

Software V&V
CTIP 환경



Team 8

김하림
신윤섭
이승민
정인욱

Contents

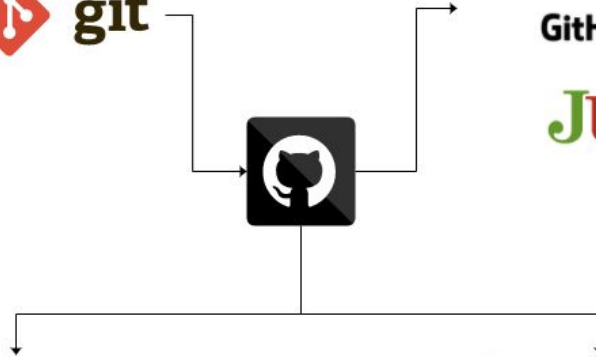
1. Team Communication
2. Static Analysis Tools
3. Code Coverage
4. System Testing

Previous Overview

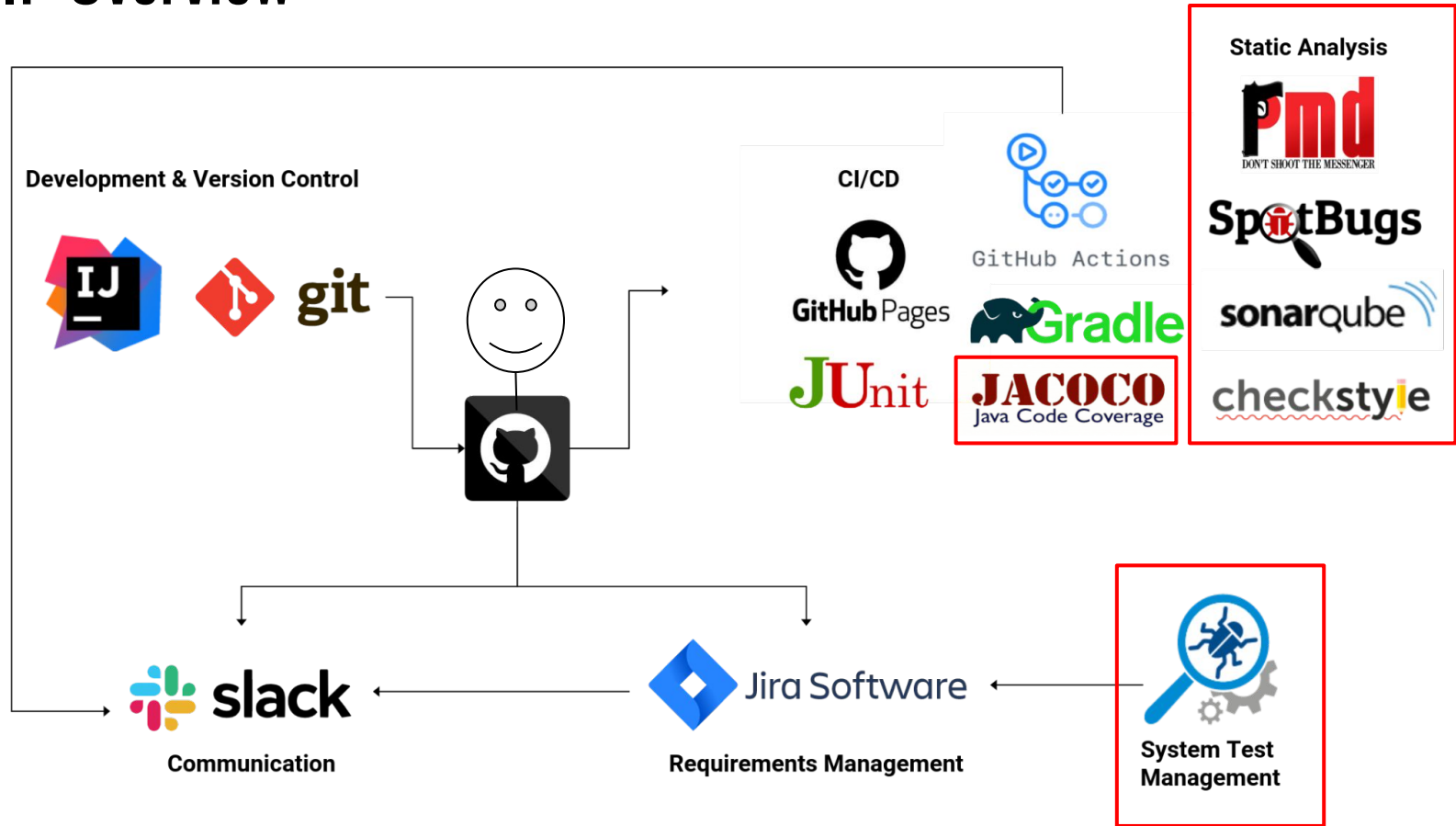
Development & Version Control



CI/CD

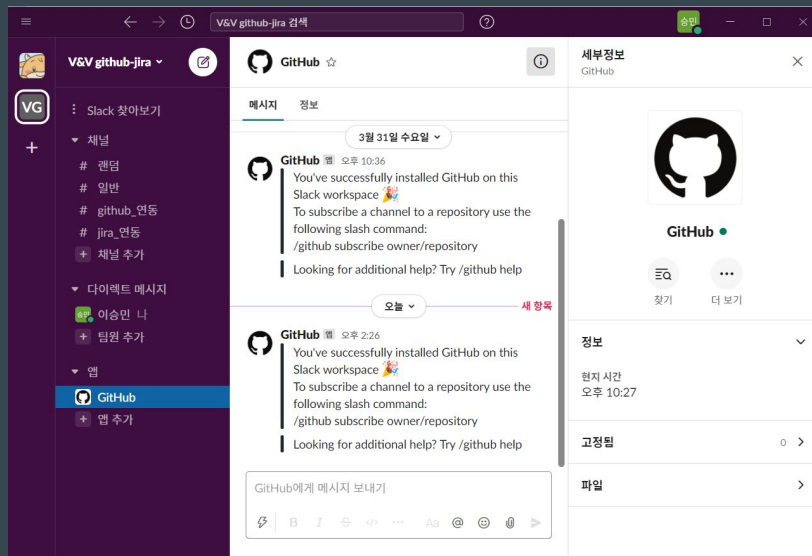
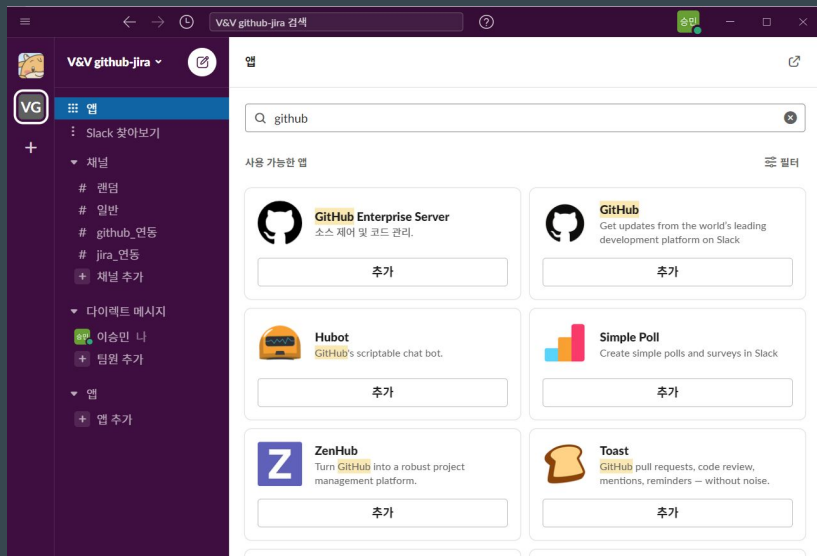


CTIP Overview



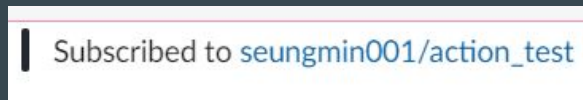
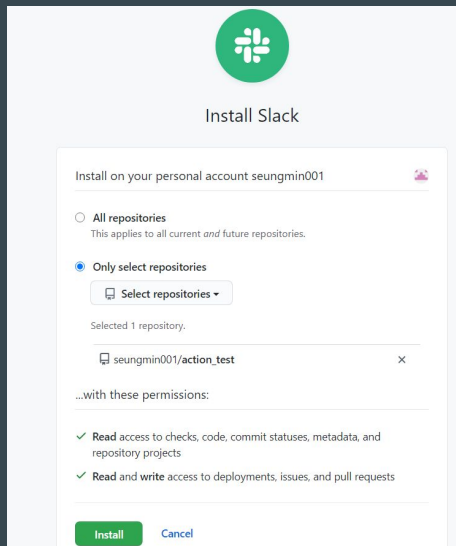
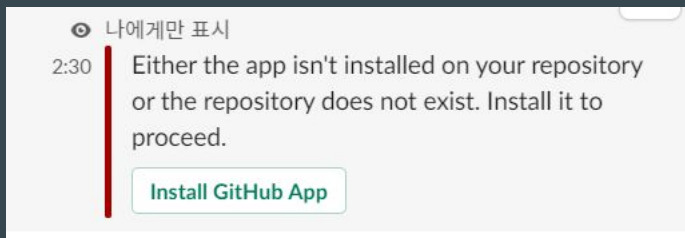
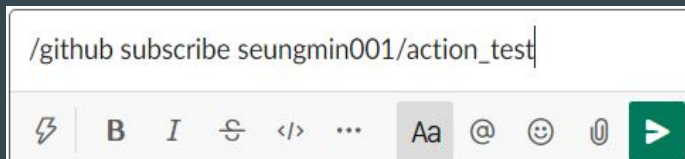
Github - Slack 연동

1. Slack 에서 앱 추가 버튼을 누른 후 Github 앱을 추가한다.



Github - Slack 연동

2. Github 정보를 확인하기를 원하는 채널에 명령어를 입력한다.
`/github subscribe owner/repository`
연결 버튼을 클릭하고 repo를 선택 후 설치를 완료한다.



Github - Slack 연동

3. 알림 항목 : <https://github.com/integrations/Slack#configuration>

These are enabled by default, and can be disabled with the `/github unsubscribe owner/repo [feature]` command:

- `issues` - Opened or closed issues
- `pulls` - New or merged pull requests, as well as draft pull requests marked "Ready for Review"
- `statuses` - Statuses on pull requests
- `commits` - New commits on the default branch (usually `master`)
- `deployments` - Updated status on deployments
- `public` - A repository switching from private to public
- `releases` - Published releases

These are disabled by default, and can be enabled with the `/github subscribe owner/repo [feature]` command:

- `reviews` - Pull request reviews
- `comments` - New comments on issues and pull requests
- `branches` - Created or deleted branches
- `commits:all` - All commits pushed to any branch
- `+label:"your label"` - Filter issues, pull-requests and comments based on their labels.

Github Actions - Slack 연동

1. Slack Notify Build 라는 action 사용



GitHub Action

Slack Notify Build

🔒 v1.1.2 Latest version

Slack Notify Build

This action prints your GitHub Action build status to Slack. It takes an opinionated approach by showing attachments for metadata like branch, pull request, and event. This action allows [existing messages to be updated](#) to reduce unwanted noise in your Slack channel. Heavily-inspired by [Post Slack messages](#).

A [Slack bot token](#) is required to use this action, and the associated app must be granted permission to post in the channel, private group or DM you specify.

Github Actions - Slack 연동

2. api.slack.com에서 slack notification에 필요한 앱을 생성한다.
OAuth & Permissions 탭에서 필요한 권한을 추가한 후 앱을 slack workspace에 설치한다.

Create a Slack App

App Name

Don't worry, you'll be able to change this later.

Development Slack Workspace

V&V github-jira

Your app belongs to this workspace—leaving this workspace will remove your ability to manage this app. Unfortunately, this can't be changed later.

By creating a Web API Application, you agree to the [Slack API Terms of Service](#).

Scopes

A Slack app's capabilities and permissions are governed by the [scopes](#) it requests.

Bot Token Scopes

Scopes that govern what your app can access.

OAuth Scope	Description	
chat:write	Send messages as Github actions_V&V	<input type="button" value="Remove"/>
channels:read	View basic information about public channels in a workspace	<input type="button" value="Remove"/>
groups:read	View basic information about private channels that Github actions_V&V has been added to	<input type="button" value="Remove"/>

OAuth & Permissions

These [OAuth Tokens](#) will be automatically generated when you finish connecting the app to your workspace. You'll use these tokens to authenticate your app.

Github Actions - Slack 연동

3. 알림을 받을 채널에 생성한 앱을 추가한다.

이 앱은 V&V github-jira 워크스페이스의 멤버가 만들었습니다.

Github actions_V&V에서 V&V github-jira Slack 워크스페이스에 액세스하기 위해 권한을 요청합니다.

Github actions_V&V에서 볼 수 있는 항목은 무엇인가요?

- 채널과 대화에 관한 콘텐츠와 정보

Github actions_V&V에서 무엇을 할 수 있나요?

- 채널과 대화에서 작업 수행

취소 허용

V&V github-jira

- Slack 찾아보기
- 채널
 - # 랜덤
 - # 일반
 - # github_연동
 - # jira_연동
 - + 채널 추가
- 다이렉트 메시지
 - 이승민 나
 - + 팀원 추가
- 앱
 - GitHub
 - GitHub actions
 - Githubactions_VV**
 - + 앱 추가

Githubactions_VV ☆

메시지 정보

이 대화는 두 명의 사용자 사이에 진행됩니다. 여기에서는 메시지를 보내고 @Githubactions_VV (과) 파일을 공유할 수 있습니다.

Githubactions_VV 님은 어떻게 작업하나요?

Githubactions_VV에게 메시지 보내기

세부정보
Githubactions_VV

Githubactions_VV

채널에 이 앱 추가...

- 이 앱에서 공유한 파일 보기
- 이 앱 음소거 설정 구성
- 멤버 ID 복사 U01ULE0AP4Y

Github Actions - Slack 연동

4. OAuth & Permissions 탭에서 생성된 토큰을 복사하여 Github Secrets에 등록한다.

OAuth & Permissions

OAuth Tokens for Your Workspace

These tokens were automatically generated when you installed the app to your team. You can use these to authenticate your app. [Learn more.](#)

Bot User OAuth Token

[Redacted Token]

Access Level: Workspace

Actions secrets / New secret

Name

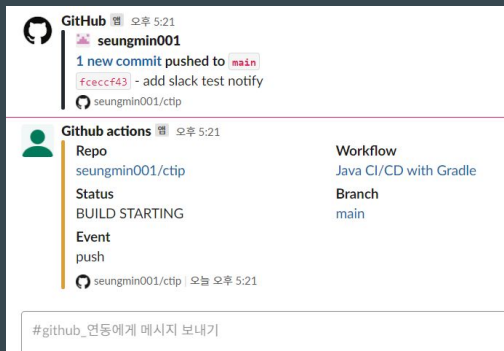
Value


[Redacted Value]

Github Actions - Slack 연동

5. workflow파일에 빌드

```
- name: Notify slack starting build
  if: success()
  id: slack_build # IMPORTANT: reference this step ID value in future Slack steps
  env:
    SLACK_BOT_TOKEN: ${ secrets.SLACK_NOTIFICATIONS_BOT_TOKEN }}
  uses: voxmedia/github-action-slack-notify-build@v1
  with:
    channel: github_연동
    status: BUILD STARTING
    color: warning
```




GitHub  오후 5:21

seungmin001

1 new commit pushed to `main`
fccc43 - add slack test notify

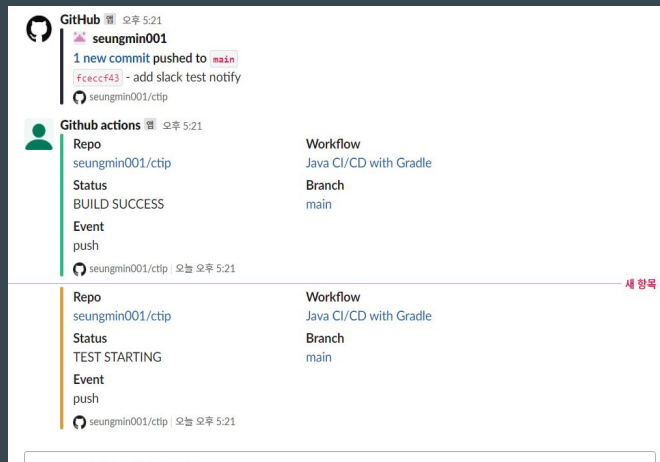
seungmin001/ctip


Github actions  오후 5:21

Repo	Workflow
seungmin001/ctip	Java CI/CD with Gradle
Status	Branch
BUILD STARTING	main
Event	
push	

seungmin001/ctip | 오늘 오후 5:21

#github_연동에게 메시지 보내기




GitHub  오후 5:21

seungmin001

1 new commit pushed to `main`
fccc43 - add slack test notify

seungmin001/ctip

Github actions  오후 5:21

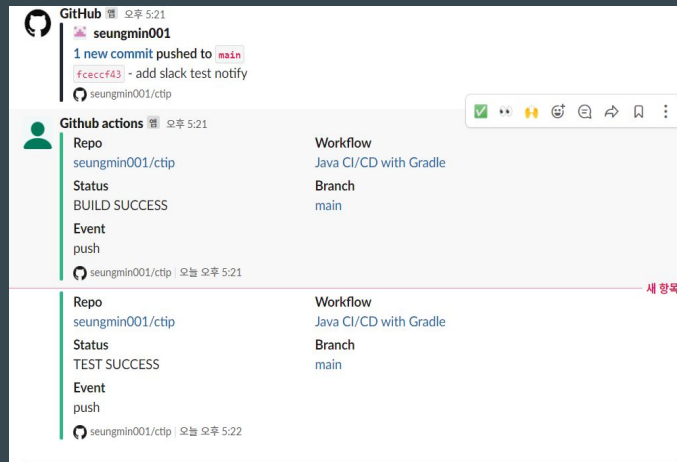
Repo	Workflow
seungmin001/ctip	Java CI/CD with Gradle
Status	Branch
BUILD SUCCESS	main
Event	
push	


seungmin001/ctip | 오늘 오후 5:21

새 항목

Repo	Workflow
seungmin001/ctip	Java CI/CD with Gradle
Status	Branch
TEST STARTING	main
Event	
push	

seungmin001/ctip | 오늘 오후 5:21




GitHub  오후 5:21

seungmin001

1 new commit pushed to `main`
fccc43 - add slack test notify

seungmin001/ctip

Github actions  오후 5:21

Repo	Workflow
seungmin001/ctip	Java CI/CD with Gradle
Status	Branch
BUILD SUCCESS	main
Event	
push	

seungmin001/ctip | 오늘 오후 5:21

새 항목

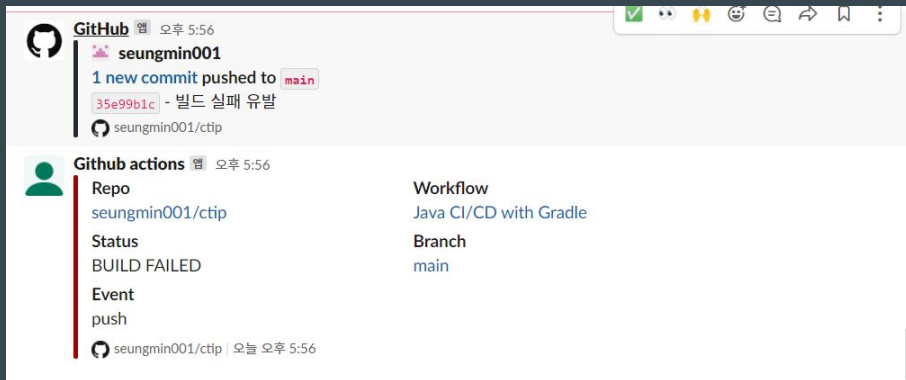
Repo	Workflow
seungmin001/ctip	Java CI/CD with Gradle
Status	Branch
TEST SUCCESS	main
Event	
push	

seungmin001/ctip | 오늘 오후 5:22

Github Actions - Slack 연동

6. build나 test실패 시

BUILD 실패



This screenshot shows a Slack notification from GitHub. The top part shows a commit push to the 'main' branch with the message '35e99b1c - 빌드 실패 유발'. Below this, a 'Github actions' notification is displayed. The notification includes the repository name 'seungmin001/ctip', the workflow 'Java CI/CD with Gradle', the branch 'main', and the status 'BUILD FAILED'. The event is identified as 'push'.

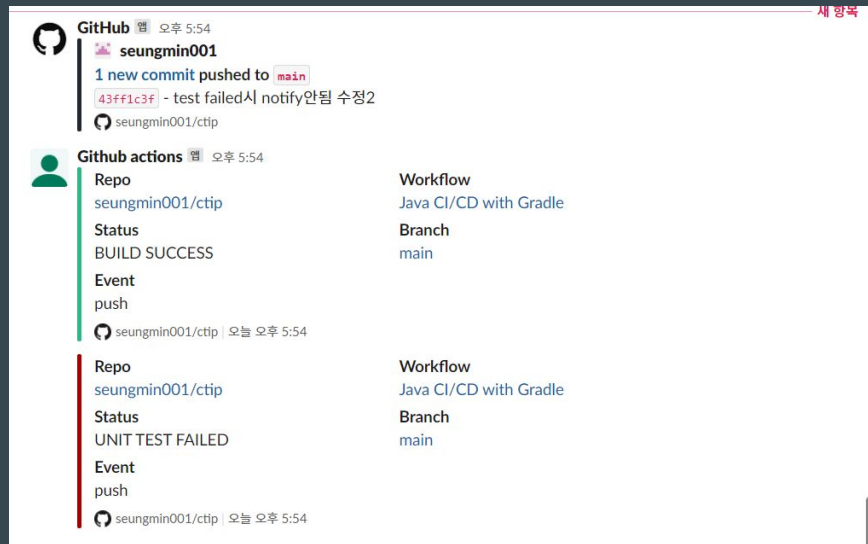
GitHub 오후 5:56
1 new commit pushed to **main**
35e99b1c - 빌드 실패 유발
seungmin001/ctip

Github actions 오후 5:56

Repo	Workflow
seungmin001/ctip	Java CI/CD with Gradle
Status	Branch
BUILD FAILED	main
Event	
push	

seungmin001/ctip | 오늘 오후 5:56

UNIT TEST 실패



This screenshot shows a Slack notification from GitHub. The top part shows a commit push to the 'main' branch with the message '43ff1c3f - test failed시 notify안됨 수정2'. Below this, a 'Github actions' notification is displayed. The notification includes the repository name 'seungmin001/ctip', the workflow 'Java CI/CD with Gradle', the branch 'main', and the status 'UNIT TEST FAILED'. The event is identified as 'push'.

GitHub 오후 5:54
1 new commit pushed to **main**
43ff1c3f - test failed시 notify안됨 수정2
seungmin001/ctip

Github actions 오후 5:54

Repo	Workflow
seungmin001/ctip	Java CI/CD with Gradle
Status	Branch
BUILD SUCCESS	main
Event	
push	

seungmin001/ctip | 오늘 오후 5:54

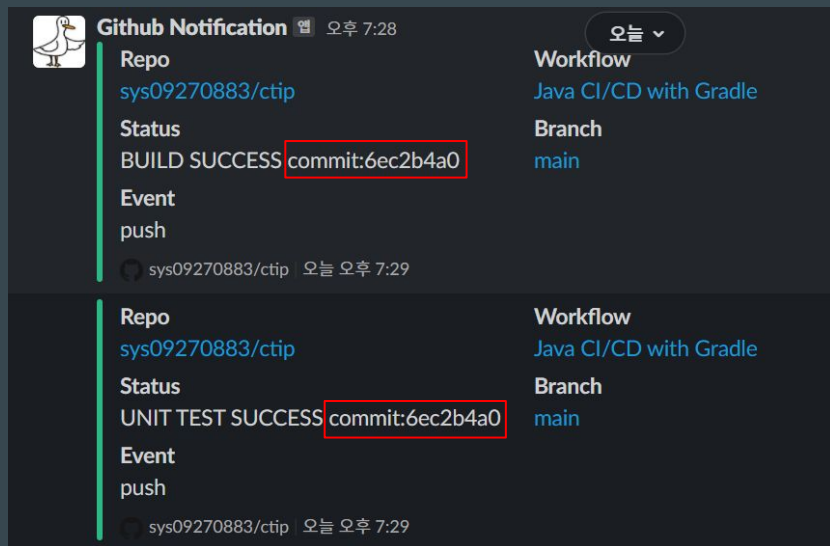
Repo	Workflow
seungmin001/ctip	Java CI/CD with Gradle
Status	Branch
UNIT TEST FAILED	main
Event	
push	

seungmin001/ctip | 오늘 오후 5:54

Github Actions - Slack 연동

7. 주의점 - 한 워크플로우가 끝날 때 까지 기다리지 않고 다른 워크플로우를 실행시키면 메시지가 겹쳐 구분 하기 힘들

=> 따라서 구분이 가능하도록 *commit SHA*를 추가

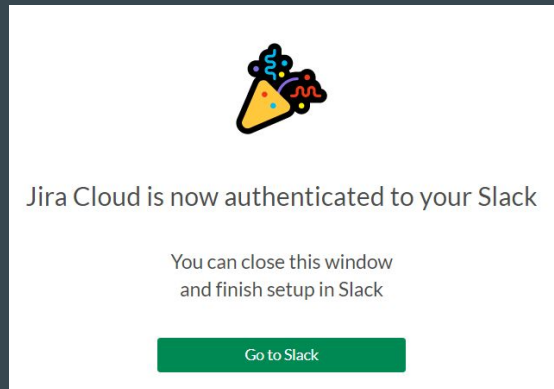
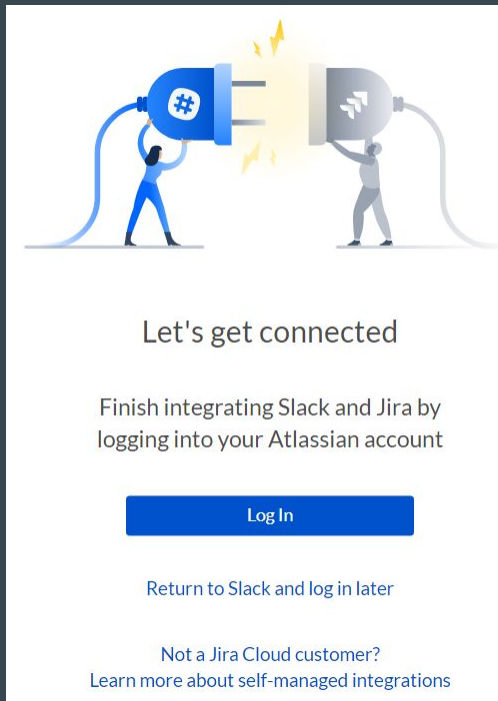
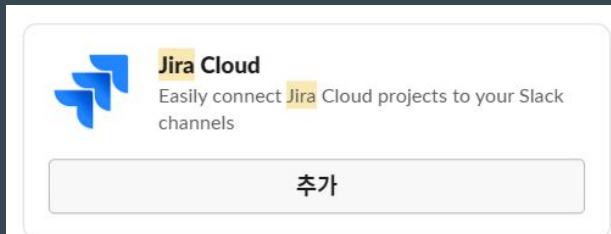


The screenshot shows two Slack notifications from 'Github Notification' for the repository 'sys09270883/ctip'. Both notifications are for a 'push' event and reference the same commit SHA: 'commit:6ec2b4a0'. The first notification shows a 'BUILD SUCCESS' status, while the second shows a 'UNIT TEST SUCCESS' status. The overlapping nature of the messages illustrates the problem mentioned in the text.

Notification	Repo	Status	Event	Workflow	Branch
1	sys09270883/ctip	BUILD SUCCESS	push	Java CI/CD with Gradle	main
2	sys09270883/ctip	UNIT TEST SUCCESS	push	Java CI/CD with Gradle	main

Jira - Slack 연동 : Jira 이슈 알림

1. Slack 에서 Jira Cloud 추가 후 Jira와 Slack 연결



Jira - Slack 연동 : Jira 이슈 알림


2. /jira connect 입력 후 프로젝트 연결, 받을 알림 설정


나에게만 표시

 **Jira** 앱 오후 7:14
Connect your Jira project.

Logged in as minnie9808@gmail.com

v&v_test (VT) # jira_연동 **Connect**

 **Jira** 앱 오후 7:15
이승민 added a project connection to this channel.

smin.atlassian.net
v&v_test (VT)
 You will receive notifications when issues are created.

Manage

Slack integration

All Connections (1) / #unknown

Channel Notifications for V8C

FOR ISSUES THAT MATCH THIS FILTER

작업, 에픽, 버그, 하위 작업 Priority: All

SEND A MESSAGE TO THE CHANNEL WHEN

Issue is
created x updated x

Assignee is
updated x

Issue link is

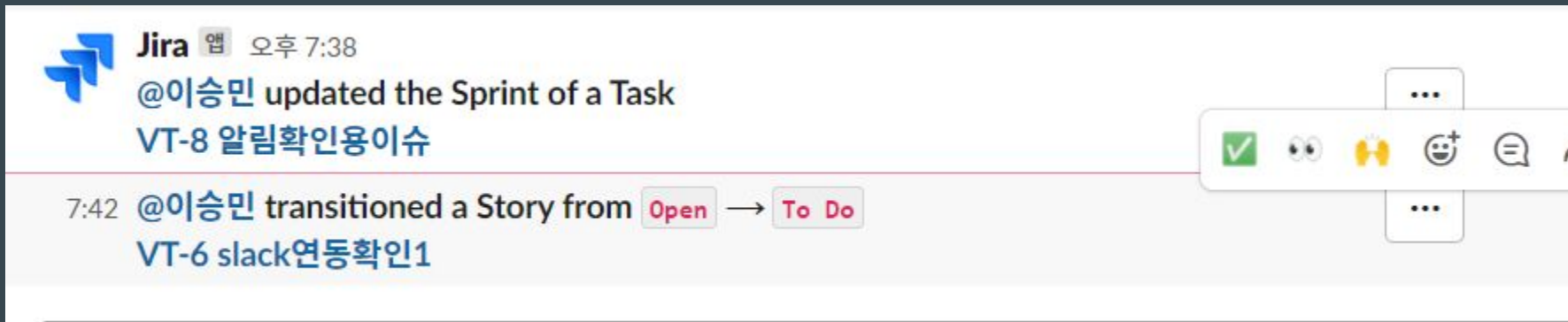
Comment is

Status is transitioned to

Worklog is

Jira - Slack 연동 : Jira 이슈 알림

3. 활용 예시



The screenshot displays two messages from the Jira app in a Slack channel. The first message, timestamped '오후 7:38', is from '@이승민' and states 'updated the Sprint of a Task' for issue 'VT-8 알림확인용이슈'. The second message, timestamped '7:42', is also from '@이승민' and states 'transitioned a Story from Open → To Do' for issue 'VT-6 slack연동확인1'. On the right side of the messages, a context menu is open, showing a green checkmark icon, a 'thumbs up' emoji, a 'thumbs down' emoji, a 'thumbs up with heart' emoji, a 'thumbs down with heart' emoji, and a 'reply' icon.

Jira 앱 오후 7:38
@이승민 updated the Sprint of a Task
VT-8 알림확인용이슈


7:42 @이승민 transitioned a Story from **Open** → **To Do**
VT-6 slack연동확인1

Jira - Github 연동

1. Jira 앱 찾기에서 Github검색 후 설치하고 github repo와 연결한다


github

41 results



GitHub for Jira
Your code, where you need it

Integrations, Source code, Workflow
★★★★☆ (225) 59.6k installs


 **Success**
GitHub for Jira was added.

[Get started](#) [Manage app](#)

You don't have any connected GitHub organizations. Let's fix that!

You'll be redirected to GitHub to select the organizations and repositories you'd like to connect with Jira.

[Add an Organization](#)



Install Jira

Install on your personal account seungmin001

All repositories
This applies to all current and future repositories.

Only select repositories
...with these permissions:


- Read access to code and metadata
- Read and write access to issues and pull requests

[Install](#) [Cancel](#)

Next: you'll be directed to the GitHub App's site to complete setup.

GitHub configuration

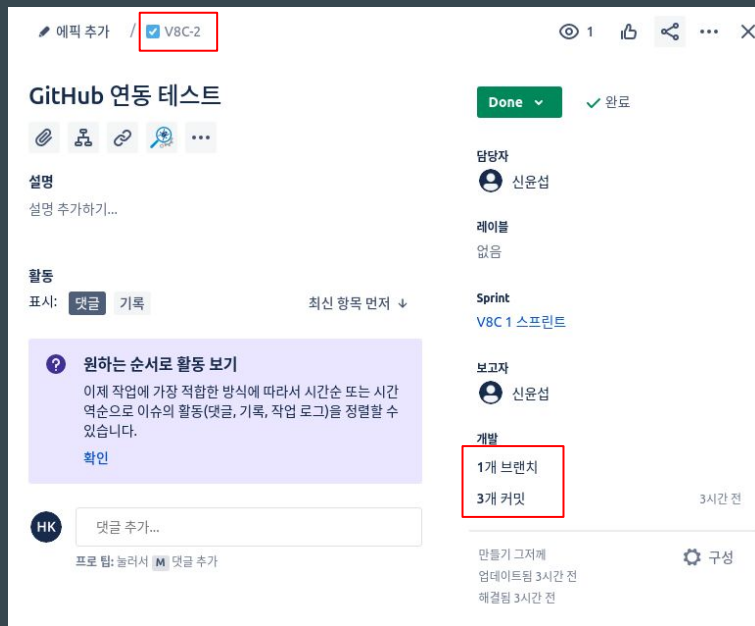
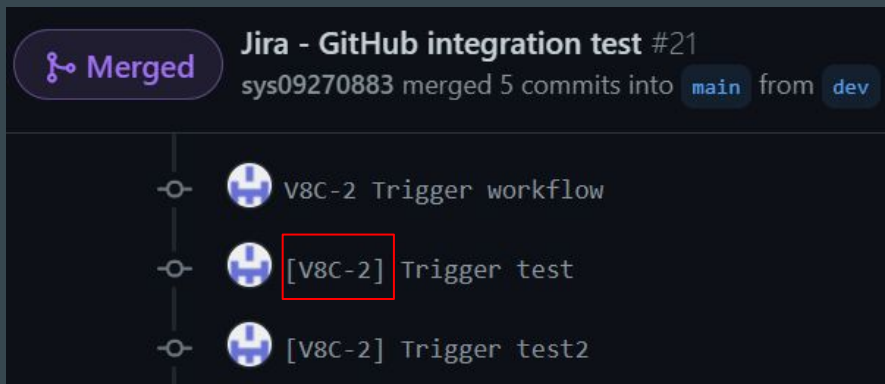
[Manage Organizations](#)

Organization	Repositories	Added		Sync Status	Last Sync Update	Retry
 seungmin001	Selected	a minute ago	Remove Configure	ACTIVE	a few seconds ago	Normal <input type="button" value="Submit"/>

Metadata for commits, branches, and pull requests that use the [Smart Commit syntax](#) will be synced to Jira and appear in the [Development Information panel](#) of the relevant issue.

Jira - Github 연동

2. 커밋 메시지나 브랜치 이름에 티켓 번호가 들어가 있으면 지라 이슈에 해당 커밋이나 브랜치가 연동된다.



Static Analysis Tool

- Checkstyle



- 소스 코드 표준 검사

정해진 소스 코드 표준에 위반되는 것들을 검사

실제 버그를 찾지는 못함

- 모듈 트리

AbstractCheck를 상속받은 규칙을 모듈로 정의하고 모듈들의 트리 구조로 이루어짐

- 소스 파싱

자바 소스코드를 읽어 구조화하여 분석

Static Analysis Tool

- Checkstyle

MarketPlace에서 구글 스타일 플러그인 설치 및 실행

The screenshot displays a GitHub Actions workflow run for a project. The workflow is named "Java CI/CD with Gradle" and is triggered on a pull request. The workflow consists of several steps, all of which have completed successfully. The "Lint" step is highlighted in blue. The "Lint" step is using the "reviewdog [Lint] report" action, which reported by "reviewdog" and has 0 findings and 0 filtered findings.

▼ Java CI/CD with Gradle
on: pull_request

✓ Build & Test

✓ Static Analysis

✓ JUnit Test Report

✓ Lint

> SonarCloud

GitHub Actions / Lint
succeeded 10 days ago in 1s

reviewdog [Lint] report

reported by reviewdog 🐶

▼ Findings (0)

▼ Filtered Findings (0)

Static Analysis Tool

- PMD



소스 코드 분석 및 유형별 진단

정해진 규칙에 의해 자바 소스 코드를 분석해 프로그램의 불필요한 부분을 찾아냄
잠재적 버그, 사용하지 않는 코드, 복잡한 코드, 중복 코드 등

Static Analysis Tool

- PMD

Github Actions에서 PMD 실행

Run PMD

5s

```
1  ▶ Run ./gradlew pmdMain pmdTest
8  > Task :compileJava UP-TO-DATE
9  > Task :processResources NO-SOURCE
10 > Task :classes UP-TO-DATE
11 > Task :pmdMain
12 > Task :compileTestJava UP-TO-DATE
13 > Task :processTestResources NO-SOURCE
14 > Task :testClasses UP-TO-DATE
15 > Task :pmdTest
16
17 Deprecated Gradle features were used in this build, making it incompatible with Gradle 7.0.
18 Use '--warning-mode all' to show the individual deprecation warnings.
19 See https://docs.gradle.org/6.8.3/userguide/command\_line\_interface.html#sec:command\_line\_warnings
20
21 BUILD SUCCESSFUL in 4s
22 4 actionable tasks: 2 executed, 2 up-to-date
```

Static Analysis Tool

- PMD

Result Reports 업로드 및 확인

Reports

[main](#)

[test](#)

PMD report

Problems found

File Line Problem

Static Analysis Tool

- Spotbugs

- JAVA 바이트 코드 분석

- 실제 결함을 잘 찾아줌

- 찾은 결함이 False Alarm일 확률이 낮음

- 빌드 과정이 필수지만 바이트 코드를 읽음으로 속도가 빠름

Static Analysis Tool

- Spotbugs

Github Actions에서 Spotbugs 실행

✓ Run Spotbugs

12s

```
1 ▶ Run ./gradlew spotbugsMain spotbugsTest --stacktrace
8 > Task :compileJava UP-TO-DATE
9 > Task :processResources NO-SOURCE
10 > Task :classes UP-TO-DATE
11 > Task :compileTestJava UP-TO-DATE
12 > Task :processTestResources NO-SOURCE
13 > Task :testClasses UP-TO-DATE
14
15 > Task :spotbugsTest
16 1 SpotBugs violations were found. See the report at: file:///home/runner/work/ctip/ctip/build/reports/spotbugs/test.html
17
18 org.gradle.api.GradleException: 1 SpotBugs violations were found. See the report at:
file:///home/runner/work/ctip/ctip/build/reports/spotbugs/test.html
```

Static Analysis Tool

- Spotbugs

Result Reports 업로드 및 확인

Reports

[main](#)

[test](#)

SpotBugs Report

Project Information

Project: JavaCTIP (spotbugsTest)

SpotBugs version: 4.2.1

Code analyzed:

- /home/runner/work/ctip/ctip/build/classes/java/test/core/CalculatorTest.class

Metrics

27 lines of code analyzed, in 1 classes, in 1 packages.

Metric	Total	Density*
High Priority Warnings		0.00
Medium Priority Warnings	1	37.04
Total Warnings	1	37.04

Static Analysis Tool

- SonarQube

버그, 코드스멜, 보안 취약점 발견 목적

중복 코드, 코딩 표준, 유닛 테스트, 코드 복잡도, 주석, 버그 등의 보고서 제공

SonarQube 개발사에서 *SonarCloud*라는 클라우드 서비스를 제공하여

간편하게 웹 기반 환경 구축 가능

Static Analysis Tool

- SonarQube(SonarCloud)

The screenshot shows the SonarCloud dashboard for a project named 'JavaCTIP' by user 'Yoonseop Shin'. The interface is divided into several sections:

- Header:** Includes the SonarCloud logo, 'Explore' button, a search bar for projects and files, and a 'Log in' link. The current date and time are 'April 28, 2021, 7:29 PM' and the version is 'Version 1.0-SNAPSHOT'.
- Navigation:** A menu with 'Overview' (selected), 'Issues', 'Security Hotspots', 'Measures', 'Code', and 'Activity'.
- Quality Gate:** A green badge indicating the status is 'Passed'.
- Reliability Measures:** A comparison between 'started last month' and 'New code: since previous version started last month'. Both show 0 bugs with an 'A' grade.
- Security Measures:** A comparison between 'started last month' and 'New code'. Both show 0 vulnerabilities and 0 security hotspots with an 'A' grade.
- Maintainability Measures:** A comparison between 'started last month' and 'New code'. Both show a 5-minute debt and 1 code smell with an 'A' grade.
- Duplications Measures:** Shows 0.00% duplication.
- About This Project:** Shows 'No tags', '40 Lines of Code' (Java), and a 'Project Activity' graph.
- Project Activity:** A list of recent builds:
 - April 28, 2021, 7:29 PM: 1.0-SNAPSHOT
 - April 26, 2021, 8:48 PM: Quality Profile: Changes in 'Sonar way' (java)
 - April 12, 2021, 12:21 PM: Quality Gate: Green (was Red)
- Quality Gate:** Shows the default profile is 'Sonar way'.

Static Analysis Tool

- SonarQube

기본적으로 Code Coverage 설정이 되어 있어 Github Actions과 중복 실행하게 됨

Code Coverage는 Github Actions에서 수행하기 때문에

SonarCloud에서 Code Coverage를 수행하지 않도록 수정함

Code Coverage

- JaCoCo

- JAVA 코드 커버리지 분석

코드 커버리지를 개발자가 직접 확인하지 않고 분석할 수 있도록 도와줌

코드 커버리지의 결과를 html, csv, xml 리포트로 분석

레퍼런스가 풍부

Code Coverage

- JaCoCo

Github Actions에서 JaCoCo 실행

Test Code Coverage

2s

1 ▶ Run `./gradlew jacocoTestReport jacocoTestCoverageVerification`

8 > Task :compileJava UP-TO-DATE

9 > Task :processResources NO-SOURCE

10 > Task :classes UP-TO-DATE

11 > Task :compileTestJava UP-TO-DATE

12 > Task :processTestResources NO-SOURCE

13 > Task :testClasses UP-TO-DATE

14 > Task :test UP-TO-DATE

15 > Task :jacocoTestReport

16 > Task :jacocoTestCoverageVerification

17

18 Deprecated Gradle features were used in this build, making it incompatible with Gradle 7.0.

19 Use '--warning-mode all' to show the individual deprecation warnings.

20 See https://docs.gradle.org/6.8.3/userguide/command_line_interface.html#sec:command_line_warnings

21

22 BUILD SUCCESSFUL in 2s

23 5 actionable tasks: 2 executed, 3 up-to-date






Code Coverage

- JaCoCo

Result Reports 업로드 및 확인

JavaCTIP > core > IntCalculator

IntCalculator

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
add(Integer, Integer)		100%		n/a	0	1	0	1	0	1
subtract(Integer, Integer)		100%		n/a	0	1	0	1	0	1
multiply(Integer, Integer)		100%		n/a	0	1	0	1	0	1
divide(Integer, Integer)		100%		n/a	0	1	0	1	0	1
IntCalculator()		100%		n/a	0	1	0	1	0	1
Total	0 of 31	100%	0 of 0	n/a	0	5	0	5	0	5

System Test Management

- QALity
- Jira 생태계의 테스트 관리 도구
- Jira 내 티켓과 연관지어 Test Case 설정

Test Cycles Overview



Search

All projects

Search version...

Contains text

Search

Test Cycle	Project	Version	Status	Created	Due Date
로그인 화면 구성	 V&V 8조 CTIP	-	<div><div style="width: 50%;"></div></div>	28/Apr/2021	29/Apr/2021
테스트 사이클 1	 V&V 8조 CTIP	-	<div><div style="width: 50%;"></div></div>	28/Apr/2021	-

< 1 >

Test Cycles / 로그인 화면 구성

로그인 화면 구성

[Details](#) [Test Cases](#)

Project:  V&V 8조 CTIP

Version: No version

Description

Add description

Due date: 29/Apr/2021

Number of Test Cases: 2

PASSED: 50.00% (1)

FAILED: 0.00% (0)

BLOCKED: 0.00% (0)

IN PROGRESS: 50.00% (1)

UNEXECUTED: 0.00% (0)

System Test Management

- QAlity

티켓 하나에 테스트 케이스 여러개 생성 가능 (Test Suite)

The screenshot displays the QAlity Test Management interface. On the left, a list of test cases is shown under the heading '백로그 (9개 이슈)'. The selected item is 'VBC-15 Test Suite 1', which is highlighted with a red box. On the right, a detailed view of 'Test Suite 1' is shown. This view includes a title 'Test Suite 1', a description field, and a list of test cases under the heading 'QAlity - Test Management'. The test cases listed are 'VBC-16 Test Suite 1 - test case 1', 'VBC-17 Test Suite 1 - test case 2', and 'VBC-18 Test Suite 1 - test case 3'. Red arrows point from the 'Test Suite 1' title in the right-hand view back to the 'VBC-15 Test Suite 1' item in the left-hand list, and another red arrow points from the 'Test Suite 1' title to the test case list below it.

System Test Management

- QALity

Test Step:

Test Case => Step과 Expected Result 정의

The screenshot displays the QALity System Test Management interface. The main content area shows a test case configuration for 'V8C-7 QALity test case 생성용 이슈'. It includes a '링크된 이슈' (Linked Issue) section with a dropdown menu showing 'V8C-6 QALity test case 생성용 이슈'. Below this is a 'QALity - Test Management' section with a 'Simple view' dropdown and a 'Contact support' button. The 'Test Step' table is as follows:

Test Step	Expected Result
1. step1	test result1
2. step1	test result2

At the bottom right of the table is an 'Add Step' button. The right sidebar contains metadata for the test case, including '담당자' (Assignee) '신윤섭', '레이블' (Label) 'Testsuite', 'Sprint' (None), and '보고자' (Reporter) 'Harheem Kim'. It also shows '만들기 1시간 전' (Created 1 hour ago) and '업데이트됨 6분 전' (Updated 6 minutes ago), along with a '구성' (Configure) button.

System Test Management

- QALity

Test Cycle(Test Plan)

Test Cycles / 로그인 화면 구성

로그인 화면 구성

Details Test Cases

+ Add more

Test Case	Status	Tested issues
VBC-5 Card Payment Test	PASSED	VBC-9 Card Payment Test test case
VBC-10 로그인 시스템 test case	IN PROGRESS	VBC-8 로그인 시스템 Test Suite

Card Payment Test test case execution

Executed By
Kooain

Comment
Add comment

Execution Status
Passed

Test Case	Expected Result	Comment	Test Attachments	Status
1. Step 1	Result 1			Passed
2. Step 2	Result 2			Passed

System Test Management

- QAlity

Test Cycles Overview

Test Cycles Overview

Search

All projects







Search version...

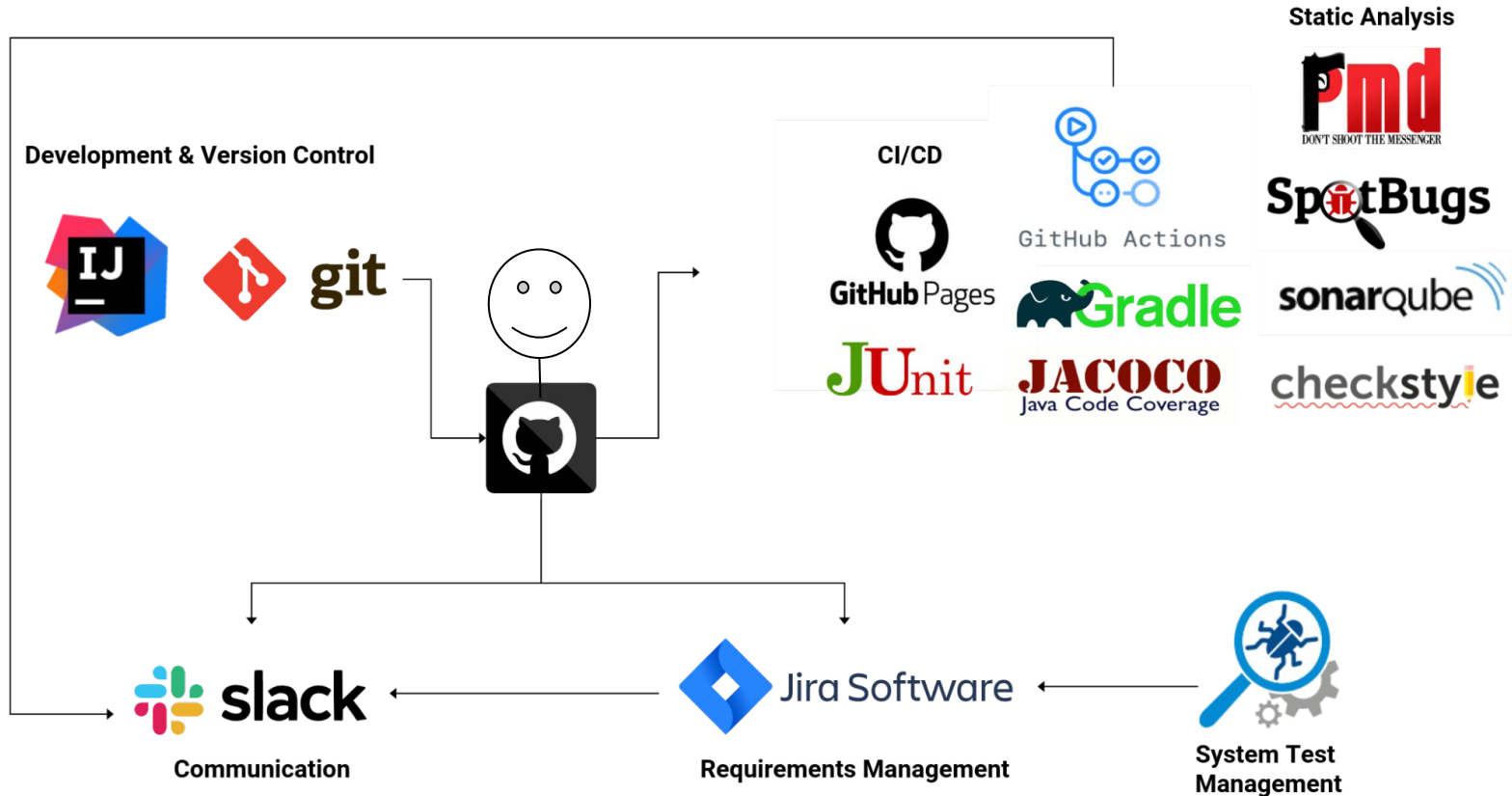


Contains text

Search

Test Cycle	Project	Version	Status	Created	Due Date
로그인 화면 구성	 V&V 8조 CTIP	-		28/Apr/2021	29/Apr/2021
테스트 사이클 1	 V&V 8조 CTIP	-		28/Apr/2021	-

CTIP Overview



THANK YOU

