# 1 CheatSheet: DevOps & Software Development Life Cycle

Tool

Updated: November 26, 2019

- PDF Link: cheatsheet-devops-A4.pdf, Category: tool
- Blog URL: https://cheatsheet.dennyzhang.com/cheatsheet-devops-A4
- ullet Related posts: CheatSheet: Container Compliance, Cheatsheet: Linux Security #denny-cheatsheets

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#### 1.1 Overview

Name	Summary
Automate, Automate	Avoid manual effort and reduce process delay
Unify the ways of doing the same thing	Build code, test features, etc. Thus reduce invalid failures
Enable faster iteration by reducing dependencies	Implement or leverage mockup services
Definition of unit tests	Unit tests focus on function-level scope
Definition of integration tests	Does integration tests include setup an entire system to validate?
Definition of e2e tests	
Reference	CheatSheet: Container Compliance
Reference	CheatSheet: DevOps & Software Development Life Cycle

### 1.2 Use container for CI/CD

Name	Summary
Dockerd hang issue	docker build image hang; docker stop container hang; docker prune hang;
Make sure dockerd up-to-date	dockerd might have known issues or improvements
More CPU/RAM for dockerd machine	machine is overloaded
Use ephemeral dockerd machines for testing	cats vs cattle
Dockerd storage driver: overlay2	
Free disk of /var/lib is slow	

### 1.3 Network dependency download flaky

Name	Summary
Mirror the external repos	
Add retry for downloading	

### 1.4 Code Build

Name	Summary
Unify different ways of building code	docker build vs make/mvn/gradle
List versions & enforce prelight check	List versions and dependencies, thus people can easily debug
Reduce pulling dependencies from internet/GitHub	Modify iptables rules in the build box to enforce it
Automatically recommend build after validation	

### 1.5 Pre-Merge Hook

Name	Summary
Pre-merge tests help to limit trouble shooting to individuals	This reduce cross-team join-effort debugging
Code lint checks	
Unit test/BDD tests	
Monitor test coverage	Test coverage includes unit test and integration test suites

### 1.6 Component Tests

Name Summary
Move tests closer to develoers' machine

Utilize mockup services
Test component individually

Test component quickly

### 1.7 Integration Tests

Name Summary

Define lightweight and heavyweight e2e tests

Examine log for errors/exceptions, even for successful builds

Airgap deployment and tests

Track the data of successful builds

Testbed management for complicated projects

Enforce nightly builds and file tickets for each new failure

Seperate dependencies failures from code issues

Examine build/test pipelines for performance tuning

logs, timespan for each stage, etc

vanilla testbed validator

Document the failures from unmanaged dependencies

Slowness may from test workflow or products themselves

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#### 1.8 Additional Tests

Name Summary

Test categories Chaos/Longevity tests, Workload tests, Upgrade tests, Scale tests

#### 1.9 Speedup process

Name Summary
Speed up the review and merge of pull requests

Reminders for team members Regular meeting; regular activities

#### 1.10 DevSecOps

Name Summary

Enforce compliance check for OSS packages
Log scan for security compliance
Don't save credentials in code repo

Summary

Avoid legal issues and security vulnerability

## 1.11 Metrics-Driven Quality Control

Don't display credentials in log files

Name Summary

Key Metrics Pass rate for acceptance e2e pipeline; Pass rate for code build pipeline

#### 1.12 Product Debuggability

Name Summary

Components can switch log level on fly
Watch out log velocity and values
Implement a docker tool: health\_check

Summary

Log tons of useless entries would be annoying

#### 1.13 More Resources

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