



Australian Government

ICTDBS404 Identify and resolve common database performance problems

Release: 1

ICTDBS404 Identify and resolve common database performance problems

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to diagnose database problems, as well as to configure and tune the database in order to maintain consistent performance.

It applies to individuals who are experienced technical support personnel, such as help-desk supervisors, database support technicians, information and communications technology (ICT) support technicians, and user-support specialists, who are responsible for maintaining the performance of a database.

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

Unit Sector

Database

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. Diagnose problems	1.1 Determine an appropriate database performance diagnostic tool to use, based on organisational database requirements, and vendor recommendations 1.2 Run a diagnostic tool to identify the issues causing degradation of the database's performance 1.3 Determine and record where the inappropriate use/s of database and temporary table spaces occur 1.4 Carry out appropriate fixes, based on diagnostic results

ELEMENT	PERFORMANCE CRITERIA
2. Configure the database	2.1 Adopt a distributed files architecture to minimise input and output (I/O) contention 2.2 Ensure that database backup procedures are appropriate for the method of data storage 2.3 Reconfigure rollback segments 2.4 Configure the database and test its performance
3. Tune the database	3.1 Track module performance according to its specifications 3.2 Monitor and tune the efficiency of structured query language (SQL), as required 3.3 Monitor and measure the performance of shared pool, blocks and buffers 3.4 Detect, identify and resolve any contentions that may arise in the real-time operation of the database 3.5 Reconfigure the database according to specifications

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.1, 1.3, 2.2	Analyses and interprets textual information in order to establish performance issues and their corresponding solution(s)
Writing	1.3	Uses technically appropriate language and format, when recording data
Oral Communication	1.1	Uses effective listening, questioning and summarising skills to ensure that the correct information is gathered
Get the work done	All	- Uses a formal, logical planning processes, together with an increasingly intuitive understanding of context, to identify relevant information and risks, and to identify and evaluate alternative strategies and resources - Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating

		options against the agreed criteria • Uses analytical processes to decide on a course of action, establishing criteria for deciding between options • Uses familiar digital technologies and systems to access information, search and enter data, code, present information and communicate with others, while maintaining data security and safety at all times
--	--	--

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTDBS404 Identify and resolve common database performance problems	ICADBS404A Identify and resolve common database performance problems	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for ICTDBS404 Identify and resolve common database performance problems

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- correctly identify common database problems
- select appropriate solutions to solve the problem
- implement solutions to improve database performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the principles of database design and structured query language (SQL)
- describe the principles of database administration
- describe diagnostic tools and database tuning methodologies.

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- special purpose materials
- industry software packages
- diagnostic tools
- database operating on a network.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -

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