

**DEPARTMENT OF BUSINESS, ADVANCED MANUFACTURING AND LOGISTICS**

ICT50220 Diploma of Information Technology

Assessment

**Learner**

**ICTNWK543 Install, operate and troubleshoot medium enterprise switches**

Assessment Book

Assessment Task 2: Backup and Upgrade Switch Firmware and Configuration

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| Course code and name | **ICT50220 Diploma of Information Technology** |
| Unit code and name | **ICTNWK543 Install, operate and troubleshoot medium enterprise switches** |
| Due date | 15. / 8.. /2024(See on Moodle) |
| Resources required | * Learner resource ICTNWK543 * Cisco Netacad.com curriculum * Access to computer and Internet * Access to Moodle * Access to Cisco Packet Tracer simulator * Access to routers and switches * Microsoft Word Application * MP Tech Solutions Profile.docx * MP Tech Solutions ICT Policies.docx |
| Decision making rules | To achieve an overall satisfactory result for this assessment task:   * All questions must be answered satisfactorily * Learners must achieve a satisfactory result for each item in the Assessment Checklist. |
| Learner Instructions | This is a scenario based lab project assessment composed of practical tasks and written questions. There are 5 parts to this task:   * Part 1: Build the network topology. * Part 2: Perform basic initial configuration with security. * Part 3: Verify the switch configuration, connectivity and save. * Part 4: Backup configuration file to TFTP server. * Part 5: Upgrade the firmware of switch.   For this task you will:   * Complete it individually. * Write answers to all questions * Complete it in class at a time determined by your assessor. * Have time to read and review the assessment task in class. * You must submit your assessment electronically via Moodle and use the following naming convention: “Student ID\_Student Name\_ Assessment Task 2: Lab Project-Backup and Upgrade Switch firmware and Configuration”   **Example:**  “s123456\_Sathish\_ Assessment Task 2: Lab Project-Backup and Upgrade Switch firmware and Configuration**.pkt**”  “s123456\_Sathish\_ Assessment Task 2: Lab Project-Backup and Upgrade Switch firmware and Configuration**.docx**”   * You must agree (by clicking on the ‘I confirm radio button) with the assessment submission terms and conditions in Melbourne Polytechnic Moodle prior to the submission |

## 

## Scenario

MP Tech Solutions has assigned you to upgrade the firmware of a clients switch to a higher version.

You have been asked to back up the configuration file from the switch to the TFTP server so that it can be used in the future in case of an emergency.

Following is the topology layout of the network you will be working on.

Topology

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| --- |
|  |

Topology diagram with TFTP server for IOS upgrade and configuration backup

*By Surendra Shakya, Melbourne Polytechnic 2021*

*(www.netacad.com, Packet Tracer Simulator was used to make above output)*

#### Addressing Table

| **Device** | **Interface** | **IP Address** | **Subnet Mask** | **Default Gateway** |
| --- | --- | --- | --- | --- |
| Router1 | G0/0/0 | 10.0.2.1 | 255.255.255.0 | N/A |
| Router2 | G0/0 | 10.0.2.2 | 255.255.255.0 | N/A |
| S1 | VLAN 1 | 10.0.2.3 | 255.255.255.0 | 10.0.2.1 |
| TFTP Server | NIC [Fa0] | 10.0.2.254 | 255.255.255.0 | 10.0.2.1 |

## Part 1 – Build the network topology

You are required to build the network topology. As evidence of this, you will be required to submit:

* + The Packet Tracer file you are creating throughout this task.
  + This word document file with responses where indicated.
  + Evidence of switch configuration and related activities

Once you have completed this tasks please contact your Assessor to demonstrate the network.

**Step 1:** Read “ICT Policies” of MP Tech Solutions and follow the policies accordingly.

**Step 2:** Build the network topology using Packet Tracer simulator as per the above Topology diagram and the Addressing Table.

**Step 3:** Analyse the numerical information you are provided on the Addressing Table, specifically with the IP addresses and its corresponding subnet masks and the gateway. Utilise the provided numerical information while building the topology so that desired performance and interoperability of network can be achieved.

**Step 4:** Select required media, cables, ports and connectors and connect switches to network devices and hosts as per the given topology

## Part 2 – Perform basic initial configuration on devices with security

Complete the following steps to configure the devices. This will be verified by your Assessor via your Packet Tracer File.

**Step 1:** Undertake the following configuration tasks for Router 1 and Router 2:

| Tasks to do | Specification |
| --- | --- |
| Hostnames on Routers | Router1, Router2 |
| Unencrypted Password | cisco |
| Encrypted password for security | Class |

**Step 2:** Undertake the following configuration tasks to configure the switch for security:

| Tasks to do | Specification |
| --- | --- |
| Hostnames on Switch | Switch1 |
| Unencrypted Password | cisco |
| Encrypted password for security | class |
| For user level security, create an administrative user in the local database with corresponding password | Username: **admin**  Password: **MelbournePoly** |
| VLAN 1 Interface and gateway | As per the Addressing Table |
| Banner | "This lab is about Switch Firmware upgrade" |
| Only 1 Remote user should be allowed to connect to the Switch |  |
| Domain-name | Mydomain.com |
| Generate crypo key with modulus 1024 |  |
| Remote login should accept encrypted communication using SSH connections only |  |

**Step 3**: Complete the TFTP server configuration. The Server IP address should be configured as per the Addressing Table.

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## Part 3 – Verify the switch configuration, connectivity and save

Undertake the following tasks and answer the questions that follow:

**Step 1:** Verify the configuration.

**Step 2**: Verify the connectivity.

**Step 3**: Save the configurations.

Provide evidence as indicated below of successfully completing these tasks.

|  |  |  |  |
| --- | --- | --- | --- |
| Q1 | Explain how you verify the switch configuration.  Provide the output of CLI based ‘show running-config’ command and corresponding output as evidence of the switch configuration. | | |
|  | | **Satisfactory** | **Unsatisfactory** |
| Switch1#show running-config  Building configuration...  Current configuration : 1404 bytes  !  version 15.0  no service timestamps log datetime msec  no service timestamps debug datetime msec  service password-encryption  !  hostname Switch1  !  enable secret 5 $1$mERr$9cTjUIEqNGurQiFU.ZeCi1  enable password 7 0822455D0A16  !  !  !  ip domain-name Mydomain\_002.com  !  username admin privilege 1 password 7 080C49420B1610051C0E3C0B2632  !  !  !  spanning-tree mode pvst  spanning-tree extend system-id  !  interface FastEthernet0/1  !  interface FastEthernet0/2  !  interface FastEthernet0/3  !  interface FastEthernet0/4  !  interface FastEthernet0/5  !  interface FastEthernet0/6  !  interface FastEthernet0/7  !  interface FastEthernet0/8  !  interface FastEthernet0/9  !  interface FastEthernet0/10  !  interface FastEthernet0/11  !  interface FastEthernet0/12  !  interface FastEthernet0/13  !  interface FastEthernet0/14  !  interface FastEthernet0/15  !  interface FastEthernet0/16  !  interface FastEthernet0/17  !  interface FastEthernet0/18  !  interface FastEthernet0/19  !  interface FastEthernet0/20  !  interface FastEthernet0/21  !  interface FastEthernet0/22  !  interface FastEthernet0/23  !  interface FastEthernet0/24  !  interface GigabitEthernet0/1  !  interface GigabitEthernet0/2  !  interface Vlan1  ip address 10.0.2.3 255.255.255.0  !  ip default-gateway 10.0.2.1  !  banner motd ^CThis lab is about Switch Firmware upgrade\_002^C  !  !  !  line con 0  !  line vty 0  login local  transport input ssh  line vty 1 4  login  line vty 5 15  login  !  !  !  !  end | |  |  |

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| Q2 | Explain how you verify the connectivity between the switch and server.  Provide a screenshot showing good connectivity between the 2 devices with a successful back and forth echo and echo reply. | | |
|  | | **Satisfactory** | **Unsatisfactory** |
|  | |  |  |

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| --- | --- | --- | --- |
| Q3 | How do you save the currently running configuration of the switch to NVRAM?  Provide the CLI command and corresponding output as a screenshot. | | |
|  | | **Satisfactory** | **Unsatisfactory** |
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## Part 4 –Backup configuration file to TFTP server

Make a backup of the switch configuration file to TFTP Server so that you can use it in emergency situation later if required.

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| Q1 | Provide a screenshot as evidence that the backup file is available on the TFTP Server. | | |
|  | | **Satisfactory** | **Unsatisfactory** |
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## Part 5a – Upgrade the firmware of switch

Upgrade the current IOS (Firmware) of Switch1 by using new IOS file c2960-lanbasek9-mz.150-2.SE4.bin via the TFTP server.

NOTE: The new IOS file is available on the TFTP Server.

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| --- | --- | --- | --- |
| Q1 | After upgrading the IOS, reboot the Switch and provide screenshot evidence that the Switch1 has boot the system using the new firmware c2960-lanbasek9-mz.150-2.SE4.bin.  Provide the screenshot evidence below while using “show version” CLI command. | | |
|  | | **Satisfactory** | **Unsatisfactory** |
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## Part 5b – Upgrade the firmware of switch

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| --- | --- | --- | --- |
| Q1 | Provide the screenshot evidence that there are old and new IOS files that are available on the flash memory of Switch1... | | |
|  | | **Satisfactory** | **Unsatisfactory** |
|  | |  |  |

NOTE:

The Packet Tracer file that you are creating is the evidence of creation of the topology and corresponding configuration. You will have to submit Packet Tracer file together with this word document file as evidence.

Once you are finished with the entire Assessment, please contact your Assessor to demonstrate the network.

1. Assessment Checklist- Task 2: Backup and Upgrade Switch Firmware and Configuration

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| --- | --- | --- | --- | --- | --- | --- |
| **Learner name** | | WangYiZhuo | **Student ID** | | S1554654 | |
| **Assessor name** | | zhengxiangwang | **Date** | | 15/8/2024 | |
| Assessment checklist  assessor to complete the following | | | | | | |
| Observation and demonstration | | | | | | |
| **The LEARNER:** | | | | **SATISFACTORY** | | **NOT SATISFACTORY** |
| 1 | In part 1:   * Built the network as per the topology diagram and addressing table. * Analysed the numerical information in the address table to achieve the desired performance. * Selected the required media, cables, ports, connectors, and connector switches as per the topology diagram. | | |  | |  |
| 2 | In part 2:   * Configured routers 1 and 2 as per the instructions * Configured the switches for security as per the instructions * Completed the TFTP server configuration as per the instructions. | | |  | |  |
| 3 | In part 3:   * Verified the configuration. * Verified the connectivity. * Saved the configuration. | | |  | |  |
| 4 | In part 4:   * Made a backup of the switch configuration file to the TFTP server. | | |  | |  |
| 5 | In part 5:   * Upgraded the firmware of the switch as per the instructions. | | |  | |  |
| 6 | * Correctly answered all questions throughout this task. * Provided a Packet Tracer File supporting all items in this assessment task. | | |  | |  |
| **Feedback -** Assessor must include feedback and learner responses | | | | | | |
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# Assessment Task Summary - Task 2: Backup and Upgrade Switch Firmware and Configuration

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Trainer/Assessor to complete the following:  **THE LEARNER:** | | | | | | Yes | No |
| 1. | Satisfactorily completed Part 1 | | | | |  |  |
| 2. | Satisfactorily completed Part 2 | | | | |  |  |
| 3. | Satisfactorily completed Part 3 | | | | |  |  |
| 4. | Satisfactorily completed Part 4 | | | | |  |  |
| 5. | Satisfactorily completed Part 5 with observation / demonstration. | | | | |  |  |
| feedback **-** Assessor must include feedback | | | | | | | |
|  | | | | | | | |
| OVERALL TASK result | | | | | | | |
| Satisfactory  Not Satisfactory (resubmission required) – Due date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | | | | |
| Date Assessment Returned | | |  | | | | |
| Trainer/assessor Name | | |  | | | | |
| Trainer/Assessor signature | | | WangYizhuo | | | | |
| **LEARNER DECLARATION**: Please read and sign below | | | | | | | |
| I, \_WangYiZhuo\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have been advised of the outcome of this assessment task.  PRINT NAME | | | | | | | |
| LEARNER Signature | | WangYiZhuo | | Date | 15/8/2024 | | |