FEATURE

January 2009
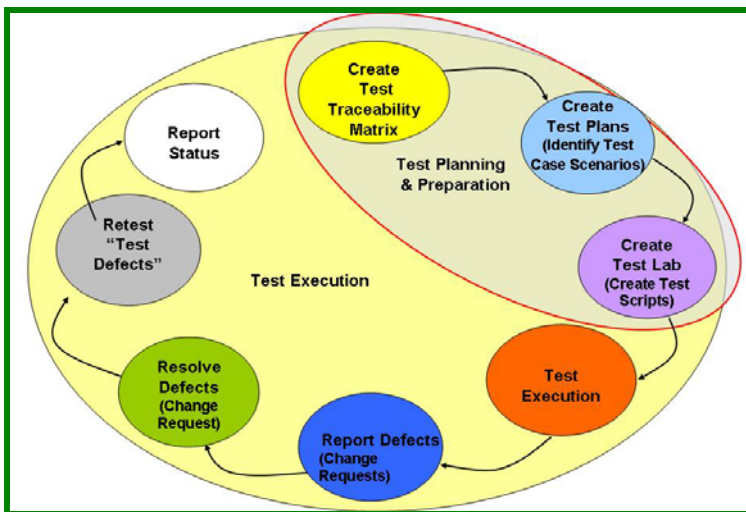
Testing WBSCM: Validating the accuracy of data, business processes, and functionality

This issue of the WBSCM Update builds on the previous issues highlighting the WBSCM lifecycle phases of Design and Build. The test phase, including test planning and execution, will be featured in this month's WBSCM Update. (See WBSCM Test phase Process below)

Test Phase Process

The WBSCM program's test objectives include ensuring WBSCM's ability to accurately process business transactions, data, reports, and communicate in real-time with other external systems. Through a sound Test approach, these WBSCM objectives and others including proper system security controls will be met.

Test Phase Approach

The WBSCM Test phase approach follows Capability Maturity Model Integration (CMMI) Level 3 practices and the guidelines defined in USDA's Systems Life Cycle Methodology (SLCM).

The iterative testing approach builds on prior test stages as WBSCM moves from the Build phase to the Deployment phase. The Test phase approach includes four test stages: Unit Testing (UT), System Integration Testing (SIT), User Acceptance Testing (UAT), and Cut-over Testing.

Test Phase Objectives

The test planning, preparation, and execution activities are based on the following test objectives:

❖ The WBSCM system components work correctly as an integrated solution

❖ WBSCM is secure and has the necessary security protocols in place

❖ WBSCM meets the performance-related requirements

❖ WBSCM meets the business needs and business process requirements of the WBSCM stakeholders

❖ WBSCM data has been converted completely and accurately

❖ WBSCM and external system interfaces communicate correctly and share information
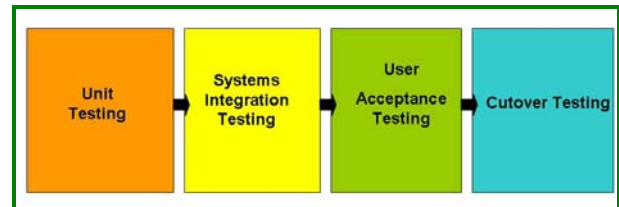
Test Phase Process Steps

The WBSCM Test phase process is an iterative process that encompasses all of the test phase activities and associated owners:

❖ **Test Traceability Matrix**: Part of test planning activities where the test traceability matrix is created to establish the baseline for testing – SRA Test Team Members

❖ **Test Plans:** Part of test planning activities where test case scenarios are identified – SRA Test Team Members

❖ **Test Lab**: Part of the test planning activities where test scripts are created – SRA Test Team Members

❖ **Test Execution**: Execution of a particular test script or test case scenario (set of test scripts) – WBSCM Team Members

❖ **Defect Reporting**: Tracks the conditions where test results do not match expected outcome – WBSCM Team Members

❖ **Defect Resolution**: Defects are reviewed, fixed (if necessary) and disposition accordingly – SRA Test Team Members

❖ **Retest**: Includes the retesting of fixed defects as well as regression testing – WBSCM Team Members

❖ **Report Status**: Documents the current status of the testing effort – SRA Test Team Members

Test Execution: Four Test Stages

During each of the four test stages, a number of specific test types will be executed. A common design, execution, and reporting process will be followed for all forms of testing. The four test stages and owners are as follows (see below):

❖ Unit Testing – SRA Team Members
❖ System Integration Testing – WBSCM Team Members
❖ User Acceptance Testing – WBSCM Team Members
❖ Cut-Over Testing – WBSCM Team Members

Four Test Stages

Test Stage: Unit Testing (UT)

UT occurs during the system configuration and customization of WBSCM through RICEFW objects. Each object is tested for design accuracy, requirement satisfaction, and error handling.

Test Stage: Systems Integration Testing (SIT)

SIT validates and tests end-to-end business flows and processes including interfaces to other USDA/USAID systems and other external non-USDA/non-USAID systems. Examples of test types performed during SIT are as follows: Negative/Exception Testing, Boundary Testing (Conditions), Regression Testing, Data Conversion Testing, Performance Testing, Section 508 Compliance Testing, Security Testing (Roles and Profiles), and Security Certification & Accreditation Testing.

Test Stage: User Acceptance Testing (UAT)

UAT tests the accuracy of WBSCM in a controlled SIT environment and specifically tests the business requirements, reporting capabilities, and system readiness to transition to production. Examples of test types performed during UAT are as follows: Negative/Exception Testing, Boundary Testing (Conditions), Regression Testing, Data Conversion Testing, Performance Testing, and Security Testing (Roles and Profiles).

Test Stage: Cutover Testing

Cutover Testing validates the accuracy of WBSCM in a production environment including validation of the business and reporting requirements, and readiness to Go-Live. Examples of test types performed during Cutover Testing are as follows: Negative/Exception Testing, Boundary Testing (Conditions), Regression Testing, Data Conversion Testing, Performance Testing, Security Testing (Roles and Profiles)

Types of Testing

- ❖ **Negative/Exception Testing** (shows errors when not supposed to, and does not shows errors when supposed to)
- ❖ **Boundary Testing(Conditions)** (validates extreme cases such as maximum/minimum)
- ❖ **Regression Testing** (re-execute tests after new development is introduced)
- ❖ **Data Conversion Testing** (validates data conversion from legacy systems)
- ❖ **Performance Testing** (determine system response time and performance under a particular workload)
- ❖ **Section 508 Compliance Testing** (determine adherence to Section 508 of the Rehabilitation Act)
- ❖ **Security (Roles & Profiles) Testing** (validates security controls for user roles including system access and security authorization)
- ❖ **Security Certification and Accreditation (C&A) Testing** (determine implementation of security controls for system authorization as outlined by the National Institute of Standards and Technology (NIST))

What's USDA's Role?

The USDA & USAID Test Team members have a very critical role during the Test phase:

- ❖ Support SRA testers in the development of test case scenarios and test scripts
- ❖ Support SRA testers in the execution of test cases
- ❖ Document, validate, and deliver test results to WBSCM Test Team
- ❖ Review and approve test plans and test cases
- ❖ Execute System Integration Tests and User Acceptance Tests
- ❖ Perform external systems testing
- ❖ Perform data verification and validation
- ❖ Re-test and sign-off on defect resolutions

Who is involved in the Test Team?

The Test Team is comprised of SRA, USDA and USAID WBSCM Team members. If you have any questions, please contact one of the following USDA/USAID team members:

Name	Email	Org
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STATUS CORNER

- ❖ The following Informal Playbacks have occurred to date:
  - Complaints & Entitlements
  - Bid Invitation
  - Orders Sourced from Warehouses
  - Swap/Re-donation Orders
  - Warehouses Processing
  - Master Data & Funds Management
  - Inventory Accounting, Funding of Inventory and De-obligation
  - Accounts Payable & Goods Receipt Accounting
  - Funding of LTC & FAS Processes
  - Contract & Records Management
  - Quality Management

- ❖ The following Build phase functional configuration activities have occurred to date:
  - Standard domestic sales order process
  - Offshore sales order process
  - International sales order process fulfilled by procurement and shipment tracking
  - Long-term contracting and release of delivery orders
  - Domestic emergency order placement, fulfillment, and sourcing
  - Price Support WH–procure/create orders
  - Multi-Food WH–replenish/create orders
  - Barter and Exchange programs

DID YOU KNOW?

…USDA's "Stock for Food" bartering program feeds millions in need by turning raw commodities into food?

…USDA is helping farmers through tough times by providing over $77 Million in Emergency Conservation Program funds?

…USDA's Country of Origin Labeling (COOL) Program allows you to know where your meat, poultry, and seafood came from before you purchase it?

ED CORNER

WBSCM Terms
Common Testing Terminology

Test Script – An Independently run test based on business process procedures (BPP) that tests the functionality of a given object.

Test Case – A test based on scenarios used to execute a set of related test scripts that define a given process.

Test Set – A combination of test cases that encompass an entire end-to-end process.

Test Plan – A combination of all of the test scenarios in a given Test phase.

Test Report – Status of test execution and results for each phase of testing.

NEXT MONTH

We will continue to report on Build Phase progress and feature the Training teams' activities.

ASK US

We'd appreciate your thoughts and feed-back! Please email any WBSCM questions or suggestions you have to:

WBSCM@kcc.usda.gov

You can find more WBSCM information on the WBSCM Program Web site.