



Australian Government

ICANWK527B Manage an enterprise virtual computing environment

Release 1

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Modification History

Release	Comments
Release 2	This version first released with ICA11 Information and Communications Technology Version 2. Added performance criteria under elements 3 and 4. A range of minor editorial changes. Outcomes deemed equivalent.
Release 1	This version first released with ICA11 Information and Communications Technology Version 1.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage virtualisation technologies with the goal of providing a more efficient and reliable information and communications technology (ICT) environment.

Application of the Unit

This unit applies to senior networking staff responsible for managing virtualisation technologies.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.</i>

Elements and Performance Criteria

1. Manage resources	1.1. Monitor and adjust resources to ensure virtual environment performance functions according to enterprise requirements 1.2. Verify functionality of virtual environment
2. Manage virtual machines	2.1. Use migration tools to convert a physical machine to a virtual machine 2.2. Select appropriate deployment methods for a virtual machine 2.3. Create and deploy a virtual machine using installation media 2.4. Create and deploy a virtual machine using automated templates 2.5. Use virtual machine snapshots to reverse or implement changes to a virtual machine
3. Ensure high availability	3.1. Plan and design strategy to ensure virtual environment high availability 3.2. Identify and select suitable resources for high availability implementation, according to enterprise requirements 3.3. Configure virtual machine environment to ensure high availability 3.4. Configure virtual machine environment to provide live migration 3.5. Plan and design backup strategy 3.6. Back up and recover a virtual machine using and integrating third-party tools

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

communication skills to:

- convey and clarify information
- liaise with clients
- literacy skills to:
 - document virtualisation configurations and processes
 - record researched information
- planning skills to plan methods for maintaining a virtualised machine environment
- problem-solving skills to:
 - apply solutions in networks, including virtualised machine environments
 - deploy rapid solutions to problems involving virtualised machine environment
 - proactively minimise, control or eliminate hazards that may exist during work activities
- technical skills to apply current best practice to managing virtualisation methodologies and technologies

Required knowledge

- in-depth knowledge of:
 - current government and industry policies and guidelines in relation to developing efficient and reliable ICT environments
 - current technologies and processes designed to produce an efficient and reliable ICT environment
 - structure, function and business organisation of client
- application and deployment of virtual machine management tools
- virtual machine configuration and integration options

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	<p>Evidence of the ability to:</p> <ul style="list-style-type: none"> • monitor and provide resources to virtual environment • create and deploy virtual machines • implement changes to virtual machines • back up and recover a virtual machine.
Context of and specific resources for assessment	<p>Assessment must ensure access to:</p> <ul style="list-style-type: none"> • site or prototype where virtual machine environments may be implemented • network technical requirements • appropriate software • appropriate learning and assessment support when required. <p>Where applicable, physical resources should include equipment modified for people with special needs.</p>
Method of assessment	<p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p> <ul style="list-style-type: none"> • verbal or written questioning to assess candidate's knowledge of emerging policies relating to: <ul style="list-style-type: none"> • current recommendations on sustainability options in ICT design • benefits of virtualisation • installation and configuration of virtualisation software • installation and configuration of virtual machines • configuration of virtual machines into network design • direct observation of candidate demonstrating: <ul style="list-style-type: none"> • installation and configuration of virtualisation software • installation and configuration of virtual machines • configuration of virtual machines into network design • review of documentation prepared by candidate to: <ul style="list-style-type: none"> • record the process of installing and configuring virtual machines • document the system.

Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.</p> <p>Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed.</p> <p>Indigenous people and other people from a non-English speaking background may need additional support.</p> <p>In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.</p>
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Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Resources may include availability of:	<ul style="list-style-type: none"> • central processing unit (CPU) cores • CPU load to be shared • CPU speed • hard disk space (storage) • memory (RAM) • network bandwidth • physical CPUs.
Enterprise requirements may include:	<ul style="list-style-type: none"> • how and what the enterprise wants regarding work environment • preventative maintenance and diagnostic policy • problem-solving processes • roles and technical responsibilities in network management • vendor and product service level support agreements.
Functionality may include:	<ul style="list-style-type: none"> • availability of services on a virtual machine • virtualised services performing the same as a service running on physical machine.
Migration tools may include:	<ul style="list-style-type: none"> • AutoVirt AutoMove • Leostream • Microsoft System Center Virtual Machine Manager (SCVMM) • Microsoft Virtual Server 2005 Migration Toolkit • PlateSpin Migrate • Virtuozzo • Vizioncore vConverter • VMware Converter • VMware P2V Converter • VMware vCenter Converter.
Physical machine may include:	<ul style="list-style-type: none"> • laptop or notebook • server • workstation.
Installation media may include:	<ul style="list-style-type: none"> • blu-ray disk • CD • DVD • floppy disk • ISO image

	<ul style="list-style-type: none">• network share• universal serial bus (USB) flash drive.
<i>Snapshots</i> may include:	<ul style="list-style-type: none">• stored virtual machine configuration to allow:<ul style="list-style-type: none">• rollback of changes to a virtual machine• implementation of instant changes to a virtual machine.
<i>High availability</i> may relate to use of:	<ul style="list-style-type: none">• clustered virtual machines performing an identical task• load balancing between virtual machines to ensure service requirements are met• pre-configured virtual machines that can be rapidly stored and deployed in the event of a system failure• standby power solutions in the event of a power disruption.

Unit Sector(s)

Networking