



Australian Government

Department of Education, Employment and Workplace Relations

ICTTEN5060A Integrate new systems and equipment into the telecommunications network

Release: 1

ICTTEN5060A Integrate new systems and equipment into the telecommunications network

Modification History

Not Applicable

Unit Descriptor

| | |
|------------------------|---|
| Unit descriptor | <p>This unit describes the performance outcomes, skills and knowledge required to integrate new telecommunications equipment into an existing installation over a number of phases. It involves procedures to ensure operability of the system while minimising impact on affected customers.</p> <p>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.</p> |
|------------------------|---|

Application of the Unit

| | |
|--------------------------------|---|
| Application of the unit | <p>Field officers, technicians or technical supervisors from telecommunications carriers, contractors or other service providers apply the skills and knowledge in this unit.</p> <p>It involves the installation of new, additional and replacement equipment in telecommunications systems and networks, including support and administrative infrastructures.</p> <p>It particularly applies to integration of new and emerging internet protocol (IP) based technologies.</p> |
|--------------------------------|---|

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

| | | |
|---------------------------|--|--|
| Prerequisite units | | |
| | | |
| | | |

Employability Skills Information

| | |
|-----------------------------|--|
| Employability skills | This unit contains employability skills. |
|-----------------------------|--|

Elements and Performance Criteria Pre-Content

| | |
|---|--|
| 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

| ELEMENT | PERFORMANCE CRITERIA |
|---|--|
| 1. Plan integration strategy | 1.1. Determine the nature and scope of the integration activity of the <i>systems</i> from <i>appropriate personnel</i> 1.2. Prepare an <i>integration management plan</i> in agreement with appropriate personnel 1.3. Obtain <i>outage management plan</i> if available otherwise prepare a <i>contingency plan</i> to ensure the system integration according to plan 1.4. Identify affected systems, <i>traffic</i> and <i>customers</i> 1.5. Notify alarm management centre of action planned and obtain authority to proceed 1.6. Notify customers affected by the outage of time and likely duration |
| 2. Integrate and test new system in the network | 2.1. Plan and conduct activities over a set of integration phases in a safe manner and according to the integration management plan 2.2. Load operational software according to specification to ensure interoperability of new and existing system 2.3. Undertake <i>tests</i> by simulating network traffic and ensure test results are recorded and stored according to enterprise requirements 2.4. Analyse test results and ensure that the parameters established have all been met 2.5. Evaluate problems during testing phase and rectify or escalate procedure 2.6. Analyse <i>alarms</i> for fault conditions in conjunction with network management centre 2.7. Locate and detect faults within capability or escalate according to enterprise policy 2.8. Check operations administrative maintenance system and alarms are connected according to instruction manual 2.9. Activate new alarms and deactivate old alarms |
| 3. Complete administrative tasks | 3.1. Complete integration records according to manufacturer's specification and enterprise policy and make recommendations for improvement for planning 3.2. Notify project completion to appropriate personnel and obtain sign off |

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- analytical skills to interpret test equipment settings and readings
- communication skills to liaise with customers to ensure requirements are known and can be met within timeframes
- literacy skills to interpret technical specifications and related documentation
- numeracy skills to make calculations and necessary calibration changes
- planning and organisation skills to arrange site access and equipment delivery
- problem solving skills to account for unexpected faults
- safety awareness skills to:
 - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
 - select and use required personal protective equipment conforming to industry and occupational health and safety (OHS) standards
 - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
 - load software
 - locate and detect faults
 - simulate network traffic
 - test and diagnose faults in new technologies
 - undertake tests

Required knowledge

- connections to carrier infrastructure or customer interface units (CIU)
- electrical and or optical properties to be measured
- OHS considerations, including electrical, optical and electromagnetic radiation (EMR) safety
- telecommunication network equipment and emerging technology networks
- test equipment types suitable for tests to be made
- typical performance parameters and faults that may be encountered in network equipment and related connection and transmission media

Evidence Guide

| 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 | <p>Evidence of the ability to:</p> <ul style="list-style-type: none"> • develop a contingency plan • implement an integration management plan • test systems and equipment and associated features being integrated • apply enterprise escalation and outage procedures • negotiate procedures and activity on the network and timing of integration • integrate new systems and equipment to plan and specifications. |
| Context of and specific resources for assessment | <p>Assessment must ensure:</p> <ul style="list-style-type: none"> • a network and equipment for integration • equipment and systems manuals, specifications and enterprise policy. |
| Method of assessment | <p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p> <ul style="list-style-type: none"> • direct observation of the candidate undertaking integration and testing of new systems and equipment • review of test results and records completed by the candidate • oral or written questioning to assess required knowledge. |
| Guidance information for assessment | <p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:</p> <ul style="list-style-type: none"> • ICTTEN5061A Cut over new and replacement network equipment. <p>Aboriginal people and other people from a non-English speaking background may have second language issues.</p> <p>Access must be provided to appropriate learning and</p> |

| EVIDENCE GUIDE | |
|-----------------------|---|
| | <p>assessment support when required.</p> <p>Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed.</p> <p>In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency.</p> <p>Where applicable, physical resources should include equipment modified for people with special needs.</p> |

Range Statement

| RANGE STATEMENT | |
|--|---|
| <p>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.</p> | |
| <i>Systems</i> may include: | <ul style="list-style-type: none"> • billing network • cabling network • computer network • control systems • network management • radio network • security network • switching • transmission • wireless access network. |
| <i>Appropriate personnel</i> may include: | <ul style="list-style-type: none"> • network manager • planning manager • project consultant • project manager |

| | |
|------------------------|---|
| RANGE STATEMENT | |
| | <ul style="list-style-type: none">• vendor contact. |

| RANGE STATEMENT | |
|--|---|
| <i>Integration management plan</i> may include: | <ul style="list-style-type: none"> • additional resources • deployment strategy in phases • integration activities: <ul style="list-style-type: none"> • address interoperability issues • install new system and equipment • test new system and equipment • integration processes • risks • roles and responsibilities of personnel • software tools • system outage • test hardware • vendor input • vendor support • vendor warranty. |
| <i>Outage management plan</i> may include: | <ul style="list-style-type: none"> • alternate transmission path • contingency plan • customers affected • emergency communications • integration plan • outage duration • outage times • parts of network affected • system back up • systems affected. |
| <i>Contingency plan</i> may include: | <ul style="list-style-type: none"> • network operations notified • redundancy backup solution • system expert on standby • vendor on standby. |
| <i>Traffic</i> may refer to: | <ul style="list-style-type: none"> • call attempts • call holding times • call volumes • circuit occupancy • data throughput in bits • frames, active sessions • packet volumes. |
| <i>Customers</i> may include: | <ul style="list-style-type: none"> • contractor • end users • other divisions of the company |

| RANGE STATEMENT | |
|----------------------------|---|
| | <ul style="list-style-type: none"> • small, medium or large organisations • vendor or supplier • wholesale service providers. |
| <i>Tests</i> may include: | <ul style="list-style-type: none"> • alarms • end to end tests • performance: <ul style="list-style-type: none"> • bit error rate (BER) • data transmission • quality of service (QoS) • regression • system recovery • traffic flow simulation: <ul style="list-style-type: none"> • congestion • delay • packet loss. |
| <i>Alarms</i> may include: | <ul style="list-style-type: none"> • audible alarms • on-screen alerts in computer-based performance monitoring systems • visual indicators. |

Unit Sector(s)

| | |
|--------------------|--------------------|
| Unit sector | Telecommunications |
|--------------------|--------------------|

Co-requisite units

| | |
|---------------------------|--|
| Co-requisite units | |
| | |
| | |

Competency field

| | |
|------------------|---|
| Competency field | Telecommunications networks engineering |
|------------------|---|