOURCE expansions by in turn wrapping a NLWrapper. This class handles the different methods used to access an individual proxy Node, calling the NLWrapper to create a proxy on demand.

46.8.1 Methods

___init___(*self*, *nl*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

___getattr___(*self*, *attr*)

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

___repr___(*self*)

repr(x) Overrides: object.___repr___ extit(inherited documentation)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___subclasshook___()

46.8.2 Properties

Name	Description
Inherited from object	
___class___	

46.9 Class NullNodeList

```
object ─┐
SCons.Util.Null ─┐
  SCons.Util.NullSeq ─┐
                      SCons.Subst.NullNodeList
```

46.9.1 Methods

___call___(*self*, **args*, ***kwargs*)

Overrides: SCons.Util.Null.___call___

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

Inherited from SCons.Util.NullSeq(Section 48.16)

___delitem___(), ___getitem___(), ___iter___(), ___len___(), ___setitem___()

Inherited from SCons.Util.Null(Section 48.15)

___bool___(), ___delattr___(), ___getattr___(), ___init___(), ___new___(), ___nonzero___(), ___repr___(), ___setattr___()

Inherited from object

___format___(), ___getattribute___(), ___hash___(), ___reduce___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

46.9.2 Properties

Name	Description
Inherited from object	
___class___	

47 Module SCons.Taskmaster

This module contains the primary interface(s) between a wrapping user interface and the SCons build engine. There are two key classes here:

Taskmaster

This is the main engine for walking the dependency graph and calling things to decide what does or doesn't need to be built.

Task

This is the base class for allowing a wrapping interface to decide what does or doesn't actually need to be done. The intention is for a wrapping interface to subclass this as appropriate for different types of behavior it may need.

The canonical example is the SCons native Python interface, which has Task subclasses that handle its specific behavior, like printing "'foo' is up to date" when a top-level target doesn't need to be built, and handling the -c option by removing targets as its "build" action. There is also a separate subclass for suppressing this output when the -q option is used.

The Taskmaster instantiates a Task object for each (set of) target(s) that it decides need to be evaluated and/or built.

47.1 Functions

dump__stats()

find__cycle(*stack*, *visited*)

47.2 Variables

Name	Description
___doc___	**Value:** `...`
___revision___	**Value:** `'src/engine/SCons/Taskmaster.py a56bbd8c09fb219ab8a967333...`
StateString	**Value:** `{0: 'no_state', 1: 'pending', 2: 'executing', 3: 'up_to_d...`
NODE_NO_STATE	**Value:** `0`
NODE_PENDING	**Value:** `1`

continued on next page

Name	Description
NODE_EXECUTING	**Value:** `2`
NODE_UP_TO_DATE	**Value:** `3`
NODE_EXECUTED	**Value:** `4`
NODE_FAILED	**Value:** `5`
print_prepare	**Value:** `0`
CollectStats	**Value:** `None`
StatsNodes	**Value:** `[]`
fmt	**Value:** `'%(considered)3d %(already_handled)3d %(problem)3d %(chil...`
__package__	**Value:** `'SCons'`

47.3 Class Stats

object ─┐
SCons.Taskmaster.Stats

A simple class for holding statistics about the disposition of a Node by the Taskmaster. If we're collecting statistics, each Node processed by the Taskmaster gets one of these attached, in which case the Taskmaster records its decision each time it processes the Node. (Ideally, that's just once per Node.)

47.3.1 Methods

__init__(*self*)

Instantiates a Taskmaster.Stats object, initializing all appropriate counters to zero. Overrides: object.__init__

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

47.3.2 Properties

Name	Description
Inherited from object	

continued on next page

Name	Description
___class___	

47.4 Class Task

object ─┐
SCons.Taskmaster.Task

Known Subclasses: SCons.Taskmaster.AlwaysTask, SCons.Taskmaster.OutOfDateTask

Default SCons build engine task.

This controls the interaction of the actual building of node and the rest of the engine.

This is expected to handle all of the normally-customizable aspects of controlling a build, so any given application *should* be able to do what it wants by sub-classing this class and overriding methods as appropriate. If an application needs to customize something by sub-classing Taskmaster (or some other build engine class), we should first try to migrate that functionality into this class.

Note that it's generally a good idea for sub-classes to call these methods explicitly to update state, etc., rather than roll their own interaction with Taskmaster from scratch.

47.4.1 Methods

___init___(*self*, *tm*, *targets*, *top*, *node*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

trace_message(*self*, *method*, *node*, *description*=`'node'`)

display(*self*, *message*)

Hook to allow the calling interface to display a message.

This hook gets called as part of preparing a task for execution (that is, a Node to be built). As part of figuring out what Node should be built next, the actual target list may be altered, along with a message describing the alteration. The calling interface can subclass Task and provide a concrete implementation of this method to see those messages.

prepare(*self*)

Called just before the task is executed.

This is mainly intended to give the target Nodes a chance to unlink underlying files and make all necessary directories before the Action is actually called to build the targets.

get_target(*self*)

Fetch the target being built or updated by this task.

needs_execute(*self*)

execute(*self*)

Called to execute the task.

This method is called from multiple threads in a parallel build, so only do thread safe stuff here. Do thread unsafe stuff in prepare(), executed() or failed().

executed_without_callbacks(*self*)

Called when the task has been successfully executed and the Taskmaster instance doesn't want to call the Node's callback methods.

executed_with_callbacks(*self*)

Called when the task has been successfully executed and the Taskmaster instance wants to call the Node's callback methods.

This may have been a do-nothing operation (to preserve build order), so we must check the node's state before deciding whether it was "built", in which case we call the appropriate Node method. In any event, we always call "visited()", which will handle any post-visit actions that must take place regardless of whether or not the target was an actual built target or a source Node.

executed(*self*)

Called when the task has been successfully executed and the Taskmaster instance wants to call the Node's callback methods.

This may have been a do-nothing operation (to preserve build order), so we must check the node's state before deciding whether it was "built", in which case we call the appropriate Node method. In any event, we always call "visited()", which will handle any post-visit actions that must take place regardless of whether or not the target was an actual built target or a source Node.

failed(*self*)

Default action when a task fails: stop the build.

Note: Although this function is normally invoked on nodes in the executing state, it might also be invoked on up-to-date nodes when using Configure().

fail_stop(*self*)

Explicit stop-the-build failure.

This sets failure status on the target nodes and all of their dependent parent nodes.

Note: Although this function is normally invoked on nodes in the executing state, it might also be invoked on up-to-date nodes when using Configure().

fail_continue(*self*)

Explicit continue-the-build failure.

This sets failure status on the target nodes and all of their dependent parent nodes.

Note: Although this function is normally invoked on nodes in the executing state, it might also be invoked on up-to-date nodes when using Configure().

make_ready_all(*self*)

Marks all targets in a task ready for execution.

This is used when the interface needs every target Node to be visited--the canonical example being the "scons -c" option.

make_ready_current(*self*)

Marks all targets in a task ready for execution if any target is not current.

This is the default behavior for building only what's necessary.

make_ready(*self*)

Marks all targets in a task ready for execution if any target is not current.

This is the default behavior for building only what's necessary.

postprocess(*self*)

Post-processes a task after it's been executed.

This examines all the targets just built (or not, we don't care if the build was successful, or even if there was no build because everything was up-to-date) to see if they have any waiting parent Nodes, or Nodes waiting on a common side effect, that can be put back on the candidates list.

exc_info(*self*)

Returns info about a recorded exception.

exc_clear(*self*)

Clears any recorded exception.

This also changes the "exception_raise" attribute to point to the appropriate do-nothing method.

exception_set(*self*, *exception*=`None`)

Records an exception to be raised at the appropriate time.

This also changes the "exception_raise" attribute to point to the method that will, in fact

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

47.4.2 Properties

Name	Description
Inherited from object	
___class___	

47.5 Class AlwaysTask

object
SCons.Taskmaster.Task
SCons.Taskmaster.AlwaysTask

Known Subclasses: SCons.SConf.SConfBuildTask, SCons.Script.Main.CleanTask, SCons.Script.Main.QuestionTask

47.5.1 Methods

needs_execute(*self*)

Always returns True (indicating this Task should always be executed).

Subclasses that need this behavior (as opposed to the default of only executing Nodes that are out of date w.r.t. their dependencies) can use this as follows:

class MyTaskSubclass(SCons.Taskmaster.Task):
    needs_execute = SCons.Taskmaster.Task.execute_always

Overrides: SCons.Taskmaster.Task.needs_execute

Inherited from SCons.Taskmaster.Task(Section 47.4)

__init__(), display(), exc_clear(), exc_info(), exception_set(), execute(), executed(), executed_with_callbacks(), executed_without_callbacks(), fail_continue(), fail_stop(), failed(), get_target(), make_ready(), make_ready_all(), make_ready_current(), postprocess(), prepare(), trace_message()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

47.5.2 Properties

Name	Description
Inherited from object	
__class__	

47.6 Class OutOfDateTask

object
SCons.Taskmaster.Task
SCons.Taskmaster.OutOfDateTask

Known Subclasses: SCons.Script.Main.BuildTask

47.6.1 Methods

needs_execute(*self*)

Returns True (indicating this Task should be executed) if this Task's target state indicates it needs executing, which has already been determined by an earlier up-to-date check. Overrides: SCons.Taskmaster.Task.needs_execute

Inherited from SCons.Taskmaster.Task(Section 47.4)

___init___(), display(), exc_clear(), exc_info(), exception_set(), execute(), executed(), executed_with_callbacks(), executed_without_callbacks(), fail_continue(), fail_stop(), failed(), get_target(), make_ready(), make_ready_all(), make_ready_current(), postprocess(), prepare(), trace_message()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

47.6.2 Properties

Name	Description
Inherited from object	
___class___	

47.7 Class Taskmaster

object ─┐
　　SCons.Taskmaster.Taskmaster

The Taskmaster for walking the dependency DAG.

47.7.1 Methods

___init___(*self*, *targets*=`[]`, *tasker*=`None`, *order*=`None`, *trace*=`None`)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

find_next_candidate(*self*)

Returns the next candidate Node for (potential) evaluation.

The candidate list (really a stack) initially consists of all of the top-level (command line) targets provided when the Taskmaster was initialized. While we walk the DAG, visiting Nodes, all the children that haven't finished processing get pushed on to the candidate list. Each child can then be popped and examined in turn for whether *their* children are all up-to-date, in which case a Task will be created for their actual evaluation and potential building.

Here is where we also allow candidate Nodes to alter the list of Nodes that should be examined. This is used, for example, when invoking SCons in a source directory. A source directory Node can return its corresponding build directory Node, essentially saying, "Hey, you really need to build this thing over here instead."

no_next_candidate(*self*)

Stops Taskmaster processing by not returning a next candidate.

Note that we have to clean-up the Taskmaster candidate list because the cycle detection depends on the fact all nodes have been processed somehow.

trace_message(*self*, *message*)

trace_node(*self*, *node*)

next_task(*self*)

Returns the next task to be executed.

This simply asks for the next Node to be evaluated, and then wraps it in the specific Task subclass with which we were initialized.

will_not_build(*self*, *nodes*, *node_func*=`<__builtin__.function object>`)

Perform clean-up about nodes that will never be built. Invokes a user defined function on all of these nodes (including all of their parents).

stop(*self*)

Stops the current build completely.

cleanup(*self*)

Check for dependency cycles.

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

47.7.2 Properties

Name	Description
Inherited from object	
___class___	

48 Module SCons.Util

SCons.Util

Various utility functions go here.

48.1 Functions

dictify(*keys*, *values*, *result*={})

rightmost_separator(*path*, *sep*)

containsAny(*str*, *set*)

Check whether sequence str contains ANY of the items in set.

containsAll(*str*, *set*)

Check whether sequence str contains ALL of the items in set.

containsOnly(*str*, *set*)

Check whether sequence str contains ONLY items in set.

splitext(*path*)

Same as os.path.splitext() but faster.

updrive(*path*)

Make the drive letter (if any) upper case. This is useful because Windows is inconsistent on the case of the drive letter, which can cause inconsistencies when calculating command signatures.

get_environment_var(*varstr*)

Given a string, first determine if it looks like a reference to a single environment variable, like "$FOO" or "${FOO}". If so, return that variable with no decorations ("FOO"). If not, return None.

render_tree(*root*, *child_func*, *prune*=`0`, *margin*=`[0]`, *visited*=`None`)

Render a tree of nodes into an ASCII tree view. **Parameters**

- `root:` : the root node of the tree
- `child_func:` : the function called to get the children of a node
- `prune:` : don't visit the same node twice
- `margin:` : the format of the left margin to use for children of root. 1 results in a pipe, and 0 results in no pipe.
- `visited:` : a dictionary of visited nodes in the current branch if not prune, or in the whole tree if prune.

IDX(*N*)

print_tree(*root*, *child_func*, *prune*=`0`, *showtags*=`0`, *margin*=`[0]`, *visited*=`None`)

Print a tree of nodes. This is like render_tree, except it prints lines directly instead of creating a string representation in memory, so that huge trees can be printed. **Parameters**

- `root:` - the root node of the tree
- `child_func:` - the function called to get the children of a node
- `prune:` - don't visit the same node twice
- `showtags:` - print status information to the left of each node line
- `margin:` - the format of the left margin to use for children of root. 1 results in a pipe, and 0 results in no pipe.
- `visited:` - a dictionary of visited nodes in the current branch if not prune, or in the whole tree if prune.

is_Dict(*obj*, *isinstance*=`<built-in function isinstance>`, *DictTypes*=`dict, UserDict`)

is_List(*obj*, *isinstance*=<built-in function isinstance>, *ListTypes*=(<type ’list’>, <class ’UserList.UserList’>))

is_Sequence(*obj*, *isinstance*=<built-in function isinstance>, *SequenceTypes*=(<type ’list’>, <type ’tuple’>, <class ’UserList.UserList’>))

is_Tuple(*obj*, *isinstance*=<built-in function isinstance>, *tuple*=<type ’tuple’>)

is_String(*obj*, *isinstance*=<built-in function isinstance>, *StringTypes*=(<type ’str’>, <type ’unicode’>, <class ’UserString.UserS...)

is_Scalar(*obj*, *isinstance*=<built-in function isinstance>, *StringTypes*=(<type ’str’>, <type ’unicode’>, <class ’UserString.UserS..., *SequenceTypes*=(<type ’list’>, <type ’tuple’>, <class ’UserList.UserList’>))

do_flatten(*sequence*, *result*, *isinstance*=<built-in function isinstance>, *StringTypes*=(<type ’str’>, <type ’unicode’>, <class ’UserString.UserS..., *SequenceTypes*=(<type ’list’>, <type ’tuple’>, <class ’UserList.UserList’>))

flatten(*obj*, *isinstance*=<built-in function isinstance>, *StringTypes*=(<type ’str’>, <type ’unicode’>, <class ’UserString.UserS..., *SequenceTypes*=(<type ’list’>, <type ’tuple’>, <class ’UserList.UserList’>), *do_flatten*=<__builtin__.function object>)

Flatten a sequence to a non-nested list.

Flatten() converts either a single scalar or a nested sequence to a non-nested list. Note that flatten() considers strings to be scalars instead of sequences like Python would.

flatten_sequence(*sequence*, *isinstance*=<built-in function isinstance>, *StringTypes*=(<type 'str'>, <type 'unicode'>, <class 'UserString.UserS..., *SequenceTypes*=(<type 'list'>, <type 'tuple'>, <class 'UserList.UserList'>), *do_flatten*=<__builtin__.function object>)

Flatten a sequence to a non-nested list.

Same as flatten(), but it does not handle the single scalar case. This is slightly more efficient when one knows that the sequence to flatten can not be a scalar.

to_String(*s*, *isinstance*=<built-in function isinstance>, *str*=<type 'str'>, *UserString*=<class 'UserString.UserString'>, *BaseStringTypes*=(<type 'str'>, <type 'unicode'>))

to_String_for_subst(*s*, *isinstance*=<built-in function isinstance>, *str*=<type 'str'>, *to_String*=<__builtin__.function object>, *BaseStringTypes*=(<type 'str'>, <type 'unicode'>), *SequenceTypes*=(<type 'list'>, <type 'tuple'>, <class 'UserList.UserList'>), *UserString*=<class 'UserString.UserString'>)

to_String_for_signature(*obj*, *to_String_for_subst*=<__builtin__.function object>, *AttributeError*=<type 'exceptions.AttributeError'>)

semi_deepcopy_dict(*x*, *exclude*=[])

semi_deepcopy(*x*)

RegGetValue(*root*, *key*)

RegOpenKeyEx(*root*, *key*)

WhereIs(*file*, *path*=None, *pathext*=None, *reject*=[])

PrependPath(*oldpath*, *newpath*, *sep*=`':'`, *delete_existing*=`1`, *canonicalize*=`None`)

This prepends newpath elements to the given oldpath. Will only add any particular path once (leaving the first one it encounters and ignoring the rest, to preserve path order), and will os.path.normpath and os.path.normcase all paths to help assure this. This can also handle the case where the given old path variable is a list instead of a string, in which case a list will be returned instead of a string.

Example: Old Path: "/foo/bar:/foo" New Path: "/biz/boom:/foo" Result: "/biz/boom:/foo:/foo/bar"

If delete_existing is 0, then adding a path that exists will not move it to the beginning; it will stay where it is in the list.

If canonicalize is not None, it is applied to each element of newpath before use.

AppendPath(*oldpath*, *newpath*, *sep*=`':'`, *delete_existing*=`1`, *canonicalize*=`None`)

This appends new path elements to the given old path. Will only add any particular path once (leaving the last one it encounters and ignoring the rest, to preserve path order), and will os.path.normpath and os.path.normcase all paths to help assure this. This can also handle the case where the given old path variable is a list instead of a string, in which case a list will be returned instead of a string.

Example: Old Path: "/foo/bar:/foo" New Path: "/biz/boom:/foo" Result: "/foo/bar:/biz/boom:/foo"

If delete_existing is 0, then adding a path that exists will not move it to the end; it will stay where it is in the list.

If canonicalize is not None, it is applied to each element of newpath before use.

AddPathIfNotExists(*env_dict*, *key*, *path*, *sep*=`':'`)

This function will take 'key' out of the dictionary 'env_dict', then add the path 'path' to that key if it is not already there. This treats the value of env_dict[key] as if it has a similar format to the PATH variable...a list of paths separated by tokens. The 'path' will get added to the list if it is not already there.

get_native_path(*path*)

Transforms an absolute path into a native path for the system. Non-Cygwin version, just leave the path alone.

Split(*arg*)

case_sensitive_suffixes(*s1*, *s2*)

adjustixes(*fname*, *pre*, *suf*, *ensure_suffix*=`False`)

unique(*s*)

Return a list of the elements in s, but without duplicates.

For example, unique([1,2,3,1,2,3]) is some permutation of [1,2,3], unique("abcabc") some permutation of ["a", "b", "c"], and unique(([1, 2], [2, 3], [1, 2])) some permutation of [[2, 3], [1, 2]].

For best speed, all sequence elements should be hashable. Then unique() will usually work in linear time.

If not possible, the sequence elements should enjoy a total ordering, and if list(s).sort() doesn't raise TypeError it's assumed that they do enjoy a total ordering. Then unique() will usually work in O(N*log2(N)) time.

If that's not possible either, the sequence elements must support equality-testing. Then unique() will usually work in quadratic time.

uniquer(*seq*, *idfun*=`None`)

uniquer_hashables(*seq*)

logical_lines(*physical_lines*, *joiner*=`<built-in method join of str object at 0x7ff5c4dcb508>`)

make_path_relative(*path*)

makes an absolute path name to a relative pathname.

AddMethod(*obj*, *function*, *name*=`None`)

Adds either a bound method to an instance or the function itself (or an unbound method in Python 2) to a class. If name is ommited the name of the specified function is used by default.

Example:

```
a = A()
def f(self, x, y):
self.z = x + y
AddMethod(f, A, "add")
a.add(2, 4)
print(a.z)
AddMethod(lambda self, i: self.l[i], a, "listIndex")
print(a.listIndex(5))
```

RenameFunction(*function*, *name*)

Returns a function identical to the specified function, but with the specified name.

MD5signature(*s*)

Generate a String of Hex digits representing the md5 signature of the string :param s: either string or bytes. Normally should be bytes :return: String of hex digits

MD5filesignature(*fname*, *chunksize*=`65536`)

Parameters

`fname:`

`chunksize:`

Return Value

String of Hex digits

MD5collect(*signatures*)

Collects a list of signatures into an aggregate signature.

signatures - a list of signatures returns - the aggregate signature

silent_intern(*x*)

Perform sys.intern() on the passed argument and return the result. If the input is ineligible (e.g. a unicode string) the original argument is returned and no exception is thrown.

to_bytes(*s*)

to_str(*s*)

cmp(*a*, *b*)

Define cmp because it's no longer available in python3 Works under python 2 as well

get__env__bool(*env*, *name*, *default*=False)

Get a value of env[name] converted to boolean. The value of env[name] is interpreted as follows: ’true’, ’yes’, ’y’, ’on’ (case insensitive) and anything convertible to int that yields non-zero integer are True values; ’0’, ’false’, ’no’, ’n’ and ’off’ (case insensitive) are False values. For all other cases, default value is returned. **Parameters**

- env: - dict or dict-like object, a convainer with variables
- name: - name of the variable in env to be returned
- default: - returned when env[name] does not exist or can’t be converted to bool

get__os__env__bool(*name*, *default*=False)

Same as get__env__bool(os.environ, name, default).

48.2 Variables

Name	Description
PY3	**Value:** False
DictTypes	**Value:** dict, UserDict
ListTypes	**Value:** (<type ’list’>, <class ’UserList.UserList’>)
SequenceTypes	**Value:** (<type ’list’>, <type ’tuple’>, <class ’UserList.UserList’>)
StringTypes	**Value:** (<type ’str’>, <type ’unicode’>, <class ’UserString.UserS...
BaseStringTypes	**Value:** (<type ’str’>, <type ’unicode’>)
d	**Value:** {<type ’tuple’>: <__builtin__.function object>, <type ’di...
can__read__reg	**Value:** 0
hkey__mod	**Value:** win32con
RegEnumKey	**Value:** win32api.RegEnumKey
RegEnumValue	**Value:** win32api.RegEnumValue
RegQueryValueEx	**Value:** win32api.RegQueryValueEx
HKEY__CLASSES__ROOT	**Value:** None
HKEY__LOCAL__MACHINE	**Value:** None

continued on next page

Name	Description
HKEY_CURRENT_USE-R	**Value:** None
HKEY_USERS	**Value:** None
display	**Value:** <SCons.Util.DisplayEngine object>
md5	**Value:** True
__package__	**Value:** 'SCons'

48.3 Class NodeList

object
_abcoll.Sized
object
_abcoll.Iterable
object
_abcoll.Container
_abcoll.Sequence
_abcoll.MutableSequence
UserList.UserList
SCons.Util.NodeList

This class is almost exactly like a regular list of Nodes (actually it can hold any object), with one important difference. If you try to get an attribute from this list, it will return that attribute from every item in the list. For example:

```
>>> someList = NodeList([ ' foo ', ' bar ' ])
>>> someList.strip()
[ 'foo', 'bar' ]
```

48.3.1 Methods

__nonzero__(*self*)

___bool___(*self*)

___str___(*self*)

str(x) Overrides: object.___str___ extit(inherited documentation)

___iter___(*self*)

Overrides: _abcoll.Iterable.___iter___

___call___(*self*, **args*, ***kwargs*)

___getattr___(*self*, *name*)

___getitem___(*self*, *index*)

This comes for free on py2, but py3 slices of NodeList are returning a list breaking slicing nodelist and refering to properties and methods on contained object Overrides: _abcoll.Sequence.___getitem___

Inherited from UserList.UserList

___add___(), ___cmp___(), ___contains___(), ___delitem___(), ___delslice___(), ___eq___(), ___ge___(), ___getslice___(), ___gt___(), ___iadd___(), ___imul___(), ___init___(), ___le___(), ___len___(), ___lt___(), ___mul___(), ___ne___(), ___radd___(), ___repr___(), ___rmul___(), ___setitem___(), ___setslice___(), append(), count(), extend(), index(), insert(), pop(), remove(), reverse(), sort()

Inherited from _abcoll.Sequence

___reversed___()

Inherited from _abcoll.Sized

___subclasshook___()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___()

48.3.2 Properties

Name	Description
Inherited from object	

continued on next page

Name	Description
__class__	

48.3.3 Class Variables

Name	Description
Inherited from UserList.UserList	
__abstractmethods__, __hash__	

48.4 Class DisplayEngine

object
SCons.Util.DisplayEngine

48.4.1 Methods

__call__(*self*, *text*, *append_newline*=1)

set_mode(*self*, *mode*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __init__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

48.4.2 Properties

Name	Description
Inherited from object	
__class__	

48.4.3 Class Variables

Name	Description
print_it	**Value:** `True`

48.5 Class Proxy

object
  SCons.Util.Proxy

Known Subclasses: SCons.Builder.CompositeBuilder, SCons.Node.FS.EntryProxy

A simple generic Proxy class, forwarding all calls to subject. So, for the benefit of the python newbie, what does this really mean? Well, it means that you can take an object, let's call it 'objA', and wrap it in this Proxy class, with a statement like this

proxyObj = Proxy(objA),

Then, if in the future, you do something like this

x = proxyObj.var1,

since Proxy does not have a 'var1' attribute (but presumably objA does), the request actually is equivalent to saying

x = objA.var1

Inherit from this class to create a Proxy.

Note that, with new-style classes, this does *not* work transparently for Proxy subclasses that use special .__*__() method names, because those names are now bound to the class, not the individual instances. You now need to know in advance which .__*__() method names you want to pass on to the underlying Proxy object, and specifically delegate their calls like this:

class Foo(Proxy): __str__ = Delegate('__str__')

48.5.1 Methods

__init__(*self*, *subject*)

Wrap an object as a Proxy object Overrides: object.__init__

__getattr__(*self*, *name*)

Retrieve an attribute from the wrapped object. If the named attribute doesn't exist, AttributeError is raised

get(*self*)

Retrieve the entire wrapped object

__eq__(*self*, *other*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

48.5.2 Properties

Name	Description
Inherited from object	
__class__	

48.6 Class Delegate

object ┐
SCons.Util.Delegate

A Python Descriptor class that delegates attribute fetches to an underlying wrapped subject of a Proxy. Typical use:

class Foo(Proxy): __str__ = Delegate('__str__')

48.6.1 Methods

__init__(*self*, *attribute*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__get__(*self*, *obj*, *cls*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(),

__reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

48.6.2 Properties

Name	Description
Inherited from object	
__class__	

48.7 Class _NoError

object
exceptions.BaseException
exceptions.Exception
SCons.Util._NoError

48.7.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

48.7.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

48.8 Class PlainWindowsError

object
exceptions.BaseException
exceptions.Exception
exceptions.StandardError
exceptions.EnvironmentError
exceptions.OSError
SCons.Util.PlainWindowsError

48.8.1 Methods

Inherited from exceptions.OSError

__init__(), __new__()

Inherited from exceptions.EnvironmentError

__reduce__(), __str__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __repr__(), __setattr__(), __setstate__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

48.8.2 Properties

Name	Description
Inherited from exceptions.EnvironmentError errno, filename, strerror	
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

48.9 Class PlainWindowsError

object
exceptions.BaseException
exceptions.Exception
exceptions.StandardError
exceptions.EnvironmentError
exceptions.OSError
SCons.Util.PlainWindowsError

48.9.1 Methods

Inherited from exceptions.OSError

___init___(), ___new___()

Inherited from exceptions.EnvironmentError

___reduce___(), ___str___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___repr___(), ___setattr___(), ___setstate___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

48.9.2 Properties

Name	Description
Inherited from exceptions.EnvironmentError errno, filename, strerror	
Inherited from exceptions.BaseException args, message	
Inherited from object ___class___	

48.10 Class CLVar

object
_abcoll.Sized
object
_abcoll.Iterable
object
_abcoll.Container
_abcoll.Sequence
_abcoll.MutableSequence
UserList.UserList
SCons.Util.CLVar

A class for command-line construction variables.

This is a list that uses Split() to split an initial string along white-space arguments, and similarly to split any strings that get added. This allows us to Do the Right Thing with Append() and Prepend() (as well as straight Python foo = env['VAR'] + 'arg1 arg2') regardless of whether a user adds a list or a string to a command-line construction variable.

48.10.1 Methods

__init__(*self*, *seq*=`[]`)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__add__(*self*, *other*)

Overrides: UserList.UserList.__add__

__radd__(*self*, *other*)

Overrides: UserList.UserList.__radd__

___str___(*self*)
str(x) Overrides: object.___str___ extit(inherited documentation)

Inherited from UserList.UserList

___cmp___(), ___contains___(), ___delitem___(), ___delslice___(), ___eq___(), ___ge___(), ___getitem___(), ___getslice___(), ___gt___(), ___iadd___(), ___imul___(), ___le___(), ___len___(), ___lt___(), ___mul___(), ___ne___(), ___repr___(), ___rmul___(), ___setitem___(), ___setslice___(), append(), count(), extend(), index(), insert(), pop(), remove(), reverse(), sort()

Inherited from __abcoll.Sequence

___iter___(), ___reversed___()

Inherited from __abcoll.Sized

___subclasshook___()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___()

48.10.2 Properties

Name	Description
Inherited from object	
___class___	

48.10.3 Class Variables

Name	Description
Inherited from UserList.UserList	
___abstractmethods___, ___hash___	

48.11 Class Selector

object
    dict
collections.OrderedDict
        SCons.Util.Selector

Known Subclasses: SCons.Builder.CallableSelector, SCons.Builder.DictCmdGenerator, SCons.Builder.DictEmitter

A callable ordered dictionary that maps file suffixes to dictionary values. We preserve the order in which items are added so that get_suffix() calls always return the first suffix added.

48.11.1 Methods

__call__(*self*, *env*, *source*, *ext*=`None`)

Inherited from collections.OrderedDict

__delitem__(), __eq__(), __init__(), __iter__(), __ne__(), __reduce__(), __repr__(), __reversed__(), __setitem__(), clear(), copy(), fromkeys(), items(), iteritems(), iterkeys(), itervalues(), keys(), pop(), popitem(), setdefault(), update(), values(), viewitems(), viewkeys(), viewvalues()

Inherited from dict

__cmp__(), __contains__(), __ge__(), __getattribute__(), __getitem__(), __gt__(), __le__(), __len__(), __lt__(), __new__(), __sizeof__(), get(), has_key()

Inherited from object

__delattr__(), __format__(), __reduce_ex__(), __setattr__(), __str__(), __subclasshook__()

48.11.2 Properties

Name	Description
Inherited from object	
__class__	

48.11.3 Class Variables

Name	Description
Inherited from dict	
___hash___	

48.12 Class LogicalLines

object ─┐
SCons.Util.LogicalLines

Wrapper class for the logical_lines method.

Allows us to read all "logical" lines at once from a given file object.

48.12.1 Methods

___init___(*self*, *fileobj*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

readlines(*self*)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

48.12.2 Properties

Name	Description
Inherited from object	
___class___	

48.13 Class UniqueList

```
object ─┐
        _abcoll.Sized ─┐
object ─┐              │
        _abcoll.Iterable ─┤
object ─┐              │
_abcoll.Container ─────┘
        _abcoll.Sequence ─┐
    _abcoll.MutableSequence ─┐
                UserList.UserList ─┐
                                   SCons.Util.UniqueList
```

48.13.1 Methods

__init__(*self*, *seq*=`[]`)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__lt__(*self*, *other*)

Overrides: UserList.UserList.__lt__

__le__(*self*, *other*)

Overrides: UserList.UserList.__le__

__eq__(*self*, *other*)

Overrides: UserList.UserList.__eq__

__ne__(*self*, *other*)

Overrides: UserList.UserList.__ne__

__gt__(*self*, *other*)

Overrides: UserList.UserList.__gt__

__ge__(*self*, *other*)

Overrides: UserList.UserList.__ge__

__cmp__(*self*, *other*)

Overrides: UserList.UserList.__cmp__

__len__(*self*)

Overrides: _abcoll.Sized.__len__

__getitem__(*self*, *i*)

Overrides: _abcoll.Sequence.__getitem__

__setitem__(*self*, *i*, *item*)

Overrides: _abcoll.MutableSequence.__setitem__

__getslice__(*self*, *i*, *j*)

Overrides: UserList.UserList.__getslice__

__setslice__(*self*, *i*, *j*, *other*)

Overrides: UserList.UserList.__setslice__

__add__(*self*, *other*)

Overrides: UserList.UserList.__add__

__radd__(*self*, *other*)

Overrides: UserList.UserList.__radd__

__iadd__(*self*, *other*)

Overrides: _abcoll.MutableSequence.__iadd__

__mul__(*self*, *other*)

Overrides: UserList.UserList.__mul__

___rmul___(*self*, *other*)

Overrides: UserList.UserList.___rmul___

___imul___(*self*, *other*)

Overrides: UserList.UserList.___imul___

append(*self*, *item*)

append object to the end of the sequence Overrides: _abcoll.MutableSequence.append extit(inherited documentation)

insert(*self*, *i*)

insert object before index Overrides: _abcoll.MutableSequence.insert extit(inherited documentation)

count(*self*, *item*)

return number of occurrences of value **Return Value**
integer

Overrides: _abcoll.Sequence.count extit(inherited documentation)

index(*self*, *item*)

return first index of value. Raises ValueError if the value is not present.
Return Value
integer

Overrides: _abcoll.Sequence.index extit(inherited documentation)

reverse(*self*)

reverse *IN PLACE* Overrides: _abcoll.MutableSequence.reverse extit(inherited documentation)

sort(*self*, **args*, ***kwds*)

Overrides: UserList.UserList.sort

extend(*self*, *other*)

extend sequence by appending elements from the iterable Overrides: _abcoll.MutableSequence.extend extit(inherited documentation)

Inherited from UserList.UserList

__contains__(), __delitem__(), __delslice__(), __repr__(), pop(), remove()

Inherited from _abcoll.Sequence

__iter__(), __reversed__()

Inherited from _abcoll.Sized

__subclasshook__()

Inherited from object

__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__()

48.13.2 Properties

Name	Description
Inherited from object	
__class__	

48.13.3 Class Variables

Name	Description
Inherited from UserList.UserList	
__abstractmethods__, __hash__	

48.14 Class Unbuffered

object

SCons.Util.Unbuffered

A proxy class that wraps a file object, flushing after every write, and delegating everything else to the wrapped object.

48.14.1 Methods

___init___(*self*, *file*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

write(*self*, *arg*)

___getattr___(*self*, *attr*)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

48.14.2 Properties

Name	Description
Inherited from object	
___class___	

48.15 Class Null

object ─┐
SCons.Util.Null

Known Subclasses: SCons.Executor.NullEnvironment, SCons.Util.NullSeq

Null objects always and reliably "do nothing."

48.15.1 Methods

___new___(*cls*, **args*, ***kwargs*)

Return Value

a new object with type S, a subtype of T

Overrides: object.___new___ extit(inherited documentation)

__init__(*self*, **args*, ***kwargs*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

__call__(*self*, **args*, ***kwargs*)

__repr__(*self*)

repr(x) Overrides: object.__repr__ extit(inherited documentation)

__nonzero__(*self*)

__bool__(*self*)

__getattr__(*self*, *name*)

__setattr__(*self*, *name*, *value*)

x.__setattr__('name', value) <==> x.name = value Overrides: object.__setattr__ extit(inherited documentation)

__delattr__(*self*, *name*)

x.__delattr__('name') <==> del x.name Overrides: object.__delattr__ extit(inherited documentation)

Inherited from object

__format__(), __getattribute__(), __hash__(), __reduce__(), __reduce_ex__(), __sizeof__(), __str__(), __subclasshook__()

48.15.2 Properties

Name	Description
Inherited from object	
__class__	

48.16 Class NullSeq

object
SCons.Util.Null
SCons.Util.NullSeq

Known Subclasses: SCons.Subst.NullNodeList

48.16.1 Methods

__len__(*self*)

__iter__(*self*)

__getitem__(*self*, *i*)

__delitem__(*self*, *i*)

__setitem__(*self*, *i*, *v*)

Inherited from SCons.Util.Null(Section 48.15)

__bool__(), __call__(), __delattr__(), __getattr__(), __init__(), __new__(), __nonzero__(), __repr__(), __setattr__()

Inherited from object

__format__(), __getattribute__(), __hash__(), __reduce__(), __reduce_ex__(), __sizeof__(), __str__(), __subclasshook__()

48.16.2 Properties

Name	Description
Inherited from object	
__class__	

49 Package SCons.Variables

engine.SCons.Variables

This file defines the Variables class that is used to add user-friendly customizable variables to an SCons build.

49.1 Modules

- **BoolVariable** *(Section ??, p. ??)*
- **BoolVariable'**: engine.SCons.Variables.BoolVariable *(Section 50, p. 371)*
- **EnumVariable** *(Section ??, p. ??)*
- **EnumVariable'**: engine.SCons.Variables.EnumVariable *(Section 51, p. 372)*
- **ListVariable** *(Section ??, p. ??)*
- **ListVariable'**: engine.SCons.Variables.ListVariable *(Section 52, p. 373)*
- **PackageVariable** *(Section ??, p. ??)*
- **PackageVariable'**: engine.SCons.Variables.PackageVariable *(Section 53, p. 374)*
- **PathVariable** *(Section ??, p. ??)*
- **PathVariable'**: SCons.Variables.PathVariable *(Section 54, p. 375)*

49.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Variables/__init__.py a56bbd8c09fb219ab...`
__package__	**Value:** `'SCons.Variables'`

49.3 Class Variables

object ─┐
SCons.Variables.Variables

49.3.1 Methods

__init__(*self*, *files*=`None`, *args*=`None`, *is_global*=`1`)

---

files - [optional] List of option configuration files to load

(backward compatibility) If a single string is passed it is automatically placed in a file list

Overrides: object.__init__

keys(*self*)

Returns the keywords for the options

Add(*self*, *key*, *help*=`''`, *default*=`None`, *validator*=`None`, *converter*=`None`, ***kw*)

Add an option.

@param key: the name of the variable, or a list or tuple of arguments @param help: optional help text for the options @param default: optional default value @param validator: optional function that is called to validate the option's value @type validator: Called with (key, value, environment) @param converter: optional function that is called to convert the option's value before putting it in the environment.

AddVariables(*self*, **optlist*)

Add a list of options.

Each list element is a tuple/list of arguments to be passed on to the underlying method for adding options.

Example:

```
opt.AddVariables(
('debug', '', 0),
('CC', 'The C compiler'),
('VALIDATE', 'An option for testing validation', 'notset',
 validator, None),
)
```

Update(*self*, *env*, *args*=`None`)

Update an environment with the option variables.

env - the environment to update.

UnknownVariables(*self*)

Returns any options in the specified arguments lists that were not known, declared options in this object.

Save(*self*, *filename*, *env*)

Saves all the options in the given file. This file can then be used to load the options next run. This can be used to create an option cache file.

filename - Name of the file to save into env - the environment get the option values from

GenerateHelpText(*self*, *env*, *sort*=`None`)

Generate the help text for the options.

env - an environment that is used to get the current values of the options.

cmp - Either a function as follows: The specific sort function should take two arguments and return -1, 0 or 1 or a boolean to indicate if it should be sorted.

FormatVariableHelpText(*self*, *env*, *key*, *help*, *default*, *actual*, *aliases*=`[]`)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

49.3.2 Properties

Name	Description
Inherited from object	
___class___	

49.3.3 Class Variables

Name	Description
instance	Holds all the options, updates the environment with the variables, and renders the help text. **Value:** `None`
format	**Value:** `'\n%s: %s\n default: %s\n actual: %s\n'`
format_	**Value:** `'\n%s: %s\n default: %s\n actual: %s\n aliases: ...`

50 Module SCons.Variables.BoolVariable'

engine.SCons.Variables.BoolVariable

This file defines the option type for SCons implementing true/false values.

Usage example:

```
opts = Variables()
opts.Add(BoolVariable('embedded', 'build for an embedded system', 0))
...
if env['embedded'] == 1:
...
```

50.1 Functions

BoolVariable(*key*, *help*, *default*)

The input parameters describe a boolean option, thus they are returned with the correct converter and validator appended. The 'help' text will by appended by '(yes|no) to show the valid valued. The result is usable for input to opts.Add().

51 Module SCons.Variables.EnumVariable'

engine.SCons.Variables.EnumVariable

This file defines the option type for SCons allowing only specified input-values.

Usage example:

```
opts = Variables()
opts.Add(EnumVariable('debug', 'debug output and symbols', 'no',
                 allowed_values=('yes', 'no', 'full'),
                 map={}, ignorecase=2))
...
if env['debug'] == 'full':
...
```

51.1 Functions

EnumVariable(*key*, *help*, *default*, *allowed_values*, *map*={}, *ignorecase*=0)

The input parameters describe an option with only certain values allowed. They are returned with an appropriate converter and validator appended. The result is usable for input to Variables.Add().

'key' and 'default' are the values to be passed on to Variables.Add().

'help' will be appended by the allowed values automatically

'allowed_values' is a list of strings, which are allowed as values for this option.

The 'map'-dictionary may be used for converting the input value into canonical values (e.g. for aliases).

'ignorecase' defines the behaviour of the validator:

> If ignorecase == 0, the validator/converter are case-sensitive. If ignorecase == 1, the validator/converter are case-insensitive. If ignorecase == 2, the validator/converter is case-insensitive and the converted value will always be lower-case.

The 'validator' tests whether the value is in the list of allowed values. The 'converter' converts input values according to the given 'map'-dictionary (unmapped input values are returned unchanged).

52 Module SCons.Variables.ListVariable'

engine.SCons.Variables.ListVariable

This file defines the option type for SCons implementing 'lists'.

A 'list' option may either be 'all', 'none' or a list of names separated by comma. After the option has been processed, the option value holds either the named list elements, all list elements or no list elements at all.

Usage example:

```
list_of_libs = Split('x11 gl qt ical')

opts = Variables()
opts.Add(ListVariable('shared',
                  'libraries to build as shared libraries',
                  'all',
                  elems = list_of_libs))
...
for lib in list_of_libs:
 if lib in env['shared']:
     env.SharedObject(...)
 else:
     env.Object(...)
```

52.1 Functions

ListVariable(*key*, *help*, *default*, *names*, *map*={})

The input parameters describe a 'package list' option, thus they are returned with the correct converter and validator appended. The result is usable for input to opts.Add() .

A 'package list' option may either be 'all', 'none' or a list of package names (separated by space).

53 Module SCons.Variables.PackageVariable'

engine.SCons.Variables.PackageVariable

This file defines the option type for SCons implementing 'package activation'.

To be used whenever a 'package' may be enabled/disabled and the package path may be specified.

Usage example:

Examples: x11=no (disables X11 support) x11=yes (will search for the package installation dir) x11=/usr/local/X11 (will check this path for existence)

To replace autoconf's --with-xxx=yyy

```
opts = Variables()
opts.Add(PackageVariable('x11',
                         'use X11 installed here (yes = search some places',
                         'yes'))
...
if env['x11'] == True:
    dir = ... search X11 in some standard places ...
    env['x11'] = dir
if env['x11']:
    ... build with x11 ...
```

53.1 Functions

PackageVariable(*key*, *help*, *default*, *searchfunc*=`None`)

The input parameters describe a 'package list' option, thus they are returned with the correct converter and validator appended. The result is usable for input to opts.Add() .

A 'package list' option may either be 'all', 'none' or a list of package names (separated by space).

54 Module SCons.Variables.PathVariable'

SCons.Variables.PathVariable

This file defines an option type for SCons implementing path settings.

To be used whenever a user-specified path override should be allowed.

Arguments to PathVariable are: option-name = name of this option on the command line (e.g. "prefix") option-help = help string for option option-dflt = default value for this option validator = [optional] validator for option value. Predefined validators are:

> PathAccept -- accepts any path setting; no validation PathIsDir -- path must be an existing directory PathIsDirCreate -- path must be a dir; will create PathIsFile -- path must be a file PathExists -- path must exist (any type) [default]

The validator is a function that is called and which should return True or False to indicate if the path is valid. The arguments to the validator function are: (key, val, env). The key is the name of the option, the val is the path specified for the option, and the env is the env to which the Options have been added.

Usage example:

```
Examples:
    prefix=/usr/local

opts = Variables()

opts = Variables()
opts.Add(PathVariable('qtdir',
                      'where the root of Qt is installed',
                      qtdir, PathIsDir))
opts.Add(PathVariable('qt_includes',
                    'where the Qt includes are installed',
                    '$qtdir/includes', PathIsDirCreate))
opts.Add(PathVariable('qt_libraries',
                    'where the Qt library is installed',
                    '$qtdir/lib'))
```

54.1 Variables

Name	Description
PathVariable	**Value:** `<SCons.Variables.PathVariable._PathVariableClass object>`

continued on next page

Name	Description

55 Module SCons.Warnings

SCons.Warnings

This file implements the warnings framework for SCons.

55.1 Functions

suppressWarningClass(*clazz*)

Suppresses all warnings that are of type clazz or derived from clazz.

enableWarningClass(*clazz*)

Enables all warnings that are of type clazz or derived from clazz.

warningAsException(*flag*=1)

Turn warnings into exceptions. Returns the old value of the flag.

warn(*clazz*, **args*)

process_warn_strings(*arguments*)

Process string specifications of enabling/disabling warnings, as passed to the --warn option or the SetOption('warn') function.

An argument to this option should be of the form <warning-class> or no-<warning-class>. The warning class is munged in order to get an actual class name from the classes above, which we need to pass to the {enable,disable}WarningClass() functions. The supplied <warning-class> is split on hyphens, each element is capitalized, then smushed back together. Then the string "Warning" is appended to get the class name.

For example, 'deprecated' will enable the DeprecatedWarning class. 'no-dependency' will disable the DependencyWarning class.

As a special case, --warn=all and --warn=no-all will enable or disable (respectively) the base Warning class of all warnings.

55.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/Warnings.py a56bbd8c09fb219ab8a9673330f...`
__package__	**Value:** `'SCons'`

55.3 Class Warning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning

Known Subclasses: SCons.SConf.SConfWarning, SCons.Warnings.WarningOnByDefault, SCons.Warnings.CacheWriteErrorWarning, SCons.Warnings.DependencyWarning, SCons.Warnings.DeprecatedWarning, SCons.Warnings.FutureDeprecatedWarning, SCons.Warnings.TargetNotBuiltWarning, SCons.Warnings.VisualStudioMissingWarning

55.3.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.3.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

55.4 Class WarningOnByDefault

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault

Known Subclasses: SCons.Warnings.CacheVersionWarning, SCons.Warnings.CorruptSConsignWarning, SCons.Warnings.DevelopmentVersionWarning, SCons.Warnings.DuplicateEnvironmentWarning, SCons.Warnings.LinkWarning, SCons.Warnings.FutureReservedVariableWarning, SCons.Warnings.MisleadingKeywordsWarning, SCons.Warnings.MissingSConscriptWarning, SCons.Warnings.NoObjectCountWarning, SCons.Warnings.NoParallelSupportWarning, SCons.Warnings.ReservedVariableWarning, SCons.Warnings.StackSizeWarning, SCons.Warnings.VisualCMissingWarning, SCons.Warnings.VisualVersionMismatch

55.4.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.4.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.5 Class TargetNotBuiltWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.TargetNotBuiltWarning

55.5.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.5.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object ___class___	

55.6 Class CacheVersionWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.CacheVersionWarning

55.6.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.6.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

55.7 Class CacheWriteErrorWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.CacheWriteErrorWarning

55.7.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.7.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

55.8 Class CorruptSConsignWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.CorruptSConsignWarning

55.8.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.8.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

55.9 Class DependencyWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DependencyWarning

55.9.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.9.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

55.10 Class DevelopmentVersionWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.DevelopmentVersionWarning

55.10.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.10.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

55.11 Class DuplicateEnvironmentWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.DuplicateEnvironmentWarning

55.11.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.11.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object ___class___	

55.12 Class FutureReservedVariableWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.FutureReservedVariableWarning

55.12.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.12.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

55.13 Class LinkWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.LinkWarning

Known Subclasses: SCons.Warnings.FortranCxxMixWarning

55.13.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.13.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

55.14 Class MisleadingKeywordsWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.MisleadingKeywordsWarning

55.14.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.14.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.15 Class MissingSConscriptWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.MissingSConscriptWarning

55.15.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.15.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object ___class___	

55.16 Class NoObjectCountWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.NoObjectCountWarning

55.16.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.16.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.17 Class NoParallelSupportWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.NoParallelSupportWarning

55.17.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.17.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

55.18 Class ReservedVariableWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.ReservedVariableWarning

55.18.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.18.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.19 Class StackSizeWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.StackSizeWarning

55.19.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.19.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

55.20 Class VisualCMissingWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.VisualCMissingWarning

55.20.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.20.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object ___class___	

55.21 Class VisualVersionMismatch

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.VisualVersionMismatch

55.21.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.21.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

55.22 Class VisualStudioMissingWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.VisualStudioMissingWarning

55.22.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.22.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

55.23 Class FortranCxxMixWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.WarningOnByDefault
SCons.Warnings.LinkWarning
SCons.Warnings.FortranCxxMixWarning

55.23.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.23.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.24 Class FutureDeprecatedWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.FutureDeprecatedWarning

Known Subclasses: SCons.Warnings.DeprecatedSourceCodeWarning

55.24.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.24.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

55.25 Class DeprecatedWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DeprecatedWarning

Known Subclasses: SCons.Warnings.DeprecatedBuildDirWarning, SCons.Warnings.MandatoryDeprecatedWarning, SCons.Warnings.DeprecatedMissingSConscriptWarning, SCons.Warnings.PythonVersionWarning, SCons.Warnings.TaskmasterNeedsExecuteWarning

55.25.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.25.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

55.26 Class MandatoryDeprecatedWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DeprecatedWarning
SCons.Warnings.MandatoryDeprecatedWarning

Known Subclasses: SCons.Warnings.DeprecatedBuilderKeywordsWarning, SCons.Warnings.DeprecatedCopyWarning, SCons.Warnings.DeprecatedDebugOptionsWarning, SCons.Warnings.DeprecatedOptionsWarning, SCons.Warnings.DeprecatedSigModuleWarning, SCons.Warnings.DeprecatedSourceSignaturesWarning, SCons.Warnings.DeprecatedTargetSignaturesWarning

55.26.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.26.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.27 Class PythonVersionWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DeprecatedWarning
SCons.Warnings.PythonVersionWarning

55.27.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.27.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.28 Class DeprecatedSourceCodeWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.FutureDeprecatedWarning
SCons.Warnings.DeprecatedSourceCodeWarning

55.28.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.28.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.29 Class DeprecatedBuildDirWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DeprecatedWarning
SCons.Warnings.DeprecatedBuildDirWarning

55.29.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.29.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.30 Class TaskmasterNeedsExecuteWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DeprecatedWarning
SCons.Warnings.TaskmasterNeedsExecuteWarning

55.30.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.30.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.31 Class DeprecatedCopyWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DeprecatedWarning
SCons.Warnings.MandatoryDeprecatedWarning
SCons.Warnings.DeprecatedCopyWarning

55.31.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.31.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.32 Class DeprecatedOptionsWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DeprecatedWarning
SCons.Warnings.MandatoryDeprecatedWarning
SCons.Warnings.DeprecatedOptionsWarning

55.32.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.32.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.33 Class DeprecatedSourceSignaturesWarning

```
object ─┐
exceptions.BaseException ─┐
    exceptions.Exception ─┐
      SCons.Errors.UserError ─┐
        SCons.Warnings.Warning ─┐
    SCons.Warnings.DeprecatedWarning ─┐
  SCons.Warnings.MandatoryDeprecatedWarning ─┐
                                             SCons.Warnings.DeprecatedSourceSignaturesWarning
```

55.33.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.33.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

55.34 Class DeprecatedTargetSignaturesWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DeprecatedWarning
SCons.Warnings.MandatoryDeprecatedWarning
SCons.Warnings.DeprecatedTargetSignaturesWarning

55.34.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.34.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

55.35 Class DeprecatedDebugOptionsWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DeprecatedWarning
SCons.Warnings.MandatoryDeprecatedWarning
SCons.Warnings.DeprecatedDebugOptionsWarning

55.35.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

55.35.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

55.36 Class DeprecatedSigModuleWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DeprecatedWarning
SCons.Warnings.MandatoryDeprecatedWarning
SCons.Warnings.DeprecatedSigModuleWarning

55.36.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.36.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

55.37 Class DeprecatedBuilderKeywordsWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DeprecatedWarning
SCons.Warnings.MandatoryDeprecatedWarning
SCons.Warnings.DeprecatedBuilderKeywordsWarning

55.37.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.37.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

55.38 Class DeprecatedMissingSConscriptWarning

object
exceptions.BaseException
exceptions.Exception
SCons.Errors.UserError
SCons.Warnings.Warning
SCons.Warnings.DeprecatedWarning
SCons.Warnings.DeprecatedMissingSConscriptWarning

55.38.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

__delattr__(), __getattribute__(), __getitem__(), __getslice__(), __reduce__(), __repr__(), __setattr__(), __setstate__(), __str__(), __unicode__()

Inherited from object

__format__(), __hash__(), __reduce_ex__(), __sizeof__(), __subclasshook__()

55.38.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object __class__	

56 Package SCons.compat

SCons compatibility package for old Python versions

This subpackage holds modules that provide backwards-compatible implementations of various things that we'd like to use in SCons but which only show up in later versions of Python than the early, old version(s) we still support.

Other code will not generally reference things in this package through the SCons.compat namespace. The modules included here add things to the builtins namespace or the global module list so that the rest of our code can use the objects and names imported here regardless of Python version.

The rest of the things here will be in individual compatibility modules that are either: 1) suitably modified copies of the future modules that we want to use; or 2) backwards compatible re-implementations of the specific portions of a future module's API that we want to use.

GENERAL WARNINGS: Implementations of functions in the SCons.compat modules are *NOT* guaranteed to be fully compliant with these functions in later versions of Python. We are only concerned with adding functionality that we actually use in SCons, so be wary if you lift this code for other uses. (That said, making these more nearly the same as later, official versions is still a desirable goal, we just don't need to be obsessive about it.)

We name the compatibility modules with an initial '__scons__' (for example, __scons_subprocess.py is our compatibility module for subprocess) so that we can still try to import the real module name and fall back to our compatibility module if we get an ImportError. The import_as() function defined below loads the module as the "real" name (without the '_scons'), after which all of the "import {module}" statements in the rest of our code will find our pre-loaded compatibility module.

56.1 Modules

- **__scons_dbm**: dbm compatibility module for Python versions that don't have dbm. *(Section 57, p. 418)*

56.2 Functions

import_as(*module*, *name*)

Imports the specified module (from our local directory) as the specified name, returning the loaded module object.

rename_module(*new*, *old*)

Attempts to import the old module and load it under the new name. Used for purely cosmetic name changes in Python 3.x.

with_metaclass(*meta*, **bases*)

Function from jinja2/_compat.py. License: BSD.

Use it like this:

```
class BaseForm(object):
    pass

class FormType(type):
    pass

class Form(with_metaclass(FormType, BaseForm)):
    pass
```

This requires a bit of explanation: the basic idea is to make a dummy metaclass for one level of class instantiation that replaces itself with the actual metaclass. Because of internal type checks we also need to make sure that we downgrade the custom metaclass for one level to something closer to type (that's why ___call___ and ___init___ comes back from type etc.).

This has the advantage over six.with_metaclass of not introducing dummy classes into the final MRO.

56.3 Variables

Name	Description
___doc___	**Value:** `...`
___revision___	**Value:** `'src/engine/SCons/compat/__init__.py a56bbd8c09fb219ab8a9...`
PYPY	**Value:** `False`
PICKLE_PROTOCOL	**Value:** `2`
___package___	**Value:** `'SCons.compat'`

56.4 Class SameFileError

object ┐
exceptions.BaseException ┐
exceptions.Exception ┐
SCons.compat.SameFileError

56.4.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

56.4.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

56.5 Class NoSlotsPyPy

object ┐
type ┐
SCons.compat.NoSlotsPyPy

Workaround for PyPy not working well with ___slots___ and ___class___ assignment.

56.5.1 Methods

__new__(*meta*, *name*, *bases*, *dct*)

Return Value

a new object with type S, a subtype of T

Overrides: object.__new__ extit(inherited documentation)

Inherited from type

__call__(), __delattr__(), __eq__(), __ge__(), __getattribute__(), __gt__(), __hash__(), __init__(), __instancecheck__(), __le__(), __lt__(), __ne__(), __repr__(), __setattr__(), __subclasscheck__(), __subclasses__(), mro()

Inherited from object

__format__(), __reduce__(), __reduce_ex__(), __sizeof__(), __str__(), __subclasshook__()

56.5.2 Properties

Name	Description
Inherited from type __abstractmethods__, __base__, __bases__, __basicsize__, __dictoffset__, __flags__, __itemsize__, __mro__, __name__, __weakrefoffset__	
Inherited from object __class__	

57 Module SCons.compat._scons_dbm

dbm compatibility module for Python versions that don't have dbm.

This does not not NOT (repeat, *NOT*) provide complete dbm functionality. It's just a stub on which to hang just enough pieces of dbm functionality that the whichdb.whichdb() implementstation in the various 2.X versions of Python won't blow up even if dbm wasn't compiled in.

57.1 Functions

open(**args*, ***kw*)

57.2 Variables

Name	Description
__doc__	**Value:** `...`
__revision__	**Value:** `'src/engine/SCons/compat/_scons_dbm.py a56bbd8c09fb219ab8...`
__package__	**Value:** `None`

57.3 Class error

object
exceptions.BaseException
exceptions.Exception
SCons.compat._scons_dbm.error

57.3.1 Methods

Inherited from exceptions.Exception

__init__(), __new__()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

57.3.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object ___class___	

58 Module SCons.cpp

SCons C Pre-Processor module

58.1 Functions

CPP_to_Python_Ops_Sub(*m*)

CPP_to_Python(*s*)

Converts a C pre-processor expression into an equivalent Python expression that can be evaluated.

58.2 Variables

<table>
<tr><th>Name</th><th>Description</th></tr>
<tr><td>__doc__</td><td>Value: <code>...</code></td></tr>
<tr><td>cpp_lines_dict</td><td>Value: <code>{('define'): '\\s+([_A-Za-z][_A-Za-z0-9_]*)(\\([^)]*\\))?...</code></td></tr>
<tr><td>Table</td><td>Value: <code>{'define': re.compile(r'\s+([_A-Za-z][_A-Za-z0-9_]*)(\([^...</code></td></tr>
<tr><td>e</td><td>Value: <code>'^\\s*#\\s*(elif|undef|ifdef|else|ifndef|if(?!n?def)|endi...</code></td></tr>
<tr><td>CPP_Expression</td><td>Value: <code>re.compile(r'(?m)^\s*#\s*(elif|undef|ifdef|else|ifndef|if...</code></td></tr>
<tr><td>CPP_to_Python_Ops_Dict</td><td>Value: <code>{'\r': '', '!': ' not ', '!=': ' != ', '&&': ' and ', ':'...</code></td></tr>
<tr><td>CPP_to_Python_Ops_Expression</td><td>Value: <code>re.compile(r'\|\||&&|!=|!|\r|:|\?')</code></td></tr>
<tr><td>CPP_to_Python_Eval_List</td><td>Value: <code>[[re.compile(r'defined\s+(\w+)'), '"\\1" in __dict__'], [...</code></td></tr>
<tr><td>line_continuations</td><td>Value: <code>re.compile(r'\\\r?\n')</code></td></tr>
<tr><td>function_name</td><td>Value: <code>re.compile(r'(\S+)\(([^\)]*)\)')</code></td></tr>
<tr><td>function_arg_separator</td><td>Value: <code>re.compile(r',\s*')</code></td></tr>
<tr><td>__package__</td><td>Value: <code>'SCons'</code></td></tr>
<tr><td>x</td><td>Value: <code>'define'</code></td></tr>
</table>

58.3 Class FunctionEvaluator

object ─┐
SCons.cpp.FunctionEvaluator

Handles delayed evaluation of a #define function call.

58.3.1 Methods

__init__(*self*, *name*, *args*, *expansion*)

Squirrels away the arguments and expansion value of a #define macro function for later evaluation when we must actually expand a value that uses it.

Overrides: object.__init__

__call__(*self*, **values*)

Evaluates the expansion of a #define macro function called with the specified values.

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

58.3.2 Properties

Name	Description
Inherited from object	
__class__	

58.4 Class PreProcessor

object ─┐
SCons.cpp.PreProcessor

Known Subclasses: SCons.cpp.DumbPreProcessor, SCons.Scanner.C.SConsCPPScanner

The main workhorse class for handling C pre-processing.

58.4.1 Methods

___call___(*self*, *file*)

Pre-processes a file.

This is the main public entry point.

___init___(*self*, *current*=`'.'`, *cpppath*=`()`, *dict*=`{}`, *all*=`0`)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

all_include(*self*, *t*)

do_define(*self*, *t*)

Default handling of a #define line.

do_elif(*self*, *t*)

Default handling of a #elif line.

do_else(*self*, *t*)

Default handling of a #else line.

do_endif(*self*, *t*)

Default handling of a #endif line.

do_if(*self*, *t*)

Default handling of a #if line.

do_ifdef(*self*, *t*)

Default handling of a #ifdef line.

do_ifndef(*self*, *t*)

Default handling of a #ifndef line.

do_import(*self*, *t*)

Default handling of a #import line.

do_include(*self*, *t*)

Default handling of a #include line.

do_include_next(*self*, *t*)

Default handling of a #include line.

do_nothing(*self*, *t*)

Null method for when we explicitly want the action for a specific preprocessor directive to do nothing.

do_undef(*self*, *t*)

Default handling of a #undef line.

eval_expression(*self*, *t*)

Evaluates a C preprocessor expression.

This is done by converting it to a Python equivalent and eval()ing it in the C preprocessor namespace we use to track #define values.

finalize_result(*self*, *fname*)

find_include_file(*self*, *t*)

Finds the #include file for a given preprocessor tuple.

initialize_result(*self*, *fname*)

process_contents(*self*, *contents*, *fname*=`None`)

Pre-processes a file contents.

This is the main internal entry point.

read_file(*self*, *file*)

resolve_include(*self*, *t*)

Resolve a tuple-ized #include line.

This handles recursive expansion of values without "" or <> surrounding the name until an initial " or < is found, to handle

    #include FILE

where FILE is a #define somewhere else.

restore(*self*)

Pops the previous dispatch table off the stack and makes it the current one.

save(*self*)

Pushes the current dispatch table on the stack and re-initializes the current dispatch table to the default.

scons_current_file(*self*, *t*)

start_handling_includes(*self*, *t*=`None`)

Causes the PreProcessor object to start processing #import, #include and #include_next lines.

This method will be called when a #if, #ifdef, #ifndef or #elif evaluates True, or when we reach the #else in a #if, #ifdef, #ifndef or #elif block where a condition already evaluated False.

stop_handling_includes(*self*, *t*=`None`)

Causes the PreProcessor object to stop processing #import, #include and #include_next lines.

This method will be called when a #if, #ifdef, #ifndef or #elif evaluates False, or when we reach the #else in a #if, #ifdef, #ifndef or #elif block where a condition already evaluated True.

tupleize(*self*, *contents*)

Turns the contents of a file into a list of easily-processed tuples describing the CPP lines in the file.

The first element of each tuple is the line's preprocessor directive (#if, #include, #define, etc., minus the initial '#'). The remaining elements are specific to the type of directive, as pulled apart by the regular expression.

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

58.4.2 Properties

Name	Description
Inherited from object	
___class___	

58.5 Class DumbPreProcessor

object ⌐
SCons.cpp.PreProcessor ⌐
SCons.cpp.DumbPreProcessor

A preprocessor that ignores all #if/#elif/#else/#endif directives and just reports back *all* of the #include files (like the classic SCons scanner did).

This is functionally equivalent to using a regular expression to find all of the #include lines, only slower. It exists mainly as an example of how the main PreProcessor class can be sub-classed to tailor its behavior.

58.5.1 Methods

___init___(*self*, **args*, ***kw*)

x.___init___(...) initializes x; see help(type(x)) for signature Overrides: object.___init___ extit(inherited documentation)

Inherited from SCons.cpp.PreProcessor(Section 58.4)

___call___(), all_include(), do_define(), do_elif(), do_else(), do_endif(), do_if(), do_ifdef(), do_ifndef(), do_import(), do_include(), do_include_next(), do_nothing(), do_undef(), eval_expression(), finalize_result(), find_include_file(), initialize_result(), process_contents(), read_file(), resolve_include(), restore(), save(), scons_current_file(), start_handling_includes(), stop_handling_includes(), tupleize()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

58.5.2 Properties

Name	Description
Inherited from object	
__class__	

59 Module SCons.dblite

59.1 Functions

corruption_warning(*filename*)

is_string(*s*)

is_bytes(*s*)

unicode(*s*)

open(*file*, *flag*=`None`, *mode*=`438`)

59.2 Variables

Name	Description
keep_all_files	**Value:** `0`
ignore_corrupt_dbfiles	**Value:** `0`
dblite_suffix	**Value:** `'.dblite'`
tmp_suffix	**Value:** `'.tmp'`
__package__	**Value:** `'SCons'`

59.3 Class dblite

object ─┐
SCons.dblite.dblite

Squirrel away references to the functions in various modules that we'll use when our __del__() method calls our sync() method during shutdown. We might get destroyed when Python is in the midst of tearing down the different modules we import in an essentially arbitrary order, and some of the various modules's global attributes may already be wiped out from under us.

See the discussion at: `http://mail.python.org/pipermail/python-bugs-list/2003-March/016877.html`

59.3.1 Methods

__init__(*self*, *file_base_name*, *flag*, *mode*)

x.__init__(...) initializes x; see help(type(x)) for signature Overrides: object.__init__ extit(inherited documentation)

close(*self*)

__del__(*self*)

sync(*self*)

__getitem__(*self*, *key*)

__setitem__(*self*, *key*, *value*)

keys(*self*)

has_key(*self*, *key*)

__contains__(*self*, *key*)

iterkeys(*self*)

__iter__(*self*)

__len__(*self*)

Inherited from object

__delattr__(), __format__(), __getattribute__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

59.3.2 Properties

Name	Description
Inherited from object	
__class__	

60 Module SCons.exitfuncs

SCons.exitfuncs

Register functions which are executed when SCons exits for any reason.

60.1 Functions

register(*func*, **targs*, ***kargs*)

register a function to be executed upon normal program termination

func - function to be called at exit targs - optional arguments to pass to func kargs - optional keyword arguments to pass to func

60.2 Variables

Name	Description
__revision__	**Value:** `'src/engine/SCons/exitfuncs.py a56bbd8c09fb219ab8a9673330...`
__package__	**Value:** `'SCons'`

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