



Australian Government

MEM29008 Analyse and manage data in cloud-based systems

Release: 1

MEM29008 Analyse and manage data in cloud-based systems

Modification History

Release 1. New unit.

Application

This unit defines the skills and knowledge required to analyse and manage data in cloud-based systems associated with implementation of Industry 4.0 systems and technologies in a workplace.

It requires the ability to identify sources of data, use and manage data storage and access and process data. It also includes the analysis of collected and stored data. The unit does not address data analytics.

This unit applies to individuals who work within an Industry 4.0 workplace environment and as part of their role, capture, store, and analyse structured and unstructured data using technologies such as cloud-based systems and techniques to support and optimise processes.

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

Pre-requisite Unit

Nil

Competency Field

Applied technologies

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Manage data storage	1.1 Identify sources of data within the organisation 1.2 Identify big datasets useful for later data analytics and data intensive Industry 4.0 applications 1.3 Identify computing and network infrastructure used in the organisation to access cloud storage 1.4 Store, record, and access data according to organisational requirements 1.5 Apply data security and backup measures to manage risk in

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	accordance with organisational risk management plan and procedures 1.6 Identify cyber security system alerts and take action according to workplace procedures 1.7 Identify and troubleshoot data discrepancies and anomalies 1.8 Work with relevant personnel to apply mitigation strategies for any identified data discrepancies and anomalies
2. Access and process data	2.1 Identify systems in use within the workplace to access and process data 2.2 Confirm protocols, permissions, and organisational requirements for accessing and processing data 2.3 Identify different levels of data access and permissions based upon cyber security and organisational requirements 2.4 Use system controls to interface with cloud 2.5 Locate and retrieve the required data according to organisational policies and procedures 2.6 Export data in appropriate format according to task and data system requirements
3. Analyse and interpret data	3.1 Identify data analysis tools and technologies in use at organisation 3.2 Assess quality and relevance of data based on task requirements 3.3 Analyse data to identify patterns, trends and relationships 3.4 Interpret patterns, trends or relationships in data to identify actionable insights 3.5 Record findings and insights and refer to appropriate personnel, according to organisational policies and procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Industry 4.0 related systems include one or more of the following:

- industrial internet of things (IIoT) devices
- collaborative robots
- networked and cloud connected traditional robots and other industrial automation
- networked and cloud connected supervisory control and data acquisition systems (SCADA)
- networked and cloud connected enterprise resource planning (ERP) systems
- networked and cloud connected CAD and CAM systems
- digital twins
- augmented and virtual reality systems
- networked and cloud connected CNC and additive manufacturing machines
- networked and cloud connected data storage and processing facilities
- networked and cloud connected edge devices
- other networked and cloud connected digital devices and systems relevant to the workplace

Sources of data include one or more of the following:

- radio frequency identification (RFID) tags
- barcoded items
- sensors
- programmable logic controllers (PLCs)
- supervisory control and data acquisition system (SCADA) output
- historical process data

Computing infrastructure includes:

- on demand services
- products
- virtual servers
- virtual PCs
- virtual switches
- storage clusters
- networking

Unit Mapping Information

No equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM29008 Analyse and manage data in cloud-based systems

Modification History

Release 1. New unit.

Performance Evidence

There must be evidence the candidate has demonstrated the ability to:

- store and record data
- systematically apply troubleshooting processes and techniques appropriate to the data source and data storage system to address data discrepancies and anomalies
- locate, retrieve, and export data into appropriate format
- analyse at least two workplace data sets to:
 - identify patterns, trends or relationships
 - identify actionable insights from data
 - record and report findings
- use appropriate technical vocabulary in the preparation of data records and reports
- apply self-management skills to work independently and as part of a team
- apply technology skills to:
 - use data storage technology
 - access and retrieve data.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- numeracy skills to analyse and draw meaning from data
- concept of big data and its application within the manufacturing industry, including:
 - the relationship between big data and smart data
 - data driven manufacturing
 - predictive maintenance
 - internet of things (IoT)
- the difference between structured and unstructured data
- cloud computing infrastructure relevant to data transmission and storage
- types, functions, operations of systems used to access and process data including:
 - simple dataset access and processing
 - multiple dataset/big data secure transmission and access processes including availability of special and proprietary programs

- data communication protocols for communication between sensors and cloud
- data patterns, trends or relationships and their value in data analysis and data troubleshooting
- troubleshooting processes and techniques relevant to data discrepancies and anomalies
- standards, codes and regulations for:
 - protecting data against destruction, corruption and unauthorised distribution
 - data storage/retrieval, recordkeeping and backups
 - cyber security for cloud-based data
 - managing data risk
- cyber security principles.
-

Assessment Conditions

- Assessors must:
 - have vocational competency in analysing and managing data in cloud-based systems at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- There must be access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
-

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>