# Contributing to Apache Tomcat

Firstly, thanks for your interest in contributing! I hope that this will be a

pleasant experience for you, and that you will return to continue

contributing.

Please visit our [Get Involved page](https://tomcat.apache.org/getinvolved.html)

for more information on how to contribute.

## Code of Conduct

This project and everyone participating in it are governed by the Apache

software Foundation's

[Code of Conduct](https://www.apache.org/foundation/policies/conduct.html). By

participating, you are expected to adhere to this code. If you are aware of

unacceptable behavior, please visit the

[Reporting Guidelines page](https://www.apache.org/foundation/policies/conduct.html#reporting-guidelines)

and follow the instructions there.

## How Can I Contribute?

Most of the contributions that we receive are code contributions, but you can

also contribute to the documentation, wiki, etc., or simply report solid bugs

for us to fix.

### Reporting Bugs

Please review our [guide](https://tomcat.apache.org/bugreport.html) on how to

submit a bug report. This page also has links to other resources to assist

you.

### Your First Code Contribution

### Trouble Deciding How to Contribute?

Unsure where to begin contributing to Tomcat? You can start by taking a look at

the issues marked 'Beginner', link below. Please note that the Beginner keyword

is pretty new to the project, so if there aren't any issues in the filter feel

free to ask on the [dev list](https://tomcat.apache.org/lists.html#tomcat-dev).

\* [Beginner issues](https://bz.apache.org/bugzilla/buglist.cgi?bug\_status=NEW&bug\_status=ASSIGNED&bug\_status=REOPENED&bug\_status=NEEDINFO&keywords=Beginner&keywords\_type=allwords&list\_id=160824&product=Tomcat%207&product=Tomcat%208.5&product=Tomcat%209&query\_format=advanced) -

issues which should only require a few lines of code, and a test or two to

resolve.

The list above shows all bugs that are marked 'Beginner' and are open in the

currently supported Tomcat versions (7, 8.5, and 9).

If you prefer C over Java, you may also take a look at the tomcat-native and

Tomcat Connectors products in Bugzilla.

### How to Provide Your First Patch

Excited yet? This section will guide you through providing a patch to the

committers of the project for review and acceptance.

##### Choose Your Method of Submission

You can provide a patch in one of the following ways (in order of preference):

\* GitHub Pull Request

\* Patch attachment to the Bugzilla issue

\* Email the patch to the developer list. This is not preferred, but if no bug

is associated with the patch, or you would like a developer review, an email

may be appropriate.

##### Get the Sources

Now that you've chosen how you want to submit a patch, you need to get the

source code.

###### Download The Source Distribution

This method works if you want to submit a patch via email, but

the difference in using the sources distribution and a VCS is that you have to

manually generate the patch file by using diff. If this is what you want, you

can download the sources from the "Source Code Distributions" section of the

Download Page. There is one such page for every major Tomcat version:

- [Tomcat 9](https://tomcat.apache.org/download-90.cgi)

- [Tomcat 8](https://tomcat.apache.org/download-80.cgi)

- [Tomcat 7](https://tomcat.apache.org/download-70.cgi)

##### Manual Patch Generation

If you have chosen to attach a patch to the Bugzilla issue (or email

one), then you'll need to download the sources as noted above, make your

desired changes and then manually generate your patch using diff (or any

other tool).

##### GitHub

To submit a GitHub Pull Request you'll need to fork the

[repository](https://github.com/apache/tomcat), clone your fork to do the work:

```

$ git clone https://github.com/$USERNAME/tomcat.git

```

and then push your changes, and submit a Pull Request via the GitHub UI.

#### Submitting Your Patch!

After you've chosen your method of submission, retrieved the sources, and

fixed the issue it's time to submit your work. At this point, just follow

the method of submission you chose earlier.

\* GitHub PR - after resolving the issue in your local fork and pushing to your

copy of the repository, open a GitHub PR for review.

\* Bugzilla attachment - attach the patch to the Bugzilla issue

\* Email - again, not preferred, but you may send an email to the developer list

with a patch attached for review.

#### Waiting For Feedback

It may take a while for committers to review. Please be patient during this

time as all committers are volunteers on the project. If a significant amount

of time has lapsed since your submission, such as a couple of months, feel free

to either update your BZ, PR, or email the dev list with a message to bump your

issue. Sometimes things get lost in all the work and we need a reminder :smile:

## Style Guide

Apache Tomcat has very loosely defined coding conventions, but the following

guidelines will be useful:

\* Use spaces for indenting, not tabs

\* 100 char line width for Java source, 80 char line width for documentation

source (.txt, .xml)

\* Java source: { at end of line, 4 space indents

\* XML source: 2 space indents

## Did we miss something?

Have you reviewed this guide and found it lacking? Or are you confused about

some particular step? If so, please let us know! Or better yet, submit a PR to

address the issue :wink: