



Australian Government

ICTTEN618 Analyse and organise repair of highly complex networks

Release: 1

ICTTEN618 Analyse and organise repair of highly complex networks

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 7.0.

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, network 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 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 Obtain work details and scope from relevant personnel and arrange for site access in compliance with required security arrangements, legislation, codes, regulations and standards 1.2 Analyse required data and previous actions taken by relevant personnel 1.3 Research areas of similarity to network fault 1.4 Develop commercial and technical strategies with equipment vendor and NOC for diagnosing the fault 1.5 Address and discuss all workplace health and safety (WHS) issues with relevant personnel

ELEMENT	PERFORMANCE CRITERIA
2. Diagnose fault	2.1 Apply a methodical approach to isolate and diagnose the network problem 2.2 Simulate fault in the required environment 2.3 Seek support from relevant personnel throughout investigation 2.4 Instruct on-site technical staff to run required tests and analyse results 2.5 Identify type of network fault using established methodical strategies without undue disruption to other services
3. Organise fault rectification	3.1 Recommend fault rectification plans and outages to the NOC, seek approval and adjust plans accordingly 3.2 Instruct on-site repairers to proceed in fault rectification 3.3 Organise replacement and repair of faulty equipment with required advice from vendors and manufacturers 3.4 Reconfigure replaced and repaired equipment and test rectified fault against required performance 3.5 Develop method to notify relevant personnel of fault rectification
4. Report and document fault details and rectification	4.1 Notify relevant personnel of repair details and recommend changes to equipment design 4.2 Conduct cause-and-effect studies and forward results to the required area for action 4.3 Complete all administrative tasks and prepare a report that outlines deficiencies, analysis and recommendations

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
Numeracy	Extracts and evaluates technical data, including equipment specifications
Oral communication	- Articulates requirements using language, tone and pace required to audience and environment - Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding
Reading	Organises, evaluates and interprets technical specifications and standards from a range of complex texts

SKILL	DESCRIPTION
Writing	• Prepares workplace documentation incorporating technical language to communicate complex information clearly and effectively
Teamwork	• Selects and uses required conventions and protocols when communicating with customers, vendors or technical personnel in a range of work contexts
Planning and organising	• Uses a combination of formal, logical planning processes to identify required information, test strategies and resources • 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 required information and identifying and evaluating options against agreed criteria
Problem solving	• Uses formal, analytical and lateral thinking techniques for diagnosing issues, generating and evaluating possible solutions and escalating issues to others when required

Unit Mapping Information

Supersedes and is equivalent to ICTTEN607 Analyse and organise repair of highly complex telecommunications network faults.

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 ICTTEN618 Analyse and organise repair of highly complex networks

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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:

- analyse and organise the repair of at least two highly complex networks.

In the course of the above, the candidate must:

- diagnose at least three 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 advice from relevant personnel
- facilitate final testing of rectified faults to confirm required performance
- prepare report including deficiencies, analysis and recommendations.

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:

- required legislation, codes, company work practices, regulations and standards, workplace health and safety (WHS) requirements for scoped work
- fault escalation procedures
- fault-finding techniques and use of test equipment
- fault types and rectification
- operation of integrated packet optical transport networks (P-OTNs)
- use of International Telecommunication Union (ITU) ITU-T G.709 standard
- network protocols
- safety requirements and standards
- service agreements
- synchronous digital hierarchy (SDH)

- transmission control protocol (TCP)-internet protocol (IP)
- 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)
 - workplace documentation including reports.

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:

- 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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