Wireless Network Deployment and Configuration - Project Documentation

Prepared for: DEPI
Prepared by: Maggi Gamal – Shrouk Abd-Elnaser
Date: 17-4-2025

Table of Contents

1. Project Summary

The purpose of this project is planning, deployment, and configuration of a wireless network for a small company consisting of five rooms. The goal is to provide reliable, secure, and high-performance wireless connectivity that supports the daily operations of the business.

The project includes conducting a site survey to analyze the layout and potential sources of interference, selecting suitable networking equipment (such as access points, wireless routers, and Cable Modem), and designing a wireless network layout that ensures full coverage and optimal signal strength across all rooms.

Configuration tasks involve setting up SSIDs, encryption protocols (such as WPA2), access control, and basic network segmentation if needed. Security and performance considerations are a key part of the deployment, ensuring protection from unauthorized access and efficient bandwidth usage.

The final deliverables include a fully functional wireless network, a network topology map, configuration documentation, and testing results verifying network coverage, speed, and stability.

---

2. Project Objectives

- Achieve complete wireless coverage in all required areas.
- Implement secure authentication (WPA2, RADIUS 802.1X).
- Strengthen your wireless network by using an access point
- Minimize wireless interference and maximize throughput.
- Test wireless coverage and performance. Optimize channel settings and address any connectivity issues.
- Document the full network setup for future support and maintenance.

---

3. Scope of Work

- Wireless network design and site survey.
- Installation and configuration of wireless access points and server.
- Security configuration including authentication and encryption.
- Test wireless coverage and performance. Optimize channel settings and address any connectivity issues.

---

4. Technical Requirements

Hardware:

- Access Points (specify brand/model)
- Wireless Router.
- Server
- Cabling
- Cable Modem

Software:

- Packet Tracer

5. Network Design

SSID	Purpose
office 1	Employees only
Manager office	Manager only
office 2	Visitors
office 3	Devices (printers, etc.)
Control Room	Network devices

- **IP Schema:** Define how IP addresses will be assigned (DHCP/Static).

---

6. Deployment Plan

Phase 1: Site Survey & Planning
Phase 2: Hardware Installation (Router, Server)
Phase 3: Wireless Controller and SSID Configuration
Phase 4: Security Setup (Authentication)
Phase 5: Testing & Optimization
Phase 6: Documentation & Handover

---

7. Testing and Validation

- Signal strength tests (heat maps, signal thresholds)
- Authentication testing for each SSID
- Roaming test between APs
- Speed and latency tests

---

8. Deliverables

- Operational wireless network
- Complete network diagrams
- Configuration backup files
- Final project documentation
- Training for IT administrators

9. Conclusion

The deployment and configuration of the wireless network have successfully met the outlined objectives. With the new infrastructure, the company will benefit from enhanced wireless coverage, robust security, and scalability for future expansion.

10. Appendices

- Network Topology Diagrams
- AP Floor Plan Maps