**SPC**

**Test Plan**

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**SIGNATURE PAGE**

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# INTRODUCTION

## Purpose

This document describes the plan for testing activities of the SPC project (Soft Point System project). It contains the following sections:

1. INTRODUCTION: giving an overview of the project as well as scope of testing.
2. REQUIREMENT FOR TEST: describing requirements need to be tested.
3. SEVERITY: defining severity defect and estimated number of defect for each severity.
4. TEST DEFINITION: definition of each test stage.
5. TEST STRATEGY: describing test types, test stages and test tool.
6. RESOURCE: showing the test team as well as all other resources.
7. DELIVERABLES: defining test documents need to be released.

## Responsibility and authorization

This document has been created and is maintained by: AnhNN

TIFFSOFT, Vietnam.

The person is charge of the document is:

Nguyen Ngoc Anh, tester of SPC project, TIFFSOFT, Viet Nam.

The following persons review/approve this document:

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| **Name** | Pham Thanh Tuan | Duong Minh Thang | Pham Huong |
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## Related Document

|  |  |  |
| --- | --- | --- |
| **Document Name** | **Filename** | **Description** |
| Overview of Soft Point Customer | SecurePrintingSystem\_phase1\_20051104.ppt | The understanding about Soft Point Customer for phase 1 |
| Statement of work | SoW\_SPC\_v1.10\_20051219.doc | The scope of work for Soft Point Customer (version 1.10) |
| New scope of work | SPC\_Scope\_20051208\_En.xls | New scope of work changed by customer for Soft Point Customer |
| GOLDSOFTSoft Point Customer  Detail | SPC\_detail\_20051207.ppt | Descript details of Soft Point Customer |

## Definitions, Acronyms and Abbreviations

|  |  |
| --- | --- |
| **Definition** | **Description** |
| SPC | Soft Point Customer |
| EVT | Engineering Verification Test – Unit Test |
| FVT | Functional Verification Test – Integration Test |
| SVT | System Verification Test – System Test |
| ART | Alpha release test |
| OS | Operating System |
| DMS | Defect Management System – a management tool of TiffSoft |
| SPC Driver | Soft Point Customer Driver in the wide sense |
| UCP | Use Case Point – a unit is to calculate product size |

## Background information

Soft Point Customer is a solution core component that will be applied to customer’s environment. This system would be customized depending on customer’s requirements. Soft Point Customer is currently considered software for Windows (tentatively assumed) in Japanese versions and is divided into server and client programs. The server application is called “Soft Point Server” and the client application is called”Soft Point Client”. **Soft Point Customer** supports multi-vender Points both “Local Point” and “Network Point”.

It has the following main functions:

* Control the maximum number of pages of print for respective users.
* Put header and footer on all print jobs compellingly to present the information of print requester.
* Record detailed printing log in the database on Soft Point Server.

Soft Point Server has the following components:

* Web application.

Soft Point Client has the following components:

* Soft Point Driver (SP Driver).

**The scope of Phase 1 is the following:**

* SP Driver adds print job’s information as footer (or header) when a user selects SP Driver and requests to print document on an application.
* SP Manager renders the print job by using the actual Point driver.
* .

## Scope of testing

This project will have 3 stages of testing (Engineering Verification Test, Functional Verification Test and System Verification Test).

### EVT (Engineering Verification Test)

The EVT we describe here consists of 2 parts:

* Code review; review the code to anticipate problems that would occur during Unit Test.
* EVT, test a function as if it would be a black box, logging the input and output to check the function behavior.

The developers also do EVT by themselves; however we will not describe it in this document.

### FVT (Function Verification Test)

The Functional Verification Test will check the functionalities of the Soft Point Customer that are no application-dependent by Functional test case.

### SVT (System Verification Test)

The test activities in this phase are assumed to be done at the supplier side by using the actual system. The detail will be described in “The Comprehensive System Verification Test Plan.”

SVT includes at least the following:

* Application test (Client application test and Server application test)
* Installation test.
* Performance test.
* Stress test.

In order for GOLDSOFTto make reviews properly, the supplier should provide GOLDSOFTwith test documents, including comprehensive test plan and test reports at each testing phase.

## Risk list

Duration of project is quite short and team members have not many experiences about Spooler driver.

**Mitigation:** Increase effort for EVT, FVT and SVT.

## Issues

Some team members of the project are fresh on development skill like Point Spooler architecture and the difficult technology. Those issues can be solved by following solutions:

* Get training support of experienced developer of former Point driver system.
* Confirm with customer to change the solution by hooking local Point provider.

# REQUIREMENTS FOR TEST

List all requirements for test and test activities that cover all SPC requirement.

**SP Client:**

* **SP Driver:**
  + Function:
    - Modify and preview header and footer.
    - Connection Setup: Configure the connection of SP Driver like IP address, backup IP address of server, time-out, status of connection, printing log, processing of the waiting job…

**SP Server**

* **Web Application**
  + Function:
    - Approvers can approve or reject requests from users.
    - Administrators can change SP Server's environment settings.
    - Administrators and approvers can view the list of print jobs.
  + GUI:
    - In phase 1, web application provides the web page, by which a user can view the list of print job.

**Four dialog boxes:**

* + Function:
    - No printing dialog box: Displayed when the total number of pages are about to exceed the pre-defined maximum number of pages.
    - Approve print job dialog box: Displayed when a print job is approved to print by the approver.

**Base functions:**

* + - Pages limitation: SPC limits the number of pages per user, per Point, per Point of a user or the number of pages per job, users cannot print the job until they receives the approval. Users can change the action for the time when the number of pages is about to exceed the maximum number of pages.
    - Network: SPC doesn't send the content of job on network.

# SEVERITY

## Definition

The following are the definitions of severity used by an organization within NTTF:

|  |  |
| --- | --- |
| **Severity** | **Value** |
| Critical | 1 |
| Severe | 2 |
| Wrong | 3 |
| Low impact | 4 |

### Critical

A problem that causes a major system (many subsystems) or high visible area of the machine product or solution to fail

No acceptable work around identified. Use vastly restricted. Additional assessment criteria:

* Customer impact: Major customer impact.
* Test impact: Major impact to Test progress. Test execution is blocked.
* Quality / Field impact: Major impact to quality objectives or field support/service.
* Availability impact: Defect must be resolved before machine/product/PTF/PU can be GA.
* Frequency/Repeatability: High to Moderate.

### Severe

A problem that causes key product or solution function (single subsystem) not to work or significant degradation of performance Acceptable workaround exists. Use restricted. Additional assessment criteria:

* Customer impact: Significant customer impact.
* Test impact: Impact to test progress is limited to a small area.
* Makes testing in a test area difficult.
* Quality / Field impact: Significant impact to quality objectives or field support/service.
* Availability impact: Defect must be resolved before machine/product/PTF/PU can be GA.
* Frequency/Repeatability: Moderate to Infrequent.

### Wrong

A problem that causes an error occur (piece or part of a function), majority of key product or solution function work Non-critical degradation of performance or function. Easy work-around exists. Use minimally restricted. Additional assessment criteria:

* Customer impact: Minor customer impact.
* Test impact: Minor impact to test progress.
* Test execution is not blocked.
* Quality / Field impact: Minor impact to quality objectives or field support/service.
* Availability impact: Defect can be shipped unresolved - machine/product/PTF/PU can be GA.
* Frequency/Repeatability: Infrequent to Unknown.

### Low impact

A problem that causes no error does not prevent the functionality of the product or solution from being used. Additional assessment criteria:

* Customer impact: Minor customer impact.
* Test impact: No impact to test progress. Test execution is not blocked.
* Quality / Field impact: Minor impact to quality objectives or field support/service.
* Availability impact: Defect can be shipped unresolved - machine/product/PTF/PU can be GA.
* Frequency/Repeatability: Infrequent to Unknown.

## Estimated number of defect

he development of SPC (Soft Point System) will last 835 person days. This is equal to 238.81 UCP (=effort\*0.286).

Basing on project size and planed defect rate (6.0 Wdef/UCP), total weighted defect is 1433 Wdef (Weighted defect) [= Estimated product size (238.81 UCP) \* planed defect rate (6.0 Wdef/UCP)].

|  |  |  |  |
| --- | --- | --- | --- |
| **Severity** | **Weighted** | **Percent of**  **Wdef (%)** | **Number of defects = Total \* Percent of Wdef(%) / Weighted** |
| Critical | 10 | 1 | 2 |
| Severe | 5 | 8.6 | 25 |
| Wrong | 3 | 51.4 | 246 |
| Low impact | 1 | 39 | 559 |

# TEST DEFINITION

## Schedule

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Category** | **Activity** | **Schedule** |  | **Actor** |
|  |  | ***Start date*** | ***End date*** |  |
| ART | Test for alpha release on Microsoft Word XP | 2005/11/30 | 2005/12/04 | AnhVTN |
| FVT for Alpha 2 | Functional Test for Alpha 2 release will be performed on below environment | 2006/01/05 | 2006/01/10 | AnhVTN |
| FVT for Alpha 3 | Functional Test for Alpha 3 release will be performed on below environment | 2006/01/20 | 2006/02/10 | AnhVTN |
| SVT | Application Test will be performed on below environment for Beta 1 | 2006/02/13 | 2006/02/17 | AnhVTN |
|  | Performance Test will be performed on below environment | 2006/02/17 | 2006/02/23 | AnhVTN |
|  | Installation Test will be performed on below environment | 2006/02/23 | 2006/02/24 | AnhVTN |

* Environment for client:
  + Microsoft Windows 2000 Professional SP1 (Japanese).
  + Microsoft Windows XP Professional SP1 (Japanese).
* Environment for Server:
  + Microsoft Windows 2003 Server, Enterprise Edition (Japanese).
* In addition, customer want FPT to improve the quality of SPC by making checkpoints during the construction phase to solve problems at an early stage and they define some more deliver preliminary versions at the checkpoints like Deliverables below.
* FVT will be executed follow each module of Deliverables, FVT test case is created base on document as following: Unit test report, schedule file and check code from source safe.
* Application test and performance test will be needed by FPT in SVT phase. SVT will be executed after FVT. Customer will define the application used for application test later.

# TEST STRATEGY

## Test types

### FVT

***Test objective:*** Ensure all the activities inside business logic are implemented accurately with the input.

* + - * FVT for Alpha 2: Ensure that SP Driver processes only bitmap and SP Manager sends the data to the actual hardware
      * FVT for Alpha 3: Test GUI and rendering function of SP Driver, the functionality of SP Spooler, SP Manager and the GUI of SP Server.

***Technique***: All FVT will apply with these techniques: Design the test with cases & scenarios

Execute each use case, use-case flow, or function, using valid and invalid data, to verify the following:

* + - * The expected results occur when valid data is used.
      * The appropriate error or warning messages are displayed when invalid data is used.

***Exit criteria:***

* All Critical defects (Severity 1) and Severe defects (Severity 2) are fixed completely.
* All Wrong defects (Severity 3) and Low impact defects (Severity 4) have work-around and explicit plans to fix.
* All planned test cases have been executed.

Because the Soft Point System runs on OSs, it takes time to perform all test cases on each OS. Therefore, tester should perform the functional test as the below table:

|  |  |  |  |
| --- | --- | --- | --- |
| **OS** | **Windows 2000 SP1** | **Windows XP SP1** | **Windows Server 2003 Enterprise Edition** |
| **Test case** |  |  |  |
| Pages limitation | **O** | **O** |  |
| Preview | **O** | **O** |  |
| Logging | **O** | **O** | **O** |
| Trace information | **O** | **O** |  |
| Blocking illegal printing | **O** | **O** | **O** |
| Network | **O** | **O** | **O** |
| Web application | **O** | **O** | **O** |

O: perform, <blank>: can be omitted

### SVT

### Application Test

***Test objective:***

* Soft Point Driver can be installed.
* Test OS installed.
* Test applications installed.
  + - * SVT for Beta 1: Test the whole component of SP Client and SP Server.

***Technique****:* Design the test with cases & scenarios

The following applications (Japanese version) have to be tested with the Soft Point Customer :

* Microsoft Word XP.
* Microsoft Excel
* Microsoft PowerPoint

Each application should be tested on all possible OS (Japanese) among:

**Client**

* Microsoft Windows 2000 Professional SP1 (Japanese).
* Microsoft Windows XP Professional SP1 (Japanese).

**Server**

* Windows Server 2003, Enterprise Edition (Japanese).

Note:

* Application to be tested on Windows Server 2003 will be only Office XP.
* Version MS Office used to test must be corresponding to OS and must be confirmed with customer about their version.

***Exit criteria:***

* All Critical defects (Severity 1) and Severe defects (Severity 2) are fixed completely.
* All Wrong defects (Severity 3) and Low impact defects (Severity 4) have work-around and explicit plans to fix.

Every tested application fully supports the Soft Point Customer and can print correctly using every available option. All the related application test cases are performed and passed.

### Performance Test

***Test objective:*** Measure performance of SPC.

***Technique:***

* Design the test with cases & scenarios
* Run with tool to generate virtual users from 500 to 1000
* VU acts by scenarios
* Get the responded time, throughput
* Get server resource taken

***Exit criteria:***  All testcase will be passed.

### Stress Test

***Test objective:***

Design the test with cases & scenarios.

Test through multiple Points or users to ensure that the SPC functions properly and without error under the following stress condition:

* Maximum actual or physically capable number of clients connected or simulated
* Multiple users performing the same transactions against the same data or accounts

Technique:

* Soft Point Driver can be installed.
* Soft Point Customer work properly with amount of workload

Use test case for Stress test described on Performance test case.

For remaining stress tests, multiple clients should be used, either running the same tests or complementary tests to produce the worst-case transaction volume or mix.

***Exit criteria:***

* All Critical defects (Severity 1) and Severe defects (Severity 2) are fixed completely.
* All Wrong defects (Severity 3) and Low impact defects (Severity 4) have work-around and explicit plans to fix.

All the related test cases are performed and passed.

### Installation Test

***Test objective:*** Design the test with cases & scenarios.

SPC package will be tested in phase 1. All Points for development and testing should be provided by GOLDSOFTto the supplier.

For client

* Microsoft Windows 2000 Professional SP1 (Japanese)
* Microsoft Windows XP Professional SP1 (Japanese)

For Server

* Microsoft Windows 2003 Server, Enterprise Edition (Japanese)

***Technique:*** Soft Point Customer installation mechanism implemented

***Exit criteria:*** To be successful the Installation Test must successfully installed, updated and uninstalled.

## Tools

List tools will be employed for this project

|  |  |  |  |
| --- | --- | --- | --- |
| **Purpose** | **Tool** | **Vendor/In-house** | **Version** |
| Defect Tracking | DMS | FPT | 3.6 |
| Test Plan | MS Word | Microsoft | 2002 |
| Test Case | MS Excel | Microsoft | 2002 |
| Test report | MS Excel | Microsoft | 2002 |

# RESOURCE

## Human Resource

This table shows the staffing for testing phase.

|  |  |
| --- | --- |
| **Worker/Doer** | **Specific Responsibilities/Comments** |
| AnhVTN | Tester |
| Tester2 | Tester (Tester 2 will be added on in testing phase at the beginning of January 2006   * + Study requirement : 15 days   + Training test plan and test case: 5 days. |

## Test environment

**Software**

SPC (Client) is developed on:

* Microsoft Windows 2000 Professional SP1 (Japanese).
* Microsoft Windows XP Professional SP1 (Japanese).

SPC (Server) is developed on:

* Microsoft Windows 2000 Professional SP1 (Japanese - for base function and phase 1).
* Microsoft Windows XP Professional SP1 (Japanese - for base function and phase 1).
* Windows Server 2003, Enterprise Edition (Japanese – only for phase 1).
* Internet Information Service v6.0
* GOLDSOFTDB2 UDB Express Edition V8.2

**Hard ware**

All the hardware for development and test should be equipped with Japanese feature, including Japanese keyboard.

All the computers for development and testing should be prepared by FPT and Points for development and testing should be provided by GOLDSOFTas following:

* + Point 5577(W: 642 mm; H: 271 mm; D: 280mm; Weight: 24 kg; Power 100V/150 w
  + IP1000J cattric Point (W: 478 mm, D: 410 mm, H: 305 mm, Weight: 18Kg, Power 100V/920w)

**Assumption:**

* GOLDSOFTassumes that the location for developing and testing the product is in Ha Noi.
* SP Driver will be developed as a Monolithic Driver.
* In phase 1, following platforms are assumed only:
* On client:
  + Microsoft Windows 2000 Professional SP1 (Japanese).
  + Microsoft Windows XP Professional SP1 (Japanese).
* Server:
  + Microsoft Windows 2003 Server, Enterprise Edition (Japanese).

# DELIVERABLES

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Deliverables** | **Delivered Date** | **Delivered by** | **Delivered to** |
| 1 | Test plan | 2005/12/22 | AnhVTN | GOLDSOFT– Japan |
| 2 | Functional test cases for Alpha 2 | 2006/01/03 | AnhVTN | GOLDSOFT– Japan |
| 3 | Functional test cases for Alpha 3 | 2006/01/15 | AnhVTN | GOLDSOFT– Japan |
| 4 | Application test cases | 2006/02/05 | AnhVTN | GOLDSOFT– Japan |
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