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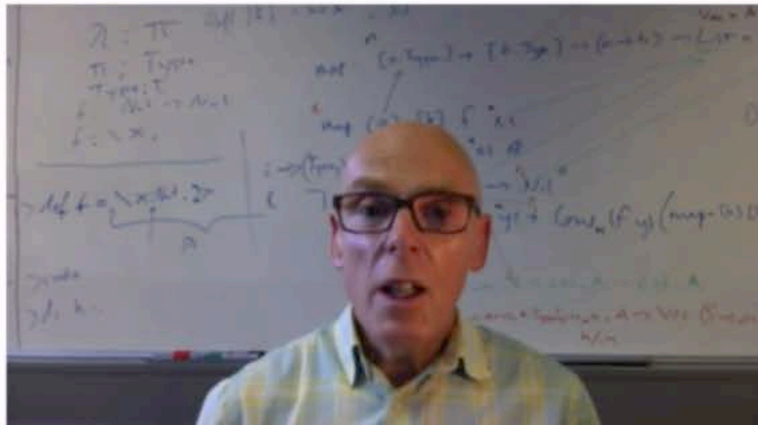
Hot code loading



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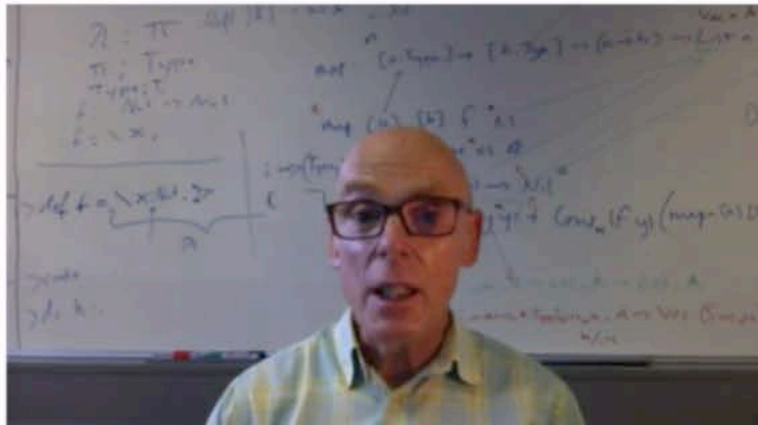
Hot code loading

New compiled code can be added to an Erlang system, one module at a time.

The system doesn't need to be taken down, and there is a mechanism to manage how the new code is used.



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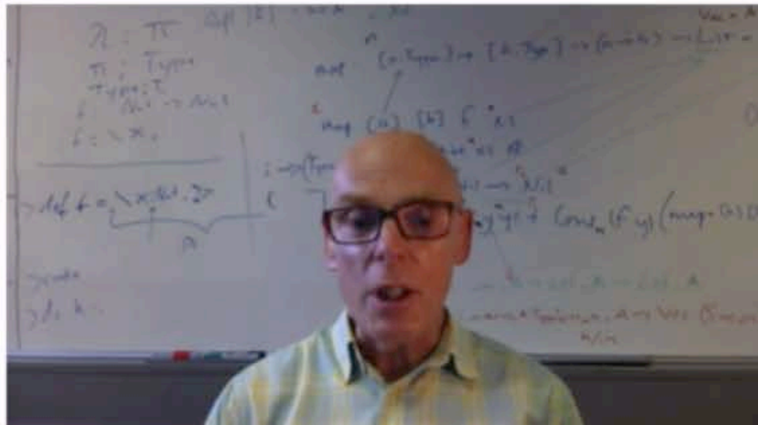
Loading code into the BEAM

How is the code for a module `Foo.erl` loaded into the BEAM?

- When a function from `Foo` is called, the `Foo.beam` file will be loaded, if it exists.
- When `Foo` is compiled, using `c(Foo)` in the shell or calling the Erlang function `compile:file(Foo)`, the module is loaded.
- When is is explicitly loaded by calling `code:load_file(Foo)`.



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What is already loaded?

Is a module loaded? Call `code:is_loaded(Foo)` ...

... it returns the path of the `Foo.beam` file being used, or `false`.

Hitting the `Tab` key in the shell will list all the modules loaded ...

... give this a try: you'll see all the modules running the standard runtime system!

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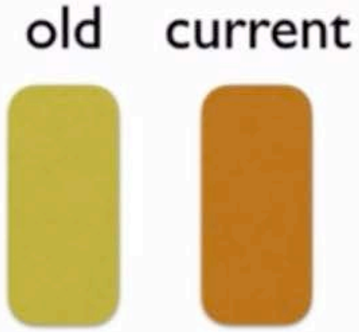
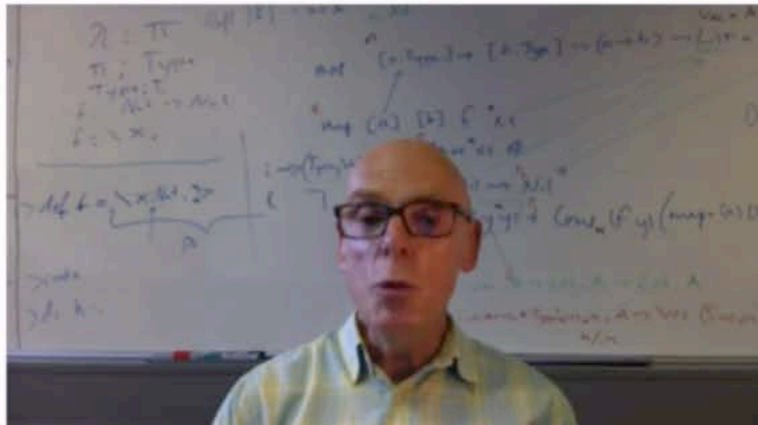
Old and current versions of a module

At any one time the system may contain up to two versions of a module: the *old* and the *current*.





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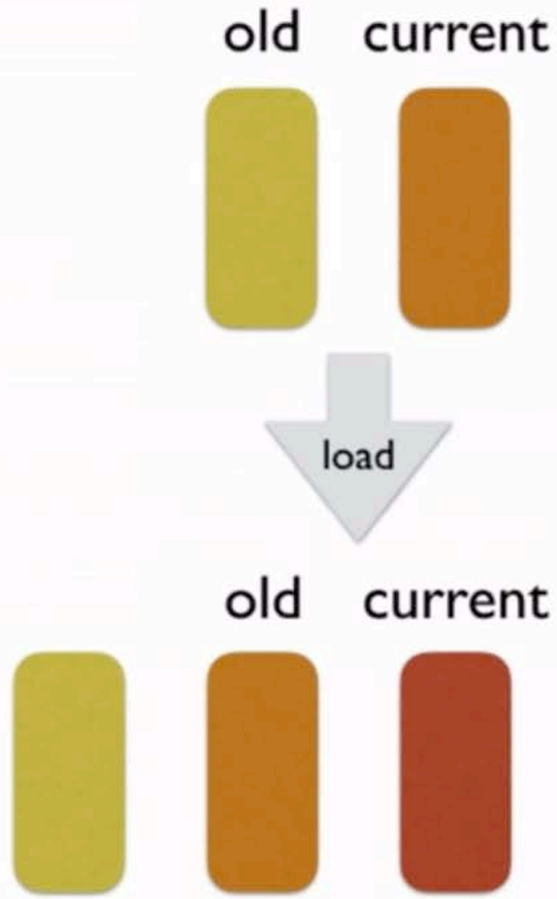

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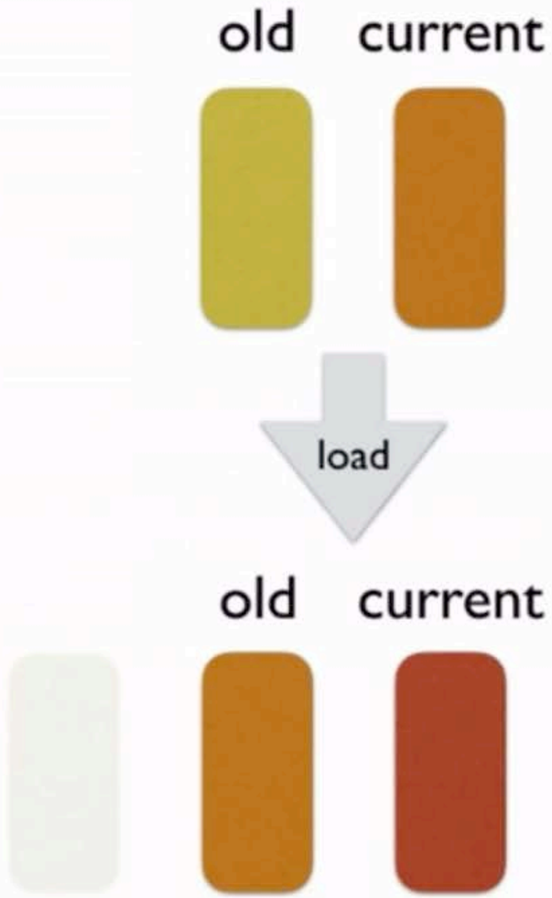
Old and current versions of a module

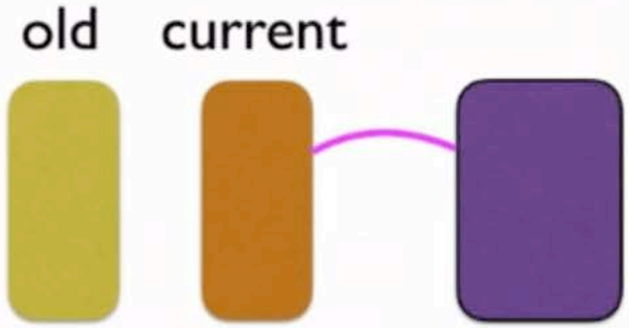
At any one time the system may contain up to two versions of a module: the *old* and the *current*.

Loading a new version makes that version the current, and the code it replaces becomes the old.

The previous old code is *purged*, and any module that is running that version will be terminated.



$64,000 question: using the new code



After the new code for `Foo` is loaded, the module using it will use the same code …

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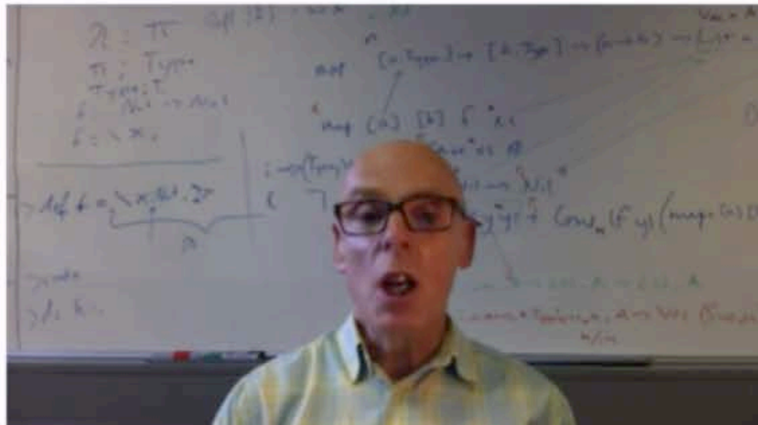

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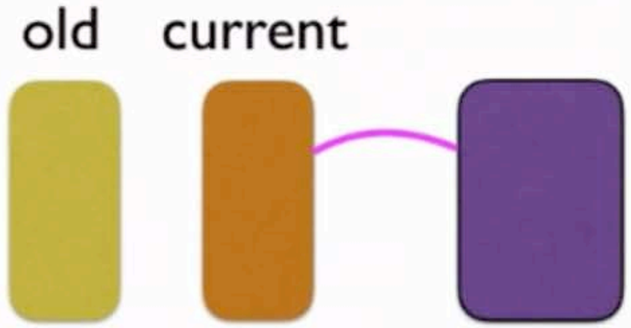

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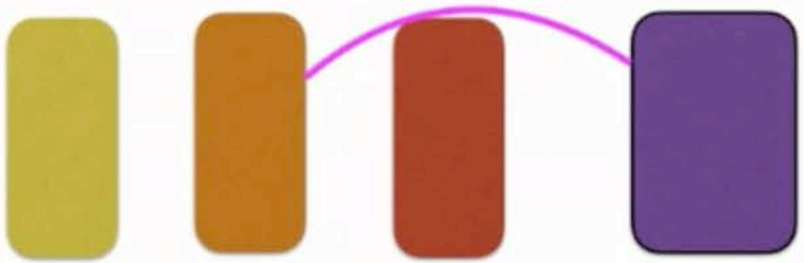

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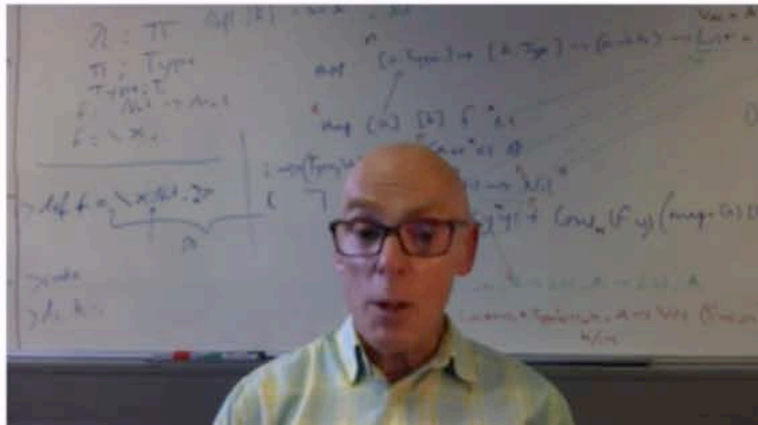

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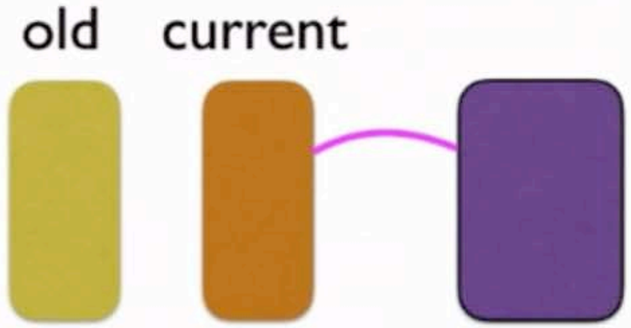

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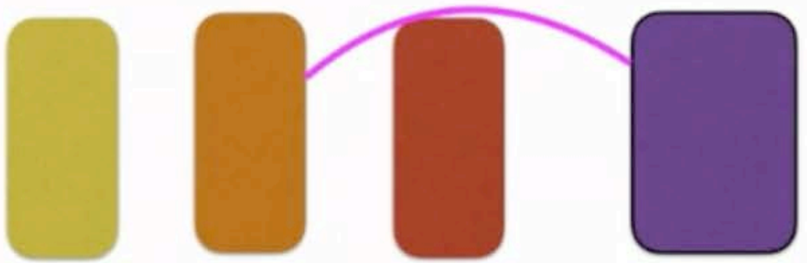

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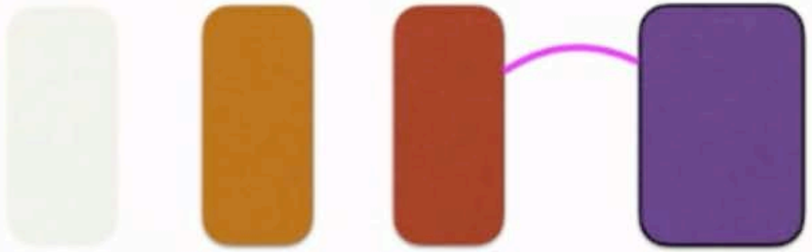
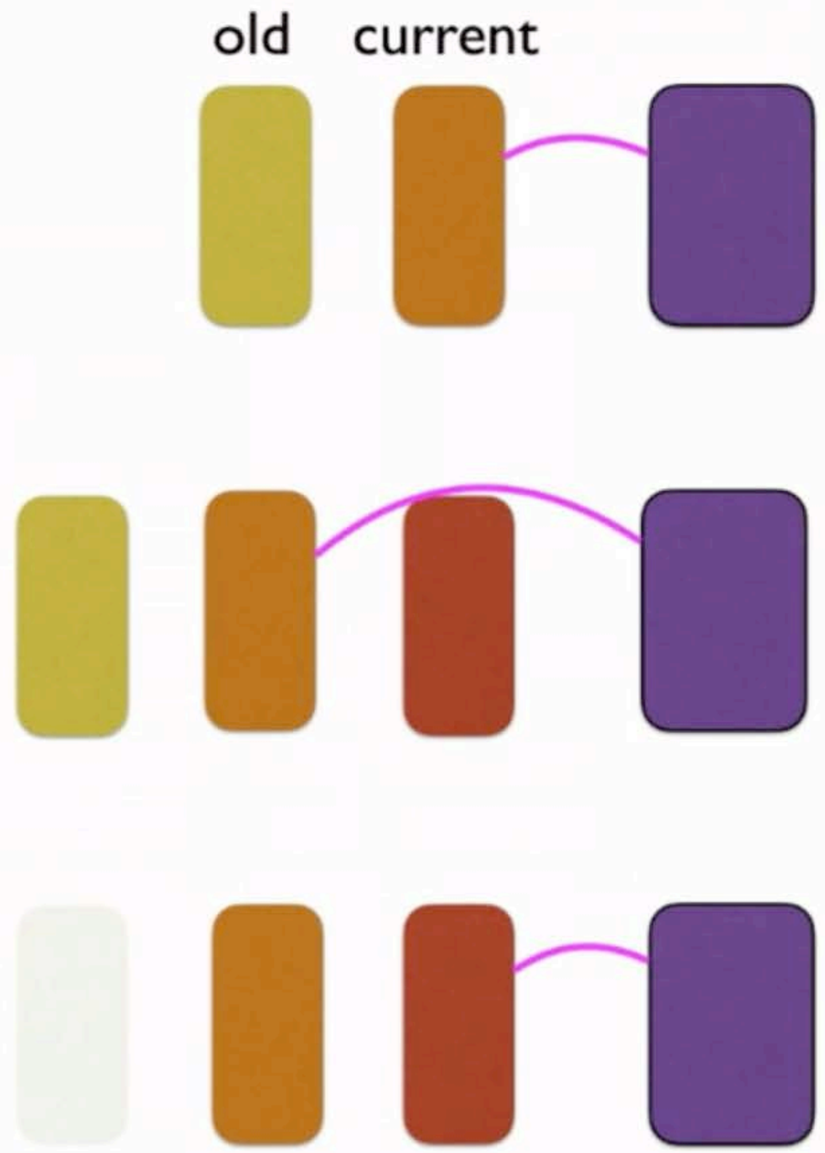


What about in the module itself?

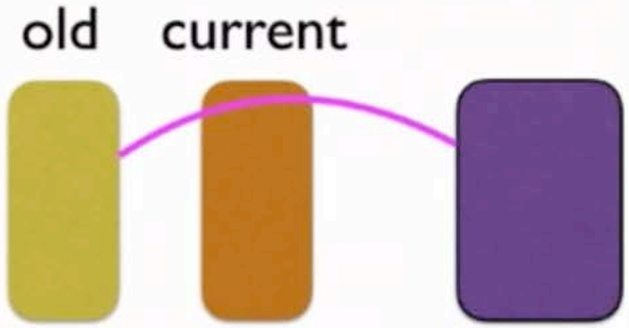
Same as before, except that

When there is a `Foo:foo` fully qualified call to any function in `Foo`, it switches to the new code for `Foo`.

Non-qualified calls `foo` *don't trigger the switch.*

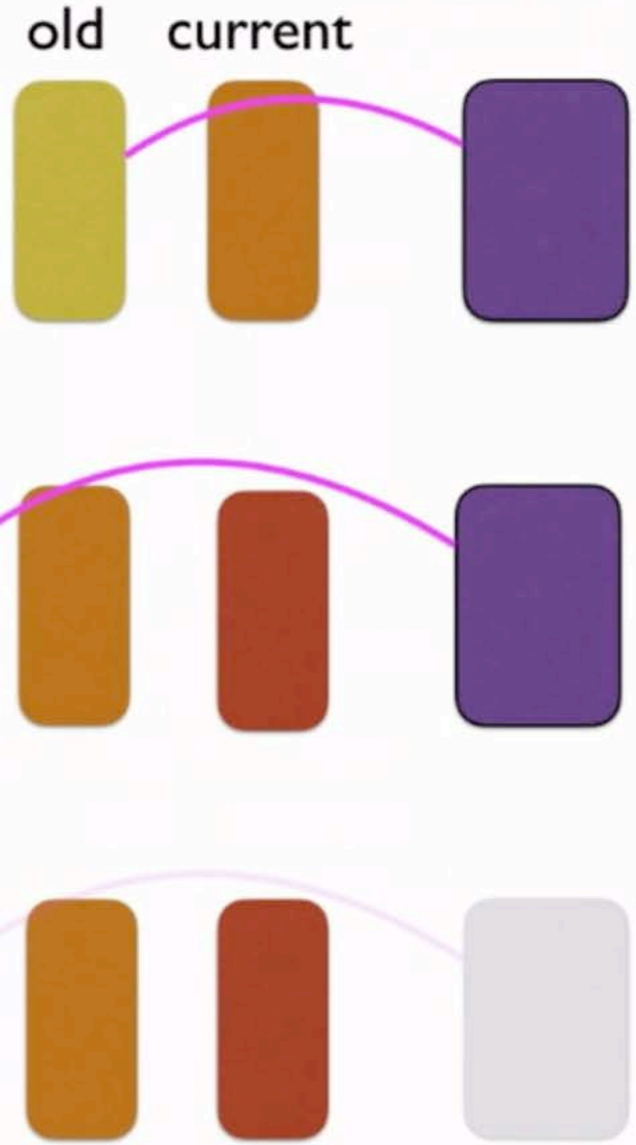


What about modules using the old code?



The old code will be purged, and the client module will be terminated.

What about modules using the old code?



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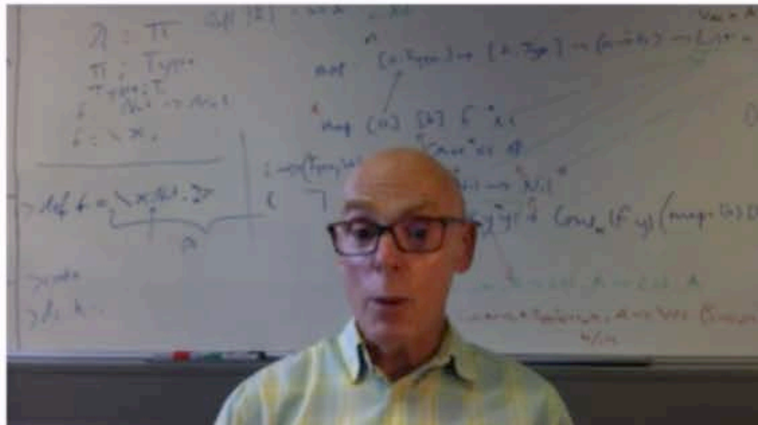
Removing the old version

Old versions of code can be purged by calling `code:purge(Foo)` or `code:soft_purge(Foo)`.

A call to `soft_purge/1` only succeeds if the old version of the code isn't being used; `purge/1` always succeeds but may cause a failure!

Why might it be useful to purge the old version?

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