

Informed Consent

Dependency Management Practices and Values Survey

In this survey you'll be asked some questions about a software ecosystem you participate in, and then, if applicable, your experiences with some package you've worked on in that ecosystem. The study is part of a research project at Carnegie Mellon University, studying how software communities' different priorities lead them to adopt different ways of negotiating changes. The software ecosystem communities you and others participate in may benefit from a better understanding of how their policies accomplish the things they value, and how they burden or benefit different people.

Participation is voluntary, anonymous, and can be withdrawn at any time. Participation will take approximately 15-25 minutes. We do not publish raw data and do not ask for information that can identify you.

If you have questions or concerns about this project, contact Professor Christian Kästner (kaestner@cs.cmu.edu) or Chris Bogart (cbogart@cs.cmu.edu).

By clicking "**I consent; begin the survey**" you are indicating that you are at least 18 years old, have read and understood this form and agree to participate in this research study.

Ecosystem

Part I: Ecosystem

Please choose ONE software ecosystem* in which you publish a package**. If you don't publish any packages, then pick an ecosystem whose packages you use.

* "Software ecosystem" = a community of people using and developing packages that can depend on each other, using some shared language or platform

** "Package": A distributable, separately maintained unit of software. Some ecosystems have other names for them, such as "libraries", "modules", "crates", "cocoapods", "rocks" or "goodies", but we'll use "package" for consistency.

- Atom (plugins)
- Bower
- C++/Boost
- Clojure/Clojars
- Dart/Pub
- Eclipse (plugins)
- Erlang,Elixir/Hex
- Go
- Haskell (Cabal/Hackage)
- Haskell (Stack/Stackage)
- Julia/pkg.julialang.org
- Lua/Luarocks
- Maven
- Meteor/Atmosphere
- NuGet
- Node.js/NPM
- Perl/CPAN
- Perl 6 (modules.perl6.org)
- PHP/PEAR/PEAR2/PECL
- PHP/Packagist
- Python/PyPi
- R/Bioconductor
- R/CRAN
- Racket/pkgs.racket-lang.org
- Ruby/Rubygems
- Rust/Cargo
- Smalltalk
- Swift/SwiftPM
- Swift,Objective-C/CocoaPods
- Tex/CTAN
- Wordpress (plugins)

Other

Other (type the name)

Maven Note: For the "Maven ecosystem", we are interested in the ecosystem of developers of frameworks and libraries in Java, Scala, and other languages that share artifacts through Maven Central or other Maven repositories.

All questions relating to the Maven ecosystem refer to developers and users uploading or downloading jar files directly or indirectly, for example through build systems or tools like gradle, sbt, ivy, or maven itself.

Wordpress and Atom (plugin) note: For these platforms, we are interested in the "ecosystem" of plugins for these platforms. When we ask about dependencies, we are talking about the situation where one plugin needs another plugin in order to function.

The wording of the questions is generic because we ask the same things of authors of general-purpose modules, libraries, and packages for programming languages as well.

Ecosystem Role

Check the statement that best describes your role in this ecosystem.

- I'm a founder or core contributor to **`\${e://Field/ECOSYSTEM-ID}`** (i.e. its language, platform, or repository).
- I'm a lead maintainer of a **commonly-used** package in **`\${e://Field/ECOSYSTEM-ID}`**.
- I'm a lead maintainer of at least one package in **`\${e://Field/ECOSYSTEM-ID}`**.
- I have commit access to at least one package in **`\${e://Field/ECOSYSTEM-ID}`**.
- I have submitted a patch or pull request to a package in **`\${e://Field/ECOSYSTEM-ID}`**.
- I have used packages from **`\${e://Field/ECOSYSTEM-ID}`** for code or scripts I've written.

About how many years have you been using **`\${e://Field/ECOSYSTEM-ID}`** in any way?

| | | | | | | |
|------------------------|-------------------|-----------|-----------------------|------------------|------------------------------------|-----------------|
| Extremely Important | Very Important | Important | Somewhat Important | Not important | Community opposes this value | I Don't know |
|------------------------|-------------------|-----------|-----------------------|------------------|------------------------------------|-----------------|

Replicability:

Long term archival of current and historic versions with guaranteed integrity, such that exact behavior of code can be replicated.

| | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|

Compatibility:

Protecting users from struggling to find a compatible set of versions of different packages

| | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|

| | | | | | | |
|------------------------|-------------------|-----------|-----------------------|------------------|------------------------------------|-----------------|
| Extremely Important | Very Important | Important | Somewhat Important | Not important | Community opposes this value | I Don't know |
|------------------------|-------------------|-----------|-----------------------|------------------|------------------------------------|-----------------|

Rapid Access:

Getting package changes through to end users quickly after their release ("no delays")

| | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|

Quality: Providing packages of very high quality (e.g. good security or correctness)

| | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|

Commerce:

Helping professionals build commercial software

| | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|

Community:

Collaboration and communication among developers

| | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|

| | | | | | | |
|------------------------|-------------------|-----------|-----------------------|------------------|------------------------------------|-----------------|
| Extremely Important | Very Important | Important | Somewhat Important | Not important | Community opposes this value | I Don't know |
|------------------------|-------------------|-----------|-----------------------|------------------|------------------------------------|-----------------|

Extremely Important Very Important Somewhat Important Not important Community opposes this value I Don't know

Openness and Fairness:

ensuring that everyone in the community has a say in decisionmaking and the community's direction

Curation:

Providing a set of consistent, compatible packages that cover users' needs

Fun and personal growth:

Providing a good experience for package developers and users

How confident are you in your ratings of the values of **{e://Field/ECOSYSTEM-ID}** above?

Not confident

Slightly confident

Confident

Very confident

(OPTIONAL) Is there some other value the **{e://Field/ECOSYSTEM-ID}** community emphasizes that was not asked above? If so, describe it here:

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Important groups of participants

In some ecosystems, some participants have more influence than others over the direction of the ecosystem. In the `{e://Field/ECOSYSTEM-ID}` ecosystem, rate which groups are more or less likely to get what they need or want.

| | Highest influence | High influence | Medium influence | Low influence | Lowest influence | I Don't Know/Not Applicable |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------------|
| End users: People who rely on the ecosystem's packages, but do not necessarily contribute packages themselves | <input type="radio"/> |
| Developers: People who write or maintain packages | <input type="radio"/> |
| Leaders: A small group of people who organize the community and set policies | <input type="radio"/> |
| Gatekeepers: People who decide if submitted packages will be made available | <input type="radio"/> |
| Sponsors: Organizations that supply developers, code, tools, money, etc. to the community | <input type="radio"/> |

Thinking about who has influence and gets what they want and need: do you agree that the situation is fair?

| | | | | |
|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| Strongly agree | Somewhat agree | Neither agree nor disagree | Somewhat disagree | Strongly disagree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | Strongly agree | Somewhat agree | Neither agree nor disagree | Somewhat disagree | Strongly disagree | I don't know |
|--|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| {e://Field/ECOSYSTEM-ID} is not very attractive to people building commercial software. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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Package you've developed

Part II: Package

In the following we are going to ask about your experience working on one particular package.

Please think of one package in **{e://Field/ECOSYSTEM-ID}** you have contributed to recently and are most familiar with.

If you haven't contributed to a package in **{e://Field/ECOSYSTEM-ID}**, then name some software you've written that relies on packages in **{e://Field/ECOSYSTEM-ID}** packages.

You may use a pseudonym for it if you are concerned about keeping your responses anonymous.

Do you submit the package you chose to a/the repository associated with

{e://Field/ECOSYSTEM-ID}? (Choose "no" if the ecosystem does not have its own central repository.)

- Yes, I submit **{e://Field/PACKAGE-ID}** to a central repository
- No, I distribute **{e://Field/PACKAGE-ID}** on my own (via Github, my website, etc)

| | Extremely Important | Very Important | Important | Somewhat Important | Not important | I oppose this value |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | Extremely Important | Very Important | Important | Somewhat Important | Not important | I oppose this value |
| Rapid Access: Getting package changes through to end users quickly after their release | <input type="radio"/> |
| Quality: (e.g. good security or correctness) | <input type="radio"/> |
| Commerce: Building, or helping users build, commercial software | <input type="radio"/> |
| Community: Collaboration and communication with other developers | <input type="radio"/> |
| | Extremely Important | Very Important | Important | Somewhat Important | Not important | I oppose this value |
| Openness and Fairness: Ensuring that everyone in the community has a say in decisionmaking (e.g. about policies, leadership, criteria for inclusion, etc.) | <input type="radio"/> |
| Curation: Contributing to a set of consistent, compatible packages that cover users' needs | <input type="radio"/> |
| Fun and personal growth: Having fun and learning | <input type="radio"/> |
| | Extremely Important | Very Important | Important | Somewhat Important | Not important | I oppose this value |

(OPTIONAL) Is there some other value important to you personally for **{e://Field/PACKAGE-ID}** which was not mentioned?

Making changes to **#{e://Field/PACKAGE-ID}**

| | Strongly agree | Somewhat agree | Neither agree nor disagree | Somewhat disagree | Strongly disagree |
|---|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| I feel constrained not to make too many changes to #{e://Field/PACKAGE-ID} because of potential impact on users. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I know what changes users of #{e://Field/PACKAGE-ID} want. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If I have multiple breaking changes to make to #{e://Field/PACKAGE-ID} , I try to batch them up into a single release. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I release #{e://Field/PACKAGE-ID} on a fixed schedule, which #{e://Field/PACKAGE-ID} users are aware of. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Releases of #{e://Field/PACKAGE-ID} are coordinated or synchronized with releases of packages by other authors. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| When working on #{e://Field/PACKAGE-ID} , I make technical compromises to maintain backward compatibility for users. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | Strongly agree | Somewhat agree | Neither agree nor disagree | Somewhat disagree | Strongly disagree | I don't know |
|---|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| Most packages in #{e://Field/ECOSYSTEM-ID} with version greater than 1.0.0 increment the leftmost digit of the version number if the change might break downstream code. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Versioning-COND

Making changes to **#{e://Field/PACKAGE-ID}**

| | Strongly agree | Somewhat agree | Neither agree nor disagree | Somewhat disagree | Strongly disagree |
|---|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| I sometimes release small updates of #{e://Field/PACKAGE-ID} to users without changing the version number at all. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| For my packages whose version is greater than 1.0.0, I always increment the leftmost digit if a change might break downstream code (semantic versioning). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| When making a change to #{e://Field/PACKAGE-ID} , I usually write up an explanation of what changed and why (a change log). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | Strongly agree | Somewhat agree | Neither agree nor disagree | Somewhat disagree | Strongly disagree |
|---|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| When working on #{e://Field/PACKAGE-ID} , I usually communicate with users before performing a change, to get feedback or alert them to the upcoming change. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| When making a breaking change on #{e://Field/PACKAGE-ID} , I usually create a migration guide to explain how to upgrade. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| After making a breaking change to #{e://Field/PACKAGE-ID} , I usually assist one or more users individually to upgrade. (e.g. reaching out to affected users, submitting patches/pull requests, offering help) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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Dependency participation

Part IV: Dependencies

In this part we will ask about your involvement with your package's dependencies.

In the last 6 months I have participated in discussions, or made bug/feature requests, or worked on development of another package in `{e://Field/ECOSYSTEM-ID}` that one of my packages depends on.

Yes

No

Have you contributed *code* to an upstream dependency of one of your packages in the last 6 months (one where you're *not* the primary developer)?

Yes

No

About how often do you communicate with developers of packages you depend on (e.g. participating in mailing lists, conferences, twitter conversations, filing bug reports or feature requests, etc.)?

- Never
- Less than once a year
- Several times a year
- Several times a month
- Several times a week
- Several times a day

MONITORING

For most dependencies that my packages rely on, the way I typically become aware of a change to the dependency that might break my package is:

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree

| | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I read about it in the dependency project's internal media (e.g. dev mailing lists, not general public announcements) | <input type="radio"/> |
| I read about it in the dependency project's external media (e.g. a general announcement list, blog, twitter, etc) | <input type="radio"/> |
| A developer typically contacts me personally to bring the change to my attention | <input type="radio"/> |
| Typically I get a notification from a tool when a new version of the dependency is likely to break my package | <input type="radio"/> |
| Typically, I find out that a dependency changed because something breaks when I try to build my package. | <input type="radio"/> |

How do you typically declare the version numbers of packages that **\$(e://Field/PACKAGE-ID)** depends on?

- I specify an exact version number
- I specify a range of version numbers, e.g. 3.x.x, or [2.1 through 2.4]
- I specify just a package name and always get the newest version
- I specify a range or just the name, but I take a snapshot of dependencies (e.g. shrinkwrap, packrat)

What is the common practice in **\$(e://Field/ECOSYSTEM-ID)** for declaring version numbers of dependencies?

- Specify an exact version number

- Specify a range of version numbers, e.g. 3.x.x, or [2.1 through 2.4]
- Specify just a package name and always get the newest version
- Specify a range or just the name, but take a snapshot of dependencies (e.g. shrinkwrap, packrat)
- I don't know

Avoiding dependencies

Using or avoiding dependencies

| | Strongly agree | Somewhat agree | Neither agree nor disagree | Somewhat disagree | Strongly disagree |
|--|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| When adding a dependency to {e://Field/PACKAGE-ID} , I usually do significant research to assess the quality of the package or its maintainers, before relying on a package that seems to provide the functionality I need. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It's only worth adding a dependency if it adds a substantial amount of value. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I often choose NOT to update {e://Field/PACKAGE-ID} to use the latest version of its dependencies. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| When adding a dependency, I usually create an abstraction layer (i.e., facade, wrapper, shim) to protect internals of my code from changes. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree

When working on **{e://Field/PACKAGE-ID}**, I often copy or rewrite segments of code from other packages into my package, to avoid creating a new dependency.

When working on **{e://Field/PACKAGE-ID}**, I must expend substantial effort to find versions of all my dependencies that will work together.

(OPTIONAL) Compare **{e://Field/ECOSYSTEM-ID}** with other ecosystems you've used or heard about -- does one have some features that the other should adopt? If so, name the other ecosystem(s) and describe the feature(s).

(OPTIONAL) Why do you think people chose to design these other ecosystem(s) differently from **{e://Field/ECOSYSTEM-ID}**?

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Demographics

Part V: Demographics and motivations

Age

18 - 24

25 - 34

35 - 44

45 - 54

55 - 64

65 or older

Gender

Formal computer science education/training

- None
- One or more formal courses (e.g. professional or academic courses)
- College degree (BS, MS, or PhD)

How many years have you been contributing to open source? (in any way, including writing code, documentation, engaging in discussions, etc)

< 1 year

1 - 2 years

2 - 5 years

5 - 10 years

10 - 20 years

> 20 years

How many years have you been developing or maintaining software?

< 1 year

1 - 2 years

2 - 5 years

5 - 10 years

10 - 20 years

> 20 years

People work on software for many different reasons. They also derive different kinds of satisfaction from such work. Following are some reasons other developers have given us regarding their participation in open source projects. Thinking of your own work on **\$(e://Field/PACKAGE-ID)**, please indicate how important each of these motivations is to you:

Great
importance

Little
Importance

| | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I really enjoy it. It is fun. | <input type="radio"/> |
| It gives me the chance to attain a recognized qualification or skill. | <input type="radio"/> |
| It gives me status at work. | <input type="radio"/> |
| It increases my opportunities for a better job. | <input type="radio"/> |
| It is the satisfaction of seeing the results of the work I do. | <input type="radio"/> |
| It gives me a sense of personal achievement. | <input type="radio"/> |
| I can add features I want or need to use. | <input type="radio"/> |
| It gives me status in the community. | <input type="radio"/> |
| It's part of my job. | <input type="radio"/> |
| It gives me the chance to do things I am good at. | <input type="radio"/> |
| I can fix bugs or problems that cause me trouble. | <input type="radio"/> |

(OPTIONAL) Is there anything else we should have asked, that would help us better understand your experience with community values and breaking changes in **#{e://Field/ECOSYSTEM-ID}**? If so, tell us about it:

