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# `resolve`#
Low-level SAT solver wrapper/interface for the classic solver.
See conda.core.solver.Solver for the high-level API.
## Classes#
`Resolve` |
---|---
## Functions#
`_get_sat_solver_cls`([sat_solver_choice]) |
---|---
`exactness_and_number_of_deps`(resolve_obj, ms) | Sorting key to emphasize packages that have
more strict
```

* [` cli`](../../conda_env/cli/index.html)

`stdoutlog`
`Unsatisfiable`
`ResolvePackageNotFound`
`_sat_solvers`
stdoutlog#
Unsatisfiable#
ResolvePackageNotFound#
_sat_solvers#
_get_sat_solver_cls(_sat_solver_choice =SatSolverChoice.PYCOSAT_)#

Attributes#

exactness_and_number_of_deps(_resolve_obj_ , _ms_)#

Sorting key to emphasize packages that have more strict requirements. More strict means the reduced index can be reduced more, so we want to consider these more constrained deps earlier in reducing the index.

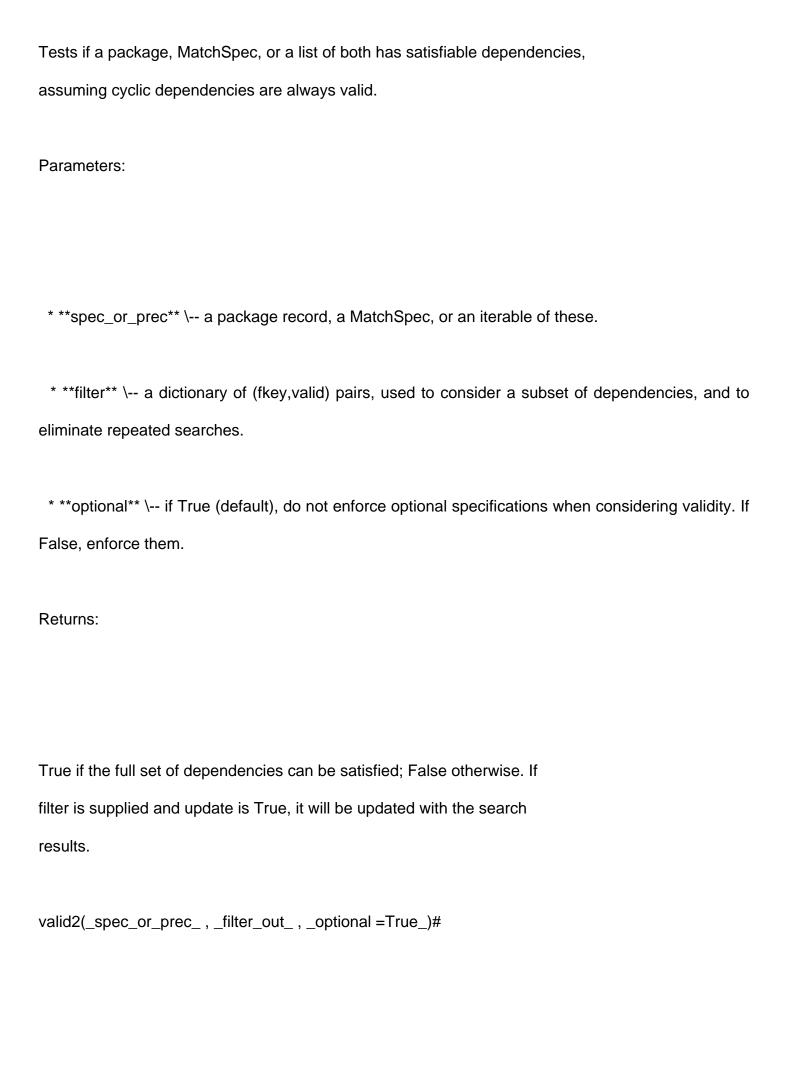
_class _Resolve(_index_ , _processed =False_, _channels =()_)#

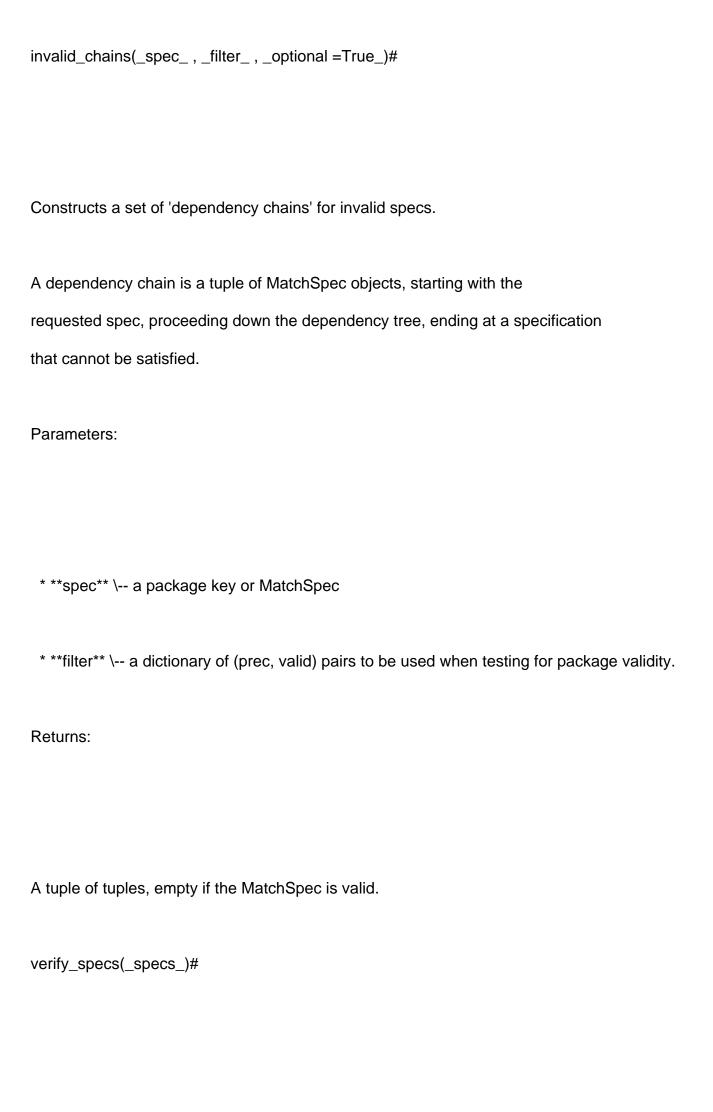
__hash__()#

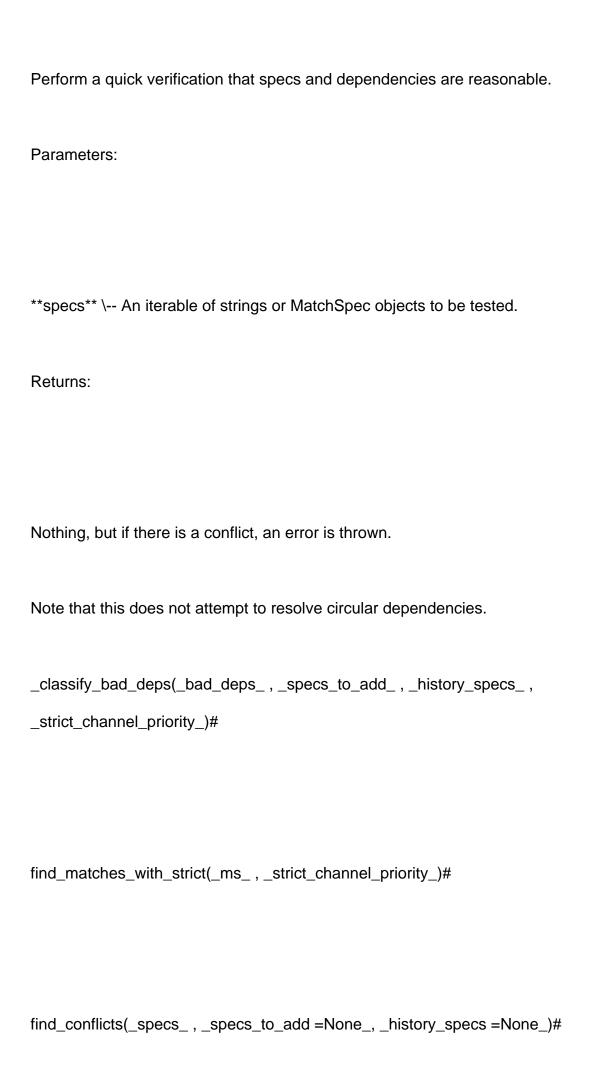
Return hash(self).

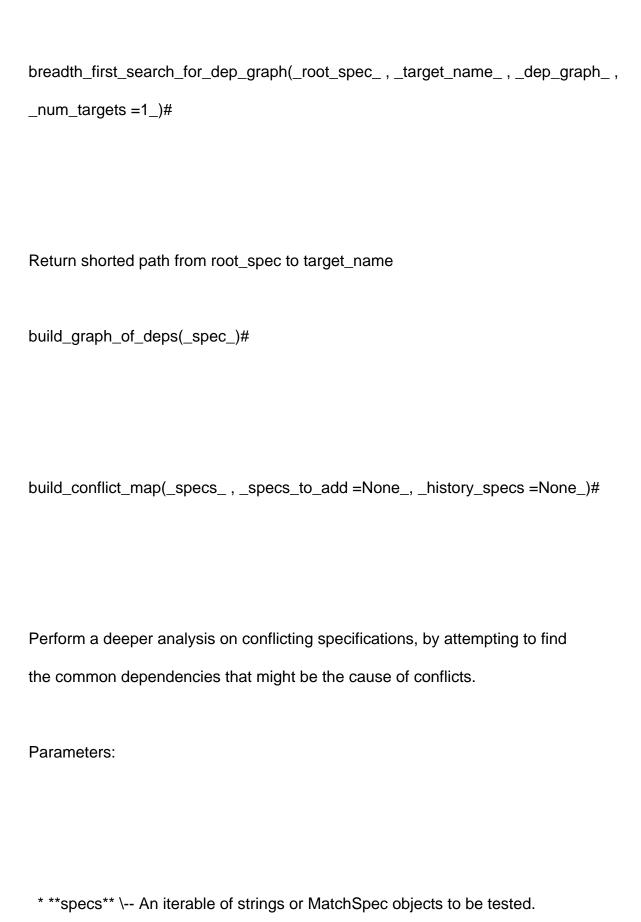
default_filter(_features =None_, _filter =None_)#

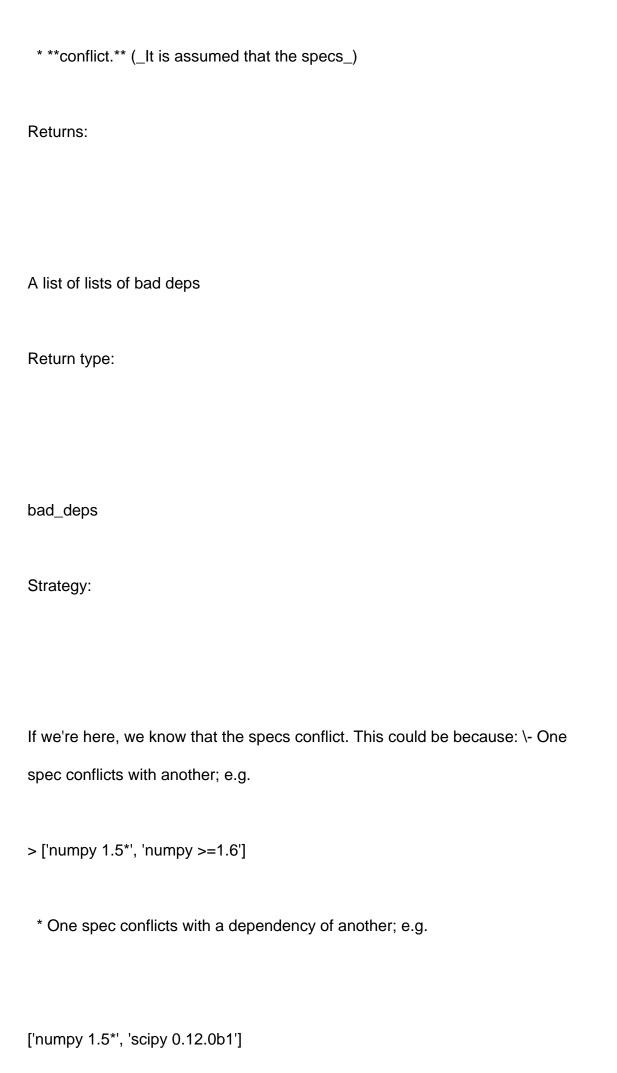
valid(_spec_or_prec_ , _filter_ , _optional =True_)#











* Each spec depends on _the same package_ but in a different way; e.g.,

['A', 'B'] where A depends on numpy 1.5, and B on numpy 1.6.

Technically, all three of these cases can be boiled down to the last one if we treat the spec itself as one of the "dependencies". There might be more complex reasons for a conflict, but this code only considers the ones above.

The purpose of this code, then, is to identify packages (like numpy above) that all of the specs depend on _but in different ways_. We then identify the dependency chains that lead to those packages.

_get_strict_channel(_package_name_)#

_broader(_ms_ , _specs_by_name_)#

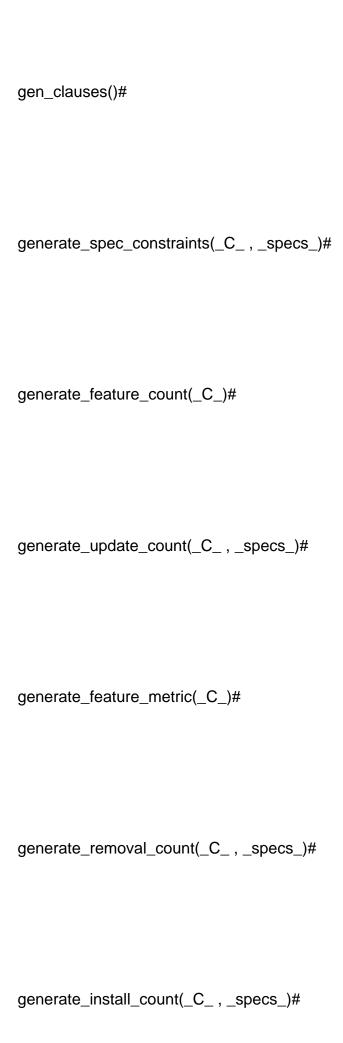
Prevent introduction of matchspecs that broaden our selection of choices.

_get_package_pool(_specs_)#

```
get_reduced_index(_explicit_specs_ , _sort_by_exactness =True_,
_exit_on_conflict =False_)#
match_any(_mss_ , _prec_)#
find_matches(_spec :
[conda.models.match\_spec.MatchSpec] (../models/match\_spec/index.html \# conda.models.match\_spec.MatchSpec] (../models/match\_spec/index.html \# conda.models.match\_spec.MatchSpec] (../models/match\_spec/index.html \# conda.models.match\_spec.MatchSpec] (../models/match\_spec/index.html \# conda.models.match\_spec.MatchSpec] (../models/match\_spec/index.html \# conda.models.match\_spec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec.MatchSpec
ec.MatchSpec
"conda.models.match_spec.MatchSpec")_) ->
[tuple](https://docs.python.org/3/library/stdtypes.html#tuple "\(in Python
v3.13\)")[[conda.models.records.PackageRecord](../models/records/index.html#conda.models.recor
ds.PackageRecord
"conda.models.records.PackageRecord")]#
ms_depends(_prec :
[conda.models.records.PackageRecord](../models/records/index.html#conda.models.records.Packa
geRecord
"conda.models.records.PackageRecord")_) ->
[list](https://docs.python.org/3/library/stdtypes.html#list "\(in Python
```

v3.13\)")[[conda.models.match_spec.MatchSpec](../models/match_spec/index.html#conda.models.

```
match_spec.MatchSpec
"conda.models.match_spec.MatchSpec")]#
version_key(_prec_ , _vtype =None_)#
_static __make_channel_priorities(_channels_)#
get_pkgs(_ms_ , _emptyok =False_)#
_static _to_sat_name(_val_)#
_static _to_feature_metric_id(_prec_dist_str_ , _feat_)#
push_MatchSpec(_C_ , _spec_)#
```



```
generate_package_count(_C_ , _missing_)#
generate_version_metrics(_C_ , _specs_ , _include0 =False_)#
dependency_sort(_must_have :
[dict](https://docs.python.org/3/library/stdtypes.html#dict "\(in Python
v3.13\)")[[str](https://docs.python.org/3/library/stdtypes.html#str "\(in
Python v3.13\)"),
[conda.models.records.PackageRecord](../models/records/index.html#conda.models.records.Packa
geRecord
"conda.models.records.PackageRecord")]_) ->
[list](https://docs.python.org/3/library/stdtypes.html#list "\(in Python
v3.13\)")[[conda.models.records.PackageRecord](../models/records/index.html#conda.models.recor
ds.PackageRecord
"conda.models.records.PackageRecord")]#
environment_is_consistent(_installed_)#
```

```
get_conflicting_specs(_specs_ , _explicit_specs_)#
bad_installed(_installed_ , _new_specs_)#
restore_bad(_pkgs_ , _preserve_)#
install_specs(_specs_ , _installed_ , _update_deps =True_)#
install(_specs_ , _installed =None_, _update_deps =True_, _returnall =False_)#
remove_specs(_specs_ , _installed_)#
remove(_specs_ , _installed_)#
```

```
solve(_specs : [list](https://docs.python.org/3/library/stdtypes.html#list
"\(in Python v3.13\)")_, _returnall:
[bool](https://docs.python.org/3/library/functions.html#bool "\(in Python
v3.13\)") = False_, __remove =False_, _specs_to_add =None_, _history_specs
=None_, _should_retry_solve =False_) ->
[list](https://docs.python.org/3/library/stdtypes.html#list "\(in Python
v3.13\)")[[conda.models.records.PackageRecord](../models/records/index.html#conda.models.recor
ds.PackageRecord
"conda.models.records.PackageRecord")]#
  On this page
 * Classes
 * Functions
 * Attributes
  * `stdoutlog`
  * `Unsatisfiable`
  * `ResolvePackageNotFound`
  * `_sat_solvers`
  * `_get_sat_solver_cls()`
  * `exactness_and_number_of_deps()`
  * `Resolve`
```

```
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* `Resolve.default_filter()`
* `Resolve.valid()`
* `Resolve.valid2()`
* `Resolve.invalid_chains()`
* `Resolve.verify_specs()`
* `Resolve._classify_bad_deps()`
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* `Resolve.breadth_first_search_for_dep_graph()`
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* `Resolve.build_conflict_map()`
* `Resolve._get_strict_channel()`
* `Resolve. broader()`
* `Resolve._get_package_pool()`
* `Resolve.get_reduced_index()`
* `Resolve.match_any()`
* `Resolve.find_matches()`
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* `Resolve.version_key()`
* `Resolve._make_channel_priorities()`
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* `Resolve.to_feature_metric_id()`
* `Resolve.push_MatchSpec()`
* `Resolve.gen clauses()`
* `Resolve.generate_spec_constraints()`
```

```
* `Resolve.generate_feature_count()`
   * `Resolve.generate_update_count()`
   * `Resolve.generate_feature_metric()`
   * `Resolve.generate removal count()`
   * `Resolve.generate_install_count()`
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   * `Resolve.install_specs()`
   * `Resolve.install()`
   * `Resolve.remove_specs()`
   * `Resolve.remove()`
   * `Resolve.solve()`
[ __Edit on GitHub](https://github.com/conda/conda/edit/main/docs/source/dev-
guide/api/conda/resolve/index.rst)
[ __Show Source](../../../_sources/dev-
guide/api/conda/resolve/index.rst.txt)
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```

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