



Australian Government

ICTDBS417 Identify and resolve common database performance problems

Release: 1

ICTDBS417 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 6.0.

Application

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

It applies to individuals who are experienced technical support personnel, including 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 and resolve database problems	1.1 Determine database performance diagnostic tool, according to organisational database requirements and vendor recommendations 1.2 Run diagnostic test and identify database performance degradation issues 1.3 Determine and record misuse of database and temporary table spaces 1.4 Carry out required fixes according to diagnostic results 1.5 Record issues and actions taken and escalate unresolved issues to required personnel

ELEMENT	PERFORMANCE CRITERIA
2. Configure database	2.1 Utilise database (DBMS) tools and design structures to minimise i/o contention according to task requirements 2.2 Apply database backup procedures according to method of data storage 2.3 Reconfigure rollback segments according to task requirements 2.4 Configure database and test performance according to task requirements
3. Optimise the database	3.1 Track module performance according to specifications 3.2 Monitor and tune efficiency of structured query language (SQL) according to task requirements 3.3 Monitor and measure performance of shared pool, blocks and buffers 3.4 Detect, identify and resolve contentions that arise in real-time operation of database 3.5 Reconfigure database according to specifications

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
Oral communication	• Uses effective listening and questioning techniques to confirm requirements and information using relevant industry for intended audience
Reading	• Demonstrates analysis and interpretation of textual information in order to establish performance issues and their corresponding solutions
Writing	• Writes and edits code and technical data in a logical manner using required syntax and language
Planning and organising	• Uses a formal, logical planning processes together with an increasingly intuitive understanding of context • Uses formal, logical process to identify relevant information and risks and to identify and evaluate alternative strategies and resources
Problem solving	• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options
Self-management	• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against the agreed criteria

SKILL	DESCRIPTION
Technology	• 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

Supersedes and is equivalent to ICTDBS404 Identify and resolve common database performance problems.

Links

Companion Volume Implementation Guide is found on VETNet -

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

Assessment Requirements for ICTDBS417 Identify and resolve common database performance problems

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- configure an optimal performance database with at least three tables for at least one occasion
- confirm at least two of the three tables have greater than one hundred rows.

In the course of the above, the candidate must:

- identify common database problems
- determine required solutions to solve problem
- implement solutions to improve database performance
- save and back up work.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- database design and structured query language (SQL)
- database administration procedures
- tools and database tuning methodologies.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- industry software packages
- diagnostic tools
- database operating on a network environment or virtual network environment.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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