



Australian Government

ICTTEN607 Analyse and organise repair of highly complex telecommunications network faults

Release: 1

ICTTEN607 Analyse and organise repair of highly complex telecommunications network faults

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 2.0.

Application

This unit describes the skills and knowledge required to identify faults across all network types, with collaboration from the network operations centre (NOC), and resolve any problems.

It applies to individuals working as network engineers, telecommunications officers, installers, maintenance staff and manufacturers or equipment specialists. It also applies to NOC staff in advisory roles and technical rectification roles.

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

Unit Sector

Telecommunications – Telecommunications Networks Engineering

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. Research fault background	1.1 Analyse current, relevant data and previous actions taken by other personnel 1.2 Research areas of similarity to network fault 1.3 Develop commercial and technical strategies with equipment vendor and NOC for diagnosing the fault 1.4 Address and discuss all work health and safety (WHS) issues with relevant personnel 1.5 Obtain appropriate clearance and access to network equipment,

ELEMENT	PERFORMANCE CRITERIA
	software and firmware codes where they apply
2. Diagnose fault	2.1 Apply a methodical approach to isolate and diagnose the problem 2.2 Simulate fault in a workshop or laboratory environment if possible 2.3 Seek support from the vendor while investigation progresses 2.4 Instruct on-site technical staff to run appropriate tests and analyse results 2.5 Diagnose network fault using established methodical strategies in a timely fashion without undue disruption to other services 2.6 Develop a plan to rectify the fault
3. Organise fault rectification	3.1 Recommend fault rectification plan to the NOC, including any outages, seek approval and adjust plans accordingly 3.2 Instruct on-site repairers with clear and methodical instructions on how to proceed in rectifying the fault 3.3 Organise replacement or repair of faulty equipment with appropriate advice from vendors and manufacturers 3.4 Reconfigure replaced or repaired equipment and test rectified fault to ensure required performance 3.5 Notify NOC, affected customers and on-site staff of fault rectification
4. Report and document fault details and rectification	4.1 Notify vendors of repair details and recommend changes to equipment design where appropriate 4.2 Conduct cause and effect studies and forward results to the appropriate area for necessary action 4.3 Complete all administrative tasks and prepare a report including deficiencies, analysis and recommendations

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, 1.2	Organises, evaluates and interprets technical specifications and standards from a range of complex texts
Writing	2.6, 3.1, 4.2, 4.3	Prepares clear and concise workplace documentation, including training instructions and reports, incorporating technical language to communicate complex information clearly and effectively
Oral Communication	2.3, 2.4, 3.1, 3.2, 3.5, 4.1	- Clearly articulates requirements using language, tone and pace appropriate to audience and environment - Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding
Numeracy	1.1	Extracts and evaluates technical data, including equipment specifications
Interact with others	1.3, 2.3, 3.5, 4.1, 4.2	Selects and uses appropriate conventions and protocols when communicating with customers, vendors or technical personnel in a range of work contexts
Get the work done	1.3, 1.4, 2.1, 2.2, 2.5, 3.3, 3.4	- Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications - Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and diagnose issues - Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria - Uses formal, analytical and lateral thinking techniques for diagnosing issues, generating and evaluating possible solutions and escalating issues to others when appropriate

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTTEN607 Analyse and organise repair of highly complex	ICTTEN6091A Analyse and organise repair of highly complex telecommunications	Updated to meet Standards for Training Packages.	Equivalent unit

Code and title current version	Code and title previous version	Comments	Equivalence status
telecommunication s network faults	network faults		

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 ICTTEN607 Analyse and organise repair of highly complex telecommunications network faults

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Performance Evidence

Evidence of ability to:

- diagnose network faults using established methodical strategies without undue disruption to other services
- recommend fault rectification plan to the network operations centre (NOC)
- instruct on-site repairers
- facilitate replacement or repair of faulty equipment with appropriate advice from vendors and manufacturers
- facilitate final testing of rectified faults to ensure required performance
- prepare report including deficiencies, analysis and recommendations.

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:

- summarise fault escalation procedures
- explain fault-finding techniques and use of test equipment
- outline fault types and rectification
- outline the operation of integrated packet optical transport networks (P-OTNs)
- explain the use of International Telecommunication Union (ITU) ITU-T G.709 standard
- explain network protocols
- outline safety requirements and standards
- explain service agreements
- explain synchronous digital hierarchy (SDH)
- summarise transmission control protocol (TCP)-internet protocol (IP)
- summarise the following types of networks and equipment:
 - access

- broadband deployment
- cabling
- customer premises' equipment (CPE)
- IP networks for enterprise and customer systems and installations
- local area networks (LAN)
- telephony
- wide area networks (WAN).

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 should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where highly complex network faults may be demonstrated and analysed without jeopardising live traffic
- equipment currently used in industry
- design specifications and manufacturer's manuals and reference materials.

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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