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# `solve`#
The classic solver implementation.
## Classes#
`Solver` | A high-level API to conda's solving logic. Three public methods are provided to access a
---|---
`SolverStateContainer` |
## Functions#
`get_pinned_specs`(prefix) | Find pinned specs from file and return a tuple of MatchSpec.
---|---
`diff_for_unlink_link_precs`([force_reinstall]) |
_class _Solver(_prefix :
[str](https://docs.python.org/3/library/stdtypes.html#str "\(in Python
```

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

```
v3.13\)")_, _channels:
```

[collections.abc. Iterable] (https://docs.python.org/3/library/collections.abc. html #collections.abc. Iterable) (https://docs.python.org/3/library/collections.abc. html #collections.abc. html #collection

е

"\(in Python

v3.13\)")[[conda.models.channel.Channel](../../models/channel/index.html#conda.models.channel.C

hannel

"conda.models.channel.Channel")]_, _subdirs:

[collections.abc.Iterable](https://docs.python.org/3/library/collections.abc.html#collections.abc.Iterabl

е

"\(in Python

v3.13\)")[[str](https://docs.python.org/3/library/stdtypes.html#str "\(in

Python v3.13\)")] = ()_, _specs_to_add :

[collections.abc. Iterable] (https://docs.python.org/3/library/collections.abc. html #collections.abc. Iterable) (https://docs.python.org/3/library/collections.abc. html #collections.abc. html #collection

е

"\(in Python

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

"conda.models.match_spec.MatchSpec")] = ()_, _specs_to_remove :

[collections.abc.Iterable](https://docs.python.org/3/library/collections.abc.html#collections.abc.Iterabl

е

"\(in Python

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

"conda.models.match_spec.MatchSpec")] = ()_, _repodata_fn :

[str](https://docs.python.org/3/library/stdtypes.html#str "\(in Python

v3.13\)") = REPODATA FN , command = NULL)#

to access a solution in various forms. * `solve_final_state()` * `solve_for_diff()` * `solve_for_transaction()` > > Parameters: * **prefix** ([_str_](https://docs.python.org/3/library/stdtypes.html#str "\(in Python v3.13\)")) -- The conda prefix / environment location for which the `Solver` is being instantiated. * **channels** (Sequence[`Channel`]) -- A prioritized list of channels to use for the solution. * **subdirs** (_Sequence_ _[_[_str_](https://docs.python.org/3/library/stdtypes.html#str "\(in Python v3.13\)") _]_) -- A prioritized list of subdirs to use for the solution.

* **specs_to_add** (set[`MatchSpec`]) -- The set of package specs to add to the prefix.

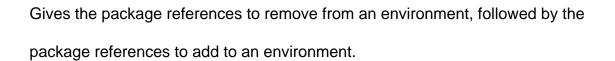
A high-level API to conda's solving logic. Three public methods are provided

```
solve_for_transaction(_update_modifier =NULL_, _deps_modifier =NULL_, _prune
=NULL_, _ignore_pinned =NULL_, _force_remove =NULL_, _force_reinstall =NULL_,
_should_retry_solve =False_)#
Gives an UnlinkLinkTransaction instance that can be used to execute the
solution on an environment.
Parameters:
                                                                                 **deps modifier**
([_DepsModifier_](../../base/constants/index.html#conda.base.constants.DepsModifier
"conda.base.constants.DepsModifier")) -- See `solve_final_state()`.
 * **prune** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python v3.13\)")) --
See `solve_final_state()`.
   * **ignore_pinned** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python
v3.13\)")) -- See `solve_final_state()`.
   * **force remove** ([ bool ](https://docs.python.org/3/library/functions.html#bool "\(in Python
v3.13\)")) -- See `solve_final_state()`.
```

* **specs_to_remove** (set[`MatchSpec`]) -- The set of package specs to remove from the prefix.

```
* **force_reinstall** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python
v3.13\)")) -- See `solve_for_diff()`.
 * **should_retry_solve** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python
v3.13\)")) -- See `solve_final_state()`.
Return type:
[UnlinkLinkTransaction](../link/index.html#conda.core.link.UnlinkLinkTransaction
"conda.core.link.UnlinkLinkTransaction")
solve_for_diff(_update_modifier =NULL_, _deps_modifier =NULL_, _prune =NULL_,
_ignore_pinned =NULL_, _force_remove =NULL_, _force_reinstall =NULL_,
_should_retry_solve =False_) ->
[tuple](https://docs.python.org/3/library/stdtypes.html#tuple "\(in Python
v3.13\)")[[tuple](https://docs.python.org/3/library/stdtypes.html#tuple "\(in
Python
v3.13\)")[[conda.models.records.PackageRecord](../../models/records/index.html#conda.models.rec
ords.PackageRecord
"conda.models.records.PackageRecord"), Ellipsis],
[tuple](https://docs.python.org/3/library/stdtypes.html#tuple "\(in Python
v3.13\)")[[conda.models.records.PackageRecord](../../models/records/index.html#conda.models.rec
ords.PackageRecord
```

"conda.models.records.PackageRecord"), Ellipsis]]#



Parameters:

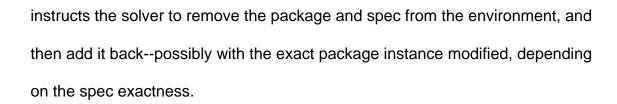
* **deps_modifier**

([_DepsModifier_](../../base/constants/index.html#conda.base.constants.DepsModifier "conda.base.constants.DepsModifier")) -- See `solve_final_state()`.

* **prune** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python v3.13\)")) -- See `solve_final_state()`.

- * **ignore_pinned** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python v3.13\)")) -- See `solve_final_state()`.
- * **force_remove** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python v3.13\)")) -- See `solve_final_state()`.
- * **force_reinstall** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python v3.13\)")) --

For requested specs_to_add that are already satisfied in the environment,



* **should_retry_solve** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python v3.13\)")) -- See `solve_final_state()`.

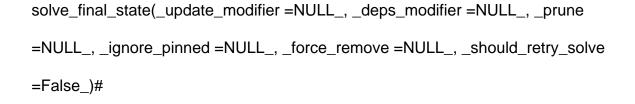
Returns:

A two-tuple of PackageRef sequences. The first is the group of packages to remove from the environment, in sorted dependency order from leaves to roots. The second is the group of packages to add to the environment, in sorted dependency order from roots to leaves.

Return type:

[tuple](https://docs.python.org/3/library/stdtypes.html#tuple "\(in Python v3.13\)")[PackageRef],

[tuple](https://docs.python.org/3/library/stdtypes.html#tuple "\(in Python v3.13\)")[PackageRef]



Gives the final, solved state of the environment.

Parameters:

* **update_modifier**

([_UpdateModifier_](../../base/constants/index.html#conda.base.constants.UpdateModifier "conda.base.constants.UpdateModifier")) -- An optional flag directing how updates are handled regarding packages already existing in the environment.

* **deps modifier**

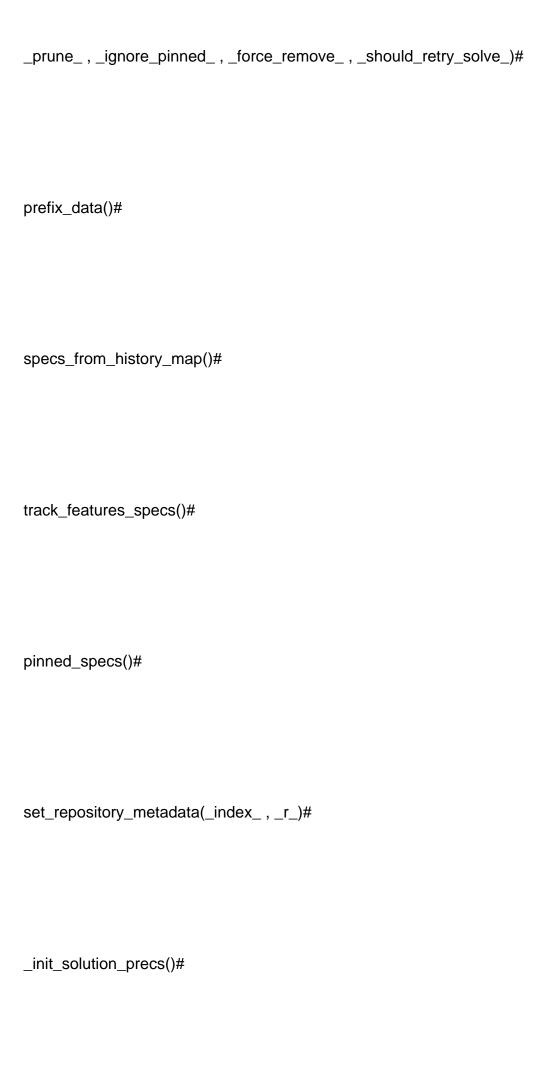
([_DepsModifier_](../../base/constants/index.html#conda.base.constants.DepsModifier "conda.base.constants.DepsModifier")) -- An optional flag indicating special solver handling for dependencies. The default solver behavior is to be as conservative as possible with dependency updates (in the case the dependency already exists in the environment), while still ensuring all dependencies are satisfied. Options include * NO_DEPS * ONLY_DEPS * UPDATE_DEPS * UPDATE_DE

^{* **}prune** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python v3.13\)")) -- If

| `True`, the solution will not contain packages that were previously brought into the environment as |
|---|
| dependencies but are no longer required as dependencies and are not user-requested. |
| * **ignore_pinned** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python |
| v3.13\)")) If `True`, the solution will ignore pinned package configuration for the prefix. |
| * **force_remove** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python |
| v3.13\)")) Forces removal of a package without removing packages that depend on it. |
| * **should_retry_solve** ([_bool_](https://docs.python.org/3/library/functions.html#bool "\(in Python |
| v3.13\)")) Indicates whether this solve will be retried. This allows us to control whether to call |
| find_conflicts (slow) in ssc.r.solve |
| Returns: |
| |
| In sorted dependency order from roots to leaves, the package references for |
| the solved state of the environment. |
| Return type: |
| [tuple](https://docs.python.org/3/library/stdtypes.html#tuple "\(in Python v3.13\)")[PackageRef] |
| |

```
determine_constricting_specs(_spec_ , _solution_precs_)#
get_request_package_in_solution(_solution_precs_ , _specs_map_)#
get_constrained_packages(_pre_packages_ , _post_packages_ , _index_keys_)#
_collect_all_metadata(_ssc_)#
_remove_specs(_ssc_)#
_find_inconsistent_packages(_ssc_)#
_package_has_updates(_ssc_ , _spec_ , _installed_pool_)#
```

```
_should_freeze(_ssc_ , _target_prec_ , _conflict_specs_ , _explicit_pool_ ,
_installed_pool_)#
_add_specs(_ssc_)#
_run_sat(_ssc_)#
_post_sat_handling(_ssc_)#
_notify_conda_outdated(_link_precs_)#
_prepare(_prepared_specs_)#
_class _SolverStateContainer(_prefix_ , _update_modifier_ , _deps_modifier_ ,
```



```
working_state_reset()#
get_pinned_specs(_prefix_)#
Find pinned specs from file and return a tuple of MatchSpec.
diff_for_unlink_link_precs(_prefix_ , _final_precs_ , _specs_to_add =()_,
_force_reinstall =NULL_) ->
[tuple](https://docs.python.org/3/library/stdtypes.html#tuple "\(in Python
v3.13\)")[[tuple](https://docs.python.org/3/library/stdtypes.html#tuple "\(in
Python
v3.13\)")[[conda.models.records.PackageRecord](../../models/records/index.html#conda.models.rec
ords.PackageRecord
"conda.models.records.PackageRecord"), Ellipsis],
[tuple](https://docs.python.org/3/library/stdtypes.html#tuple "\(in Python
v3.13\)")[[conda.models.records.PackageRecord](../../models/records/index.html#conda.models.rec
ords.PackageRecord
"conda.models.records.PackageRecord"), Ellipsis]]#
```

On this page

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 - * `Solver.solve_for_diff()`
 - * `Solver.solve_final_state()`
 - * `Solver.determine_constricting_specs()`
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 - * `SolverStateContainer.pinned_specs()`
 - * `SolverStateContainer.set repository metadata()`
 - * `SolverStateContainer._init_solution_precs()`

| * `SolverStateContainer.working_state_reset()` |
|--|
| * `get_pinned_specs()` |
| * `diff_for_unlink_link_precs()` |
| |
| [Edit on GitHub](https://github.com/conda/conda/edit/main/docs/source/dev- |
| guide/api/conda/core/solve/index.rst) |
| |
| [Show Source](///_sources/dev- |
| guide/api/conda/core/solve/index.rst.txt) |
| |
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| Created using [Sphinx](https://www.sphinx-doc.org/) 7.4.7. |
| |
| [Analytics Dashboard](https://docs-conda-io.goatcounter.com "Analytics |
| Dashboard") |
| |
| Built with the [PyData Sphinx Theme](https://pydata-sphinx- |
| theme.readthedocs.io/en/stable/index.html) 0.15.4. |
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