

Thomas A. Limoncelli  
SRE Manager

# Low-Context DevOps:

A new way of improving SRE team culture



[stackoverflow.com/teams](https://stackoverflow.com/teams)

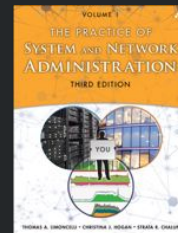
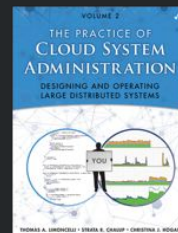
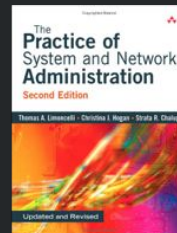
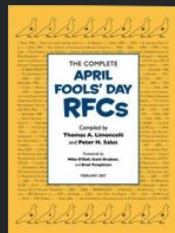
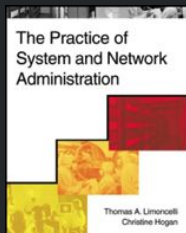
# Introduction





# Who is Tom Limoncelli?

- ✓ Pronouns: he/him
- ✓ SRE Manager at Stack Overflow, Inc (NYC)
- ✓ Sysadmin since 1988 (Google, AT&T/Bell Labs, Mentor)
- ✓ Blog: [EverythingSysadmin.com](http://EverythingSysadmin.com) Twitter: [@YesThatTom](https://twitter.com/YesThatTom)
- ✓ Author



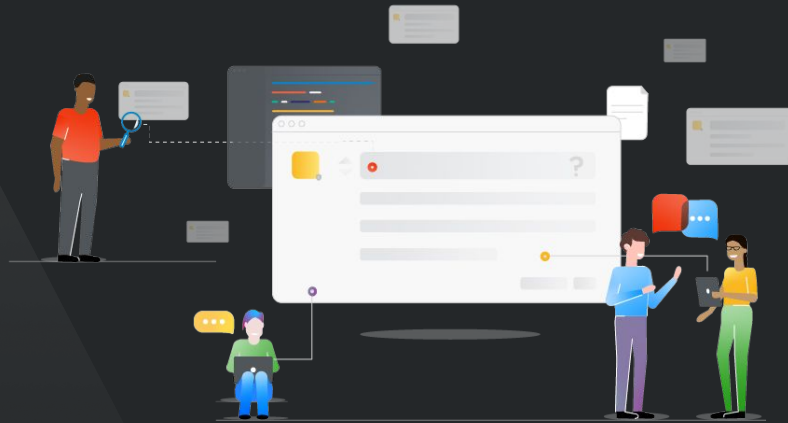
**10 billion**

Page views in 2019

**100+ million**

Unique visitors in 2019





 **stack overflow**  
FOR TEAMS



# Foreshadowing



1. High and low context cultures
2. Low context DevOps
3. Leadership



Our common  
challenge







# 1. High and Low Context Cultures





# High Context Cultures

A party with friends, family gatherings, expensive gourmet restaurants with a regular clientele, undergraduate on-campus friendships, hosting a friend in your home overnight

- ✓ Communication is implicit. Less written/formal information; more collective history
- ✓ People have to “read between the lines” to understand what’s going on
- ✓ Relies on long term relationships
- ✓ Decisions and activities focus around personal face-to-face relationships, often around a central person who has authority



# Low Context Cultures

Large airports, a chain supermarket, a cafeteria, a convenience store, sports where rules are clearly laid out, a motel

- ✓ Communication is explicit
- ✓ There are rules, you are told the rules
- ✓ Knowledge tends to be codified, public, external, and accessible
- ✓ More interpersonal connections of shorter duration
- ✓ Knowledge is more often transferable



# High Context

All meaning **is not conveyed** in the language

# Low Context

Most meaning **is expressed** by the specific words



Chinese languages

Japanese

Arabic

Indian languages

Greek

Spanish

Italian

English

French

American

Scandinavian languages

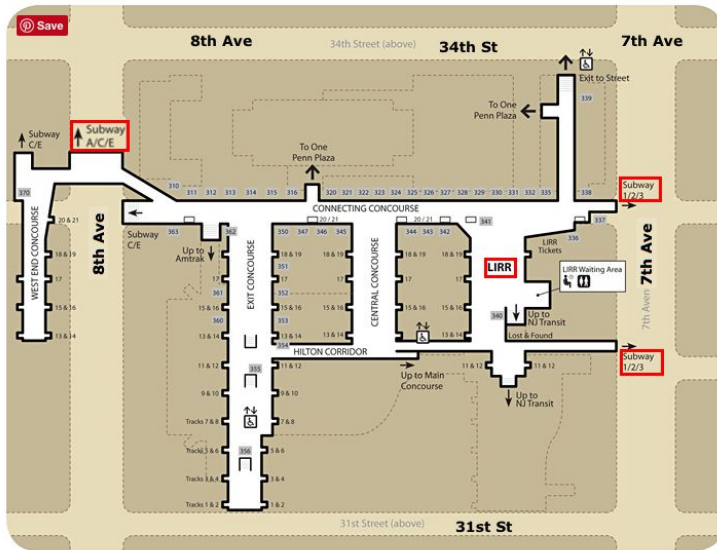
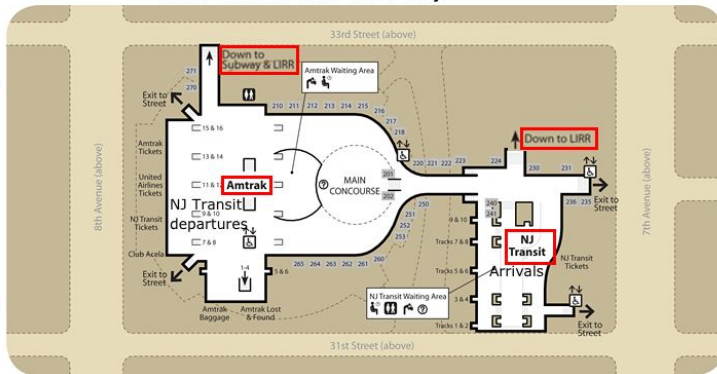
German/Swiss

Dutch





## Penn Station New York City









## 2. Low Context DevOps

A DevOps  
environment  
should strive to  
be low-context



**Three ways  
to reduce  
the required  
context  
of your  
DevOps env**



Carefully Constructed Defaults



Make Right Easy



Ubiquitous Documentation



# Carefully Constructed Defaults





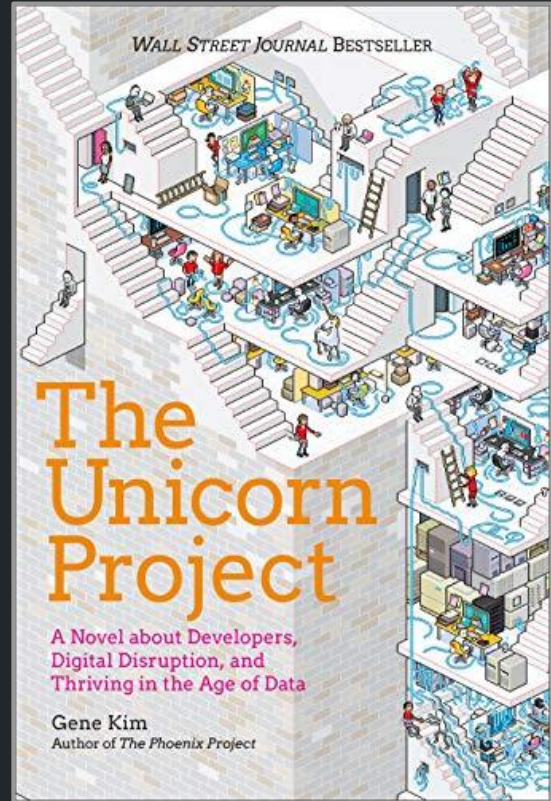
# New Employee Environment

- ✓ PC
- ✓ Software required to do your job
- ✓ Access and Permissions



# Why this stays broken?

- ✓ New employees can't fix it.
- ✓ Experienced employees don't feel the pain.
- ✓ Requires working across silos:  
IT, InfoSec, Eng, HR
- ✓ Who will do this if you don't?



Make Right  
Easy





**The lazy path  
guides you to  
the right way**





## Good

### LibreSSL:

The default is “timelessly correct”

Our **CI/CD pipeline** embodies our recommended practices

**Base library** institutes telemetry collection, standard flags, etc.  
Not being standard is difficult!

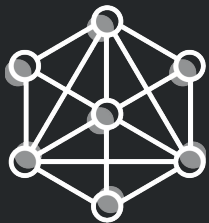


## Bad

### OpenSSL:

Requires PhD to use right, stale settings





# Foundational Tools

Your foundational tools and infrastructure make or break your ability to provide a low context environment.

- ✓ Ticket system
- ✓ Bug tracking system
- ✓ Monitoring / observability
- ✓ Config management
- ✓ OS Installation and Patching
- ✓ CI/CD Pipeline system
- ✓ Container / artifact repository
- ✓ Documentation repository
- ✓ Source code control
- ✓ Chat & Collaboration Infrastructure



# Ubiquitous Documentation











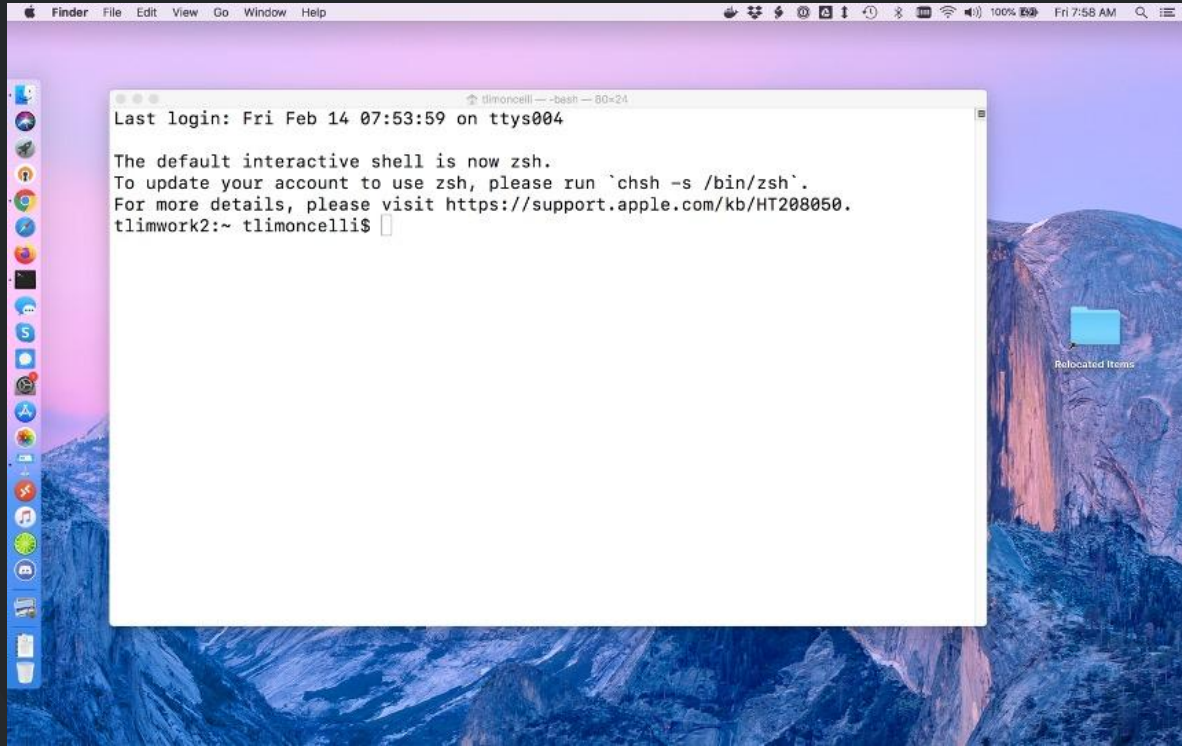
# Docs when you need them

A deep link / URL:

- ✓ In error messages
- ✓ In CI/CD control panel descriptions
- ✓ In alert messages
- ✓ Everywhere people might want info!







**Create a culture  
of ubiquitous  
documentation**



## Management sets expectations

- ✓ It's not done until it's documented
- ✓ Not just big projects: Tickets, chatops, releases

## Culture of always updating as you work

- ✓ “Manual Work is a Bug”
- ✓ <https://queue.acm.org/detail.cfm?id=3197520>

## File bugs about docs just like software

- ✓ Record tech debt or it won't be fixed
- ✓ Stale documentation is dangerous

## Fight the “my code is the documentation”

- ✓ At a minimum, you need a doc to point to the code! (or how to get started)



Need  
inspiration?



**Document**  
**so you can**  
**relax while**  
**on vacation.**



Docs?

What docs?



404 Not Found



Raise your  
hand if you  
love to write  
documentation





# Why people avoid writing documentation





**Uncertain Scope**

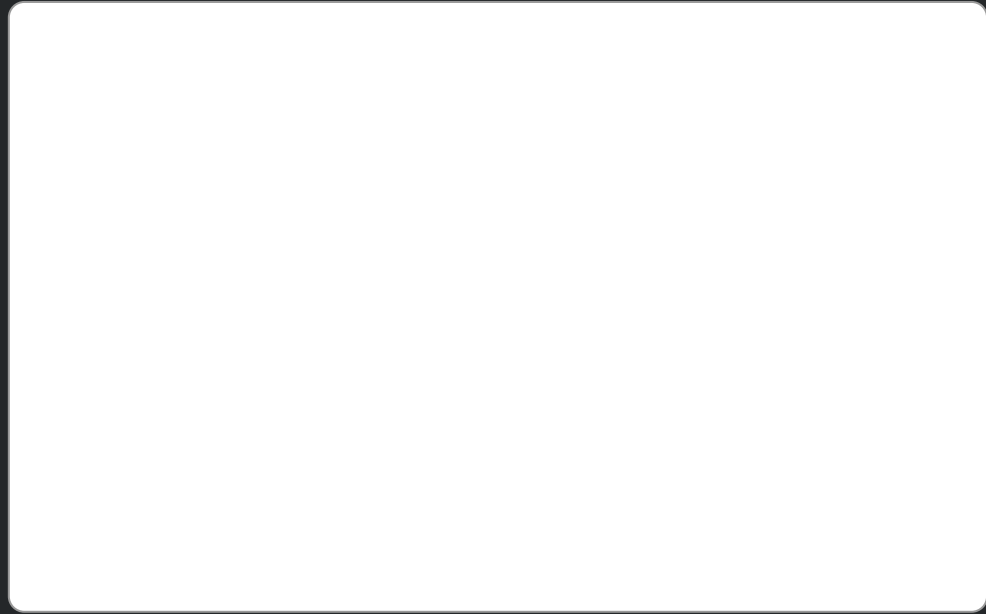


**Uncertain  
Audience**



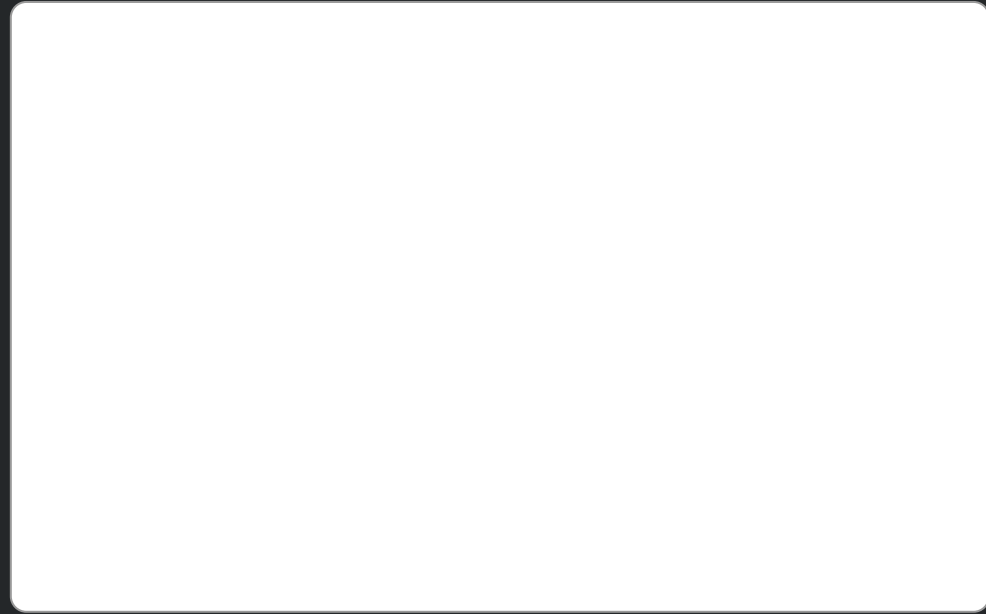
**And ...**





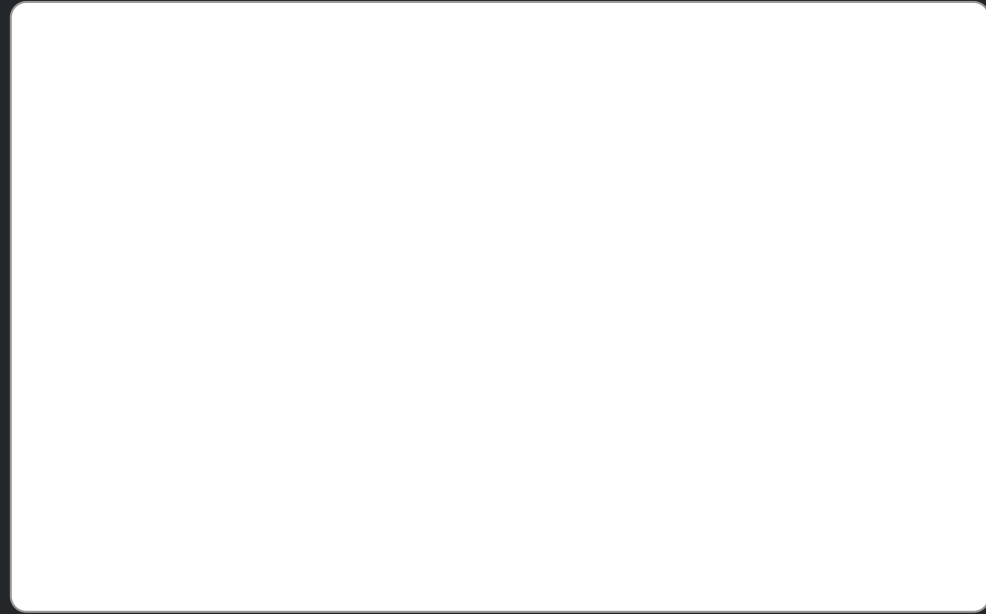
Blank screen





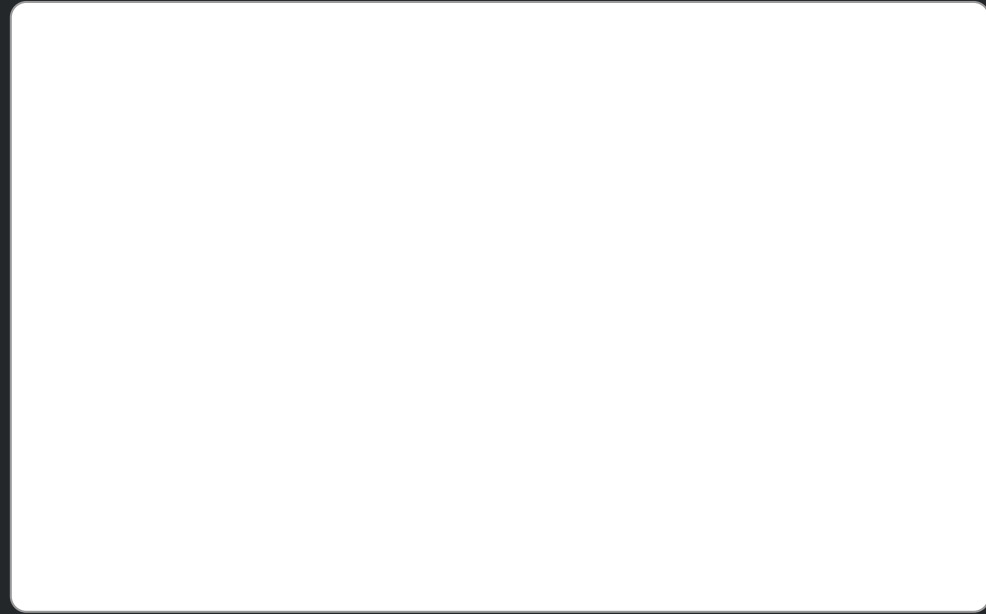
Blank VIM document





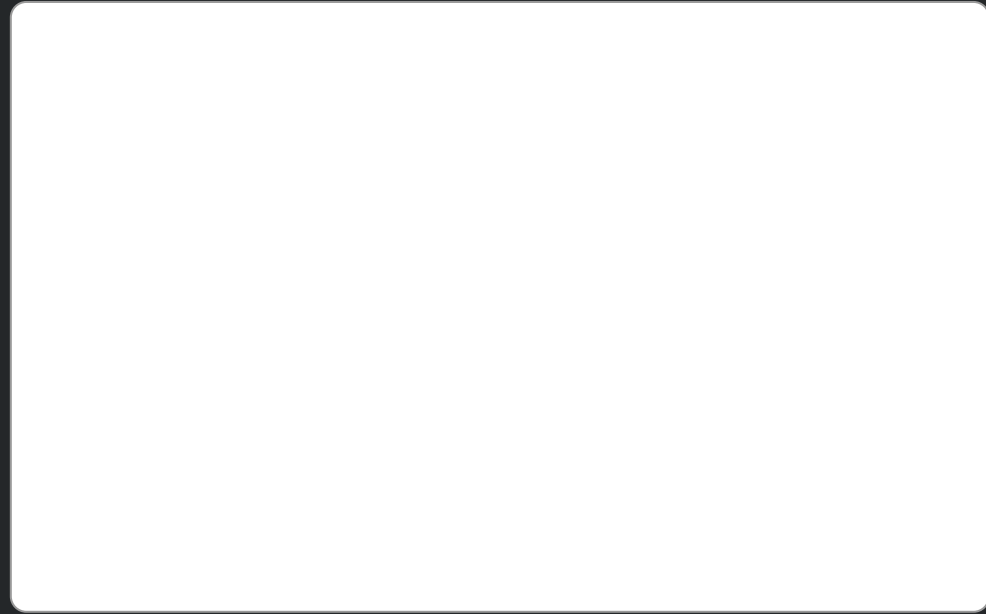
Blank MS Word document





Blank notepad





Blank Sublime





Blank dark mode



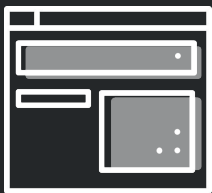


# Blank screen syndrome



*“While not a recognized medical condition,  
Blank Screen Syndrome is a very real problem.”*





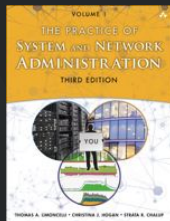
# Really awesome templates

## Service Doc Template:

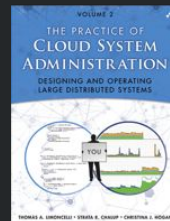
- ✓ Overview
- ✓ Useful links
- ✓ High-level diagram
- ✓ History/Background
- ✓ Desired State
- ✓ Common Issues

## Alert Doc Template:

- ✓ Failure condition
- ✓ Business impact
- ✓ Escalation chain
- ✓ Suggested resolution (checklist)



The Practice of System and Network Administration, 3rd Edition, Chapter 31



The Practice of Cloud System Administration, Chapter 17

Write in  
small batches!



**Include doc  
updates in  
work estimates**





# Where do engineers already write?

When someone writes a great description of something, tell them to paste it into something more permanent!

- ✓ Email
- ✓ Chat
- ✓ Instant message





- ✓ Specific scope
- ✓ Clear audience
- ✓ Template and wizard

## How do I exit the Vim editor?

Asked 7 years, 8 months ago · Active 12 days ago · Viewed 2.1m times

I'm stuck and cannot escape. It says:

```
3695 "type :quit<Enter> to quit VIM"
```

But when I type that it simply appears in the object body.

vim vi

share edit follow flag

edited May 14 '19 at 22:49 **Peter Mortensen** 25.4k ● 21 ● 90 ● 118

asked Aug 6 '12 at 12:25 **jclancy** 34.8k ● 5 ● 22 ● 29

129 ▲ Are you just trying to quit VIM ? If this is the case, press "escape" and then type 'q' – **Pop** Aug 6 '12 at 12:28

47 ▲ Don't forget the colon! You should type `:quit` and then hit the `[ENTER]` key. – **Farahmand** Mar 4 '14 at 18:33

82 ▲ It's really easy to learn the basics of vim, and it's built right into your system. In terminal type "vimtutor". 25 minutes later you will be going faster than your usual text editor! – **Mark Robson** Jan 26 '15 at 12:11

4 ▲ Check [here](#) more commands. – **Toni** Aug 7 '15 at 15:36

75 ▲ To prevent `git commit` sending you to vim in the future: `git config --global core.editor="nano"` – **Tom Kelly** May 24 '17 at 3:19

[add a comment](#) | [show 4 more comments](#)

[start a bounty](#)

37 Answers

Active Oldest Votes

Hit the `[Esc]` key to enter "Normal mode". Then you can type `:` to enter "Command-line mode". A colon (`:`) will appear at the bottom of the screen and you can type in one of the following commands. To execute a command, press the `[Enter]` key.

4818

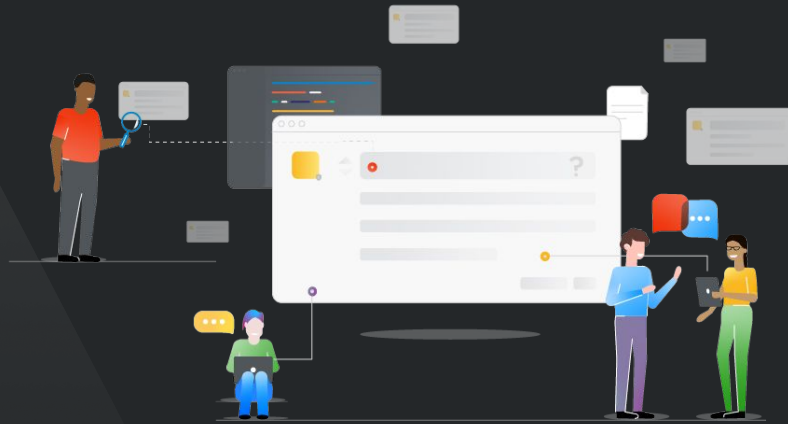
- `:q` to quit (short for `:quit`)
- `:q!` to quit without saving (short for `:quit!`)
- `:wq` to write and quit
- `:wq!` to write and quit even if file has only read permission (if file does not have write permission: force write)
- `:x` to write and quit (similar to `:wq`, but only write if there are changes)
- `:exit` to write and exit (same as `:x`)
- `:qa` to quit all (short for `:quitall`)
- `:ca` to quit without saving and make Vim return non-zero error (i.e. exit with error)





# Foreshadowing





 **stack overflow**  
FOR TEAMS



- ✓ New employees can use it.
- ✓ Experienced employees feel/see the pain.
- ✓ Works across silos: IT, InfoSec, Eng, Marketing

## SO Internal Tags

A tag is a keyword or label that categorizes your question with other, similar questions. Using the right tags makes it easier for others to find and answer your question.

Filter by tag name

Popular Name New

<p><b>talent</b></p> <p>Stack Overflow Talent, our employer facing hiring platform</p> <p>501 questions 15 asked this month, 346 this year</p> <p><a href="#">Manage subject matter experts</a></p>	<p><b>so-enterprise</b></p> <p>our private Q&amp;A product for organizations of 500+ technical staff</p> <p>479 questions 14 asked this month, 271 this year</p> <p><a href="#">Manage subject matter experts</a></p>	<p><b>so-for-teams</b></p> <p>Questions about Stack Overflow for Teams - our private Q&amp;A product for groups of 2-500 developers</p> <p>452 questions 14 asked this week, 27 this month</p> <p><a href="#">Manage subject matter experts</a></p>	<p><b>so-for-business</b></p> <p>Questions about the Business tier of Stack Overflow for Teams.</p> <p>320 questions 10 asked this week, 22 this month</p> <p><a href="#">Manage subject matter experts</a></p>
<p><b>data-team-request</b></p> <p>on questions which are small asks for the Data Team.</p> <p>217 questions 5 asked this month, 137 this year</p>	<p><b>core-q-and-a</b></p> <p>The main Q&amp;A platform; this includes the public Q&amp;A system, but may also overlap with teams, enterprise, etc.</p> <p>148 questions 95 asked this year</p>	<p><b>so-advertising</b></p> <p>113 questions 104 asked this year</p>	<p><b>sales-process</b></p> <p>110 questions 5 asked this month, 94 this year</p>
<p><b>customer-support</b></p> <p>108 questions 53 asked this year</p> <p><a href="#">Manage subject matter experts</a></p>	<p><b>community</b></p> <p>For questions about anything that touches Q&amp;A community users</p> <p>91 questions 62 asked this year</p> <p><a href="#">Manage subject matter experts</a></p>	<p><b>salesforce</b></p> <p>A Platform-as-a-Service development environment delivered on Salesforce.com - the platform is more correctly referred to as Force.com. A...</p> <p>85 questions 79 asked this year</p> <p><a href="#">Manage subject matter experts</a></p>	<p><b>sales</b></p> <p>75 questions 57 asked this year</p>
<p><b>marketing</b></p> <p>73 questions 56 asked this year</p>	<p><b>billing</b></p> <p>the process of sending a bill to a customer</p> <p>57 questions 47 asked this year</p> <p><a href="#">Manage subject matter experts</a></p>	<p><b>email</b></p> <p>for questions involving code to send or receive email messages. Posting to ask why the emails you send are marked as spam is off-topic for Stack...</p> <p>49 questions 18 asked this year</p> <p><a href="#">Manage subject matter experts</a></p>	<p><b>product-marketing</b></p> <p>45 questions 38 asked this year</p>
<p><b>zuora</b></p> <p>a subscription management platform. Their cloud-based software empowers businesses to launch subscription</p>	<p><b>talent-sales</b></p>	<p><b>ads</b></p> <p>for issues related to handling advertisements programmatically. If using a specific technology such as</p>	<p><b>security</b></p> <p>Topics relating to application security and attacks against software. Please don't use this tag alone, that results in</p>

A group of diverse people in a meeting room. In the foreground, a man and a woman are looking at a laptop screen. In the background, two other people are standing and talking. The room has a whiteboard with sticky notes on it.

# 3. Leadership

**But who will  
make it happen?**



# But who will make it happen?

Doc culture

Day 1  
Dev environment

Smart defaults

Make easy right

Templates

Wiki

Ubiquitous links

Q&A systems



Management

VS.

Leadership



# Management is:

- ✓ Set priorities
- ✓ Provide resources
- ✓ Clear roadblocks





# Leadership is:

- ✓ Going first
- ✓ Making it easy for others to follow





In summary...

# DevOps environments should strive to be low context

## Tip #1: Smart Defaults

- ✓ New Employee Env: Accelerate new hires being productive

## Tip #2: Make Right Easy

- ✓ The lazy path should fulfill recommended practices
- ✓ Foundational Tools (CI/CD, Git, etc.)

## Tip #3: Ubiquitous Documentation

- ✓ A culture of documentation
- ✓ Management support
- ✓ Small batches: Write as you work, not after
- ✓ Inspiration: Helps the team; reduces the likelihood you'll get paged while on vacation



In summary...

## Why we don't write docs?

- ✓ The burden of “audience” and “scope”
- ✓ Scary blank screen syndrome

## How to fix:

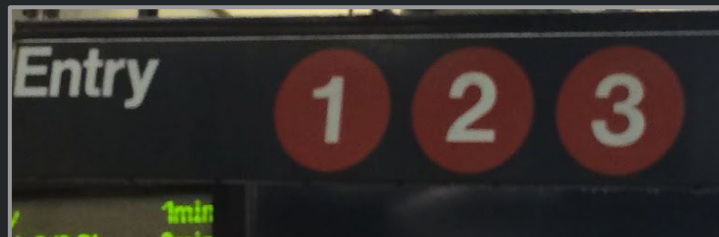
- ✓ Templates, templates, templates
- ✓ Repurpose text from where they already write (Email, Chat rooms, IM, StackOverflow)
- ✓ Central source: [stackoverflow.com/teams](https://stackoverflow.com/teams)





**Thomas A. Limoncelli**  
SRE Manager

Twitter: YesThatTom  
Blog: EverythingSysadmin.com



[stackoverflow.com/teams](https://stackoverflow.com/teams)





**Thomas A. Limoncelli**  
**SRE Manager**

Twitter: YesThatTom  
Blog: EverythingSysadmin.com

[stackoverflow.com/teams](https://stackoverflow.com/teams)

