Unit 7 – Developing with SAP Extension Suite

Certification: C_CPE_13

Unit 7 – Automated Deployment

Agenda

- What have we learned so far
- Continuous Integration and Delivery
- Configuring CI / CD job
- Stages of CI / CD Pipeline
- Verifying build success

Steps involved

1. Initialize full-stack project – Completed (Unit 1, 2)
2. Create the tables – Data Modeling – Completed (Unit 1, 2)
3. Generic handlers – Out-of-the-box CRUD functionality – Completed (Unit 1, 2)
4. Basic UI – Completed (Unit 3)
5. List Report layout – Completed (Unit 3)
6. Custom event handling – Business logic – Completed (Unit 3)
7. Support for external API – Completed (Unit 4)
8. Connecting to Sandbox – Completed (Unit 4)

Steps involved

9. Consume external service in UI – Completed (Unit 4)
10. Manual deployment to CF using manifest.yml – Completed (Unit 5)
11. Manual deployment to CF using mta.yml – Completed (Unit 5)
12. Security – Restrictions and Roles – Completed (Unit 6)
13. Security – Authorization & Trust Management – Completed (Unit 6)
14. Creating an AppRouter – Completed (Unit 6)
15. Adding AppRouter to mta – Completed (Unit 6)
16. CI / CD Pipeline

Continuous Integration / Delivery - Deployment

Continuous Integration:

- Developers push code to main code line at least once a day
- Automated central build and tests are triggered upon each push
- Team ensures stable build and test quality all the time

Continuous Delivery:

- Software is ready for deployment to productive system all the time
- Deployment to productive system is triggered manually
- Feedback from productive system gets integrated to teams' backlog

Continuous Deployment:

- Deployment to productive system is triggered with each commit (automatic)

Enabling SAP Continuous Integration and Delivery

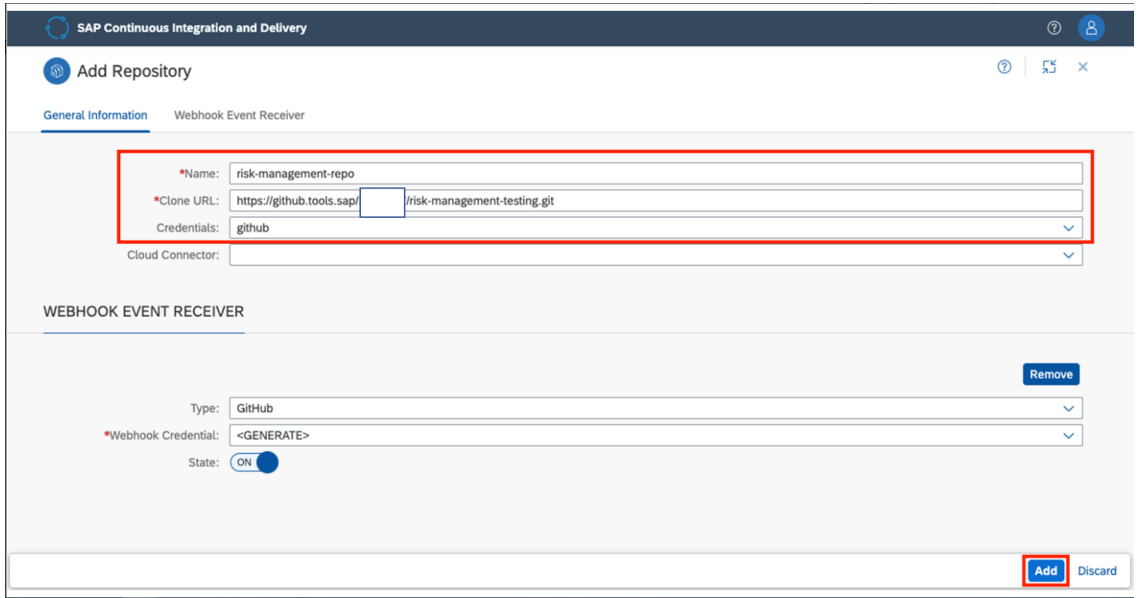
Task 1 – Create / Administer Continuous Integration and Delivery Service:

- Create a subscription of Continuous Integration and Delivery
- Add CICD Service Administrator role collection

Task 2 – Configure Credentials:

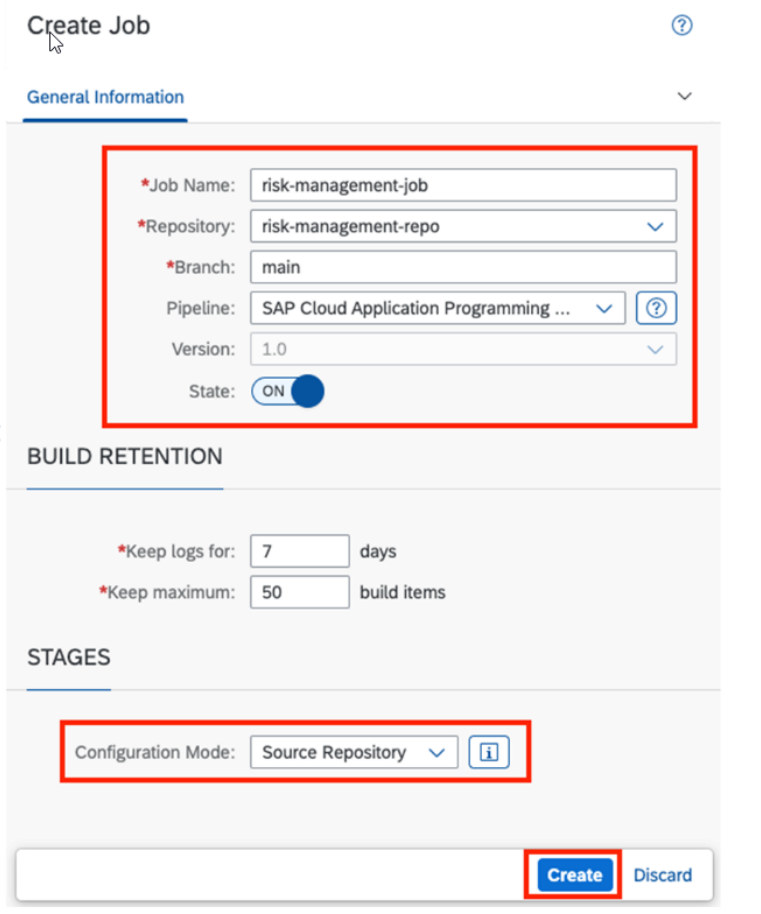
- GitHub Credentials
- Cloud Foundry credentials

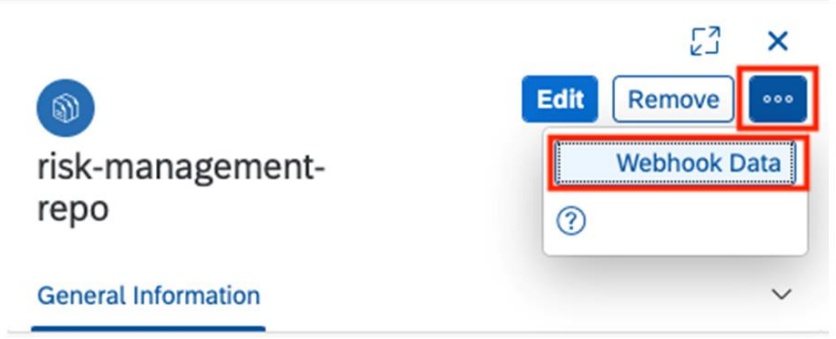
Task 3 – Configure GitHub Repository:

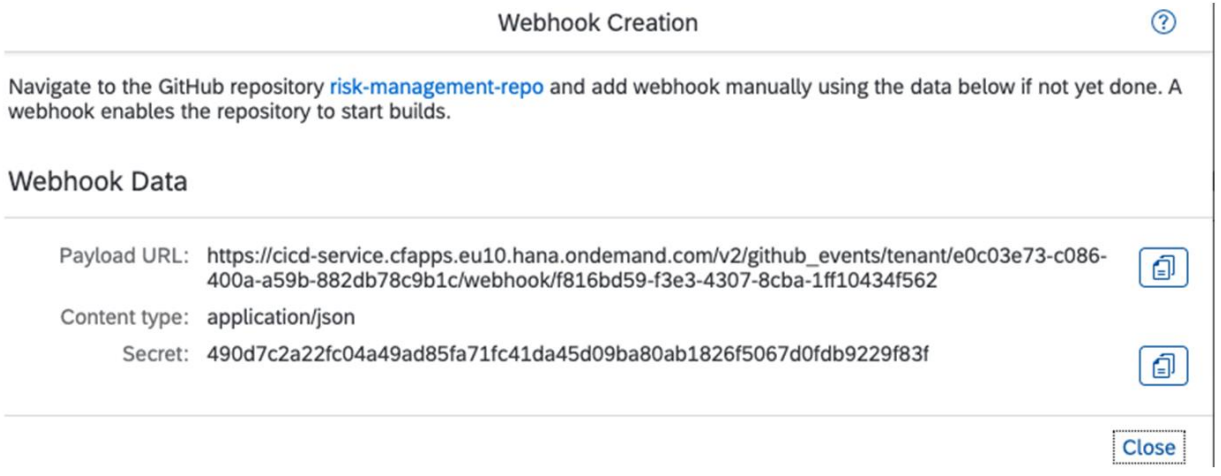


Configuring CI / CD job

Task 1 – Configure a job:



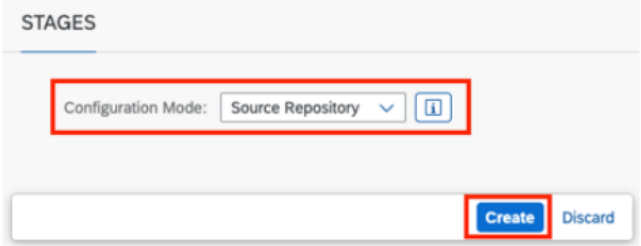




Configuring stages of the CI / CD Pipeline

Steps done so far:

- Connected SAP Continuous Integration and Delivery Service to GitHub
- Created a job for automated build



Steps to do:

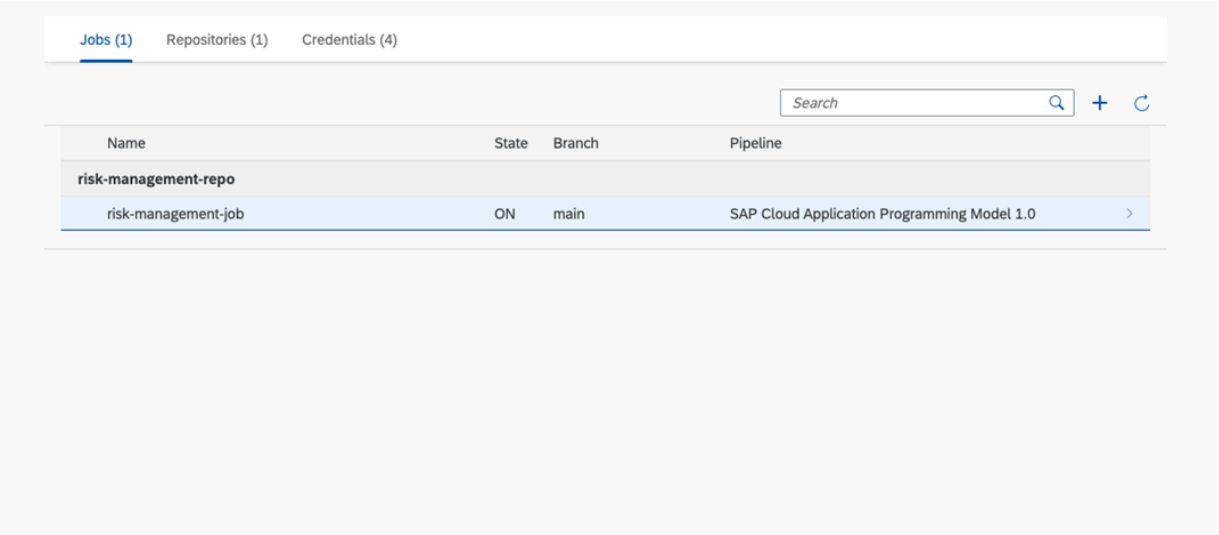
- `cds add pipeline`
- `Update .pipeline/config.yml`

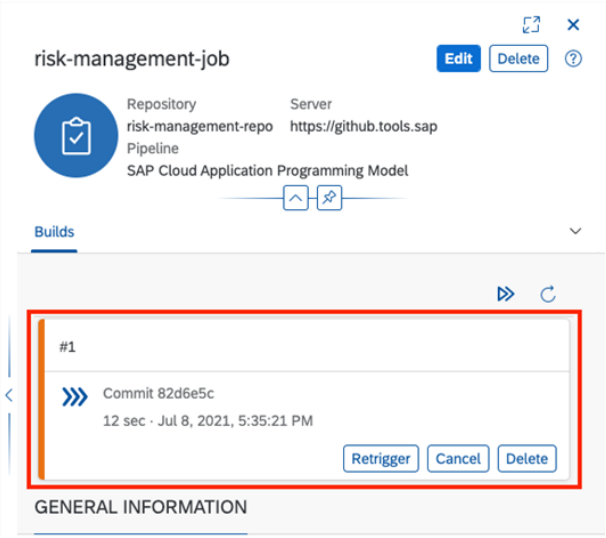
Configuring stages of CI / CD pipeline

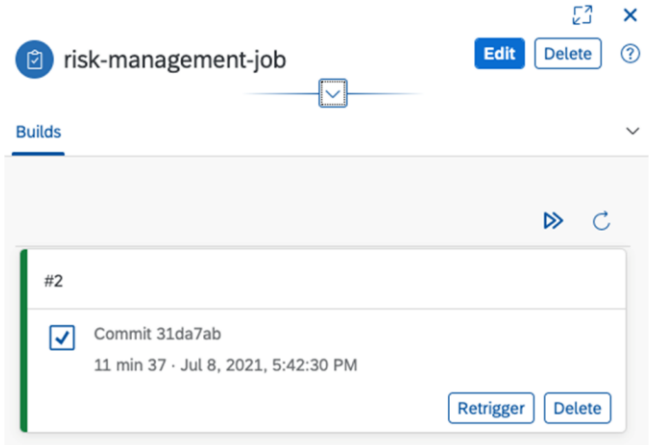
.pipeline/config.yml

```
steps:
  cloudFoundryDeploy:
    cloudFoundry:
      apiEndpoint: "https://                    .com" # please verify if this is your API endpoint.
      org: "        trial" # add your org here
      space: "dev" # add your space here
      credentialsId: "cfdeploy"
      appName: ""
    mtaDeployParameters: "-f --version-rule ALL"
  artifactPrepareVersion:
    versioningType: "cloud_noTag"
```

Verifying Build Success





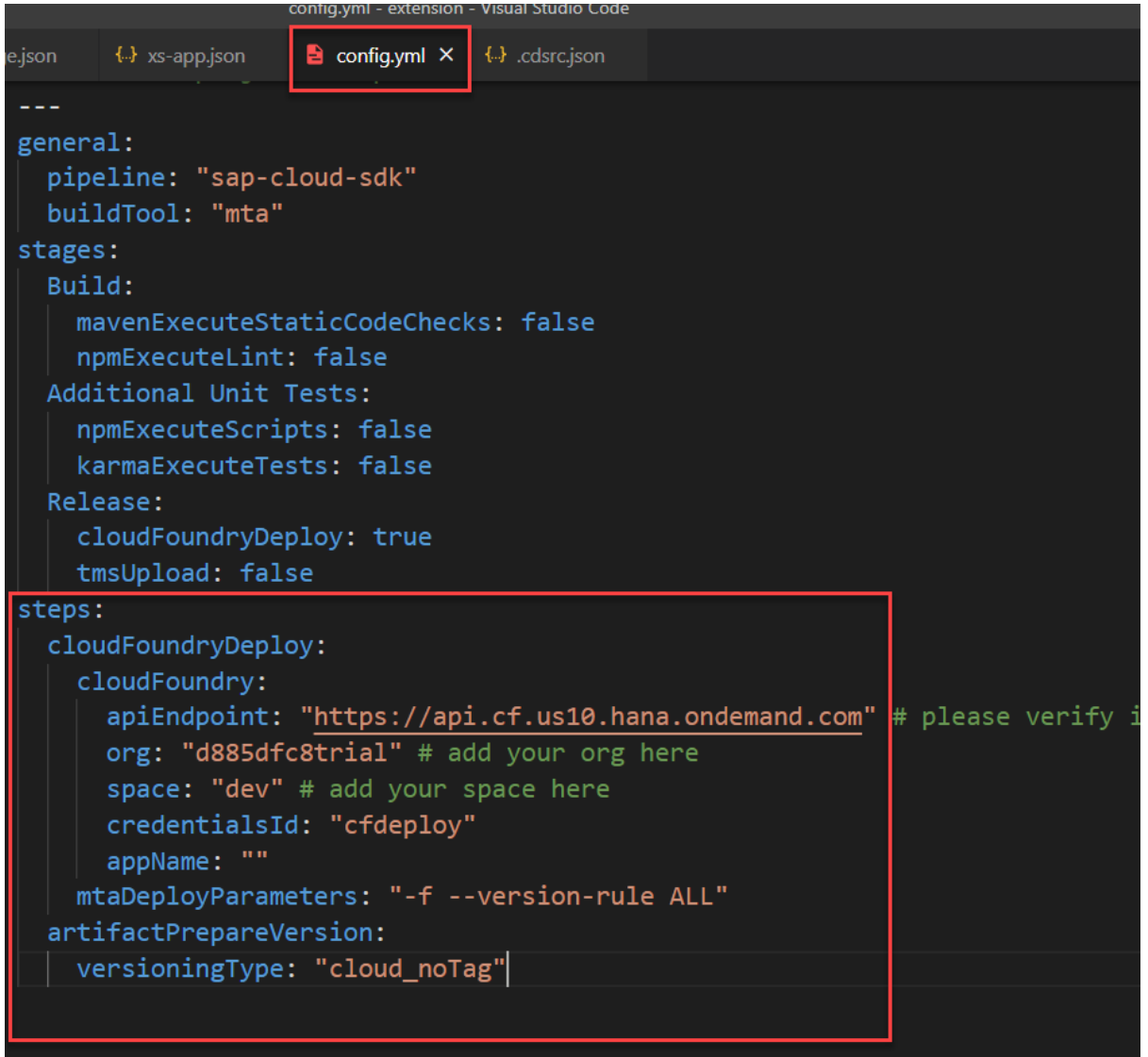


Key Summary Points – Unit 7

cds add pipeline

New Files

- Jenkinsfile
- .pipeline/config.yml



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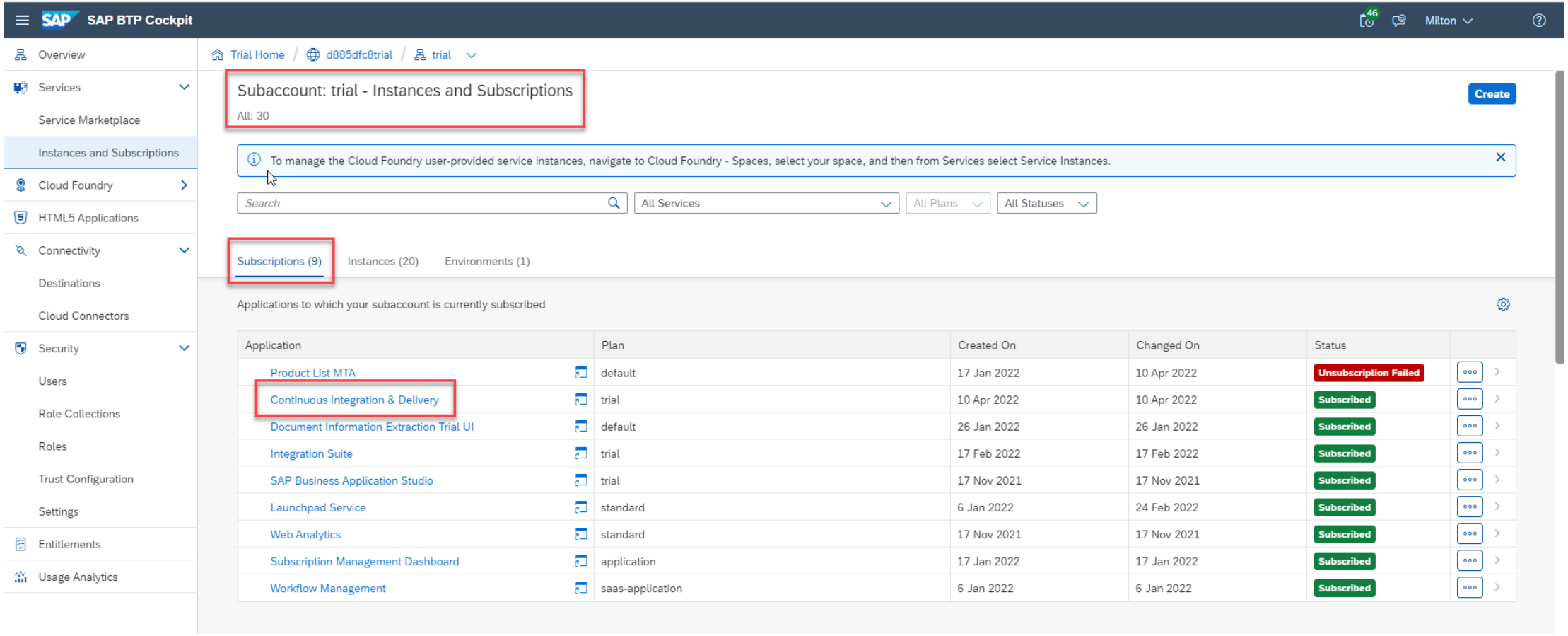

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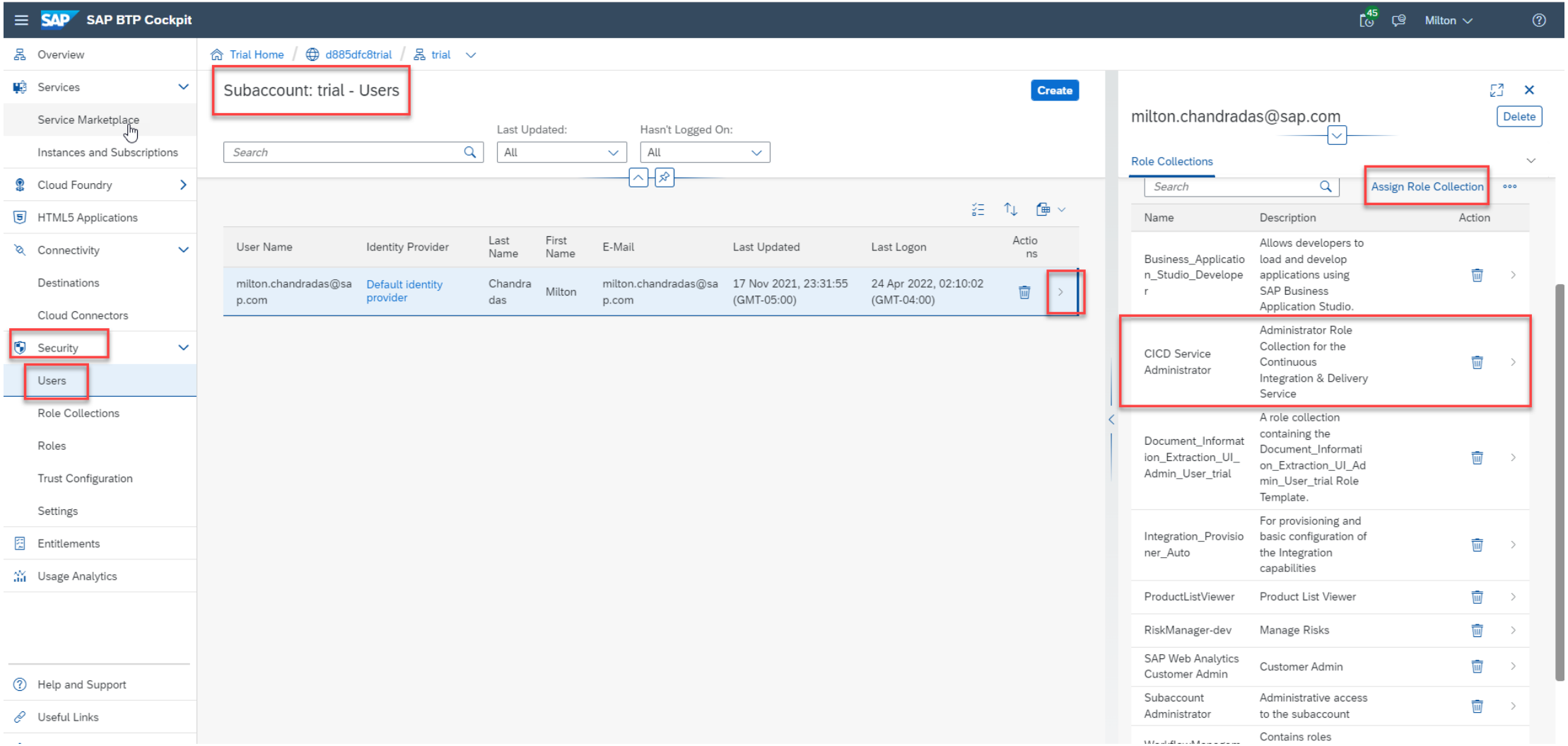


Key Summary Points – Unit 7

Question 1

Choose the correct answer(s).

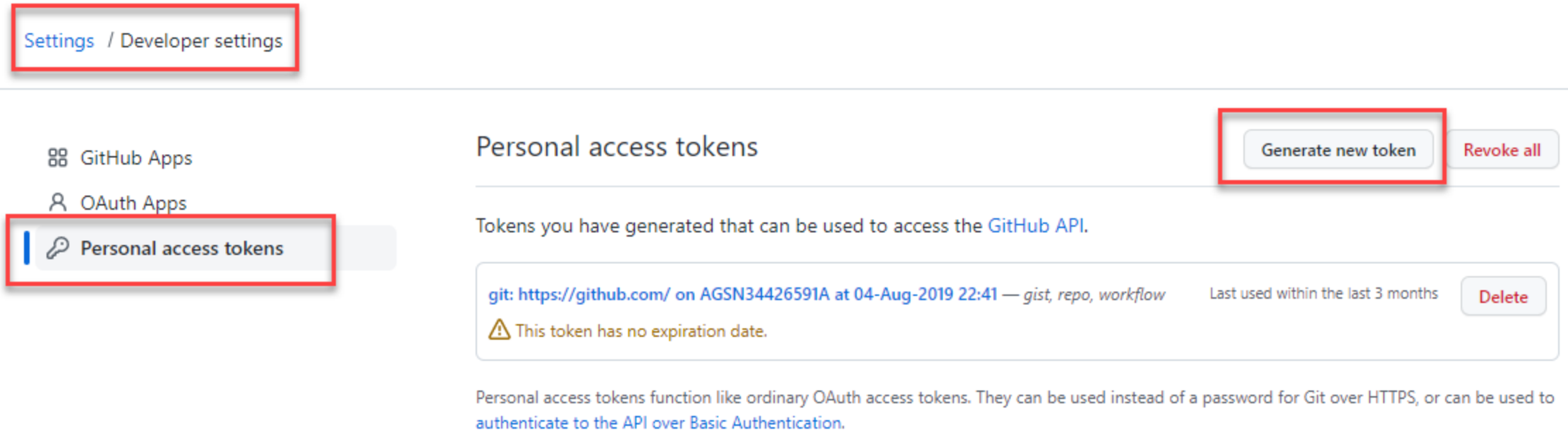
Which of the following statements about a GitHub Repository are correct?

- [x] Anyone on the internet can see a public repository.
- [ ] Anyone on the internet can commit into a public repository.
- [x] You choose who can see your private repository.
- [x] You choose who can commit into your private repository.

Feedback

Correct. Anyone on the internet can see a public repository. You choose who can see your private repository. You choose who can commit into your private repository.

Key Summary Points – Unit 7



Personal Access Tokens are an alternative to using passwords for authentication to GitHub when using the GitHub API or command line

GitHub automatically removes Personal Access Tokens that haven't been used in a year

Key Summary Points – Unit 7

Question 4

Choose the correct answer.

What does the source code management system use to trigger the CI server?

- ✔ ● Webhooks
- ○ Web services
- ○ HTTP PUT requests

Feedback

Correct. The source code management system uses Webhooks to trigger the CI server.

Key Summary Points – Unit 7

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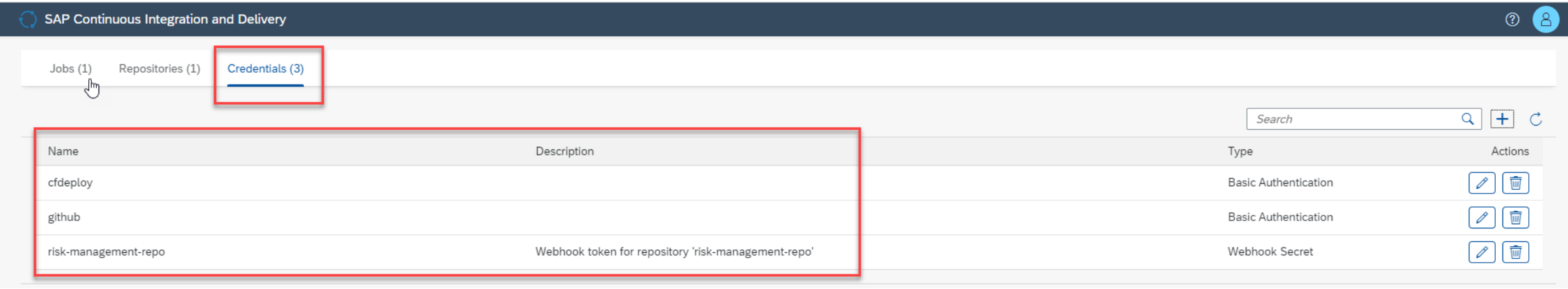
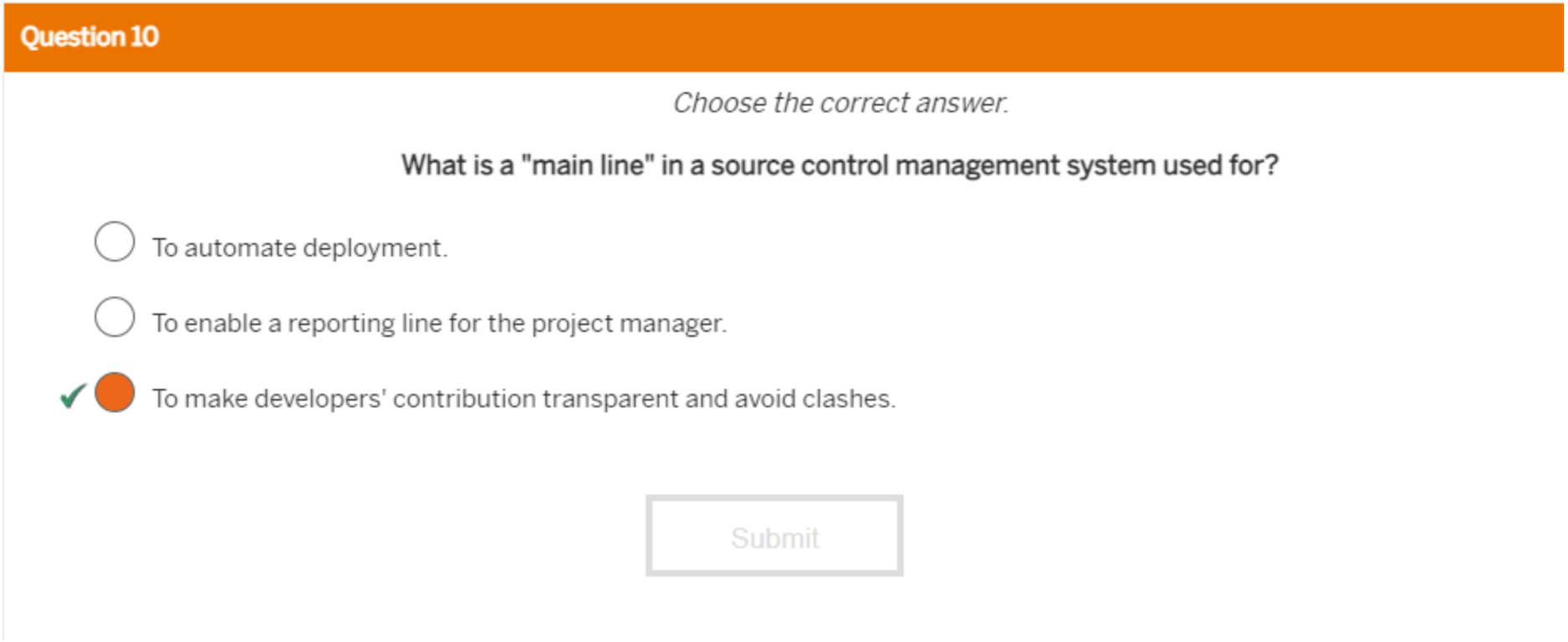
Key Summary Points – Unit 7



Key Summary Points – Unit 7



Key Summary Points – Unit 7

Question 10

Choose the correct answer.

What is a "main line" in a source control management system used for?

- To automate deployment.
- To enable a reporting line for the project manager.
- ✔ To make developers' contribution transparent and avoid clashes.

Submit

Question 11

Determine whether this statement is true or false.

A main line in a source control management system can contain feature branches.

- ✔ True
- False

Submit

Key Summary Points – Unit 7

Question 12

Choose the correct answer(s).

What are the differences between continuous integration (CI) and continuous delivery (CD)?

- ✓ [x] CI allows team members to add their changes to a main line.
- ✓ [x] CD adds an aspect that changes have been tested successfully.
- [ ] CI allows developers to integrate their contributions any time.
- [ ] CD adds an aspect that changes are immediately ready for deployment.

Submit

Key Summary Points – Unit 7

Question 13

Choose the correct answer.

What do you use to retrieve the information about a change on the repository?

- ○ A change document
- ✓ ● A webhook
- ○ A PUT request to GitHub

Question 15

Choose the correct answer.

What kind of request does the webhook send?

- ○ GET
- ○ PUT
- ✓ ● POST

Key Summary Points – Unit 7

To get you started quickly, project "Piper" offers you the following artifacts:

- A set of ready-made Continuous Delivery pipelines for direct use in your project
- ABAP Environment Pipeline
- General Purpose Pipeline
- A shared library that contains reusable step implementations, which enable you to customize our preconfigured pipelines, or to even build your own customized ones
- A standalone command line utility for Linux and a GitHub Action
- Note: This version is still in early development. Feel free to use it and provide feedback, but don't expect all the features of the Jenkins library
- A set of Docker images to setup a CI/CD environment in minutes using sophisticated life-cycle management

Key Summary Points – Unit 7