Software System Test Plan

**Messenger**

**Client – Server Application**

**Simple Message Protocol (SMP)**

**Version 1**



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# Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| Rev. | Date | Authors | Comments |
| 1.1 | 2/24/2025 | Joshua Kelley | 1. Completed GUIs |
| 1.2 | 3/3/2025 | Nina Ervin & Brennan Gebers | Completed Client Producer and Server |
| 1.3 | 3/7/2025 | Harry Qiang | Completed Client Consumer |
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# Introduction

This document is intended to be used for verifying the Messenger Simple Message Protocol (SMP) Client – Server software application prior to release. The primary goal is to verify that all expected software application features have been implemented.

# Documentation

For each version of released code, this document is to be saved in a location specified in the Software Project Information File (SPIF) with the following information:

Software Application Name: Messenger Client – Server Application

Software Application Version: Version 1.0

Software Application Repository: GitHub: https://github.com/ninaiervin/CISS346\_A4

Name of tester: Nina Ervin, Brennan Gebers, Joshua Kelley, and Harry Qiang

System Test Date: 3/8/2025

# References

## Reference 1: *SMP\_Software\_Project\_Information\_File.docx*

### Description

The software project information file.

## Reference 2: *SMP\_Software\_Project\_Plan.docx*

### Description

The software project plan.

## Reference 4: *SMP\_Software\_Project\_Interface\_Prototype.docx*

### Description

The prototype of the UI.

## Reference 4: *SMP\_Software\_Requirements.docx*

### Description

The software requirement document.

## Reference 5: *SMP\_Software\_Technical\_Specification.docx*

### Description

The software technical specification.

## Reference 3: *SMP\_Software\_Design\_Specification.docx*

### Description

The software design specification.

# Test System Configurations

## Configuration 1: One *Local Area Network (LAN)*

### Description

This configuration requires that the SMP Server, SMP Client Producer, and the SMP Client Consumer are all connected to the same LAN.

### Diagram -- SMP Client Producer Sends SMP PUT Request



SMP Client Producer sends an SMP PUT Request packet to the SMP Server

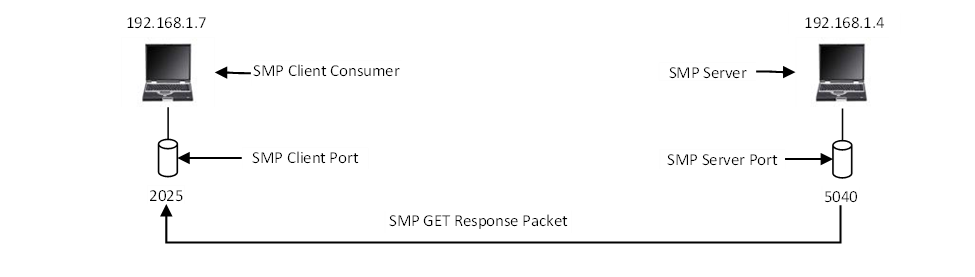


SMP Server sends back an SMP PUT Response Packet

### Diagram -- SMP Client Consumer Sends SMP GET Request



SMP Client Consumer sends an SMP GET Request packet to the SMP Server



SMP Server sends back an SMP GET Response Packet

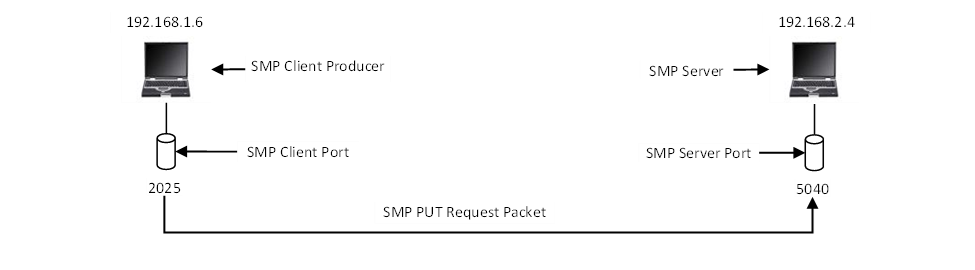
Figure 1: LAN System Test Configuration

## Configuration 2: Two *Local Area Networks*

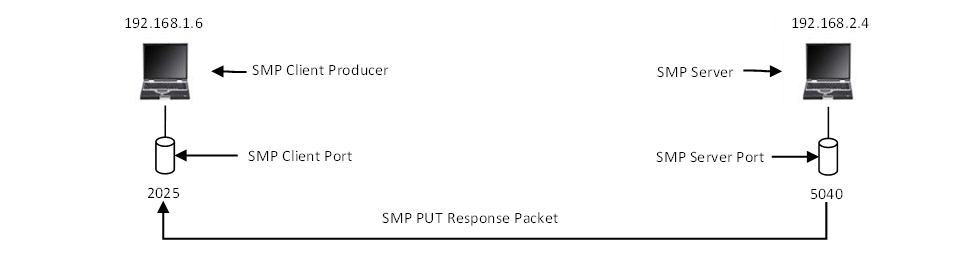
### Description

This configuration requires that the SMP Server is connected to a separate LAN, and the SMP Client Producer, and the SMP Client Consumer are connected to a different LAN.

### Diagram -- SMP Client Producer Sends SMP PUT Request

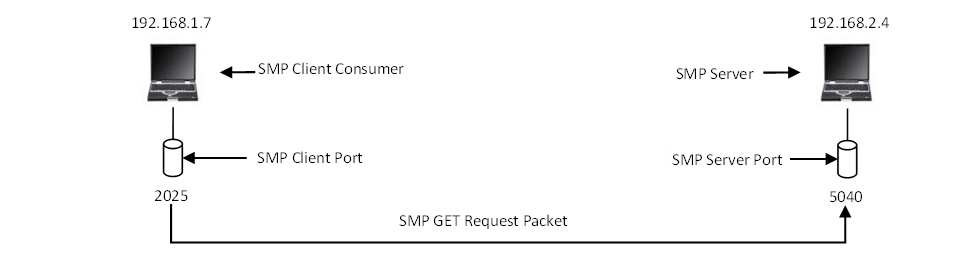


SMP Client Producer sends an SMP PUT Request packet to the SMP Server



SMP Server sends back an SMP PUT Response Packet

### Diagram -- SMP Client Consumer Sends SMP GET Request



SMP Client Consumer sends an SMP GET Request packet to the SMP Server



SMP Server sends back an SMP GET Response Packet

Figure 2: Two Separate LANs System Test Configuration

# Configuration Files

A test case may require a particular software system configuration file. The required configuration files are listed here.

(No Configuration Files needed!)

# Test Automation Suite

Test cases that have been automated are marked as Automated. The test automation suite must run the automated test cases before each software application version release. The test automation suite and test case source code are saved in a location specified in the Software Project Information File (SPIF).

# Test Cases – SMP Server Requirements

## Test Case – Application Start Feature (Not Automated)

### Target Requirement: *Requirement 1:* *Application Start Feature*

Notes:

### Test Case Description

Description: This feature allows the SMP server to start processing SMP client requests. The UI for this feature is a clickable button of a graphical user interface (GUI).

### Test Case Steps

* Start the SMP Server application.
* Click the Start button.
* Verify the server is listening to client requests on port 50400.
  + netstat -na | find 50400

## Test Case – Show Messages Feature (Not Automated)

### Target Requirement: *Requirement 2: Show Messages Feature*

Notes:

### Test Case Description

Description: Reads SMP message records from the SMP message file and displays the message date, message priority, and message content for each of the messages in the file and outputs the messages. The UI for this feature is a clickable button of a graphical user interface (GUI).

### Test Case Steps

* Start the SMP Server application.
* Click the Show Message button on the Server.
* Verify the client messages are displayed in the Messages window.

# Test Cases – SMP Client Producer Requirements

## Test Case – Send Message Feature (Not Automated)

### Target Requirement: *Requirement 1:* *Send Message Feature*

Notes:

### Test Case Description

Description: The SMP Message Producer client program is designed to send an SMP PUT request to the server. This feature allows a user to send an SMP message to the server. The message sent to the server consists of the message date, message priority and the message content.

### Test Case Steps

* Start the SMP Server application.
* Start the SMP Client Producer application.
* Enter the IP address of the SMP Server application.
* Enter the port number of the SMP Server application.
* From the Message Priority options, select Low.
* Enter Test Message Low in the Message Content text entry box.
* Click the Send Message button.
* Verify the SMP Server sent back a response.
  + Note the SMP Server response in the Server Response text box.
* Verify the SMP Server received the message.
  + Verify the Message Type text box displays PutMessage.
  + Verify the Message Priority text box displays Low.

## Test Case – SMP Server Offline (Not Automated)

### Target Requirement: *Requirement 2: SMP Sever Offline*

Notes:

### Test Case Description

Description: The SMP Message Producer client program is designed to send an SMP PUT request to the server. If the SMP Server is offline, when a SMP PUT request is sent to the server, the SMP Message Producer should display a Message Box notifying the user.

### Test Case Steps

* Verify the SMP Server is OFFLINE.
* Start the SMP Client Producer application.
* Enter the IP address of the SMP Server application.
* Enter the port number of the SMP Server application.
* From the Message Priority options, select Low.
* Enter Test Message Low in the Message Content text entry box.
* Click the Send Message button.
* Verify the SMP Client Producer displays a Message Box notifying the user that the SMP PUT request failed.

# Test Cases – SMP Client Consumer Requirements

## Test Case – Get Message Feature (Not Automated)

### Target Requirement: *Requirement 1: Get Message Feature*

Notes:

### Test Case Description

Description: The SMP Message Consumer client program is designed to send an SMP GET request to the server to retrieve the next message. This feature allows a user to retrieve an SMP message from the server. Which message is sent back from the server depends on the priority selected. The message sent back to the client consists of the message date, message priority and the message content. The server deletes the record from the file after the client acknowledges that it has received the message

### Test Case Steps

* Start the SMP Server application.
* Start the SMP Client Consumer application.
* Enter the IP address of the SMP Server application.
* Enter the port number of the SMP Server application.
* From the Message Priority options, select Low.
* Click the Get Message button.
* Verify the SMP Server sent back a response.
  + The message content should be displayed in the Message Content text box.
* Verify the SMP Server
  + Received the acknowledgement message from the SMP Client Consumer.
  + Verify the Message Type text box displays GetMessage.
  + Verify the Message Priority text box displays Low.
  + Verify the message is deleted from the Low Priority Messages file.

## Test Case – No Priority One Messages (Not Automated)

### Target Requirement: *Requirement 2: No Priority One Messages*

Notes:

### Test Case Description

Description: The SMP Message Consumer client program is designed to send an SMP GET request to the server to retrieve the next message.

This feature allows a user to retrieve an SMP message from the server. Which message is sent back from the server depends on the priority selected. The message sent back to the client consists of the message date, message priority and the message content. The server deletes the record from the file after the client acknowledges that it has received the message.

### Test Case Steps

* Start the SMP Server application.
* Start the SMP Client Consumer application.
* Enter the IP address of the SMP Server application.
* Enter the port number of the SMP Server application.
* From the Message Priority options, select Low.
* Click the Get Message button.
* Verify the SMP Server sends back the following response: No Priority Low Messages Available
* Verify the SMP Client Consumer displays a Message Box notifying the user that No Priority Low Messages Available.

## Test Case – SMP Server Offline (Not Automated)

### Target Requirement: *Requirement 3: SMP Server Offline*

Notes:

### Test Case Description

Description: The SMP Message Consumer client program is designed to send an SMP GET request to the server to retrieve the next message. If the SMP Server is offline, when a SMP GET request is sent to the server, the SMP Message Consumer should display a Message Box notifying the user.

### Test Case Steps

* Verify the SMP Server is OFFLINE.
* Start the SMP Client Consumer application.
* Enter the IP address of the SMP Server application.
* Enter the port number of the SMP Server application.
* From the Message Priority options, select Low.
* Click the Get Message button.
* Verify the SMP Client Consumer displays a Message Box notifying the user that the SMP GET request failed.

# Appendix

## Acronyms

SMP – Simple Message Protocol

## Engineering Terms

### Software Development

Client – A software application that sends and receives messages to and from a server application.

Server – A software application that processes messages from client applications.

Producer – A software application that produces messages.

Consumer – A software application that consumes messages.

# Notes

All testing was done by The Null Pointers Team.

# System Test Schedule

|  |  |  |  |
| --- | --- | --- | --- |
| System Test Date | Hours | Team Member | Comments |
| 3/7/2025 | 2 | Nina, Harry, Brennan | Fixed consumer formatting |
| 3/10/2025 | 1 | Brennan | Fixed file formatting on sever |
| 3/11/2025 | 3 | Brennan | Fixed messaging for consumer and added encryption. |
| 3/12/2025 | 3 | Nina & Brennan | Added error checking and sending version |
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