# Sample Report – System Validation & Testing

## 1. Introduction

This document provides an overview of the validation and testing activities carried out for the Secure Network Management System (SNMS) version 2.4. The objective of the testing phase was to verify that the system meets all functional and security requirements as defined in the Software Requirement Specification (SRS).

## 2. Objectives

* Validate that SNMS correctly provisions network devices through the north-bound API.
* Confirm authentication, authorization, and audit logging mechanisms are enforced.
* Ensure that all critical services recover automatically after unexpected restarts.

## 3. Test Environment

Testing was performed on a three-node virtual environment using Ubuntu 22.04 LTS with Docker containers.

Controller Node: 8 vCPU, 16 GB RAM

Worker 1: 4 vCPU, 8 GB RAM

Worker 2: 4 vCPU, 8 GB RAM

All nodes were connected through a secured internal bridge network.

## 4. Test Cases Executed

|  |  |  |  |
| --- | --- | --- | --- |
| Test ID | Description | Expected Result | Status |
| TC-001 | Verify user login using SSO (OAuth 2.0) | Successful login | ✅ Pass |
| TC-002 | Validate configuration backup and restore | Backup restored successfully | ✅ Pass |
| TC-003 | Confirm API rejects unauthorized calls | HTTP 401 Unauthorized | ✅ Pass |
| TC-004 | Simulate controller node crash recovery | Services restored automatically | ⚠️ Minor delay |

## 5. Observations

During the recovery test (TC-004), it was observed that dependent microservices took approximately 90 seconds longer to start. Logs indicated a delayed health-check response from the message queue. No data loss or transaction inconsistency was detected.

## 6. Evidence and Screenshots

Screenshots captured during execution show successful authentication via the corporate identity provider and consistent REST API responses from Postman collections. Console outputs were archived for reference in evidence/run\_2025-10-17/.

## 7. Results Summary

All major functional requirements were validated successfully. Security and compliance checks passed as per ITSAR section 3.2.7. Minor issues were logged for optimization in service startup times.

## 8. Conclusion

The overall system is stable and meets the release criteria defined by the development team. The test team recommends proceeding with deployment in the staging environment after addressing the minor startup delay.