
ISAWS CONSORTIUM

Coexistent Testing Procedure Guide

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1.0 Introduction

Whenever an individual or department considers modifying or installing new technology it is a critical decision. Failed or untested upgrades and installations have been triggers for disasters and other unexpected misfortunes in the past. In order to minimize unanticipated technology failures, a method of testing and evaluation should be developed and employed for any change in technology.

The goal of this testing and evaluation process is to ensure that changes specific to a coexistent network installation are validated and completed successfully. This document presents a methodology for test planning and is written specifically with ISAWS counties in mind and may therefore differ from purely academic testing models.

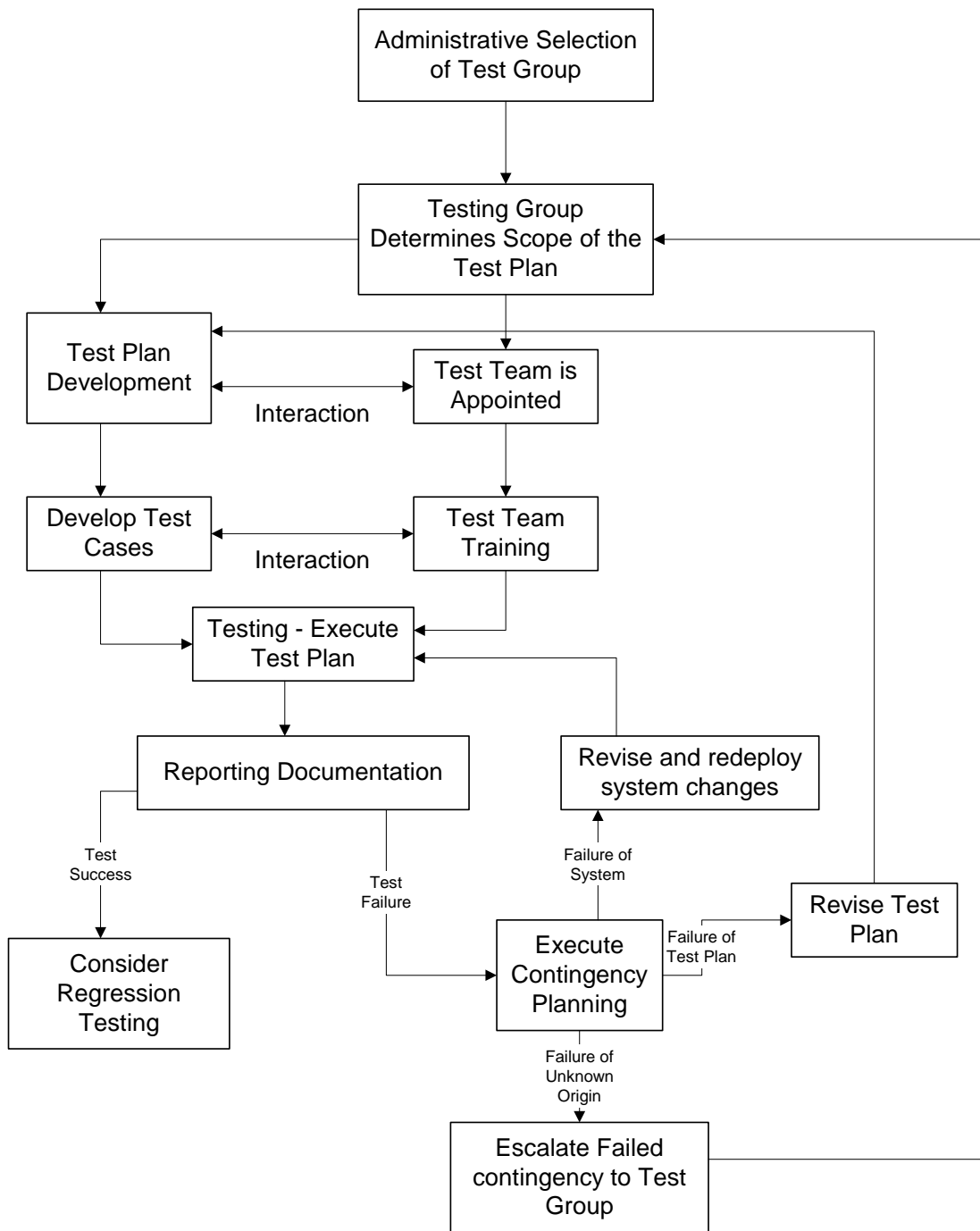
The major objective of testing is to ensure that software and network changes are deployed in a consistent manner across an ISAWS county and to prevent unexpected errors in deployment that can result in application downtime.

This document provides beneficial information regarding how to develop, initiate and execute activities within a test plan. Due to the broad spectrum of activities conducted within the counties it will include items that are advantageous in some instances, but not necessary in every upgrade or installation.

1.1 Roadmap

The following is a general roadmap indicating the flow of activities through the testing process. Additional tasks and requirements may be required for unique hardware or software upgrades / installations.

Test Roadmap



2.0 Testing Roadmap

2.1 Administrative Selection of Test Group

Initially, management should appoint a person or selected personnel, depending on test size, to a panel referred to as the Testing Group. This group should be selected based on their understanding of the business model and technologies employed. Specifically, the Testing Group should consist of knowledgeable subject matter experts (SMEs) with a comprehensive understanding of the changes to be deployed, its environment, and the ability to make technical recommendations.

Collectively the group should determine and agree upon the project goals and impacts. They should understand the proposed changes and determine the best method for testing the changes to ensure it does not adversely impact the end user in production.

2.2 Test Plan Development

The test group has the responsibility to develop the test plan. Test plans should be created to provide an organized and planned structure to enhancements or installations of new technologies. The test plan is the master document that includes every test activity and definition.

The following outlines general information that should be addressed by the Test Group in the preparation of the plan.

Test Plan Development Outline

Plan Summary & Approach

- Summarize what is being tested.
- Provide a general understanding on how the test will be performed.
- Describe at a high level the sequence of steps that will be followed.

Assumptions

- Specify and key assumptions that were made during the preparation of this test plan.

Scope

- Identify and describe at a high-level what will be tested.
- List the specific functions being tested and their source reference.
- Identify the test requirements for the functions to be tested and assign a reference ID to the test requirement.
- Test requirements define what aspects of the function need to be verified.
- Cross-reference the test requirement to its associated script.

Out of Scope

- Identify and describe what is not being tested.

Schedule

- Specify the dates and the test window in which the test(s) will occur.

Dependencies

- Identify any dependencies that must be fulfilled.

Application Inventory

- Identify the application components that are involved in this test. Application components are items such as screens, reports, notices, batch programs, etc.

Data

- List or describe the key data and other inputs that are required to conduct the test.

Risks and Contingencies

- Identify and describe any risks and contingencies associated with this test effort.

Roles and Responsibilities

- Specify each person involved in the test effort and their role.

2.3 Appointment of Testing Team

Another decision for the Testing Group will be the appointment of a Testing Team. This team will be responsible for executing the test plan, completing the documentation of the testing events and the initiation of the contingency plan if warranted.

Clearly, the test team is one of the most integral parts of the testing project. It is very important that these team members are trained appropriately in all aspects of the testing process from initiation to termination and are familiar with the overall test plan.

2.4 Develop Test Cases and Scripts

A test case is a sample process that will be duplicated or nearly duplicated in the production environment. For county purposes the test case to be used during implementation may include accessing the Internet, sending E-Mail, opening ISAWS and completing a system print.

The test script is a series of steps used to guide the tester through a test case. It provides the sequential steps to take including, the items to enter, how to enter the items and the options to select. This process ensures that entries are consistent and that results are repeatable. It also provides the mechanism for testing a specific part of a deployment for success or failure.

2.5 Test Team Training

The testing group should review the test cases and provide instructions to the testing team on how to complete the test scripts and what the testing team should do if a particular test item fails.

2.6 Test Plan Execution

There are several possible times to execute a testing plan during a project. For the purposes of this document we should consider two distinct times to test.

- Pre-production
- Post-production

In pre-production testing, the testing group is working in a (usually temporary) test environment. The test environment should be as close as possible to the real production environment. The purpose is to identify and repair all of the potential issues while the group is working in the test environment. Issues that are not revealed in the test environment, came to light when the change goes to production.

Therefore, after implementation, a post-production tests or verification is recommended. These are the same tests that were completed during the pre-production testing phase. The purpose of the post-production tests is to validate test results and to find and repair any issues that were not discovered during the pre-production tests.

When the test plan is executed each of the testers will be competing their assigned scripts. It is important to identify the specific items that each tester will be responsible for. In addition it may be necessary to maintain a master list of all of the workstations that will be tested. As the items are tested they can be checked off of the master list. This may be helpful in determining the level of progress through out the day. For example, only 10% of the workstations have been tested and the time allotted for testing is 50% used, adjustments may be necessary.

Depending on the complexity of certain deployments there is sometimes a need to conduct regression testing. This is an exercise that tests all components of a system to include those that were not viewed to be impacted by the deployment. Regression testing is viewed as an exercise to ensure or validate that no unintended impacts took place as a result of a deployment. These tests are also documented and the results are reported as in any test case. Contingencies for unexpected results are also outlined in case an escalation is warranted.

Regression testing is sometimes conducted on a few arbitrarily selected machines or it can be executed enterprise wide. The decision to conduct this level of testing should be discussed by the Testing Group.

2.7 Reporting Documentation

One of the most critical functions of a test plan is creating documentation of reports and the testing activities. The documentation of the test should be summarized and delivered to the appropriate management and impacted user groups. It should explain the test, results and timelines along with other relevant details. The test should be announced as completed or otherwise in order to keep all impacted participants abreast on the status of the testing process.

2.8 Contingency Planning

Contingencies for unexpected test results are an important section of the test plan. The contingency plan should outline the steps for:

- Unexpected results during deployment
- A process for documenting the result
- An approach for alerting and reporting the exception to the appropriate person
- The mechanism for corrective action and redeployment

Contingency plans for errors and failures should be reviewed as well as thresholds for discontinuing the deployment.

If deemed significant, the test group could also consider if the development of a Recovery Plan should be considered. This plan would contain details on how to back out of a deployment or partial deployment.

2.9 Revise and Modify Changes

As the testing process is completed, issues may arise. It is important to have a plan for stopping the test, making necessary changes to the system, then starting the testing process again.

The testing process can work as follows:

1. Execute the test script.
2. Identify any issues.
3. Make any necessary changes to the system.
4. Re-run the test script.

This process is completed over and over until the test scripts can be completed without any exceptions or errors.

2.10 Revise the Test Plan

Throughout the life of the project it will undoubtedly be necessary to revise the test plan. It is important to develop a plan for modifying, revising and maintaining the test plan.

3.0 Sample Scripts and Report Documentation

In our example the workstation configuration routine and the testing requirements are combined into a single script. This differs from a purely academic testing model where testing is done as a separate function. This document most closely resembles an actual co-existent workstation modification and test in a post-production environment. This is a sample document, an actual testing script may need to contain more (or less) detail depending on the skill level or requirements of the testers.

County XYZ Workstation Modification Routine and Test Script

Objective: To complete the required steps to modify and test an ISAWS workstation to ensure successful migration to a co-existent environment.

Test Facilitator: Name of the tester

Date: Date the test was executed

PC Workstation name/IP address:

158.22.12.11

Physical Location:

Cubicle 2a – 2nd floor.

Test Number	Operation	Expected Result	Pass/Fail	Initials	Date
Step 1	IP Change 6. IP Address 6. Subnet Mask 6. Default Gateway - DNS Server	Workstation will have a new county IP address configuration.			
Step 2	Ping Test 6. Default Gateway 6. Internet Address - State Address	Tester should receive replies from all three addresses.			
Step 3	Add to Domain 6. Add workstation to the county domain.	Tester should receive the "Welcome to the Domain" message and be able to access county resources.			
Step 4	Configure IE 6. Remove Proxy 6. Set Default Page 6. Open Website - Open Intranet	Internet Explorer should open to an Internet website and to the ISAWS Intranet site.			
Step 4	ISAWS Access Test	Tester should see the blue screen and be able to logon			

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	<p>6. Open ISAWS App.</p> <p>6. Log On to ISAWS</p> <p>- Check all 3 Screens</p>	to the application as well as be able to see all three screens connected.			
Step 5	<p>ISAWS Print Test</p> <p>6. Open ISAWS App.</p> <p>6. Logon to ISAWS</p> <p>6. Type INSTALL for ID.</p> <p>6. Type in Co. No. for department.</p>	Tester should see the print test data scroll across the screen. A single double sided test print should print from the default printer.			
Step 6	<p>WTW Access Test</p> <p>6. Open WTW App.</p> <p>- Logon to WTW.</p>	Tester should see the WTW logon screen as well as the Citrix published applications.			
Step 7	<p>WTW Print Test</p> <p>6. Open WTW App.</p> <p>6. Logon to WTW.</p> <p>- Run a test print.</p>	Tester should be able to print a WTW test print.			
Step 8	<p>MEDS Access Test</p> <p>6. Open MEDS App.</p> <p>- Logon to MEDS.</p>	Tester should see the MEDS logon screen and be able to logon to the application.			
Step 9	<p>MEDS Print Test</p> <p>6. Open MEDS App.</p> <p>6. Logon to MEDS.</p> <p>- Run a test print.</p>	Tester should be able to print a MEDS test print.			
Step 10	<p>Logoff Computer</p>	Tester should logoff of the computer and reboot.			

For any results that have failed please provide an explanation and notify the testing lead:

4.0 Recommended Books

The following books contain information that may be helpful in completing county hybrid network projects.

Software System Testing and Quality Assurance

Author: Boris Beizer
Publisher: International Thomson computer Press
ISBN: 1850328218

Software Requirements

Author: Karl E. Wieggers
Publisher: Microsoft Press
ISBN: 0735618798

Black Box Testing

Author: Boris Beizer
Publisher: John Wiley and Son's
ASIN: 0471120944

5.0 Information Resources and Credits

Important Websites

Below are a list of information resources as related to this document.

Software Testing: <http://www.softwareqatest.com/>

Testing Tools and info: <http://www.aptest.com/resources.html>

Helpful information on general networking <http://about.com/compute/>

6.0 Contact Information

6.1 ISAWS Consortium Office Contacts

Lauren Naughton	916-859-4968	lnaughton@isawsconsortium.org	Technical
John Stinehelfer	916-859-4947	jstinehelfer@isawsconsortium.org	Technical
Jeannie Pratt	916-859-4966	jpratt@isawsconsortium.org	Help Desk

6.2 Maintenance Center Contacts

Jerry Apsley	916-255-0465	japsley@isaws.cahwnet.gov	Mainframe
Ed Ayo	916-255-0404	eayo@isaws.cahwnet.gov	Tech Support
Jim Deeter	916-255-0433	jdeeter@isaws.cahwnet.gov	Tech Support
Greg Soria	916-255-0443	gsoria@isaws.cahwnet.gov	WTW Support
Mark Eubanks	916-255-0447	meubanks@isaws.cahwnet.gov	WTW Support
Chris Morrison	916-255-0519	cmorrison@isaws.cahwnet.gov	WTW Support
Thomas Scott	916-255-0488	tscott@isaws.cahwnet.gov	New Services
New Services	916-255-0488	newservices@isaws.cahwnet.gov	New Services
Production Control	916-255-0590		Production

6.3 HHSDC Contacts

Cindy Perkins	916-454-8087	cperkins@hhsdc.ca.gov	Customer Support
Steve Williams	916-454-7222	swillia6@hhsdc.ca.gov	Customer Support
Michael Shallcross	916-739-7742	mshallcr@hhsdc.ca.gov	Network Engineering
Marc Hansen	916-434-7223	mhansen@hhsdc.ca.gov	Network Engineering
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Dave Winters	916-739-7633	dwinters@hhsdc.ca.gov	Network Installs
Support	916-739-7640		After Hours Support

Change Control Log

Version	Change	Editor	Date
0.0			