



Australian Government

Department of Education, Employment and Workplace Relations

ICASAS425A Configure and troubleshoot operating system software

Release: 1

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Modification History

Release	Comments
Release 1	This Unit first released with <i>ICAI1 Information and Communications Technology Training Package version 1.0</i>

Unit Descriptor

This unit defines the performance outcomes, skills and knowledge required to configure, maintain and troubleshoot operating system (OS) software to ensure organisational requirements and client needs are met.

Application of the Unit

This unit applies to individuals in a technical support role who are required to configure and troubleshoot OS software to meet organisational requirements. The unit develops the ability to install, configure, optimise and test the OS to identified vendor specifications. The ability to troubleshoot and rectify faults is also a key component of this unit.

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

Element	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

<p>1. Identify available OS</p>	<p>1.1 Compare and contrast different <i>OS</i></p> <p>1.2 Identify and demonstrate knowledge of basic <i>OS features</i></p> <p>1.3 Research OS vendor sites to obtain technical specifications and system requirements</p> <p>1.4 Install and configure the OS using features such as Internet Information Services (IIS)</p> <p>1.5 Determine licensing, hardware and security requirements and provide recommendations to <i>appropriate person</i></p>
<p>2. Install, configure and optimise OS</p>	<p>2.1 Install, configure and test the OS using the installation components and <i>boot utility options</i></p> <p>2.2 Use the <i>OS user interface</i> to correctly configure the installation</p> <p>2.3 Identify different <i>directory structures</i> and demonstrate management of virtual memory</p> <p>2.4 Optimise system to meet <i>organisational requirements</i></p> <p>2.5 Document system according to organisational requirements</p>
<p>3. Resolve problems using tools</p>	<p>3.1 Identify <i>command line options</i> and <i>system tools</i> available to troubleshoot problems</p> <p>3.2 Identify specific problems and implement strategies for resolution</p> <p>3.3 Use options and tools to resolve <i>common operating system issues</i></p>
<p>4. Provide instruction for new OS implementation</p>	<p>4.1 Provide one-to-one instruction about changes to the <i>client</i> or users as required</p> <p>4.2 Obtain client evaluation about new system to ensure requirements are met, using appropriate <i>feedback mechanism</i></p>

Required Skills and Knowledge

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

Required skills

- communication skills to:
 - install and configure OS software
 - interpret technical computer installation manuals
 - liaise with people working across different levels and in different contexts
- literacy skills to:
 - obtain written and verbal feedback from clients
 - present information, such as the use of diagnostic tools
 - provide verbal instructions to client
- problem-solving skills to troubleshoot OS
- research skills to search for solutions to common problems
- technical skills to:
 - work with OS
 - write instructions for clients.

Required knowledge

- architecture of current technical systems
- current industry-accepted hardware and software products
- functions and features of OS used by the organisation
- installation and configuration of systems software
- organisational requirements for OS software
- prerequisites for system software installation
- set-up and configuration procedures
- software packages supported by the organisation
- system's current functionality
- system's diagnostic software
- vendor specifications and requirements for installation.

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"> • identify requirements of different OS • install, configure and test an OS to improve system performance with minimum disruption to clients • identify faults and rectify with utilities and tools.
Context of and specific resources for assessment	<p>Assessment must ensure access to:</p> <ul style="list-style-type: none"> • PC where installation may be performed • OS software and technical documentation are available • organisational documentation • appropriate learning and assessment support when required • modified equipment for people with special needs.
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> <p>direct observation of candidate:</p> <ul style="list-style-type: none"> • questioning team members, supervisors and clients • installing and testing an OS • identifying and rectifying OS faults • evaluation of candidate’s reports demonstrating applicants ability to use and optimise an OS • verbal or written questioning to assess candidate’s knowledge of OS installation and troubleshooting.
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>

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.

<p><i>OS</i> may include:</p>	<ul style="list-style-type: none"> • Mac OS X • Linux: <ul style="list-style-type: none"> • Debian • Fedora • Google Chrome OS • Kubuntu • Linux Mint • Red Hat • Ubuntu • Microsoft Windows: <ul style="list-style-type: none"> • Windows 2000 • Windows 7 (32 bit versus 64 bit) • Windows Vista (32 bit versus 64 bit) • Windows XP (32 bit versus 64 bit) • mobile OS: <ul style="list-style-type: none"> • Android • Blackberry • iPhone • Palm • Symbian • Windows Phone 7 series.
<p><i>OS features</i> may include:</p>	<ul style="list-style-type: none"> • configure power management: <ul style="list-style-type: none"> • hibernate • sleep timers • standby • suspend • wake on local area network (LAN) • device manager: <ul style="list-style-type: none"> • driver signing • install and update device drivers • verify • demonstrate safe removal of peripherals

	<ul style="list-style-type: none"> • directory structures: <ul style="list-style-type: none"> • create folders • navigation of directory structures • disk preparation order: <ul style="list-style-type: none"> • format drive • partition • start installation • files: <ul style="list-style-type: none"> • attributes • creation • extensions • permissions • file systems: <ul style="list-style-type: none"> • FAT32 versus new technology file system (NTFS) • installation methods: <ul style="list-style-type: none"> • boot media, such as DVD, CD, floppy or universal serial bus (USB) • factory recovery partition • install from image • network installation • recover CD • operating system installation options: <ul style="list-style-type: none"> • file system type • network configuration • repair install • user data migration, such as user state migration tool (USMT) • verification of hardware compatibility and minimum requirements • virtual memory.
<p>Appropriate person may include:</p>	<ul style="list-style-type: none"> • authorised business representative • client • supervisor.
<p>Boot utility options may include:</p>	<ul style="list-style-type: none"> • boot options: <ul style="list-style-type: none"> • boot to restore point • recovery options • safe mode: <ul style="list-style-type: none"> • automated system recovery (ASR) • emergency repair disk (ERD) • recovery console • disk boot order or device priority:

	<ul style="list-style-type: none"> • types of boot devices, such as disk, network and USB.
<p><i>OS user interface</i> may include:</p>	<ul style="list-style-type: none"> • based on Windows (adopt interface to undertake similar tasks with chosen operating system): <ul style="list-style-type: none"> • administrative tools: <ul style="list-style-type: none"> • performance monitor, event viewer, services, and computer management • command prompt utilities: <ul style="list-style-type: none"> • ipconfig • Ping • Telnet • control panel • location of basic network settings between OS versions • my computer • my network places or home group • MMC • run line utilities: <ul style="list-style-type: none"> • cmd • direct diagnostics (DXdiag) • msconfig • MSINFO32 • REGEDIT • start menu • task bar or systray • task manager • Windows Explorer, such as libraries in Windows 7.
<p><i>Directory structures</i> may include:</p>	<ul style="list-style-type: none"> • fonts • offline files and folders • program files • system file locations • temporary files • user file locations • user profile and program files • virtual directories.
<p><i>Organisational requirements</i> may include:</p>	<ul style="list-style-type: none"> • availability of system to be optimised • client support documentation • in-house or vendor; contracting arrangements relating to IT purchasing • IT policy and procedures relating to service levels and installation • level of complexity of technical manuals.

<p>Command line options may include:</p>	<ul style="list-style-type: none"> • CHKDSK (/f /r) • COPY (/a /v /y) • DIR • EDIT • FORMAT • GREP • IPCONFIG (/all /release /renew) • LS • MD / CD / RD • MKDIR • MSCONFIG • NET • NSLOOKUP • PING (-t -l) • RMDIR • SFC • Tracert • XCOPY.
<p>System tools may include:</p>	<ul style="list-style-type: none"> • administrative tools: <ul style="list-style-type: none"> • computer management • event viewer • performance monitor • services • device manager • disk management tools: <ul style="list-style-type: none"> • Check Disk • DEFRAG • NTBACKUP • disk manager: <ul style="list-style-type: none"> • active unallocated • active, primary, extended and logical partitions • drive status • dynamic • external hard drives • failed • FAT32, NTFS, FAT64 (exFAT) • flash drives • foreign drive • formatting • healthy

	<ul style="list-style-type: none"> • mount points • mounting a drive • offline • online • enable: <ul style="list-style-type: none"> • disable • indicators • warnings • regional settings and language settings • remote desktop protocol (remote desktop or remote assistance) • system information • system monitor • system restore • task manager: <ul style="list-style-type: none"> • process list • process priority • resource usage • termination • task scheduler.
<p><i>Common operating system issues</i> based on Windows (adopt interface to undertake similar tasks with chosen operating system):</p>	<ul style="list-style-type: none"> • error messages and conditions: <ul style="list-style-type: none"> • aero settings: <ul style="list-style-type: none"> • background processes • indexing settings • side bar settings • start-up file maintenance • UAC • boot: <ul style="list-style-type: none"> • inaccessible boot drive • invalid boot disk • missing NTLDR • event viewer (errors in the event log) • start-up: <ul style="list-style-type: none"> • device or program in registry not found • device or service failed to start • system performance and optimisation • operational problems: <ul style="list-style-type: none"> • application install, start or load failure • auto-restart errors • bluescreen error • devices drivers failure (input and output devices)

	<ul style="list-style-type: none"> • service fails to start • system lock-up • Windows-specific printing problems: <ul style="list-style-type: none"> • incorrect or incompatible driver or form printing • print spool stalled.
<i>Client</i> may include:	<ul style="list-style-type: none"> • department within the organisation • person with special needs • person within a department • third party.
<i>Feedback mechanism</i> may include:	<ul style="list-style-type: none"> • interview • meeting • questionnaire • survey.

Unit Sector(s)

Systems administration and support