



## Security in the Community



MOTIVATING JENNY

### Four tips for online learning

How do you solve a problem involving security? You might ask somebody in your office; but there's a good chance that you'll also need to find support online. This could be a discussion in Stack Overflow or another similar Q&A or discussion site. These sites are places where developers can ask questions about programming problems they are solving, and get answers. This guide provides advice about how to use sites like Stack Overflow to learn about software security.

#### 1. Where do I start?

*Start with the normal questions you have about a specific programming task.*

If you Google for the answer to a programming problem, more often than not you'll find references in Stack Overflow or one of its related sites. You'll learn about security on Stack Overflow within the context of specific tasks you need to complete. Developers on Stack Overflow typically do this, expanding their security awareness and understanding incrementally, by exploring the implications in the context of familiar technologies and skills.

For example, you might use a general question about secure password storage as a space to examine different features of a language API. In asking a follow-up question about the API, you can learn more about how the language works, and at the same time gather information about secure information storage.

#### 2. How can I trust the information I find online?

*Look for tended posts and comment streams: the ones with comments and updates, even made over several years.*

Answers found online aren't always right. Researchers have found that this is particularly true in online posts about security. In part, this is because security is dynamic; changing threats require ongoing attention to ensure that mechanisms remain effective and up to date.

Security tagged posts on Stack Overflow reflect this, and often remain active for months or even years after an answer is accepted.

Tending activity might keep links up-to-date, add references to other documents, or refine the language of the question and answer posts for clarity. But often participants will also tend to the content within posts and comment streams. Answers develop over time to include different scenarios, to consider new developments around the issue, or to develop the argument for an answer. Answers can be modified using information from existing comments, to produce new, relevant information or a new perspective. Look for tended discussion that shows:

1. **Information trading.** Participants trade "small" pieces of information in comment streams that serve an immediate need, eg. how a feature of a language or framework behaves.
2. **Broadcasts,** with updates about technologies or libraries or software company activity. Sometimes this information is added to answer or question posts, but often you'll find it buried in comment threads.
3. **Related Work.** Look for explanations supported with links to other information, such as related answers, articles and documentation.



Figure 1 Trading information about security

### 3. How can I avoid wasting time online?

*Join in by lending a hand or asking for help.*

Lopez, T., Weir, C., Tun, T., Cooper, H., Bandara, A., Levine, M., Nuseibeh, B. and Sharp, H. (2020) 'Security in the Community', figshare [Online]. DOI: 10.21954/ou.rd.12213113.

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Time is money, but taking the time to make personal connections will improve secure coding practice. Upvotes may help to show promising information, but they're not enough! Problem-solving of security problems often requires additional support with discussions between participants.

Security problems, like other problem solving that developers undertake to complete tasks reflect individual needs in the moment that are shaped by personal knowledge, the context of work, and the technologies at play. Support is given within comments written by the author of accepted answers, and by other users that have particular knowledge of a language or technical aspect of security. You can use the connections you make to:

1. **Give and receive focused, non-judgemental assistance.** You might provide or ask for information, clarification or corrections; or you might confirm your understanding.
2. **Associate technology facts with security problems.** Look for the details: for example, showing how a detail of a language works with an equally small feature of security.
3. **Situate technical advice in the broader security landscape.** You might use anecdotes to explain how attackers use particular technologies, or to bring broader attack scenarios to life.

#### 4. How will this help my project and team?

*By bringing new insight about security into your team discussions and practice.*

If you're like most developers, you will prefer to draw on the support of your colleagues before turning to online sources; but often you'll find that problem solving is a mix of online and real-world interactions. Simply copying code snippets can and does often introduce security vulnerabilities. You will need to mould the information found online, including code snippets, to your local software environment, to your functional requirements, or to your particular requirements for security.

The best way to do this is to share the information you find online with colleagues. Bring security to the forefront of practice in your office by talking over and assessing the things you learn online.

#### Further Reading

- IEEE Software article “Taking the Middle Path: Learning about Security Through Online Social Interaction” outlines the research we conducted to generate this advice. Pre-print: <http://oro.open.ac.uk/67180/1/08854988.pdf>

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- Raymond, E.S. and Moen, R., 2014. “How to ask questions the smart way”, catb [Online]. <http://www.catb.org/esr/faqs/smart-questions.html>. (Accessed 10 March, 2020). This version includes a section on Stack Overflow.

## Feedback

If you use these materials, please would you help us develop them for you and others in future? Please tweet your experience to @MotivatingJenny, and email us at [motivatingjenny@open.ac.uk](mailto:motivatingjenny@open.ac.uk) with quick answers to the following questions:

- How many people took part?
- What did you find worked well?
- What did you feel needed improvement?

Thank you very much for your help!