



**Australian Government**

# **ICTPRG555 Implement Object Relational Mapping Framework for data persistence**

**Release: 1**

# ICTPRG555 Implement Object Relational Mapping Framework for data persistence

## 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 implement an Object Relational Mapping (ORM) framework to map, retrieve and manage object persistence in any programming language.

The unit applies to those working as senior software developers, senior back end developers or full stack developers, and responsible for managing Information and Communications Technology (ICT) in small-to-large enterprises (SMEs).

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

## Unit Sector

Programming

## 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. Establish ORM project	1.1 Confirm use, application and need for ORM framework according to business needs 1.2 Review, select and implement ORM framework according to business needs 1.3 Design, develop and build domain object model according to business needs 1.4 Review and select data persistence technology for data store 1.5 Create mapping between domain object model and selected data store

2. Retrieve and manipulate objects according to ORM framework	2.1 Instantiate single object in domain model and persist in data store according to ORM framework 2.2 Instantiate collection of objects in domain model and persist in data store according to ORM framework 2.3 Retrieve objects from data store 2.4 Update object and persist changes back to data store using ORM framework 2.5 Delete data in data store 2.6 Detach data and reattach data 2.7 Implement eager loading of related domain 2.8 Implement lazy loading of related domain objects
3. Manage transactions, concurrency and errors	3.1 Handle transaction commits and rollbacks effectively according to ORM framework and business needs 3.2 Handle data persistence and concurrency effectively according to ORM framework and business needs 3.3 Implement and confirm error-handling 3.4 Test and confirm transaction success according to business needs

## 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
Reading	<ul style="list-style-type: none"> <li>Identifies and interprets technical material to determine and confirm job, business and systems requirements</li> </ul>
Writing	<ul style="list-style-type: none"> <li>Demonstrates sophisticated writing skills using specialised language, technical language and scripts and required conventions</li> </ul>
Planning and organising	<ul style="list-style-type: none"> <li>Researches, plans and sequences complex tasks, efficiently and effectively</li> </ul>
Problem solving	<ul style="list-style-type: none"> <li>Applies systematic and analytical decision-making processes for complex and non-routine situations and bug code</li> <li>Uses nuanced understanding of context to recognise anomalies and subtle deviations to normal expectations, focusing attention and remedying problems as they arise</li> </ul>
Technology	<ul style="list-style-type: none"> <li>Uses complex scripts and tools required within complex systems, applications, operation systems, the internet and required software and hardware components</li> <li>Uses cyber security procedures and techniques to maintain data security,</li> </ul>

SKILL	DESCRIPTION
	and systems and application integrity

## Unit Mapping Information

No equivalent unit. New unit.

## Links

Companion Volume Implementation Guide is found on VETNet -

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