

CheatSheet: DevOps & Software Development Life Cycle

TOOL

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

File me Issues or star this repo.

1.1 Overview

| Name | Summary |
|---|--|
| Automate, 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 preflight 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 developers' 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 | logs, timespan for each stage, etc |
| Testbed management for complicated projects | vanilla testbed validator |
| Enforce nightly builds and file tickets for each new failure | |
| Separate dependencies failures from code issues | Document the failures from unmanaged dependencies |
| Examine build/test pipelines for performance tuning | Slowness may from test workflow or products themselves |

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 | Avoid legal issues and security vulnerability |
| Log scan for security compliance | |
| Don't save credentials in code repo | |
| Don't display credentials in log files | |

1.11 Metrics-Driven Quality Control

| 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 | Log tons of useless entries would be annoying |
| Implement a docker tool: <code>health_check</code> | |

1.13 More Resources

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