Contributing

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Questions

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Please first read through the [FAQ](https://github.com/angular/protractor/blob/master/docs/faq.md).

Please ask questions on [StackOverflow](http://stackoverflow.com/questions/tagged/protractor), [Google Group discussion list](https://groups.google.com/forum/?fromgroups#!forum/angular), or [Gitter](https://gitter.im/angular/protractor).

Any questions posted to Protractor's Github Issues will be closed with this note:

Please direct general support questions like this one to an appropriate support channel, see https://github.com/angular/protractor/blob/master/CONTRIBUTING.md#questions

Thank you!

Issues

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If you have a bug or feature request, please file an issue.

Before submitting an issue, please search the issue archive to help reduce duplicates, and read the

[FAQ](https://github.com/angular/protractor/blob/master/docs/faq.md).

Try running with troubleshooting messages (`protractor --troubleshoot`) against your configuration to make sure that there is not an error with your setup.

When submitting an issue, please include a reproducible case that we can actually run. Protractor has a test Angular application available at `http://www.protractortest.org/testapp` which you can use for the reproducible test case. If there's an error, please include the error text.

Please format code and markup in your issue using [github markdown](https://help.github.com/articles/github-flavored-markdown).

Contributing to Source Code (Pull Requests)

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Loosely, follow the [Angular contribution rules](https://github.com/angular/angular.js/blob/master/CONTRIBUTING.md).

\* If your PR changes any behavior or fixes an issue, it should have an associated test.

\* New features should be general and as simple as possible.

\* Breaking changes should be avoided if possible.

\* All pull requests require review. No PR will be merged without a comment from a team member stating LGTM (Looks good to me).

Protractor specific rules

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\* JavaScript style should generally follow the [Google JS style guide](https://google.github.io/styleguide/javascriptguide.xml).

\* Wrap code at 80 chars.

\* Document public methods with jsdoc.

\* Be consistent with the code around you!

Commit Messages

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Please write meaningful commit messages - they are used to generate the changelog, so the commit message should tell a user everything they need to know about a commit. Protractor follows AngularJS's [commit message format](https://docs.google.com/a/google.com/document/d/1QrDFcIiPjSLDn3EL15IJygNPiHORgU1\_OOAqWjiDU5Y/edit#heading=h.z8a3t6ehl060).

In summary, this style is

<type>(<scope>): <subject>

<BLANK LINE>

<body>

Where `<type>` is one of [feat, fix, docs, refactor, test, chore, deps] and

`<scope>` is a quick descriptor of the location of the change, such as cli, clientSideScripts, element.

Testing your changes

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Test your changes on your machine by running `npm start` to start up the test application,

then `npm test` to run the test suite. This assumes you have a Selenium Server running

at localhost:4444.

When you submit a PR, tests will also be run on the Continuous Integration environment

through Travis. If your tests fail on Travis, take a look at the logs - if the failures

are known flakes in Internet Explorer or Safari you can ignore them, but otherwise

Travis should pass.