Project: Vic-Deluxe Guest House

Introduction

Purpose of the Project

The Guest Room Management System (GRMS) is a comprehensive solution tailored to the operational needs of Vic Deluxe Guest House. The project leverages modern networking technologies to ensure efficient management of guest services and departmental operations.

1. **Streamlined Operations:** Dedicated to enhancing room assignments, housekeeping, and guest requests.
2. **Enhanced Security:** VLAN segmentation safeguards departmental communications and data.
3. **Optimized Management:** Automates IP assignments with DHCP and facilitates routing using OSPF.
4. **Scalability:** Supports future expansions like IoT devices or service enhancements.

Scope of the Project

The GRMS encompasses networking infrastructure for a four-floor layout with specific functionalities:

1. **1st Floor:** Reception and Store.
2. **2nd Floor:** Finance, HR, and Sales/Marketing departments.
3. **3rd Floor:** Admin and IT departments.
4. **4th Floor:** Guest Room Management.

Salient Features of the System

1. **Network Segmentation:** VLANs isolate departmental networks for security and performance.
2. **Dynamic Address Allocation:** DHCP simplifies device integration with automated IP assignment.
3. **Efficient Routing:** OSPF ensures optimized communication across the network.

4. **Scalability:** Room for additional services and IoT integrations in the future.

Technologies and Protocols

- **VLANs:** Segment traffic for secure departmental operations.
- **DHCP:** Automates IP address allocation per floor.
- **OSPF:** Scalable routing between floors.
- **SSH:** Secures router management.
- **VLAN:** Wireless connectivity for staff and guests.
- **Switch Port Security:** Restricts unauthorized access on IT ports.

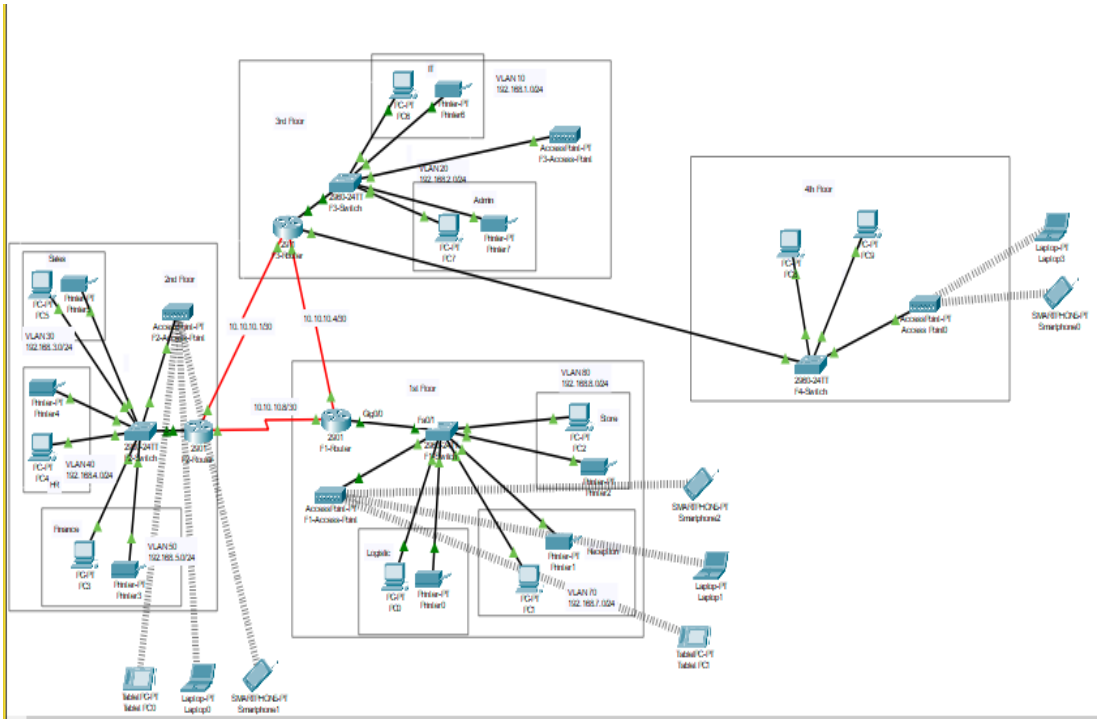
4th Floor – Guest Room Management

- **Purpose:** Manages guest services like housekeeping and room assignments.
- **Features:** VLAN isolation, scalability for IoT, and seamless integration with other floors.

Testing and Verification

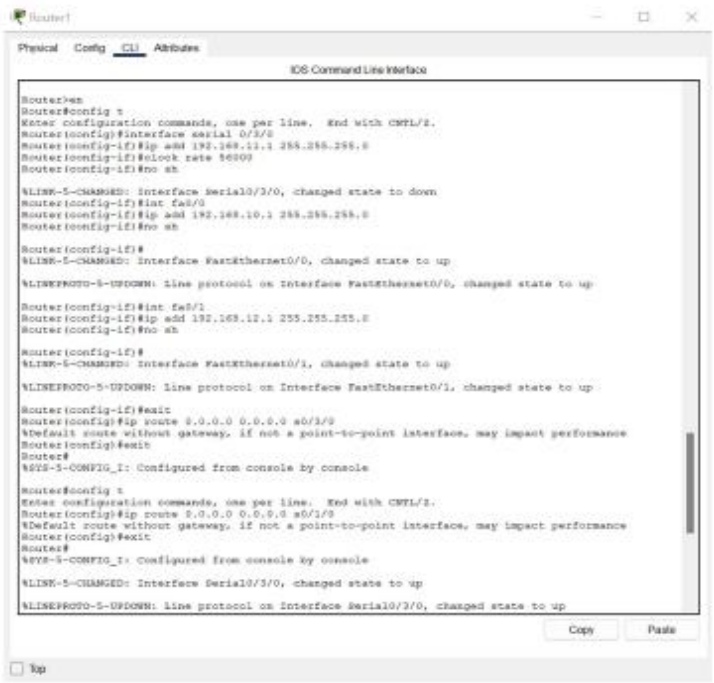
1. VLANs tested for traffic isolation and security.
2. DHCP verified for dynamic IP assignment.
3. OSPF routing ensures efficient inter-floor communication.
4. SSH secures administrative access to routers.

Network Toplogy

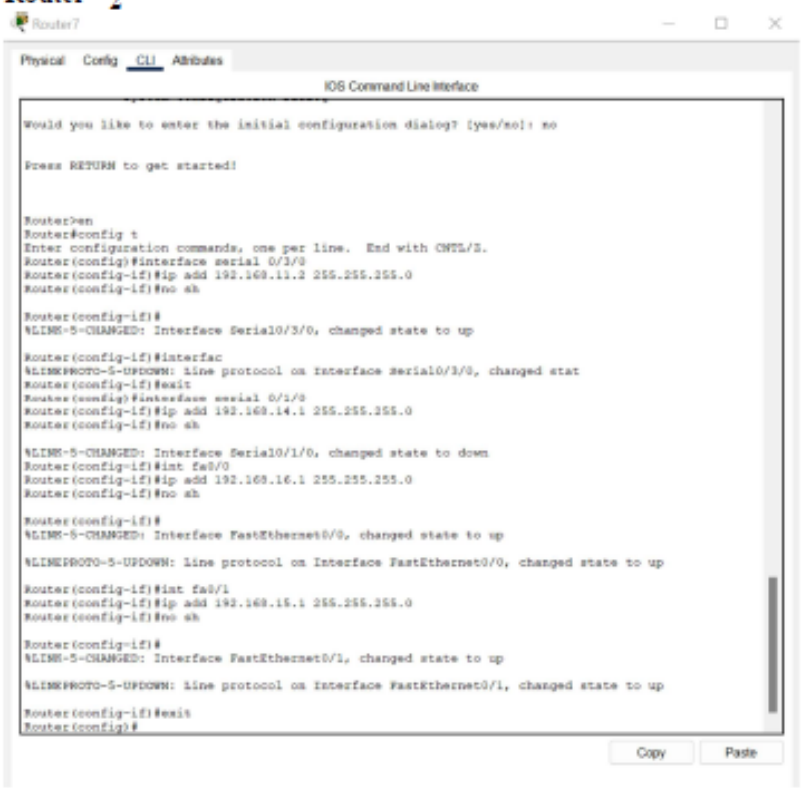


CLI Commands

Router 1

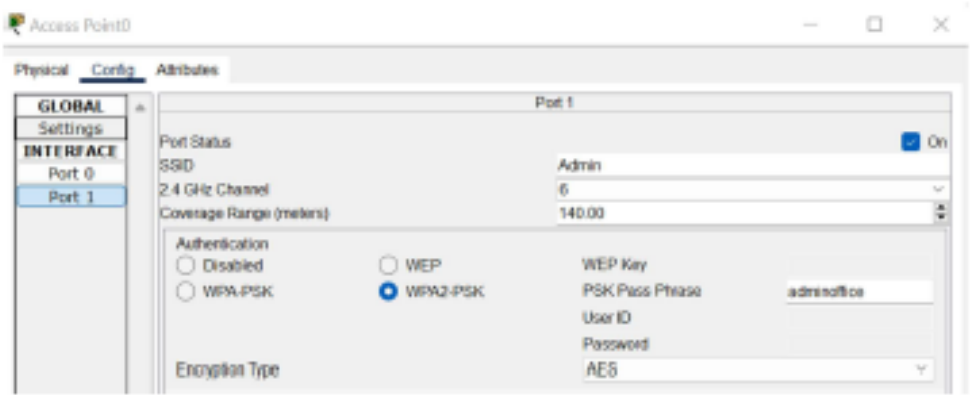


Router 2

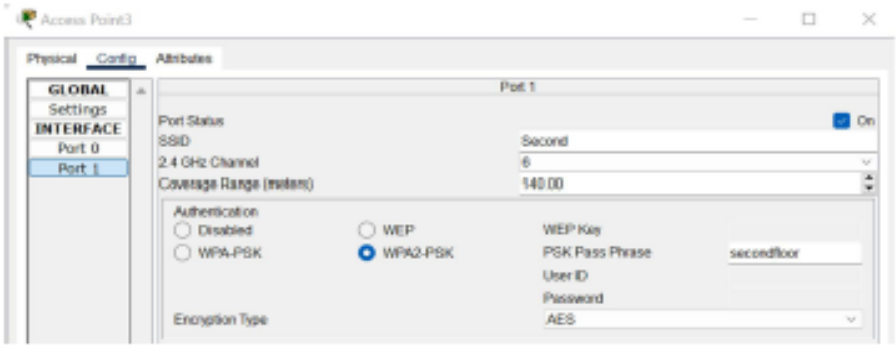


VLAN Implementation

Admin Office

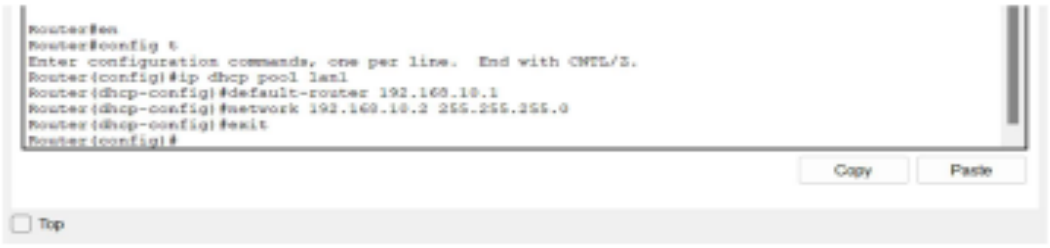


Second Floor

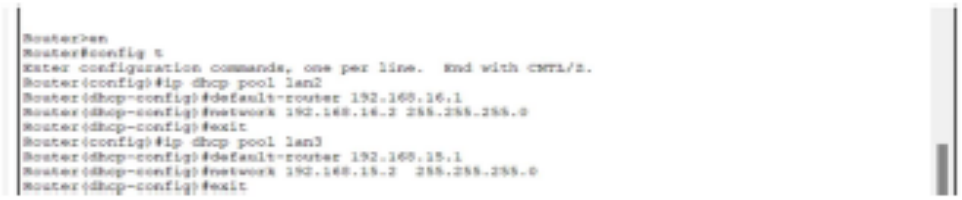


DHCP Implementation

Router 1



Router 2



Conclusion and Future Scope

The GRMS successfully meets operational and guest service requirements, ensuring efficient communication, security, and scalability. Future enhancements may include IoT-enabled smart room systems and advanced analytics for network performance monitoring.