Australian Government

Department of Education, Employment and Workplace Relations

ICTTEN4126A Install and configure internet protocol TV in a home network

Release: 1

ICTTEN4126A Install and configure internet protocol TV in a home network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to integrate internet protocol TV (IPTV) functionality into an existing customer home network. It involves installing and configuring a secure internet protocol (IP) network for the customer. 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.

Application of the Unit

Application of the unit	This unit applies to technical staff installing an IP network for the delivery of emerging technologies for IPTV and convergence networks. Relevant job roles include installer of Next Generation Networks (NGN). These IP networks provide fast internet, voice over internet protocol (VoIP), IPTV and internet TV services.

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. Prepare to implement IPTV in a home network	1.1. Obtain and clarify occupational health and safety (***OHS***) ***requirements*** and risk control measures and procedures for a given work area with ***appropriate personnel*** 1.2. Evaluate existing customer home network equipment for operational status
2. Design IPTV integration to a home network to meet customer requirements	2.1. Prepare a configuration layout integrating IPTV to the existing customer network using ***IPTV network elements*** to provide optimum video delivery service 2.2. Select IPTV network elements to provide optimum video delivery service 2.3. Obtain configuration instructions for the network elements 2.4. Design a connection plan to integrate the customer network elements and optimise system performance 2.5. Identify any connection problems and amend design plan
3. Implement IPTV design plan to a home network	3.1. Interconnect network elements according to design plan using manufacturer's instructions 3.2. Configure and test the network elements to provide integrated IPTV to the existing system 3.3. Provide a free to air (FTA) connection over digital video broadcasting - terrestrial (DVB-T) to complement the IPTV service 3.4. Set up ***customer specific operations*** as required 3.5. Configure ***security measures*** in an IPTV network to protect against ***security threats*** 3.6. Troubleshoot home network according to manufacturer's specifications and escalate unresolvable items to the service provider
4. Complete and document network installation	4.1. Restore worksite to safe condition according to established safety procedures 4.2. Record and store ***essential installation information*** 4.3. Notify appropriate personnel about the completion of the task 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

REQUIRED SKILLS AND KNOWLEDGE

- communication skills to liaise with customer to determine needs
- literacy skills to:
  - develop integration plan
  - interpret technical specifications and related documentation
- project planning skills to set benchmarks and identify scope
- problem solving skills to resolve a predictable range of network problems
- numeracy skills to produce IP addressing schemes
- technical skills to:
  - configure IP network
  - dimension network parameters
  - evaluate competing video over broadband networks
  - implement and verify:
    - border gateway protocol (BGP)
    - enhanced interior gateway routing protocol (EIGRP)
    - flash
    - hypertext transfer protocol (HTTP)
    - internet group management protocol (IGMP)
    - open shortest path first (OSPF)
    - real time streaming protocol (RTSP)
    - routing information protocol (RIP)
    - web cache communication protocol (WCCP) operations
  - implement secure video network
  - trouble shoot home network performance issues

Required knowledge

- competing video delivery over broadband networks
- current industry-accepted hardware and software products
- IPTV configurations
- IPTV protocols and encoding techniques
- networking technologies incorporating substantial depth in network operating systems and IP networks
- transmission technologies and protocols
- video compression formats

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	Evidence of the ability to: • create and follow implementation plans for IPTV • install relevant network hardware and software • configure and test the IPTV network according to specified guidelines • integrate IPTV to existing network • produce appropriate documentation • implement secure network.
Context of and specific resources for assessment	Assessment must ensure: • a site where the installation and configuration of an IPTV network may be conducted • equipment currently used in industry • information on different protocols • relevant technical information, legislative requirements and other site and project related documentation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing and configuring IPTV in a home network ensuring network security • review of implementation plans outlining integration elements to optimise system performance • oral or written questioning to assess required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTDRE4166A Integrate customer digital reception equipment • ICTDRE4167A Integrate data delivery modes • ICTTEN4215A Install and configure internet

EVIDENCE GUIDE	
	protocol TV in a service provider network. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. 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. 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. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
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.	
OHS requirements may include:	• awards provisions • hazardous substances and dangerous goods codes • legislation • local safe operation procedures • material safety management systems • protective equipment.
Appropriate personnel may include:	• customer • site administrator

RANGE STATEMENT	
	• site engineer • site manager • supervisor.

IPTV network elements may include:	• dual decoders
	• dual DVB-T tuners
	• hard disk drive (HDD)
	• home gateway
	• integrated access device (IAD)
	• internet devices:
	  • digital TV
	  • mobile devices
	  • PC
	• layer 2 protocols:
	  • Ethernet
	  • G.hn (G.9600) for home grid network
	• media centre
	• media router
	• multipoint control unit (MCU) for HD video conferencing
	• set top box

Customer specific operations may include:	• electronic program guide (EPG)
	• information widgets:
	  • news headlines
	  • traffic watch
	  • weather
	• linear IPTV channels
	• network personal video recorder (nPVR) set up
	• social networking applications
	• video on demand (VoD).

Security measures may include:	• digital signatures and certificates • encryption • integrity and authentication.
Security threats may include:	• botnets • distributed denial of service (DDoS) • fraud • hacking • malware.
Essential installation information	• installation software • IP addressing schemes

RANGE STATEMENT	
may include:	• logical and physical diagrams • network administrator codes • passwords • security access codes.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering