



Australian Government

ICTCLD515 Build and deploy cloud-based applications using CI and CD pipelines

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with the Information and Communications Technology Training Package Version 8.0. Newly created unit of competency to address in-demand skills needs.

Application

This unit describes the skills and knowledge required to build and deploy cloud-based applications using continuous integration (CI) and continuous delivery (CD) pipelines in a range of contexts. It includes using each stage of the CI/CD automation process to build, test and merge applications, specifically in cloud-based environments.

The unit applies to individuals who may work in a variety of roles, including software engineers, cloud engineers and test automation engineers responsible for automatically delivering code changes to customers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Cloud computing

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare for deployment	1.1 Confirm work brief and tasks according to organisational policies and procedures 1.2 Identify source repository according to work brief 1.3 Assess and source deployment code according to work brief 1.4 Review build and deployment procedures defined in work brief

ELEMENT	PERFORMANCE CRITERIA
2. Develop and run CI phase	2.1 Review pipeline requirements according to work brief 2.2 Configure pipeline and related components according to organisational policies and procedures 2.3 Pull code from source repository using pipeline according to work brief 2.4 Build software using pipeline according to work brief 2.5 Run pipeline and analyse outcomes 2.6 Rectify any issues and confirm pipeline can store build artefacts according to work brief 2.7 Manually deploy build artefacts and confirm functionality
3. Configure feature branch	3.1 Identify features in source repository according to work brief 3.2 Create branch for new features and update code according to work brief 3.3 Update CI pipeline set-up to build from new feature branch 3.4 Discuss build errors with development team and identify root cause, where required 3.5 Rectify any build errors 3.6 Repeat CI pipeline with code updates and confirm any build issues are rectified, according to work brief 3.7 Manually deploy build artefacts and confirm new feature functionality in application
4. Develop and run CD phase	4.1 Configure CD pipeline for artefact deployment according to organisational policies and procedures 4.2 Run CD pipeline and analyse artefact deployment outcomes 4.3 Rectify any deployment issues and confirm application is working in target environment according to work brief 4.4 Repeat CD pipeline using a feature branch and confirm any deployment issues are rectified, according to work brief 4.5 Confirm new feature functionality in target environment 4.6 Complete required documentation according to work brief and organisational policies and procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
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Skill	Description
Reading	Organises, evaluates and critiques ideas and information from a range of complex texts
Writing	Writes clear, sequenced instructions for using CI and CD technologies
Oral Communication	Participates in discussions using listening and questioning to elicit the views of others and to clarify or confirm understanding
Planning and organising	- Identifies key factors that impact on decisions and their outcomes, drawing on experience, competing priorities, and decision-making strategies - Plans strategic priorities and outcomes in a flexible, efficient and effective context and diverse environment exposed to competing demands

Unit Mapping Information

No equivalent unit. Newly created unit.

Links

Companion Volume Implementation Guide is found on VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

Assessment Requirements for ICTCLD515 Build and deploy cloud-based applications using CI and CD pipelines

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- use at least one continuous integration (CI) pipeline to build a cloud-based application
- use at least one continuous delivery (CD) pipeline to deploy the above cloud-based application.

In the course of the above, the candidate must:

- consider procedural improvements to CI and CD pipelines
- report unusual CI and CD activities within required timeframes
- apply required organisational policies and procedures.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key functions and features of CI and CD pipelines, including:
 - integration of building and testing software
 - delivery of packaged software
 - deployment of packaged software into production environments
 - source and artefact repositories
 - manual and automated triggers
 - approval processes
- functions and features of:
 - new branches and branch pipelines
 - source control mains

- build archetypes
- CI and CD platforms, tools, technologies and components required in work brief
- characteristics and common types of application malfunctions
- common methods to identify and rectify application errors
- methods to integrate security tools into CI and CD pipelines
- techniques to detect and respond to build errors in consultation with development teams
- organisational formats for documentation and reports
- organisational policies and procedures, and legislative requirements relating to work tasks.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- CI and CD platforms, tools, technologies and components required in work brief
- opportunities for interaction with others
- work brief, software, hardware, and organisational policies and procedures required to demonstrate the performance evidence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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