

Student Name: Joshua Chubb

Session No.: Cyber 9b

Date: 30.08.2024

Administrating Instructor Name: Peter Joseph

Signature: P.Joseph

**DEFENCE CYBER TRAINING**

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| **CCNA2 SRWEv7**  **Practical Assessment – Exam** |

**Examination time: 2 Hrs Pass Mark: 80%**

# INSTRUCTIONS TO CANDIDATES - Students should carefully read and observe the instructions listed on the following page.

|  |  |
| --- | --- |
| SCORE |  |
| N, P, PC or DI |  |
| Grading Instructor Name  Peter Joseph | |
| Date: 30.08.2024 | |
| Moderating Instructor Name  Peter Joseph | |
| Date: | |
| Session Results Verified Name & Signature: | |
| Date: | |

## NOTE: This test, when submitted, becomes an official Defence Document. Changes to this document can only be made in accordance with ADF policies. Unauthorised alterations may result in disciplinary procedures.

## Instructions:

Instructor Comments (if any)

Name & Signature: P.Joseph

Post Assessment Comments or Questions (If any):

Student Signature:

Joshua Chubb

1. Clearly enter your name, session number and the date of the assessment in the spaces provided above.
2. Direct any queries about the assessment process or questions to the instructor prior to commencement.
3. All activities **must** be performed to OH&S requirements as appropriate.
4. Submission of this assessment to the instructor indicates that you are prepared to have the assessment marked immediately. NO ALTERATIONS ARE ALLOWED ONCE THE ASSESSMENT HAS BEEN SUBMITTED FOR MARKING!
5. This Assessment is to be conducted LAW the assessment scenario guide instructions contained overleaf.
6. This Exam is a **CLOSED** BOOK EXAM – ***Handwritten* *Journal Notes*** only are permitted.

## Declaration:

I hereby declare that I have read and understood the above instructions, and that during this assessment, I will not give, receive or refer to any unauthorised information. I also declare that I have no unauthorised material in my possession or in proximity to where I am undertaking this assessment. I understand “Unauthorised Material” to be anything upon which information of any kind is recorded or stored or is capable of being recorded or stored and which has not been specifically authorised for use or reference by me in the assessment. I undertake not to deface, remove, change, or reproduce any part of the assessment at any time, I also undertake not to disclose any part of this assessment, except for the express purpose of a formal assessment debrief with the instructor or other authorised delegate. I understand that any breach of DFSS Policy Seven: Academic Behaviour or these conditions will result in **disciplinary action** and **failure**.

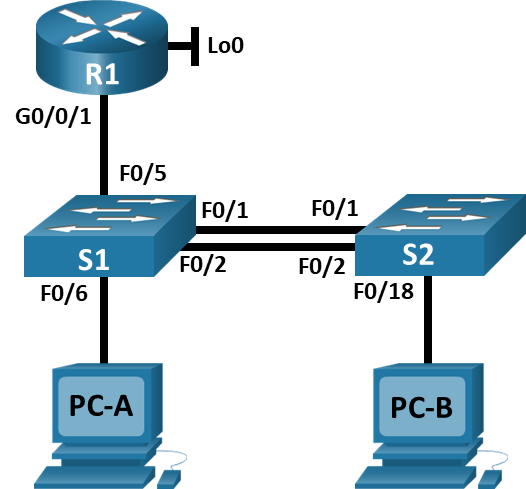
By Authority: **CO DFSS**

Student Signature: Joshua Chubb

Date: 30/08/2024

PMKEYS: 8683824

# Topology



# Assessment Objectives

Part 1: Build and Configure Basic Device Settings (45 points, 45 minutes)

Part 2: Configure Network Infrastructure Settings (VLANs, Trunking, Etherchannel) (30 points, 25 minutes)

Part 3: Configure Host Support (20 points, 25 minutes)

Part 4: Test and Verify IPv4 End-to-End Connectivity (5 points, 10 minutes)

# Scenario

In this Skills Assessment (SA) you will use Packet Tracer to build and configure the devices in a small network. You must configure a router, two switches and two PCs to support both IPv4 and IPv6 connectivity for supported hosts. Your router and switch must also be managed securely. You will configure inter-VLAN routing, DHCP, Etherchannel, and port-security.

# Required Resources

* Packet Tracer Version 8.0 or above
  + 1 Router (Cisco 4331)
  + 2 Switches (Cisco 2960)
  + 2 PCs
  + Ethernet cables as shown in the topology

# VLAN Table

| VLAN | VLAN Name |
| --- | --- |
| 2 | Bikes |
| 3 | Trikes |
| 4 | Management |
| 5 | Parking |
| 6 | Native |

# Addressing Table

| Device / Interface | IP Address / Prefix | Default Gateway |
| --- | --- | --- |
| R1 G0/0/1.2 | 10.19.8.1 /26 | N/A |
| R1 G0/0/1.2 | 2001:db8:acad:a::1 /64 | N/A |
| R1 G0/0/1.3 | 10.19.8.65 /27 | N/A |
| R1 G0/0/1.3 | 2001:db8:acad:b::1 /64 | N/A |
| R1 G0/0/1.4 | 10.19.8.97 /29 | N/A |
| R1 G0/0/1.4 | 2001:db8:acad:c::1 /64 | N/A |
| R1 G0/0/1.6 | N/A | N/A |
| R1 Loopback0 | 209.165.201.1 /27 | N/A |
| R1 Loopback0 | 2001:db8:acad:209::1 /64 | N/A |
| S1 VLAN 4 | 10.19.8.98 /29 | 10.19.8.97 |
| S1 VLAN 4 | 2001:db8:acad:c::98 /64 | N/A |
| S1 VLAN 4 | fe80::98 | N/A |
| S2 VLAN 4 | 10.19.8.99 /29 | 10.19.8.97 |
| S2 VLAN 4 | 2001:db8:acad:c::99 /64 | N/A |
| S2 VLAN 4 | fe80::99 | N/A |
| PC-A NIC | DHCP for IPv4 address | DHCP for IPv4 default gateway |
| PC-A NIC | 2001:db8:acad:a::50 /64 | fe80::1 |
| PC-B NIC | DHCP for IPv4 address | DHCP for IPv4 default gateway |
| PC-B NIC | 2001:db8:acad:b::50 /64 | fe80::1 |

**Note**: There is no interface on the router supporting VLAN 5.

# Instructions

## Build and Configure Basic Device Settings

**Total points: 45**

**Time: 20 minutes**

### Build the network in Packet Tracer. [4 Marks]

* Using Packet Tracer, build the network shown in the topology. Ensure you use the specified ports.
* After the switches are reloaded, configure the SDM template to support IPv6 as needed, and reload the switch again.

### Configure R1. [17 Marks]

Configuration tasks for R1 include the following:

| Task | Specification | Points |
| --- | --- | --- |
| Disable DNS lookup | - | 0.5 pt |
| Router name | R1 | 0.5 pt |
| Domain name | ccna-lab.com | 0.5 pt |
| Encrypted privileged EXEC password | ciscoenpass | 1 pt |
| Console access password | ciscoconpass | 1 pt |
| Set the minimum length for passwords | 10 characters | 1 pt |
| Create an administrative user in the local database | Username: **admin**  Password: **admin1pass** | 1 pt |
| Set login on VTY lines to use local database | - | 1 pt |
| Set VTY lines to accept SSH connections only | - | 1 pt |
| Encrypt the clear text passwords | - | 1 pt |
| Configure an MOTD Banner | Authorized Users Only! | 0.5 pt |
| Enable IPv6 Routing | - | 1 pt |
| Configure Interface G0/0/1 and sub interfaces | Set the description as:   * Gi0/0/0/1.2 Bikes VLAN * Gi0/0/0/1.3 Trikes VLAN * Gi0/0/0/1.4 Management VLAN * Gi0/0/0/1.6 Native VLAN   Set the IPv4 address  Set the IPv6 Link Local Address as **fe80::1**  Set the IPv6 address  Activate Interface | 4 pts |
| Configure the Loopback0 interface | Set the description as:   * The Cloud   Set the IPv4 address  Set the IPv6 address  Set the IPv6 Link Local Address as **fe80::1** | 2 pts |
| Generate an RSA crypto key | 1024 bits modulus | 1 pt |

### Configure S1 and S2. [24 Marks]

Configuration tasks for the switches include the following:

| Task | Specification | S1 | S2 |
| --- | --- | --- | --- |
| Disable DNS lookup | **-** | 0.5pt | 0.5pt |
| Switch name | **S1 or S2, as appropriate** | 0.5pt | 0.5pt |
| Domain name | **ccna-lab.com** | 0.5pt | 0.5pt |
| Encrypted privileged EXEC password | **ciscoenpass** | 1pt | 1pt |
| Console access password | **ciscoconpass** | 1pt | 1pt |
| Create an administrative user in the local database | Username: **admin**  Password: **admin1pass** | 1pt | 1pt |
| Set login on VTY lines to use local database | **-** | 1pt | 1pt |
| Set VTY lines to accept SSH connections only | **-** | 1pt | 1pt |
| Encrypt the clear text passwords | **-** | 1pt | 1pt |
| Configure an MOTD Banner | Authorized Users Only! | 0.5pt | 0.5pt |
| Generate an RSA crypto key | **1024 bits modulus** | 1pt | 1pt |
| Configure Management Interface (SVI) | Set the Layer 3 IPv4 address  Set the Ipv6 Link Local Address as FE80::98 for S1 and FE80::99 for S2  Set the Layer 3 IPv6 address | 2pts | 2pts |
| Configure Default Gateway | Configure the default gateway as 10.19.8.97 for IPv4 | 1pt | 1pt |

## Configure Network Infrastructure Settings (VLANs, Trunking, EtherChannel)

**Total points: 30**

**Time: 20 minutes**

### Configure S1. [15 Marks]

Configuration tasks for S1 include the following:

| Task | **Specification** | **Points** |
| --- | --- | --- |
| Create VLANs | VLAN 2, name Bikes  VLAN 3, name Trikes  VLAN 4, name Management  VLAN 5, name Parking  VLAN 6, name Native | 5 points |
| Create 802.1Q trunks that use the native VLAN 6 | Interfaces F0/1, F0/2, and F0/5 | 1 point |
| Create a Layer 2 EtherChannel port group that uses interfaces F0/1 and F0/2 | Use the LACP protocol for negotiation | 2 points |
| Configure host access port for VLAN 2 | Interface F0/6 | 1 point |
| Configure port-security on access ports | Allow 3 MAC addresses | 2 points |
| Secure all unused interfaces | Assign to VLAN 5, Set to access mode, add a description, and shutdown | 4 points |

### Configure S2. [15 Marks]

Configuration tasks for S2 include the following:

| Task | **Specification** | **Points** |
| --- | --- | --- |
| Create VLANs | VLAN 2, name Bikes  VLAN 3, name Trikes  VLAN 4, name Management  VLAN 5, name Parking  VLAN 6, name Native | 5 points |
| Create 802.1Q trunks that use the native VLAN 6 | Interfaces F0/1 and F0/2 | 1 point |
| Create a Layer 2 EtherChannel port group that uses interfaces F0/1 and F0/2 | Use the LACP protocol for negotiation | 2 points |
| Configure host access port for VLAN 3 | Interface F0/18 | 1 point |
| Configure port-security on access ports | Allow 3 MAC addresses | 2 points |
| Secure all unused interfaces | Assign to VLAN 5, Set to access mode, add a description, and shutdown | 4 points |

## Configure Host Support

**Total points: 20**

**Time: 10 minutes**

### Configure R1 [16 Marks]

Configuration Tasks for R1 include the following

| Task | Specification | Points |
| --- | --- | --- |
| Configure Default Routing | Create a default route for IPv4 and IPv6 that directs traffic to interface Loopback 0 | (4 points) |
| Configure IPv4 DHCP for VLAN 2 | Create a DHCP pool called CCNA-A for VLAN 2, consisting of the **last 10 addresses** in the subnet only. Assign the domain name **ccna-a.net** and specify the default gateway address as the router interface address for the subnet involved | (6 points) |
| Configure IPv4 DHCP for VLAN 3 | Create a DHCP pool called CCNA-B for VLAN 3, consisting of the **last 10 addresses** in the subnet only. Assign the domain name **ccna-b.net** and specify the default gateway address as the router interface address for the subnet involved | (6 points) |

### Configure host computers. [4 Marks]

Configure the host computers PC-A and PC-B to use DHCP for IPv4 and statically assign the IPv6 GUA and Link Local addresses. After configuring each host computer, record the host network settings with the **ipconfig /all** command.

| PC-A Network Configuration (2 points) | |
| --- | --- |
| Description | FastEthernet0 |
| Physical Address | 0090.2BEC.8B8E |
| IP Address | 10.19.8.53 |
| Subnet Mask | 255.255.255.192 |
| Default Gateway | 10.19.8.1 |

| PC-B Network Configuration (2 points) | |
| --- | --- |
| Description | FastEthernet0 |
| Physical Address | 0090.0C31.5716 |
| IP Address | 10.19.8.86 |
| Subnet Mask | 255.255.255.224 |
| Default Gateway | 10.19.8.65 |

## Test and Verify End-to-End Connectivity

**Total points: 5**

**Time: 10 minutes**

Use the ping command to test IPv4 and IPv6 connectivity between all network devices.

Use the following table to methodically verify connectivity with each network device. Take corrective action to establish connectivity if a test fails.

| From | To | Protocol | IP Address | Ping Results |
| --- | --- | --- | --- | --- |
| PC-A | R1, G0/0/1.2 | IPv4 | 10.19.8.1 | *Success* |
| *PC-A* | *R1, G0/0/1.2* | IPv6 | 2001:db8:acad:a::1 | *Success* |
| *PC-A* | R1, G0/0/1.3 | IPv4 | 10.19.8.65 | *Success* |
| *PC-A* | *R1, G0/0/1.3* | IPv6 | 2001:db8:acad:b::1 | *Success* |
| *PC-A* | R1, G0/0/1.4 | IPv4 | 10.19.8.97 | *Success* |
| *PC-A* | *R1, G0/0/1.4* | IPv6 | 2001:db8:acad:c::1 | *Success* |
| *PC-A* | S1, VLAN 4 | IPv4 | 10.19.8.98 | *Success* |
| *PC-A* | *S1, VLAN 4* | IPv6 | 2001:db8:acad:c::98 | *Failed: NS not working on switches, no actions on* |
| *PC-A* | S2, VLAN 4 | IPv4 | 10.19.8.99. | *Success* |
| *PC-A* | *S2, VLAN 4* | IPv6 | 2001:db8:acad:c::99 | *Failed: NS not working on switches, no actions on* |
| *PC-A* | PC-B | IPv4 | IP address will vary. | *Success* |
| *PC-A* | *PC-B* | IPv6 | 2001:db8:acad:b::50 | *Success* |
| *PC-A* | R1 Loop0 | IPv4 | 209.165.201.1 | *Success* |
| *PC-A* | *R1 Loop0* | IPv6 | 2001:db8:acad:209::1 | *Success* |
| PC-B | R1 Loop0 | IPv4 | 209.165.201.1 | *Success* |
| *PC-B* | *R1 Loop0* | IPv6 | 2001:db8:acad:209::1 | *Success* |
| *PC-B* | R1, G0/0/1.2 | IPv4 | 10.19.8.1 | *Success* |
| *PC-B* | *R1, G0/0/1.2* | IPv6 | 2001:db8:acad:a::1 | *Success* |
| *PC-B* | R1, G0/0/1.3 | IPv4 | 10.19.8.65 | *Success* |
| *PC-B* | *R1, G0/0/1.3* | IPv6 | 2001:db8:acad:b::1 | *Success* |
| *PC-B* | R1, G0/0/1.4 | IPv4 | 10.19.8.97 | *Success* |
| *PC-B* | *R1, G0/0/1.4* | IPv6 | 2001:db8:acad:c::1 | *Success* |
| *PC-B* | S1, VLAN 4 | IPv4 | 10.19.8.98 | *Success* |
| *PC-B* | *S1, VLAN 4* | IPv6 | 2001:db8:acad:c::98 | *Failed: NS not working on switches, no actions on* |
| *PC-B* | S2, VLAN 4 | IPv4 | 10.19.8.99. | *Success* |
| *PC-B* | *S2, VLAN 4* | IPv6 | 2001:db8:acad:c::99 | *Failed: NS not working on switches, no actions on* |

**Final Instructions**

Make sure that you save both your Packet Tracer file and this document with ***your*** surname.

They should look like this (make sure you have correctly followed the below example):

* CCNAv7\_SRWE\_Cyber9b\_SURNAME.pkt
* CCNAv7\_SRWE\_Cyber9b SURNAME.docx

Submit the 2 files via the Net Academy portal.

Make sure you Save & **submit** and don’t just save a draft.

Inform the instructor that you have submitted and allow them to confirm receipt.