

Investment Accounting System (IAS) -  
Segregated Funds Financial Services  
(SFFS)  
Test Strategy

Version 1.3  
March 26, 2014

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## Document Revision History

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0.2	March 19, 2013	Larry Folmes	Feedback from D. Emek & J. Bettencourt
1.0	March 26, 2013	Larry Folmes	Feedback from General Review
1.1	June 28, 2013	Larry Folmes	Updated to align to revised Project Plan
1.2	February 12, 2014	Larry Folmes	Updated to reflect the revised Testing Scope and Project Plan
1.3	March 26, 2013	Larry Folmes	Feedback from General Review and revised project schedule

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# 1 Introduction

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## 1.1 Purpose

The purpose of the Test Strategy document for the Investment Accounting System (IAS) Program - SFFS is:

- To define a Test Strategy that will guide the project's testing deliverables through to completion of the SFFS implementation in 2014.
- To outline the testing approach, test objectives, scope and the different types of test execution phases that will be used.
- To identify the target test items, test environments, test tools, test case structure and defect management process.
- To build a common understanding and agreement amongst testing participants and approval from stakeholders.
- To ensure that all functionality and changes introduced into the system are compliant and accurate based on the Business requirements and system specifications

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## 1.2 Project Context and Background

MPower, an investment accounting system provided by CGI, is currently used by the GWL segregated fund and general fund back offices; and IG and Mackenzie mutual fund back offices (the "Stakeholders").

The MPower replacement project became a requirement when CGI indicated that they will soon phase out MPower in favor of their new product – Mvest. The change from MPower to Mvest is viewed by the Stakeholders to be so significant that it is a system replacement, not simply a system upgrade. Since the Stakeholders are faced with a mandatory system replacement, they have taken the opportunity to evaluate multiple investment accounting system vendors to see which system will best meet the needs of our organization. There was a desire by all Stakeholders to identify a single solution that met all Stakeholders' needs and provided the best solution from a Power Financial Corp. standpoint.

The Stakeholders have undertaken a formal and rigorous process to identify the replacement system that best meets their business needs from a strategic, financial, operational and technological perspective.

After an extensive and rigorous process which included RFI and RFP stages, a period of test driving the potential systems, performance tests by vendors and information obtained from industry consultants, GWL identified Multifonds (MF) as the vendor with the best fit for the GWL segregated fund and general account back offices and launched a Concept of Operations as the final round of diligence before requesting and obtaining C-Level approval to proceed with the implementation of a new Investment Accounting System.

The Investment Accounting System (IAS) program – SFFS Business Unit implementation will include the following projects:

- Core product implementation
- Integration – Core Product
- Infrastructure
- IRFI Gap Closure

The IAS Core Implementation Project for SFFS is responsible for functionally configuring the Multifonds Fund Accounting application, converting data from the legacy systems (MPower5 and SF01) into the Multifonds system, decommissioning the legacy systems and transitioning the business from legacy processes to the future-state processes.

The IAS Integration Project is responsible for replacing existing interfaces from MPower5 and SF01 to the new Multifonds solution and, where required, developing new interfaces. Some current interfaces may no longer be required and there may become a need for transitional interfaces required only in the short-term to support successful implementation of the Multifonds solution.

The Investment Accounting System (IAS) Infrastructure Project is responsible for putting in place the hardware, software, storage and network components that will support the new IAS solution. It is also responsible for preparing the IS organization to support the new solution and successfully transitioning the infrastructure to production and maintaining that infrastructure until the close-out of the IAS Program at which time it will be transitioned to business as usual (BAU).

The IAS IRFI Gap Closure Project is responsible for filling any gap created as a result of the decommissioning of the SF01 System.

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## 1.3 Scope

There will be three testing phases for the Investment Accounting System (IAS) – SFFS. The following initiatives will be part of the testing effort for each testing phase:

- **Phase 1 – Configuration**
  - Infrastructure Testing – Non-Production Environments
    - Configuration testing of the new Non-production environments by the Infrastructure Team will include:
      - Hardware
      - Operating System
      - Database
      - Network
      - Authorization
      - Authentication
    - Security Testing
      - Infrastructure Vulnerability Assessment Scan

- Multifonds Fund Accounting – Release 4.0 Configuration
  - System Configuration
    - System Configuration/Setup will be created by the vendor in conjunction with the Business for the following:
      - Accounting Charts
      - Security Types (GTI's)
      - Operation Codes
      - NAV Codes
      - Fee Codes
      - Currency Codes
      - Industry Codes
      - Tax Tables
      - Valuation Model
      - Country Codes
      - Market Codes (ie New York Stock Exchange)
      - Workflow and Exemption Monitor (WEM set up)
    - Application Parameters
    - Setup validation
  - Security Groups
- Multifonds Fund Accounting – Release 4.0 Configuration Functional
  - Transaction focused testing of all security types to validate the system configuration meets the Business requirements
  - Security Testing
    - Application Vulnerability Assessment Scan
- **Phase 2 – Functional Core/Gap Closure**
  - Multifonds Fund Accounting – Release 4.1 – Functional Gaps
    - GWL Functional Gaps
      - DEV40 - Mutual Fund Trading
      - DEV63 - Asset Allocation Processing
      - DEV56 - Peer Groups Exception Management
      - DEV23 - Fund of Fund Rate of Return Analysis
      - DEV65 – Automated Distribution Reinvestment
      - DEV64 - Daily Payable Expense
      - DEV68 – WEM Control – Identify Deleted NAV Confirmations
      - DEV51 - User Defined Fields and User Defined Comments
      - DEV09 - Multi-book Accounting
      - DEV62 – Fund ROR and Starting Unit Value
      - DEV48 - Rating Agency Management
      - DEV72 - Check on Duplicate Trades
      - DEV71 - Control on Closed Series
      - DEV70 – Control on Large Security or Shareholder Transaction
      - DEV69 – NAV Reporting
  - Multifonds Fund Accounting - Release 4.1 – Security Pricing & WEM
    - Security Pricing
      - Inject Price Files

- Price Scrubbing / Levels
  - Foreign Fair Value
  - Market Value Validation
  - Price Rollover
- WEM – Workflow Exception Management
  - WEM Configuration
  - Test WEM Controls
  - WEM HSM
- Multifonds Fund Accounting – Release 4.1 – NAV Cycle
  - Full Functional test of the NAV Cycle
    - Start of Day (SOD)
    - Final (FNL)
    - End of Day (EOD)
  - Milestone – To determine if additional performance testing of the Multifonds Fund Accounting application running on the GWL environments is required
- **Phase 3 – Integration/Reports/Migration/Model Office**
  - Integration Testing – Functional
    - SFFS Interfaces
      - Test planning/execution of SFFS interfaces throughout the agile development cycle
      - Demand Service - TBD
        - Security Request Process
          - Security Master Info
            - XIP FO to: SS&CNet, Expertus, Solium
    - Inbound
      - Market Data (Pricing)
        - Pre NAV/PU End of Day Process
          - Security Prices
          - Foreign Exchange Rates
          - Dividend Announcements
      - SS&CNet
        - Trade Capture Process
          - Trade Info
      - Expertus
        - Trade Capture Process
          - Trade Info
      - Solium
        - Trade Capture Process (Possible Manual Load – TBD)
          - Trade Info
      - XIP FO
        - Trade Capture Process
          - Trade Info
          - Security Master Info
      - CTI
        - Pre NAV/PU End of Day Process

- Transactions
- MLS
  - Pre NAV/PU End of Day Process
    - Transactions
- Optimus
  - Pre NAV/PU End of Day Process
    - Transactions
- FundServ
  - Trade Capture Process
    - Trade Info
- Outbound
  - CS15/SAP
    - NAV End of Day Process
      - Transactions
  - InfoBase
    - Post NAV/PU End of Day Process
      - Security Positions
      - GL Balances
      - Security Master info
      - Transactions – Security Trades
      - Fund/Series Values
      - Security Prices
  - XIP FO
    - Start of Day Process
      - Security Positions
      - GL Balances (includes Cash)
  - IC – FO
    - Start of Day Process
      - Security Positions
      - GL Balances
  - SS&C Recon (BO and FO)
    - Start of Day Process
      - Security Positions
      - GL Balances – Cash Positions
  - GRDB
    - Post NAV/PU End of Day Process
      - Security Positions
      - Security Master info
  - Solium
    - Post NAV/PU End of Day Process (May NOT be required TBD)
      - Security Positions
  - SS&C Recon (BO and Custodian)
    - Post NAV/PU End of Day Process
      - Security Positions
      - GL Balances – Cash Positions
      - Cash Transactions
  - Internal/External Parties
    - Post NAV/PU End of Day Process
      - Fund/Series Values
  - TAS (Tax Allocation System)
  - FundServ
    - Trade Orders



- IRFI Interfaces with downstream systems
  - Inbound
    - Deposits /Withdrawals Process
      - Transactions
  - Outbound
    - NAV End of Day Process (Valuation after Deposits/Withdrawals)
      - Fund/Series Values
    - Post NAV/PU End of Day Process (Valuation before Deposits/Withdrawals)
      - Fund/Series Values
- IRFI Functional Enhancements
  - IRFI Functional Enhancements are required due to the decommissioning of the SF01 system
  - New IRFI tables/processes to support the move of data/functionality from SF01 to IRFI
  - All IRFI processes that access the new IRFI tables for the SF01 data
  - New functionality to assume SF01 processing – TBD – Scope to be confirmed during Requirements/Analysis phase
    - Forcing of unit values including maintaining a category force indicator
    - London Life zero tax factors
    - Future valuation dates
- InfoCentre SFFS
  - GWL developed InfoCentre SFFS Reports/Extracts/Views
- Data Migration/Conversion
  - Test the migration and reconciliation of funds including all hierarchical dependencies. Start by migrating simple funds, moving to larger scale funds; investigating/fixing/improving from one run to another until a full volume test is achieved.
- Cycle Test – Functional Integration Test
  - Cycle Test Detail Test Planning
  - Functional/Integration testing of all inbound and outbound SFFS interfaces
  - Data Flow and Data Integrity test from Source Systems, Core and Downstream systems
  - Validate the correct interfaces are created with the correct data content for each of the 3 daily NAV cycles
  - Validation of the interfaces files by the Downstream systems

- Infrastructure Testing – Production Environment
  - Configuration testing of the new Production environment by the Infrastructure Team will include:
    - Hardware
    - Operating System
    - Database
    - Network
    - Authorization
    - Authentication
  - Disaster Recovery (DR) Test
  - Security Testing
    - Infrastructure Vulnerability Assessment Scan
- Model Office
  - Parallel Test – Scope TBD during detail test planning
  - Performance Timing Tests
    - Load of D/W's from IRFI
    - Processing of Available Cash for DEV40 trades (FundSERV, ASL, MSL)
    - End of Day (EOD) NAV including end to end WEM
  - Final Security Testing
    - Infrastructure and Application Vulnerability Assessment Scan

Note:

- Scope items may change during the year due to Business and Project priorities.

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## 1.4 Document Terminology and Acronyms

The following is a list of acronyms used in this document:

- AD – Application Delivery
- BA – Business Analyst
- BAU – Business As Usual
- BRD – Business Requirements Document
- ETL – Extract, Transform and Load
- FIT – Functional Integration Testing
- GRDB – Global Reporting DataBase
- IAS – Investment Accounting System
- PM – Project Manager
- QA – Quality Assurance
- SAN – Systems Analyst
- SD - Software Developer
- SFFS - Segregated Funds Financial Services
- TAS – Tax Allocation System
- UAT – User Acceptance Testing

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## 1.5 References

The following is a list of deliverables that will be used as input or otherwise referenced in the development of this document.

**Project Documents:**

- Investment Accounting System (IAS) Program – Testing Framework:  
[\\Gwlanfs8\ias program\Testing\Establish Test Strategy and Plan](#)
- Investment Accounting System (IAS) Program – Standard Quality Procedures & Guidelines:  
[\\Gwlanfs8\ias program\Testing\Establish Test Strategy and Plan](#)
- All RFP Business Requirements Documents are located within the following Folder:  
[\\Gwlanfs8\ias program\99 RFP Work Stream\RFP Business Requirements Analysis and High Level Design](#)
- All Gap BRD are located on the SharePoint Site - SEG-Net :
- All Integration Requirements Documents are located within the following Folder:

[\\Gwlanfs8\ias program\30 Integration Project\30.2 Integration Blueprint](#)

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## 1.6 Test Objectives

The general objective of testing is to verify that the system solution meets the stated Business requirements. The specific objectives for each test level are defined below:

Test Level	Responsibility	Objective
Unit Test	Development Teams / Vendor	<ul style="list-style-type: none"><li>• To verify each software unit executes according to design specifications, and that it is free of data and logic errors.</li></ul>
Functional Test	Test Team	<ul style="list-style-type: none"><li>• To verify the Multifonds Fund Accounting Core Product, Configuration setup/changes, gap closure enhancements, data migration and reports work and process correctly according to Business Requirements.</li></ul>

Test Level	Responsibility	Objective
System Integration	Test Team	<ul style="list-style-type: none"><li>To verify all system interfaces in the system specifications process correctly with the new application and existing applications</li><li>To verify that interdependent modules/systems processes work correctly together after the inclusion of the new application and modified code.</li></ul>
Regression Test	Test Team	<ul style="list-style-type: none"><li>To verify the existing code continues to process correctly after the integration of the modified code.</li><li>Test Team will determine the extent of regression testing to be performed by analyzing the impact the functional change has on the system.</li></ul>
Non-Functional Test	IS Technical Test Team	<ul style="list-style-type: none"><li>Run automated performance scripts to verify the new application meets the performance requirements.</li></ul>
End-to-End System Test (Cycle Test)	Test Team	<ul style="list-style-type: none"><li>To verify all system changes, system interfaces and data feeds work correctly together and deliver the expected results.</li></ul>
Parallel Test (Model Office)	Test Team	<ul style="list-style-type: none"><li>To verify the processing of a number of business process cycles using the same sub-set of data on both the new and old systems; produce the same results.</li></ul>
Acceptance Test	Business	<ul style="list-style-type: none"><li>To establish business acceptance of the system .changes.</li><li>To verify the new application and system changes work correctly and deliver the expected results from the business perspective.</li></ul>
Security Testing	Testing Services	<ul style="list-style-type: none"><li>To verify there are no critical security vulnerabilities with either the infrastructure assets and/or the application that could compromise the integrity of business processes or allow unauthorized access to secure sensitive data.</li></ul>

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## 1.7 Test Motivators

Validate all functionality and functional enhancements introduced in the new application work correctly according to the Business Requirements and System Specifications.

Validate all interfaces/data feeds, user interfaces and ETL processes work correctly and deliver the expected results.

Obtain Business Acceptance of the delivered functionality.

## 2 Test Approach

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### 2.1 Standard Quality Procedures & Guidelines

The test effort for all three phases of the Investment Accounting System (IAS) Program – SFFS Business Unit implementation will follow the QA procedures as outlined in the Investment Account System (IAS) Program Standard Quality Procedures & Guidelines:



IAS Program  
Standard Test Proceec

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### 2.2 Conducting Tests

#### 2.2.1 Unit Testing

Technique Objective:	To validate that each software module executes according to design specifications and is free of any logic defects.
Technique/Strategy:	The GWL development teams will perform unit testing of all changed software modules in their development test environment for the Integration project.  The vendor will perform unit and system testing of all Core Product enhancements and bug fixes in their own test environment before being released to GWL
Required Tools:	
Success Criteria:	No code will be released to the QA test team until all unit testing has been executed and passed. Failure to perform adequate unit testing will result in increased number of defects, rework time and project delays.
Special Considerations:	

### ***2.2.2 Functional Testing***

Technique Objective:	To verify the Multifonds Fund Accounting Core Product, configuration setup/changes, gap closure enhancements, data migration and reports work and process correctly according to Business Requirements.
Technique/Strategy:	<p>The QA test team from the Core Implementation project will functionally test the application &amp; code changes for the Core Product, configuration setup/changes, gap closure enhancements, data migration and reports in the GWL test environments.</p> <p>The QA test team from the IRFI Gap Closure project will functionally test the IRFI application &amp; code changes required to fill the gap created by the decommissioning of the SF01 system.</p> <p>Detail Test Plan (s) will contain all planned and reviewed test scenarios and test cases that will be executed for each testing phase.</p>
Required Tools:	ClearQuest will be used as the defect management tool for all systems. Any results which vary from the expected result will be logged as a defect.
Success Criteria:	Successful completion of all planned test cases with no outstanding Severity 1 or 2 defects.
Special Considerations:	

### ***2.2.3 System Integration Test***

Technique Objective:	<p>To verify all system interfaces in the system specifications process correctly with the new application and existing applications</p> <p>To verify that interdependent modules/systems processes work correctly together after the inclusion of the new application and modified code.</p>
Technique/Strategy:	The QA test team from the Integration project will functionally test all new interfaces from/to the Core Product and validate the data flow from/to the existing applications in the GWL test environments.
Required Tools:	ClearQuest will be used as the defect management tool for all systems. Any results which vary from the expected result will be logged as a defect.
Success Criteria:	Successful completion of all planned test cases with no outstanding Severity 1 or 2 defects.
Special Considerations:	

### ***2.2.4 Regression Testing***

Technique Objective:	To verify the existing code continues to process correctly after the integration of the modified code.
Technique/Strategy:	<p>Regression testing will be combined with the functional/integration testing performed by the QA Test Team (s).</p> <p>The QA Test Team (s) will determine the extent of regression testing to be performed by analyzing the impact of the functional change to ensure the existing code (after the integration of the modified code) continues to work correctly and deliver the expected results. The analysis of the impact of the functional change will include the SAN, SD and BA if required.</p>
Required Tools:	ClearQuest will be used as the defect management tool for all systems. Any results which vary from the expected result will be logged as a defect.
Success Criteria:	Successful completion of all planned test cases with No outstanding Severity 1 or 2 defects.
Special Considerations:	

### ***2.2.5 End-to-End System Testing (Cycle Test)***

Technique Objective:	To verify all system changes, system interfaces and data feeds work correctly together and deliver the expected results.
Technique/Strategy:	<p>A series of Business process cycles will be executed to validate the Core product, all system changes, system interfaces and data feeds work correctly together. The process will test data migration, SF processing, workflow/procedures, daily reconciliation, reporting and inbound/outbound interfaces to validate processing from the core application to the existing applications.</p> <p>The QA test teams from the Core Implementation, IRFI Gap Closure and Integration projects will be involved in the test planning and test execution of the End-to-End testing.</p>
Required Tools:	ClearQuest will be used as the defect management tool for all systems. Any results which vary from the expected result will be logged as a defect.
Success Criteria:	Successful completion of all planned test cases with No outstanding Severity 1 or 2 defects.
Special Considerations:	

### ***2.2.6 Parallel Testing (Model Office)***

Technique Objective:	To verify the processing of a number of business process cycles using the same sub-set of data on both the new and old systems; produce the same results.
Technique/Strategy:	A series of Business process cycles will be executed on the same subset of data on both the new and old systems. Test results will be validated on both the new and old systems to verify the same results are obtained.
Required Tools:	ClearQuest will be used as the defect management tool for all systems. Any results which vary from the expected result will be logged as a defect.
Success Criteria:	Successful completion of all planned test cases with No outstanding Severity 1 or 2 defects.
Special Considerations:	

### ***2.2.7 User Acceptance Testing***

Technique Objective:	To establish business acceptance of the solution and verify the solution works correctly and delivers the expected results from the business perspective.
Technique/Strategy:	<p>User Acceptance Testing (UAT) will be performed by the Business.</p> <p>The Business will review and approve all the completed detail test plans and test results from all the functional and system integration testing performed through the three phases of the SFFS implementation.</p> <p>The End-to-End and Parallel testing will be the final part of the User Acceptance Testing. End-to-End and Parallel (UAT) test plans will be created/executed by the Business and contain all the test scenarios/cases (test sets/conditions) required to be executed successfully to obtain business acceptance.</p>
Required Tools:	ClearQuest will be used as the defect management tool for all systems. Any results which vary from the expected result will be logged as a defect.
Success Criteria:	Successful completion of all the End-to-End (UAT) planned test cases and approval of all functional and system integration completed test plans and test results.
Special Considerations:	

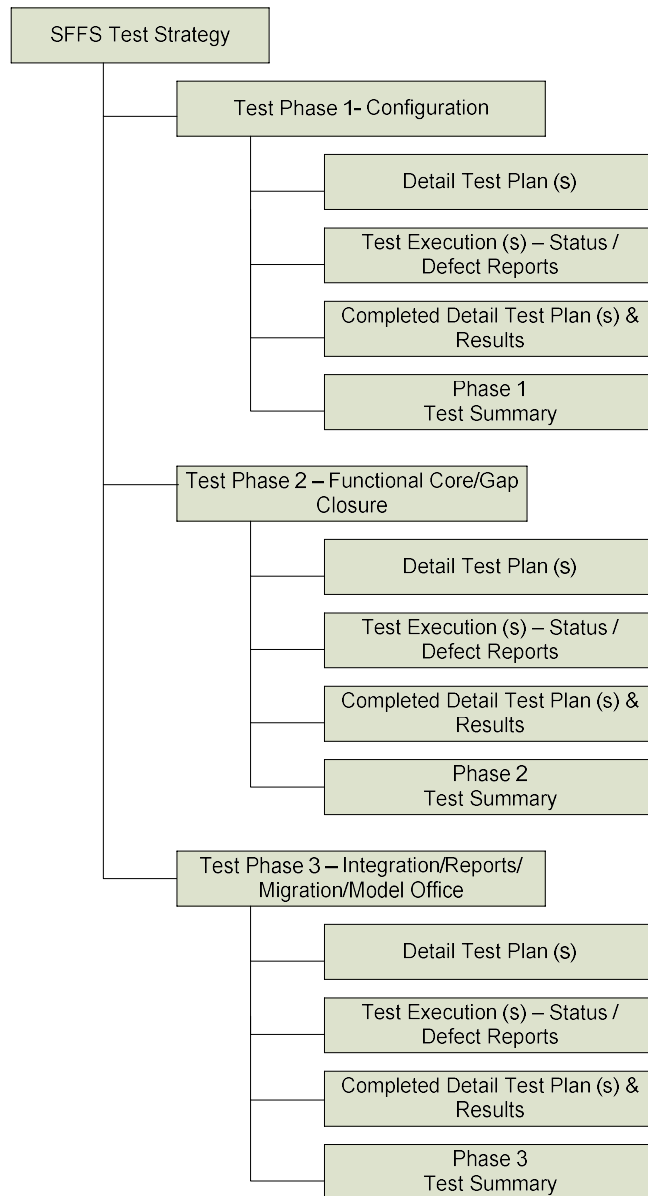


### 2.2.8 Security Testing

Technique Objective:	To verify there are no critical security vulnerabilities with either the infrastructure assets and/or the application that could compromise the integrity of business processes or allow unauthorized access to secure sensitive data.
Technique/Strategy:	Testing Services will run Vulnerability Assessment scans on the infrastructure assets and Core Product application to identify any security vulnerability threats. All critical/severe severity issues for the infrastructure assets and high/medium severity for the application will be reported back to the appropriate project team. The project team will be required to perform the required remediation action and the scan will be rerun.
Required Tools:	Testing Services is responsible for the Vulnerability Assessment scan tools.
Success Criteria:	Once all the identified security issues have been remediated.
Special Considerations:	

## 2.3 Test Deliverables - SFFS

- This is a Canada Life Internal Information and should not be shared outside.
- Test Strategy - SFFS
- Test Deliverables by Test Phase
  - Detailed Test Plan (s) – Test Scenarios/Cases (Test Sets/Conditions)
  - Test Managements Reports
    - Weekly Dashboard/Status Report
    - Defect Reports
  - Completed Detailed Test Plan (s) and Test Results
  - Test Summary Report



## 2.4 High Level Test Schedule

Below is the high-level test schedule for the Investment Accounting System (IAS) Program – SFFS Implementation – Mar 2013 – May 2014.

Test Activity	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Test Strategy - SFFS	TBD														
Phase 1 - Infrastructure				TBD	TBD										
Phase 1 – MF Rel 4.0 –			TBD												

Configuration Test Plan															
Phase 1 – MF Rel 4.0 – configuration Test Execution				TBD	TBD										
Phase 1 – MF Rel 4.0 – Functional Test Planning				TBD	TBD										
Phase 1 – MF Rel 4.0 – Functional Test Execution					TBD	TBD									
Phase 2 – Rel 4.1 – Dev Test Planning						TBD	TBD								
Phase 2 – Rel 4.1 – Dev Test Execution								TBD	TBD	TBD	TBD	TBD			
Phase 2 – Rel 4.1 – Pricing & WEM Test Planning									TBD						
Phase 2 – Rel 4.1 – Pricing & WEM Test Execution										TBD	TBD				
Phase 2 – Rel 4.1 – NAV Cycle Test Planning										TBD	TBD				
Phase 2 – Rel 4.1 – NAV Cycle Test Execution											TBD				
Phase 3 – Integration – Testing throughout Agile Development & FIT					TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD			
IRFI System Testing						TBD	TBD	TBD	TBD						
IRFI Integration Testing						TBD	TBD	TBD	TBD	TBD					
IRFI UAT/End-User Testing										TBD	TBD	TBD	TBD	TBD	
IRFI Implementation															TBD
Info Center Reporting											TBD	TBD	TBD	TBD	TBD
Phase 3 – Data Migration – Test Planning												TBD			
Phase 3 – Data Migration – Test Execution													TBD	TBD	
Cycle Test – Test Planning										TBD	TBD	TBD			
Cycle Test – Test Execution												TBD	TBD	TBD	
Phase 3 – Model Office – Test Planning													TBD	TBD	
Infrastructure Testing - Prod													TBD	TBD	

Phase 3 – Model Office – Test Execution														TBD	TBD
Implementation –SFFS															TBD

## 3 Environmental Needs

### 3.1 Base System Hardware

The following table sets forth the system resources for the test effort.

System Resources		
Resource	Quantity	Name and Type
Presentation Layer Server	1	- GWIASAPU1 (Dev, FIT, UAT & Support) - IBM x3650 M4, 3.46Ghz, dual sockets, single 8 Core CPU - Memory: 96GB - Disk: 146 GB mirrored
Reporting Server	1	- GWIASAPU2 (Dev, FIT, UAT & Support) - IBM x3650 M4, 3.46Ghz, dual sockets, single 8 Core CPU - Memory: 96GB - Disk: 146 GB
Presentation Layer Server	1	- GWIASAPP1 (Prod) - IBM x3650 M4, 3.46Ghz, dual sockets, single 8 Core CPU - Memory: 96GB - Disk: 146 GB mirrored
Presentation Layer Server	1	- GWIASAPP2 (Prod) - IBM x3650 M4, 3.46Ghz, dual sockets, single 8 Core CPU - Memory: 96GB - Disk: 146 GB mirrored
Reporting Server	1	- GWIASAPP3 (Prod) - IBM x3650 M4, 3.46Ghz, dual sockets, single 8 Core CPU - Memory: 96GB - Disk: 146 GB
Reporting Server	1	- GWIASAPP4 (Prod) - IBM x3650 M4, 3.46Ghz, dual sockets, single 8 Core CPU - Memory: 96GB - Disk: 146 GB
Integration Server	1	- Gwetlapd1 or lletlapd1 (dev) - Gwetlapp1 or lletlapp1 (prod) - AIX 6.1 P7
Application/Database Servers	1	- DEV - GWIASDBD1 - UAT - GWIASDBU1/2 - FIT – GWIASDBF1 - SUPPORT – GWIASDBT1 - PROD – GWIASDBP1/2 - P770

System Resources		
Resource	Quantity	Name and Type
		- AIX 6.1 TL5
Storage		- 3TB VMAX - 1 Dedicated Storage Node License (UNIX) - 7 Non-Dedicated Storage Nodes for UNIX - VTL space
Central File Share Server	1	TBD
SQL Transition DB Server	1	- GWIASDBT1 - Windows VMWare Server ESXi 4.1
SQL WEB Server Tool	1	- GWSFODEVIAS1 - Windows 2003
MOVEIT Central Server	1	- SFTPPROD03 - Windows VMWare Server ESXi 4.1
MOVEIT DMZ	1	- SFTPPROD03 - Windows VMWare Server ESXi 4.1

## 3.2 Base System Software

The following base software elements are required in the test environment for this *Test Strategy*.

Software Element Name	Version	Type and Other Notes
<b>Client Tier</b>		
Internet Explorer	7 or 8	
Windows	7	
Java applet	SUN JRE 1.6.0_20	
<b>Middle Tier – Presentation Server</b>		
Windows Server	2008 R2	
Weblogic Suite	10.3.5	
<b>Middle Tier – Reporting Server</b>		
Business Intelligence Publisher		
Weblogic Server Enterprise Edition		
<b>Middle Tier – Integration Server</b>		
Ab Initio Co>Operating System	3.0.4	
<b>Database Server</b>		
Oracle Server Database Enterprise Ed	11g R2 11.2.0.3	
Oracle Diagnostics Pack		
Oracle Partitioning		
Multifonds	4.0	
Backup Software (UNIX & Windows)		Networker
Networker Backup Agents		25 Pack Networker licenses for Windows and UNIX

### 3.3 Test Environment Configuration

The following Test Environment Configurations needs to be provided and supported for this project.

- DEV – Development (DEV1, DEV2)
- FIT – Integration (FIT1)
- UAT – User Acceptance (UAT1, UAT2, UAT3, UAT4)

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### 3.4 Tools

The following tools will be used for this project

	Tool	Vendor/In-house
Defect Tracking	Clear Quest	Vendor
Project Management	Primavera	Vendor



## 4 Business Acceptance Criteria

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### 4.1 Acceptance Test Strategy

The successful execution of the different levels of testing for each test phase will prove that the application can be deployed to Production.

UAT (User Acceptance testing) will establish business acceptance of the application and verify the application works correctly and delivers the expected results from the Business perspective.

The Business will review and approve the all detailed test plans and test results obtained during the different levels of testing performed by the test team (s) for all three phases.

The Model Office Testing will consist of the End-to-End and Parallel Testing. The Model Office testing will be the final part of the User Acceptance Testing. End-to-End and Parallel (UAT) test plans will be created/executed by the Business and contain all the test scenarios/cases (test sets/conditions) needed to be executed to successfully to obtain business acceptance.

## 5 Risks, Dependencies, Assumptions, and Constraints

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### 5.1 Risks

All project risks are documented and managed at a project/program level.

The following risks associated with testing should also be highlighted:

Risk	Probability	Impact	Mitigation Strategy	Contingency
Risk that testing resources are not 100% allocated to the projects will impact project schedule	H	H	Full time resources internal/external can be requested. Monitor shared resources workload against schedule.	Additional external resources can be engaged to meet project timelines.
Risk that delays encountered in the testing phase of one project may impact the testing schedule of the other projects	M	H	Monitor all projects testing schedule to analysis the impacts of a delay to the other projects and take required actions to minimize the impacts.	Escalate any issues causing delays to remediate quickly and minimize the impacts to other projects.
Risk that delays in acquiring the infrastructure components for the non-Prod environments may impact the testing schedule	H	H	Multifonds Release 4.0 and Pre-Release 4.1 testing will be performed on a vendor hosted test environment	
Risk that a high number of vendor defects and/or extended defect turnaround time may impact testing schedule	M	H	Monitor Vendor's defect tracking systems on a regular basis for defect resolution updates	Escalate any delays in defect resolution that will impact the testing schedule

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## 5.2 Dependencies

Dependency between	Potential Impact of Dependency	Owners
Test case creation is dependent on requirements/specifications being completed on time.	Delay the start of test case creation.	
Test execution is dependent on code being written/modified and unit tested by GWL and the vendor respectively	Delay the start of test case execution.	
Test execution schedule is based on the vendor's software release schedule	Any delays in the vendor release schedule will delay the start of test execution for that phase of testing	

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## 5.3 Assumptions

Assumption to be proven	Impact of Assumption being incorrect	Owners
Test Resources will be available to start at the beginning of the scheduled testing activities and be assigned through to the end of testing activities for each project	Delay testing schedule.	
One Portfolio QA will be resourced to manage the test effort on all projects	Possible inconsistency between projects and potential loss of any testing synergies between projects	

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## 5.4 Constraints

Constraint on	Impact Constraint has on test effort	Owners
Production Support Issues	Delay testing schedule.	

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## 6 Sign-off – version 1.3

I have confirmed that the planned Test Strategy described in this document will meet the required needs and addresses any potential risks. The level and types of testing to be completed will be satisfactory in ensuring the required functionality works as per defined requirements. I agree with the test approach identified by the test expert assigned to this work.

### Approvals

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Date :

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Vice-President IFR / SFFS



Date :

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# Appendix A: Testing Checklists

## Security

### Application Security Standard

*This standard outlines how software applications must adequately protect the use and management of the Enterprise's information. The controls within this standard apply to all new project initiatives, whether they are interactive or batch in nature and regardless of their ownership (business vs infrastructure) or design (in-house built vs purchased).*

Application Security Standard		Applied?			COMMENTS
		Yes	No	N/A	
Standards for Testing					
1.	All software must be comprehensively tested prior to being placed into production, by persons other than the designers/developers of the system.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	All data must be scrubbed to remove any personally-identifiable information before begin used in test environments	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Production data will be used for testing but no personal information is included. Approval to use production data for testing has been obtained in the Investment Accounting System (IAS) Program – Testing Framework document.
3.	All code must be subjected to a peer review to assist in identifying potential security weaknesses.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.	Applications which expose client/corporate confidential data or which have a high sensitivity to breaches of confidentiality, integrity or availability must be tested for application-layer vulnerabilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5.	Tests including expected and actual results must be formally documented and any defects must be tracked and resolved.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	