# Level 2 Networking, telephony and VoIP for the digital home technology integrator (7575-004)

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## Assignment guide for Candidates

Assignment B

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# Level 2 Networking, telephony and VoIP for the digital home technology integrator (7575-004)

## Assignment B

Introduction – Information for Candidates

### About this document

This assignment comprises all of the assessment for Level 2 Networking, telephony and VoIP for the digital home technology integrator (7575-004)

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### Health and safety

You are asked to consider the importance of safe working practices at all times.

You are responsible for maintaining the safety of others as well as your own. Anyone behaving in an unsafe fashion will be stopped and a suitable warning given. You will **not** be allowed to continue with an assignment if you compromise any of the Health and Safety requirements. This may seem rather strict but, apart from the potentially unpleasant consequences, you must acquire the habits required for the workplace.

### Time allowance

The recommended time allowance for this assignment is **4 hours**.

# Level 2 Networking, telephony and VoIP for the digital home technology integrator (7575-004)

Candidate Instructions

## Time allowance: 4 hours

This assignment is made up of **five** tasks

- **Task A – Plan and document a Local Area Network to meet a customer's needs**
- **Task B – Install and configure a wired and wireless network in a home environment**
- **Task C – Secure data and hardware on a home network**
- **Task D – Configure the hardware and software required for VOIP**
- **Task E – Troubleshoot Networks**

## Scenario

Qin Home Computing (QHC) is a company that specialises in providing and maintaining digital technology solutions in the home environment. The company has been approached by the owners of a small Guest House, to plan, install and configure a network which includes VOIP capability, fully integrating their existing devices. You are employed by QHC as a Technical Apprentice and have been tasked with producing plans for the network installation, identifying all required hardware and software, installing, configuring and testing the agreed solution.

## Customer Requirements

1. Set up a LAN in a Guest House which allows:
    a. the two existing PCs to connect to the Internet
    b. both the PCs to print to the single printer in the Office
    c. an additional network point to be installed in the office to accommodate a laptop docking station
    d. a wireless network throughout the building, which allows Internet access only, for guests but will allow the owner's laptop to connect to the existing PCs and print to the existing printer
    e. a VOIP solution for the existing telephones to be created.
2. Ensure that the network is secure.
3. Prevent the PC in Lounge 2 from accessing information on the PC in the Office
4. Minimise and make good any damage to the decoration.
5. Minimise any additional visible cabling.

## Notes

There is a "drop ceiling" in the Office, Reading Room and Lounge 2. This reduces the Floor to Ceiling height from 2900 mm to 2600 mm in these rooms.

There are adequate power supplies throughout the building and access points to mains power are available within the ceiling space of all floors.

The existing telephone wiring is CAT 5e cable, currently connected using RJ11 plugs and wall sockets.

## Task A – Plan and document a Local Area Network to meet a customer's needs

**Please use the Answer Sheet provided to complete Task A**

**Task A** **Using the customer requirements and the building plans, provided by your Assessor complete the following tasks:**

1 Document and plan the features and services required by the customer as given by the assessor.

2 Identify and choose suitable products that are required to meet the customer's requirements.

3
- Specify the type(s) of transmission media to be used in the network.
- Specify **three** characteristics of **one** of the chosen transmission media.
- Specify any structural features that may affect the choice of transmission media.
- Specify the technical specifications of **all** additional devices for the LAN, ensuring that all proposed devices are compatible.
- Specify the approximate distances between all the devices included in the network.
- Specify the IP address range, individual IP addresses and subnet mask(s) to be used in the network configuration.
- Specify the Local IP address of the Routing Device used in the network.
- List **all** network protocols to be used in the LAN.
- Specify **all** network security features to be used in the proposed LAN.

4 Illustrate
- the locations of the existing devices to be integrated into the network
- the proposed locations of the additional suitable devices to meet the customer requirements
- any cabling runs that may be required.

5 List
- any Operating System software required
- any Application Software
- any device drivers required.

6 Correctly identify all sources of information for the devices and components of the proposed LAN.

7 Identify and explain **three** reasons for fully documenting all aspects of the proposed LAN.

## Task B – Install and configure a wired and wireless network in a home environment

**Task B** Using the equipment supplied by your assessor, complete the following in relation to setting up , configuring and testing a network.

1 Correctly terminate the length of Cat5e network cable, provided by the Assessor, with an RJ45 connector at one end and an RJ45 socket at the other end.

2 Using a cable testing device,

- demonstrate to the Assessor that the connections are correctly connected.
- record the test results on the Answer Sheet provided.

3 **Please use the Answer Sheet provided to complete task B3.**
Correctly identify the wiring standard used in the connections.

4 Using the equipment supplied by the assessor, set up and configure a LAN in the following manner:

- at least **two** PCs to be wired using Ethernet
- at least **one** additional device to be connected to the same LAN using wireless technology
- NAT is configured on the network
- DHCP is configured on the network
- the network is configured with an IP address range to allow for connectivity of additional devices (Scope)
- all **three** connected devices can connect to the internet
- at least **two** connected devices can copy and share files between each other
- security is configured on the network.

5 **Please use the Answer Sheet provided to complete Task B5**

- identify the wireless standard(s) used in the network
- identify the stated speed of the wireless network
- identify the SSID of the wireless network
- identify the IP address range of the network
- identify the DNS Server address / addresses for the network
- identify any IP addresses currently provided to devices via DHCP
- record the settings displayed on each networked device when using the IPCONFIG command.

6 Test the LAN configuration by demonstrating that both:

- devices can connect to the Internet
- devices can copy and paste files to each other
- devices can share files between each other

7 Reconfigure the network in the following manner (as per the customer's specifications):

- the 'Lounge 2' PC no longer has read / write access to any other device
- the 'Lounge 2' PC can still connect to the Internet.

8 Connect and configure a printer on the network.

9 Test the new LAN configuration by demonstrating to the Assessor that:

- the 'Lounge 2' PCs no longer has read / write access to any other device
- the 'Lounge 2' PC can still connect to the Internet
- both devices can successfully print a simple text file.

## Task C – Secure data and hardware on a home network

**Task C** **Using the LAN you set up in Task B:**

1 Install and configure an Anti-Virus programme on the two PCs, correctly updating the virus definition files.

2 Configure a hardware Firewall to block Telnet traffic.

3 Install and configure a software firewall on the 'Lounge 2' PC to block Internet Relay Chat.

4 Configure User accounts on the 'Lounge 2' PC to:
- provide a strong Administrator password
- set up a Guest account login and password
- require Control /Alt/ Delete to be pressed to gain access to the PC.

5 On the PC with full network access (Office PC):
- make a back-up of any existing data files
- create a system restore point.

6 Configure the Internet Browser on the 'Lounge 2' PC to ensure :
- a pop-up blocker is enabled
- the installation of browser add-ons requires Administrator level permission.

7 Configure the Wireless LAN to use the strongest security available on the equipment provided.

8 **Please use the Answer Sheet provided to complete Task C8**
- identify and briefly explain three types of Wireless Network Security
- briefly explain the consequences of networked devices being infected with:
  - a Trojan Horse virus
  - Spyware
  - Malware.

## Task D – Configure the hardware and software required for VOIP

**Task D** **Using the equipment supplied by your Assessor:**

1 Install and connect the appropriate equipment for enabling the customer to communicate using VOIP.

2 Install and configure any required application software or device drivers to enable the use of the VOIP equipment.

3 **Please use the Answer Sheet provided to complete Task D3**

- briefly explain why a 'Line Splitter' is commonly used on an ADSL line
- identify two types of transmission media associated with broadband technologies

## Task E – Troubleshoot Networks

**Task E** **Using the LAN you set up in Task B:**

1 Provide screen prints of the output from the following:

- use the PING command
- use the TRACERT command
- check DHCP settings
- check DNS settings
- check NAT settings
- check hardware devices are functioning
- check default gateway settings
- check manufacturer's websites for software / firmware updates
- check the configuration of VOIP
- Demonstrate to the Assessor that the wireless devices are correctly connected to the network.

When you have finished working:

- Sign each document above your name and label all removable storage media with your name.
- Hand all paperwork and removable storage media to your assessor.

If the assignment is taken over more than one period, all paperwork and removable media must be returned to the test supervisor at the end of each sitting.

**End of assignment**

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