Ruby on Rails

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*Not to be confused with*[*Ruby (programming language)*](https://en.wikipedia.org/wiki/Ruby_(programming_language))*.*

|  |  |
| --- | --- |
| **Ruby on Rails** | |
|  | |
| [**Original author(s)**](https://en.wikipedia.org/wiki/Software_developer) | [David Heinemeier Hansson](https://en.wikipedia.org/wiki/David_Heinemeier_Hansson) |
| **Initial release** | August 2004; 16 years ago[[1]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-initial10announce-1) |
| [**Stable release**](https://en.wikipedia.org/wiki/Software_release_life_cycle) | 6.0.3.2 (June 17, 2020; 3 months ago[[2]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-603announce-2)) [[±]](https://en.wikipedia.org/w/index.php?title=Template:Latest_stable_software_release/Ruby_on_Rails&action=edit) |
| [**Repository**](https://en.wikipedia.org/wiki/Repository_(version_control)) | [Rails Repository](https://github.com/rails/rails) |
| **Written in** | [Ruby](https://en.wikipedia.org/wiki/Ruby_(programming_language)) |
| [**Size**](https://en.wikipedia.org/wiki/File_size) | 57.8 [MB](https://en.wikipedia.org/wiki/Megabyte)[[3]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-3) |
| [**Type**](https://en.wikipedia.org/wiki/Software_categories#Categorization_approaches) | [Web application framework](https://en.wikipedia.org/wiki/Web_application_framework) |
| [**License**](https://en.wikipedia.org/wiki/Software_license) | [MIT License](https://en.wikipedia.org/wiki/MIT_License) |
| **Website** | [rubyonrails.org](https://rubyonrails.org/) |

**Ruby on Rails**, or **Rails**, is a [server-side](https://en.wikipedia.org/wiki/Server-side) [web application framework](https://en.wikipedia.org/wiki/Web_application_framework) written in [Ruby](https://en.wikipedia.org/wiki/Ruby_(programming_language)) under the [MIT License](https://en.wikipedia.org/wiki/MIT_License). Rails is a [model–view–controller](https://en.wikipedia.org/wiki/Model%E2%80%93view%E2%80%93controller) (MVC) framework, providing default structures for a [database](https://en.wikipedia.org/wiki/Database), a [web service](https://en.wikipedia.org/wiki/Web_service), and [web pages](https://en.wikipedia.org/wiki/Web_page). It encourages and facilitates the use of [web standards](https://en.wikipedia.org/wiki/Web_standards) such as [JSON](https://en.wikipedia.org/wiki/JSON) or [XML](https://en.wikipedia.org/wiki/XML) for data transfer and [HTML](https://en.wikipedia.org/wiki/HTML), [CSS](https://en.wikipedia.org/wiki/CSS) and [JavaScript](https://en.wikipedia.org/wiki/JavaScript) for user interfacing. In addition to MVC, Rails emphasizes the use of other well-known [software engineering](https://en.wikipedia.org/wiki/Software_engineering) [patterns](https://en.wikipedia.org/wiki/Software_design_pattern) and paradigms, including [convention over configuration](https://en.wikipedia.org/wiki/Convention_over_configuration) (CoC), [don't repeat yourself](https://en.wikipedia.org/wiki/Don%27t_repeat_yourself) (DRY), and the [active record pattern](https://en.wikipedia.org/wiki/Active_record_pattern).[[4]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-4)

Ruby on Rails' emergence in 2005 greatly influenced web app development, through innovative features such as seamless database [table](https://en.wikipedia.org/wiki/Table_(database)) creations, [migrations](https://en.wikipedia.org/wiki/Schema_migration), and [scaffolding](https://en.wikipedia.org/wiki/Scaffold_(programming)) of views to enable rapid application development. Ruby on Rails' influence on other web frameworks remains apparent today, with many frameworks in other languages borrowing its ideas, including [Django](https://en.wikipedia.org/wiki/Django_(web_framework)) in [Python](https://en.wikipedia.org/wiki/Python_(programming_language)), [Catalyst](https://en.wikipedia.org/wiki/Catalyst_(software)) in [Perl](https://en.wikipedia.org/wiki/Perl), [Laravel](https://en.wikipedia.org/wiki/Laravel) and [CakePHP](https://en.wikipedia.org/wiki/CakePHP) in [PHP](https://en.wikipedia.org/wiki/PHP), [Phoenix](https://en.wikipedia.org/wiki/Phoenix_(web_framework)) in [Elixir](https://en.wikipedia.org/wiki/Elixir_(programming_language)), [Play](https://en.wikipedia.org/wiki/Play_Framework) in [Scala](https://en.wikipedia.org/wiki/Scala_(programming_language)), and [Sails.js](https://en.wikipedia.org/wiki/Sails.js) in [Node.js](https://en.wikipedia.org/wiki/Node.js).



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[David Heinemeier Hansson](https://en.wikipedia.org/wiki/David_Heinemeier_Hansson) extracted Ruby on Rails from his work on the project management tool [Basecamp](https://en.wikipedia.org/wiki/Basecamp_Classic) at the [web application](https://en.wikipedia.org/wiki/Web_application) company also called [Basecamp](https://en.wikipedia.org/wiki/Basecamp_(company)) (37Signals at the time).[[5]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-interview-davidhh-5) Hansson first released Rails as open source in July 2004, but did not share [commit](https://en.wikipedia.org/wiki/Commit_(data_management)) rights to the project until February 2005.[[*citation needed*](https://en.wikipedia.org/wiki/Wikipedia:Citation_needed)] In August 2006, the framework reached a milestone when [Apple](https://en.wikipedia.org/wiki/Apple_Inc.) announced that it would ship Ruby on Rails with [Mac OS X v10.5 "Leopard"](https://en.wikipedia.org/wiki/Mac_OS_X_Leopard),[[6]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-6) which was released in October 2007.

Rails version 2.3 was released on March 15, 2009, with major new developments in templates, engines, [Rack](https://en.wikipedia.org/wiki/Rack_(web_server_interface)) and nested model forms. Templates enable the developer to generate a skeleton application with custom [gems](https://en.wikipedia.org/wiki/RubyGems) and configurations. Engines give developers the ability to reuse application pieces complete with routes, view paths and models. The Rack web server interface and Metal allow one to write optimized pieces of code that route around Action Controller.[[7]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-Rails_2.3:_Templates,_Engines,_Rack,_Metal,_much_more!-7)

On December 23, 2008, [Merb](https://en.wikipedia.org/wiki/Merb), another web application framework, was launched, and Ruby on Rails announced it would work with the Merb project to bring "the best ideas of Merb" into Rails 3, ending the "unnecessary duplication" across both communities.[[8]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-The_day_Merb_joined_Rails-8) Merb was merged with Rails as part of the Rails 3.0 release.[[9]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-9)[[10]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-10)

Rails 3.1 was released on August 31, 2011, featuring Reversible Database Migrations, Asset Pipeline, Streaming, [jQuery](https://en.wikipedia.org/wiki/JQuery) as default [JavaScript](https://en.wikipedia.org/wiki/JavaScript) library and newly introduced [CoffeeScript](https://en.wikipedia.org/wiki/CoffeeScript) and [Sass](https://en.wikipedia.org/wiki/Sass_(stylesheet_language)) into the stack.[[11]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-Ruby_on_Rails_3.1_Release_Notes-11)

Rails 3.2 was released on January 20, 2012 with a faster development mode and routing engine (also known as Journey engine), Automatic Query Explain and Tagged Logging.[[12]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-Ruby_on_Rails_3.2_Release_Notes-12) Rails 3.2.x is the last version that supports Ruby 1.8.7.[[13]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-Rails/master_is_now_4.0.0.beta-13) Rails 3.2.12 supports Ruby 2.0.[[14]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-14)

Rails 4.0 was released on June 25, 2013, introducing Russian Doll Caching, Turbolinks, Live Streaming as well as making Active Resource, Active Record Observer and other components optional by splitting them as gems.[[15]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-15)

Rails 4.1 was released on April 8, 2014, introducing Spring, Variants, Enums, Mailer previews, and secrets.yml.[[16]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-41announce-16)

Rails 4.2 was released on December 19, 2014, introducing Active Job, asynchronous emails, Adequate Record, Web Console, and [foreign keys](https://en.wikipedia.org/wiki/Foreign_key).[[17]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-42announce-17)

Rails 5.0 was released on June 30, 2016, introducing Action Cable, API mode, and Turbolinks 5.[[18]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-50announce-18)

Rails 5.0.0.1 was released on August 10, 2016, with Exclusive use of rails CLI over Rake and support for Ruby version 2.2.2 and above.

Rails 5.1 was released on April 27, 2017, introducing [JavaScript](https://en.wikipedia.org/wiki/JavaScript) integration changes (management of JavaScript dependencies from NPM via Yarn, optional compilation of JavaScript using [Webpack](https://en.wikipedia.org/wiki/Webpack), and a rewrite of Rails UJS to use vanilla JavaScript instead of depending on jQuery), system tests using [Capybara](https://en.wikipedia.org/wiki/Capybara_(software)), encrypted secrets, parameterized mailers, direct & resolved routes, and a unified form\_with helper replacing the form\_tag/form\_for helpers.[[19]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-51announce-19)

Rails 5.2 was released on April 9, 2018, introducing new features that include ActiveStorage, built-in Redis Cache Store, updated Rails Credentials and a new DSL that allows for configuring a Content Security Policy for an application.[[20]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-52announce-20)

Rails 5.2.2 was released on December 4, 2018, introducing numerous bug fixes and several logic improvements.[[21]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-21)

Rails 6.0 was released on August 16, 2019, making [Webpack](https://en.wikipedia.org/wiki/Webpack) default, adding mailbox routing, a default [online rich-text editor](https://en.wikipedia.org/wiki/Online_rich-text_editor), parallel testing, multiple database support, mailer routing and a new autoloader.[[22]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-22)

| **Version history** | | |
| --- | --- | --- |
| **Version** | **Date** | **Notes** |
| 1.0[[23]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-23) | December 13, 2005 |  |
| 1.2[[24]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-24) | January 19, 2007 |  |
| 2.0[[25]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-25) | December 7, 2007 |  |
| 2.1[[26]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-26) | June 1, 2008 |  |
| 2.2[[27]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-27) | November 21, 2008 |  |
| 2.3[[28]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-28) | March 16, 2009 |  |
| 3.0[[29]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-29) | August 29, 2010 |  |
| 3.1[[30]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-30) | August 31, 2011 |  |
| 3.2[[31]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-31) | January 20, 2012 |  |
| 4.0[[32]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-32) | June 25, 2013 |  |
| 4.1[[16]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-41announce-16) | April 8, 2014 |  |
| 4.2[[17]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-42announce-17) | December 19, 2014 |  |
| 5.0[[18]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-50announce-18) | June 30, 2016 |  |
| 5.1[[19]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-51announce-19) | May 10, 2017 |  |
| 5.2[[33]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-520announce-33) | April 9, 2018 |  |
| **6.0**[[34]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-60announce-34) | August 16, 2019 |  |
| Old version  Older version, still maintained  **Latest version**  Future release | | |

Technical overview[[edit](https://en.wikipedia.org/w/index.php?title=Ruby_on_Rails&action=edit&section=2)]

Like other web frameworks, Ruby on Rails uses the [model–view–controller](https://en.wikipedia.org/wiki/Model%E2%80%93view%E2%80%93controller) (MVC) pattern to organize application programming.

In a default configuration, a *model* in the Ruby on Rails framework maps to a table in a database and to a Ruby file. For example, a model class *User* will usually be defined in the file 'user.rb' in the app/models directory, and linked to the table 'users' in the database. While developers are free to ignore this convention and choose differing names for their models, files, and database table, this is not common practice and is usually discouraged in accordance with the "[convention-over-configuration](https://en.wikipedia.org/wiki/Convention_over_configuration)" philosophy.

A *controller* is a server-side component of Rails that responds to external requests from the web server to the application, by determining which view file to render. The controller may also have to query one or more models for information and pass these on to the view. For example, in an airline reservation system, a controller implementing a flight-search function would need to query a model representing individual flights to find flights matching the search, and might also need to query models representing airports and airlines to find related secondary data. The controller might then pass some subset of the flight data to the corresponding view, which would contain a mixture of static HTML and logic that use the flight data to create an HTML document containing a table with one row per flight. A controller may provide one or more actions. In Ruby on Rails, an action is typically a basic unit that describes how to respond to a specific external web-browser request. Also, note that the controller/action will be accessible for external web requests only if a corresponding route is mapped to it. Rails encourages developers to use [RESTful](https://en.wikipedia.org/wiki/Representational_state_transfer) routes, which include actions such as create, new, edit, update, destroy, show, and index. These mappings of incoming requests/routes to controller actions can be easily set up in the routes.rb configuration file.

A *view* in the default configuration of Rails is an [erb](https://en.wikipedia.org/wiki/ERB-Templating) file, which is evaluated and converted to [HTML](https://en.wikipedia.org/wiki/HTML) at run-time. Alternatively, many other templating systems can be used for views.

Ruby on Rails includes tools that make common development tasks easier "out-of-the-box", such as [scaffolding](https://en.wikipedia.org/wiki/Scaffold_(programming)) that can automatically construct some of the models and views needed for a basic [website](https://en.wikipedia.org/wiki/Website).[[35]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-35) Also included are [WEBrick](https://en.wikipedia.org/wiki/WEBrick), a simple Ruby web server that is distributed with Ruby, and [Rake](https://en.wikipedia.org/wiki/Rake_(software)), a build system, distributed as a [gem](https://en.wikipedia.org/wiki/RubyGems). Together with Ruby on Rails, these tools provide a basic development environment.

Ruby on Rails is most commonly not connected to the Internet directly, but through some front-end [web server](https://en.wikipedia.org/wiki/Web_server). [Mongrel](https://en.wikipedia.org/wiki/Mongrel_(web_server)) was generally preferred[[*by whom?*](https://en.wikipedia.org/wiki/Wikipedia:Manual_of_Style/Words_to_watch#Unsupported_attributions)] over WEBrick in the early days,[[*citation needed*](https://en.wikipedia.org/wiki/Wikipedia:Citation_needed)] but it can also run on [Lighttpd](https://en.wikipedia.org/wiki/Lighttpd), [Apache](https://en.wikipedia.org/wiki/Apache_(web_server)), [Cherokee](https://en.wikipedia.org/wiki/Cherokee_(Webserver)), [Hiawatha](https://en.wikipedia.org/wiki/Hiawatha_(web_server)), [Nginx](https://en.wikipedia.org/wiki/Nginx) (either as a module – [Phusion Passenger](https://en.wikipedia.org/wiki/Phusion_Passenger) for example – or via [CGI](https://en.wikipedia.org/wiki/Common_Gateway_Interface), [FastCGI](https://en.wikipedia.org/wiki/FastCGI) or [mod\_ruby](https://en.wikipedia.org/wiki/Mod_ruby)), and many others. From 2008 onward, Passenger replaced Mongrel as the most-used web server for Ruby on Rails.[[36]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-36) Ruby is also supported natively on the [IBM i](https://en.wikipedia.org/wiki/IBM_i).[[37]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-37)

Ruby on Rails is also noteworthy for its extensive use of the [JavaScript](https://en.wikipedia.org/wiki/JavaScript) libraries, [Prototype](https://en.wikipedia.org/wiki/Prototype_JavaScript_Framework) and [Script.aculo.us](https://en.wikipedia.org/wiki/Script.aculo.us), for scripting [Ajax](https://en.wikipedia.org/wiki/Ajax_(programming)) actions.[[38]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-38) Ruby on Rails initially utilized lightweight [SOAP](https://en.wikipedia.org/wiki/SOAP) for web services; this was later replaced by RESTful [web services](https://en.wikipedia.org/wiki/Web_services). Ruby on Rails 3.0 uses a technique called [Unobtrusive JavaScript](https://en.wikipedia.org/wiki/Unobtrusive_JavaScript) to separate the functionality (or logic) from the structure of the web page. jQuery is fully supported as a replacement for Prototype and is the default JavaScript library in Rails 3.1, reflecting an industry-wide move towards jQuery. Additionally, [CoffeeScript](https://en.wikipedia.org/wiki/CoffeeScript) was introduced in Rails 3.1 as the default JavaScript language.

Since version 2.0, Ruby on Rails offers both HTML and XML as standard output formats. The latter is the facility for RESTful web services.

Rails 3.1 introduced [Sass](https://en.wikipedia.org/wiki/Sass_(stylesheet_language)) as standard [CSS](https://en.wikipedia.org/wiki/CSS) templating.

By default, the server uses [Embedded Ruby](https://en.wikipedia.org/wiki/ERuby) in the HTML views, with files having an html.erb extension. Rails supports swapping-in alternative templating languages, such as [HAML](https://en.wikipedia.org/wiki/HAML) and [Mustache](https://en.wikipedia.org/wiki/Mustache_(template_system)).

Ruby on Rails 3.0 has been designed to work with Ruby 1.8.7, Ruby 1.9.2, and [JRuby](https://en.wikipedia.org/wiki/JRuby) 1.5.2+; earlier versions are not supported.[[39]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-39)

Ruby on Rails 3.2 is the last series of releases that support Ruby 1.8.7.

**Framework structure**[[edit](https://en.wikipedia.org/w/index.php?title=Ruby_on_Rails&action=edit&section=3)]

Ruby on Rails is separated into various packages, namely [ActiveRecord](https://en.wikipedia.org/wiki/Active_record_pattern) (an [object-relational mapping](https://en.wikipedia.org/wiki/Object-relational_mapping) system for database access), Action Pack, Active Support and Action Mailer. Prior to version 2.0, Ruby on Rails also included the Action Web Service package that is now replaced by Active Resource. Apart from standard packages, developers can make [plugins](https://en.wikipedia.org/wiki/Plug-in_(computing)) to extend existing packages. Earlier Rails supported plugins within their own custom framework; version 3.2 deprecates these in favor of standard Ruby "gems".[[40]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-Rails_3.2.0.rc2_has_been_released!-40)

**Deployment**[[edit](https://en.wikipedia.org/w/index.php?title=Ruby_on_Rails&action=edit&section=4)]

Ruby on Rails is often installed using [RubyGems](https://en.wikipedia.org/wiki/RubyGems), a package manager[[41]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-41) which is included with current versions of Ruby. Many free [Unix-like systems](https://en.wikipedia.org/wiki/Unix-like_system) also support installation of Ruby on Rails and its dependencies through their native [package management system](https://en.wikipedia.org/wiki/Package_management_system).

Ruby on Rails is typically deployed with a database server such as [MySQL](https://en.wikipedia.org/wiki/MySQL) or [PostgreSQL](https://en.wikipedia.org/wiki/PostgreSQL), and a web server such as [Apache](https://en.wikipedia.org/wiki/Apache_HTTP_Server) running the [Phusion Passenger](https://en.wikipedia.org/wiki/Phusion_Passenger) module.

Philosophy and design[[edit](https://en.wikipedia.org/w/index.php?title=Ruby_on_Rails&action=edit&section=5)]

Ruby on Rails is intended to emphasize [*Convention over Configuration*](https://en.wikipedia.org/wiki/Convention_over_Configuration) (CoC), and the [*Don't Repeat Yourself*](https://en.wikipedia.org/wiki/Don%27t_Repeat_Yourself) (DRY) principle.

"Convention over Configuration" means a developer only needs to specify unconventional aspects of the application. For example, if there is a class *Sale* in the model, the corresponding table in the database is called *sales* by default. It is only if one deviates from this convention, such as calling the table "products sold", that the developer needs to write code regarding these names. Generally, Ruby on Rails conventions lead to less code and less repetition.[[42]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-42)

"Don't repeat yourself" means that information is located in a single, unambiguous place. For example, using the [ActiveRecord](https://en.wikipedia.org/wiki/Active_record_pattern) module of Rails, the developer does not need to specify database column names in class definitions. Instead, Ruby on Rails can retrieve this information from the database based on the class name.

"Fat models, skinny controllers" means that most of the application logic should be placed within the model while leaving the controller as light as possible.

Trademarks[[edit](https://en.wikipedia.org/w/index.php?title=Ruby_on_Rails&action=edit&section=6)]

In March 2007, [David Heinemeier Hansson](https://en.wikipedia.org/wiki/David_Heinemeier_Hansson) filed three Ruby on Rails-related [trademark](https://en.wikipedia.org/wiki/Trademark) applications to the [USPTO](https://en.wikipedia.org/wiki/USPTO). These applications regard the phrase "RUBY ON RAILS",[[43]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-Trademark_77119206-43) the word "RAILS",[[44]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-Trademark_77119210-44) and the official Rails logo.[[45]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-Trademark_77119208-45) As a consequence, in the summer of 2007, Hansson denied permission to [Apress](https://en.wikipedia.org/wiki/Apress) to use the Ruby on Rails logo on the cover of a new Ruby on Rails book written by some authoritative community members. The episode gave rise to a polite protest in the Ruby on Rails community.[[46]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-Community_criticism-46)[[47]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-community-criticism-2-47) In response to this criticism, Hansson replied:

I only grant promotional use [of the Rails logo] for products I'm directly involved with. Such as books that I've been part of the development process for or conferences where I have a say in the execution. I would most definitely seek to enforce all the trademarks of Rails.[[46]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-Community_criticism-46)

Reception[[edit](https://en.wikipedia.org/w/index.php?title=Ruby_on_Rails&action=edit&section=7)]

**Scalability**[[edit](https://en.wikipedia.org/w/index.php?title=Ruby_on_Rails&action=edit&section=8)]

Rails running on [Matz's Ruby Interpreter](https://en.wikipedia.org/wiki/Ruby_MRI) (the *de facto* reference interpreter for Ruby) had been criticized for issues with scalability.[[48]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-48) These critics often mentioned various [Twitter](https://en.wikipedia.org/wiki/Twitter) outages in 2007 and 2008, which spurred Twitter's partial transition to [Scala](https://en.wikipedia.org/wiki/Scala_(programming_language)) (which runs on the [Java Virtual Machine](https://en.wikipedia.org/wiki/Java_Virtual_Machine)) for their [queueing system](https://en.wikipedia.org/wiki/Message_queue) and other [middleware](https://en.wikipedia.org/wiki/Middleware).[[49]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-49)[[50]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-50) The user interface aspects of the site continued to run Ruby on Rails[[51]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-51) until 2011 when it was replaced due to concerns over performance[[52]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-52)

In 2011, [Gartner Research](https://en.wikipedia.org/wiki/Gartner) noted that despite criticisms and comparisons to Java, many high-profile consumer web firms are using Ruby on Rails to build scalable web applications. Some of the largest sites running Ruby on Rails include [Airbnb](https://en.wikipedia.org/wiki/Airbnb), [Cookpad](https://en.wikipedia.org/wiki/Cookpad), [GitHub](https://en.wikipedia.org/wiki/GitHub), [Scribd](https://en.wikipedia.org/wiki/Scribd), [Shopify](https://en.wikipedia.org/wiki/Shopify), [Hulu](https://en.wikipedia.org/wiki/Hulu), and [Basecamp](https://en.wikipedia.org/wiki/Basecamp_Classic).[[53]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-bi20110511-53) As of January 2016, it is estimated that more than 1.2 million web sites are running Ruby on Rails.[[54]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-54)[[55]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-55)

**Security**[[edit](https://en.wikipedia.org/w/index.php?title=Ruby_on_Rails&action=edit&section=9)]

In March 2012, security researcher Egor Homakov discovered a "mass assignment" vulnerability that allowed certain Rails applications to be remotely exploited, and demonstrated it by non-maliciously hacking [GitHub](https://en.wikipedia.org/wiki/GitHub) after his earlier attempts at responsible disclosure were dismissed.[[56]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-56)

On September 24, 2013, a session cookie persistence security flaw was reported in Ruby on Rails. In a default configuration, the entire session hash is stored within a session cookie known as *CookieStore*, allowing any authenticated session possessing the session cookie to log in as the target user at any time in the future. As a workaround, administrators are advised to configure cookies to be stored on the server using mechanisms such as *ActiveRecordStore*.[[57]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-Threatpost1-57)

Researchers Daniel Jackson and Joseph Near developed a data debugger they called "Space" that can analyze the data access of a Rails program and determine if the program properly adheres to rules regarding access restrictions. On April 15, 2016, Near reported that an analysis of 50 popular Web applications using Space uncovered 23 previously unknown security flaws.[[58]](https://en.wikipedia.org/wiki/Ruby_on_Rails#cite_note-58)

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* [Official website](https://rubyonrails.org/) [Edit this at Wikidata](https://www.wikidata.org/wiki/Q190478#P856)
* [Rails source code](https://github.com/rails/rails)
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