Allow calling a private method with `self.`

Description

Problem

There is an inconsistency between calling a private attribute writer being allowed with `self.value =` syntax and `self.value` not being allowed on a private attribute writer.

Calling a private method in this way can be useful when trying to assign the return value of this private method to a local variable with the same name.

Solution

The attached patch handles this by compiling the calling into a function call by using the VM_CALL_FCALL flag, so it is as if the call were made without the `self.` prefix, except it won't be confused with local variables at the VM instruction level. It is also compiled like an assignment call, except I didn't use the COMPILABLE_RECV macro, since that would remove the CHECK macro usage around the COMPILABLE line.

Related issues:

- Related to Ruby master - Bug #16947: private method unexpected behavior
- Is duplicate of Ruby master - Feature #11297: Allow private method of self to...

Associated revisions

Revision 7fbd2f7c - 09/19/2019 05:20 PM - dylants (Dylan Thacker-Smith)
Allow calling a private method with `self.`

This makes it consistent with calling private attribute assignment methods, which currently is allowed (e.g. `self.value =`).

Calling a private method in this way can be useful when trying to assign the return value to a local variable with the same name.

[Feature #11297] [Feature #16123]

Revision d583df52 - 09/19/2019 05:21 PM - nobu (Nobuyoshi Nakada)
Added version guard

[Feature #11297] [Feature #16123]

Revision e6378cdc - 09/19/2019 05:21 PM - nobu (Nobuyoshi Nakada)
Allow calling a private accessor with `self.`

[Feature #11297] [Feature #16123]

Revision b80d6f6e8 - 09/19/2019 05:40 PM - nobu (Nobuyoshi Nakada)
Update NEWS and documents [ci skip]

[Feature #11297] [Feature #16123]

Revision 26831719 - 09/20/2019 07:43 AM - nobu (Nobuyoshi Nakada)
[DOC] DOT is not a part of a receiver [ci skip]

[Feature #11297] [Feature #16123]

03/18/2022
I may not completely understand the issue description. What is the inconsistency? (That is a honest question, by the way; I am not fully understanding the issue domain.)

I am not even entirely sure what a private attribute writer is either; can we use these terms when we can use e.g. send() at all times? I may not understand this, but I assume you can get the value of any method via .send() and assign it to the local variable?

Here is a script to help demonstrate the inconsistency, where self.bar = 123 is allowed by self.bar is not.

```ruby
class Foo
  def foo
    self.bar = 123 # allowed
    self.bar # raises
  end

  private

  attr_accessor :bar
end

Foo.new.foo
```

By attribute writer, I was just referring to an assignment method like the one defined by attr_writer, although the same applies to any assignment method like def bar=(value); value; end. The inconsistency is just more obvious when dealing with the pair of methods defined by attr_accessor if they are private because self.works with one of them but not the other as shown above.

shevegen (Robert A. Heiler) wrote:

I may not understand this, but I assume you can get the value of any method via .send() and assign it to the local variable?

Yes, it can be easily worked around, it just doesn't seem like it should be necessary to workaround this limitation. The point of private is to keep things from being accessible from other objects, which we know isn't the case when a call is made on self. directly.

Why do you use private attr_accessor? You can access its instance variable directly.

Allowing self,private_method has an unpreferable side effect; it allows self.global_function, i.e., self.require "foo", self.lambda { }, self.fork, etc.

Accepted. But as I said in #11297, the document should be updated. After the patch, you can say self.puts("hello"), which can confuse you.

Matz.

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[Feature #11297] [Feature #16123]

#9 - 06/10/2020 12:34 PM - nobu (Nobuyoshi Nakada)
- Related to Bug #16947: private method unexpected behavior added

| Files | 0001-Allow-calling-a-private-method-with-self.diff.txt | 3.28 KB | 08/23/2019 | dylants (Dylan Thacker-Smith) |