ICTSAD612 Implement and maintain uses of containerisation

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 6.0.

Application

This unit describes the skills and knowledge required to build, deploy, run, and monitor containers, and implement micro services, with the goal of providing a more sustainable, flexible and cost-efficient Information and Communications Technology (ICT) environment.

The unit applies to those working as senior computer systems architects proficient in software development, senior software developers and those who work in DevOps roles, responsible for increasing the resource utilisation of an organisation by using containerisation as an alternative to traditional server and application infrastructure technologies. Containers are used to isolate the runtime environment for applications in order to increase portability and reduce operational costs by increasing the utilisation of resources.

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

Unit Sector

Systems analysis and design

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential *outcomes.*	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Assess containerisation needs for application	1.1 Research and select vendor containerisation technology according to business needs
	1.2 Obtain and review technical specifications, infrastructure and systems requirements for container service and runtime
	1.3 Assess responsibility and requirements of microservice architecture according to business needs
	1.4 Check and confirm installation of runtime environment for containerisation technology

ELEMENT	PERFORMANCE CRITERIA
2. Implement containers	2.1 Review and select base container image according to business needs
	2.2 Author container image file for defining base image, working directory, application code, environment configuration and commands
	2.3 Determine container image name applying industry standards and conventions
	2.4 Build container image from authored file
	2.5 Run a new instance of container from image
	2.6 Confirm connectivity of published ports for running container instance
	2.7 Test, debug and fix the running instance of containerised application
	2.8 Run additional container instances from image
	2.9 Stop running container instances
3. Manage container image	3.1 Review available options and select container image registry according to business needs
	3.2 Create container image repository
	3.3 Authenticate and connect to registry
	3.4 Push container image to repository
	3.5 Update, version and push container image to repository
	3.6 Pull container image from repository
4. Maintain container services	4.1 Access logging for application and container
	4.2 List containers in runtime environment
	4.3 List container port mappings
	4.4 Remove container from runtime environment
	4.5 Monitor and display container resource usage and statistics
	4.6 Update configuration of container according to business needs

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
Numeracy	• Designs complex algorithms
	• Selects from, and flexibly applies, a wide range of mathematical and

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SKILL	DESCRIPTION
	problem-solving strategies, techniques, and principles when solving equations, constructing and reading flow charts and analysing data
Oral communication	• Uses listening and questioning skills to confirm understanding of requirements and participates in verbal exchanges of feedback resolution, ideas and solutions
Reading	• Critically analyses documentation, instructions and data from a variety of sources and records, and consolidates information, in order to determine requirements and steps forwards • Identifies and interprets technical material to determine and confirm job, business and systems requirements
Writing	• Demonstrates sophisticated writing skills using specialised language, technical language and scripts and required conventions
Teamwork	• Elicits feedback and provides feedback to others, in order to improve self or workgroup behaviours
Planning and organising	• Researches, plans and sequences complex tasks, efficiently and effectively
Problem solving	• Applies systematic and analytical decision- making processes for complex and non-routine situations and bug code • Uses nuanced understanding of context to recognise anomalies and subtle deviations to normal expectations, focusing attention and remedying problems as they arise in containers as well as in projects and wider systems
Self-management	• Takes full responsibility for following policies, procedures and legislative requirements, and identifies organisational implications of new legislation or regulation, including privacy and data use legislation • Monitors progress of plans and schedules, and reviews and changes them, to meet new demands and priorities • Investigates new and innovative ideas, as a means by which to continuously improve, work practices and processes through consultation, formal and analytical thinking
Technology	• Uses complex scripts and tools required within complex systems, applications, operation systems, the internet and required software and hardware components • Uses complex cyber security procedures and techniques to maintain data security, and systems and application integrity

Unit Mapping Information

No equivalent unit. New unit.

Links

Companion Volume Implementation Guide is found on VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2

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