Australian Government

Department of Education, Employment and Workplace Relations

ICASAS415A Optimise IT system performance

Release: 1

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Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify, improve and monitor IT system performance.

The optimisation of system performance can be assisted by careful management of existing installed resources.

Application of the Unit

This unit applies to experienced technical support personnel, such as help-desk supervisors, IT support technicians, and user support specialists responsible for maintaining top performance from computer systems.

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
Elements describe the essential outcomes of a unit of competency.	*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.*

Elements and Performance Criteria

1. Identify areas of poor performance	1.1 Collect system performance data, during various usage conditions and times, using available technical ***tools***
	1.2 Evaluate the collected ***system performance*** data related to organisational benchmarks and ***client*** feedback to identify areas of poor performance
2. Investigate methods to improve system performance	2.1 Identify options to ***improve performance*** through discussing the system performance findings with ***appropriate person*** and accessing technical resources
	2.2 Create a report for appropriate person, including cost analysis and identified options for alternative courses of action designed to measurably improve performance
	2.3 Present report to appropriate person for decision as to preferred course of action
3. Develop an implementation plan for system optimisation	3.1 Develop a plan for implementing the approved optimisation, with prioritised tasks and minimum disruption to clients
	3.2 Factor project budget and staff availability into the implementation plan
	3.3 Submit the implementation plan to the appropriate person for approval and revision, if necessary
4. Modify system to optimise performance	4.1 Install or configure system ***components*** according to installation procedures and ***organisational guidelines***, following the implementation plan
	4.2 Measure and record the change in performance resulting from the system modification, in order to assess that the required level of optimisation has been achieved
	4.3 Update appropriate ***documentation*** according to organisational guidelines, to reflect the system optimisation
5. Monitor ongoing system performance	5.1 Implement and maintain a performance register
	5.2 Review and assess benchmarks and performance regularly with the work team to enable timely optimisation and updates

Required Skills and Knowledge

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

Required skills

- basic analytical skills to:
  - evaluate the collected system performance data
  - review and assess benchmarks and performance
- communication skills to:
  - evaluate system performance data related to organisational benchmarks
  - follow up on client feedback
  - liaise with technical team members
- literacy skills to:
  - document initial problem and make recommendations to solve problem
  - implement and maintain a performance register
  - read technical manuals, organisational guidelines and support agreements
  - write reports that include cost analysis details
- planning and organisational skills to:
  - develop an implementation plan for system optimisation
  - develop plans with prioritised tasks
  - make contingency arrangements
  - minimise disruption to client
  - organise maintenance
- problem-solving skills to:
  - determine problems based on diagnostic tests
  - identify options to improve performance
  - solve unknown problems in a range of contexts
- teamwork skills to review and assess benchmarks and performance with the work team
- technical skills to:

collect system performance data using available diagnostic and technical tools

  - install and configure system components
  - measure and record changes in performance resulting from system modifications
  - measure system performance against predefined benchmarks.

Required knowledge

- business scheduling requirements
- current industry-standard hardware and software monitoring tools and how to interpret information produced from monitoring
- system performance, change control procedures and theoretical concepts
- one or more change-management tools
- quality assurance practices with regard to proposed changes to IT systems
- role of stakeholders and the degree of stakeholder involvement

- features and functions of the system under modification
- current system functionality.

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	Evidence of the ability to: • identify inadequacies in system performance • analyse system performance • tune the system to keep the system balanced and performing well.
Context of and specific resources for assessment	Assessment must ensure access to: • system components and software for performance tuning • technical manuals and resources • fault logs • diagnostic tools • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate performing system tests • verbal or written questioning to assess candidate's knowledge • review of documentation recording system optimisation process.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. 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. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

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.

Tools may include:	• electronic test equipment:
	  • data analyser
	  • oscilloscope
	  • voltmeter
	• software.

System performance may be related to:	• allocation of files across disk space • disk speed • I/O channel availability • imbalances in disk use and available space • memory availability and use • number of concurrent users • physical limitations of system • poor design in a programs • processor use • queue depth • seek time • work load.
Client may include:	• employee • external organisation • individual • internal department.
Improving performance may include:	• load balancing between servers or other network devices using switches or routers • reducing total load by tuning the operating system • tuning applications to reduce the load they impose • tuning the disk sub-system • using various system tools to adjust system parameters, including hardware or software upgrade.
Appropriate person may include:	• authorised business representative • client • project manager • supervisor.
Components may	• CD and DVD drives

include:	• central processing unit (CPU) • complementary metal oxide semiconductor (CMOS) battery • fax or modem cards • interface cards • motherboards • random access memory (RAM).
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) • naming standards • project management templates • report writing principles • version control.

Unit Sector(s)

Systems administration and support