

Qatar University

College of engineering

Department of computer science and engineering

Fall\_2021

cmpe 355 – Data Communi & Comp.Network

14515\_B58

Instructor: Dr. Ziad Ali

Project

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Marim Elhanafy 201803468

Hanan Al-Qaaod 201805386

Hagar Elsayed 201805123

1. First Building:

**150.54.0.0/19**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Place** | **Network Address** | **Subnet Mask** | **Broadcast** | **Default Gateway** | **Unusable range within the subnet** |
| **C++ Lab**  (470 PCs,8 Switches) | **150.54.0.0/23** | **255.255.254.0** | **150.54.1.255** | **150.54.0.1** | **150.54.1.217 to 150.54.1.246** |
| **Java Lab**  (160 PCs, 4 Switches) | **150.54.2.0/24** | **255.255.255.0** | **150.54.2.255** | **150.54.2.1** | **150.54.2.162 to 150.54.2.250** |
| **Media Lab**  (88 PCs, 7Switches) | **150.54.3.0/25** | **255.255.255.128** | **150.54.3.127** | **150.54.3.1** | **150.54.3.90 to 150.54.3.121** |
| **WAN** | **150.54.3.128/30** | **255.255.255.252** | **150.54.3.131** | **N/A** |  |
| **Unused Range** | **150.54.3.132 – 150.54.31.255** | | | |  |



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Device** | **Interface** | **IP Address** | **Subnet Mask** | **Default Gateway** |
| **Router (Building 1)** | **Fa0/0**  **(C++ Lab)** | **150.54.0.1** | **255.255.254.0** | **N/A** |
|  | **Fa1/0**  **(Java Lab)** | **150.54.2.1** | **255.255.255.0** | **N/A** |
|  | **Fa4/0**  **(Media Lab)** | **150.54.3.1** | **255.255.255.128** | **N/A** |
|  | **Ser2/0** | **150.54.3.129** | **255.255.255.252** | **N/A** |
| **Switch 1 (C++ lab)** | **VLAN 1** | **150.54.1.254** | **255.255.254.0** | **150.54.0.1** |
| **Switch 2 ( C++ lab )** | **VLAN 1** | **150.54.1.253** | **255.255.254.0** | **150.54.0.1** |
| **net2**  **( C++ lab )** | **NIC** | **dynamic** | **255.255.254.0** | **150.54.0.1** |
| **PC-5**  **( C++ lab )** | **NIC** | **dynamic** | **255.255.254.0** | **150.54.0.1** |
| **Switch 1 (Java)** | **VLAN 1** | **150.54.2.254** | **255.255.255.0** | **150.54.2.1** |
| **Switch 2 (Java)** | **VLAN 1** | **150.54.2.253** | **255.255.255.0** | **150.54.2.1** |
| **net1**  **(Java Lab)** | **NIC** | **dynamic** | **255.255.255.0** | **150.54.2.1** |
| **PC-3**  **(Java Lab)** | **NIC** | **dynamic** | **255.255.255.0** | **150.54.2.1** |
| **Switch 1**  **( Media Lab)** | **VLAN 1** | **150.54.3.126** | **255.255.255.128** | **150.54.3.1** |
| **Switch 2 ( Media Lab)** | **VLAN 1** | **150.54.3.125** | **255.255.255.128** | **150.54.3.1** |
| **net3**  **( Media Lab)** | **NIC** | **dynamic** | **255.255.255.128** | **150.54.3.1** |
| **PC-1**  **( Media Lab)** | **NIC** | **dynamic** | **255.255.255.128** | **150.54.3.1** |
| **DHCP Server**  **(Building 1)** | **NIC** | **150.54.0.2** | **255.255.224.0** | **150.54.0.1** |

1. Second Building:

**First floor - Server and Printer Farm Network: 180.14.0.0/25**

**255.255.255.128**

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| --- | --- | --- | --- | --- | --- |
|  | **Network Address** | **Subnet Mask** | **Broadcast** | **Default Gateway** | **Unusable Range within the subnet** |
| **Server and printer farm** | **180.14.0.0/28** | **255.255.255.240** | **180.14.0.15** | **180.14.0.1** | **180.14.0.2 to 180.14.0.5** |
| **Unused Range** | **180.14.0.16 - 180.14.0.127** | | | |  |

**Second floor - Graphics Lab Network: 124.30.0.0/20**

**255.255.240.0**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Network Address** | **Subnet Mask** | **Broadcast** | **Default Gateway** | **Unusable range within the subnet** |
| **Graphics Lab(200 PCs, 8 Switches)** | **124.30.0.0/24** | **255.255.255.0** | **124.30.0.255** | **124.30.0.1** | **124.30.0.203 to**  **124.30.0.246** |
| **Unused Range** | **124.30.1.0 – 124.30.15.254** | | | |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Device** | **Interface** | **IP Address** | **Subnet Mask** | **Default Gateway** |
| **Router (Building 2)** | **Fa4/0**  **(Graphics Lab)** | **124.30.0.1** | **255.255.255.0** | **N/A** |
|  | **Fa1/0**  **(Farm)** | **180.14.0.1** | **255.255.255.240** | **N/A** |
|  | **Ser2/0** | **150.54.3.130** | **255.255.255.252** | **N/A** |
| **Switch 1 (Graphics)** | **VLAN 1** | **124.30.0.254** | **255.255.255.0** | **124.30.0.1** |
| **Switch 2 (Graphics)** | **VLAN 1** | **124.30.0.253** | **255.255.255.0** | **124.30.0.1** |
| **Graphics DHCP Server** | **NIC** | **124.30.0.2** | **255.255.255.0** | **124.30.0.1** |
| **PC20**  **(Graphics)** | **NIC** | **Dynamic** | **255.255.255.0** | **124.30.0.1** |
| **PC21**  **(Graphics)** | **NIC** | **Dynamic** | **255.255.255.0** | **124.30.0.1** |
| **Switch 1 (Farm)** | **VLAN 1** | **180.14.0.7** | **255.255.255.240** | **180.14.0.1** |
| **Web Server-1**  **(www.nettest.com)** | **NIC** | **180.14.0.14** | **255.255.255.240** | **180.14.0.1** |
| **Web Server-2**  **(www.weblife.net)** | **NIC** | **180.14.0.13** | **255.255.255.240** | **180.14.0.1** |
| **TFTP Server (tftpcenter.com)** | **NIC** | **180.14.0.12** | **255.255.255.240** | **180.14.0.1** |
| **FTP Server**  **(ftptest.com)** | **NIC** | **180.14.0.11** | **255.255.255.240** | **180.14.0.1** |
| **Email Server**  **(netmail.com)** | **NIC** | **180.14.0.10** | **255.255.255.240** | **180.14.0.1** |
| **Printer-1** | **NIC** | **180.14.0.9** | **255.255.255.240** | **180.14.0.1** |
| **Printer-2** | **NIC** | **180.14.0.8** | **255.255.255.240** | **180.14.0.1** |

1. Diagram

   Description automatically generatedTopology: