



GENESIS Load Policy and Migration Procedures

Shipment Data Capture Procedure Document



Goal

The goal of the SDC - GENESIS Load Policy and Procedures

These policies and procedures provide a framework for orderly movement of code through each testing environment and into production. Adherence to them is critical to maintain the quality of the applications SDC produces.

Policy

The following procedures are considered critical to the quality of the systems SDC produces and to the integrity of the test and production environments.

Adherence to the procedures within this document is considered the minimum acceptable level of job responsibilities for employees of Shipment Data Capture. Employees of FedEx Services are expected to demonstrate the highest degree of performance, integrity, and professional conduct at all times. Unacceptable behaviors or an inadequate performance of job responsibilities may be subject to progressively serious levels of discipline as documented on the FedEx Services Human Resources Web Site.

(http://isp1.intranet.fedex.com/~human_resources/new/index.html)

Preliminary Preparation

Pre-Development Preparation

Goals

Pre-Development preparation begins the software lifecycle process. All pre-development documentation such as Requirements and Functional Specifications is complete.

Tasks

The following tasks must be completed before development begins.

Tasks	Responsibility	Deliverables
1. Create the Detailed Design Documents. Document includes the following items: <ul style="list-style-type: none">• Program name approved - Arch. Team• ARM calls - Application Architect and EADS team• ITO error range - Application Architect• Workflow parameters - Workflow Administrator• Location of program - System Architect	Technical Lead	Detailed Design Document
2. Technical Lead and Technical Architect make Database Change Request (CR).	Technical Lead and Technical Architect	Completed/Submitted Change Requests
3. Submit Change Requests (CR) for new User ID's and/or request to change permissions for User ID's.	Technical Lead and Technical Architect	Completed/Submitted Change Requests
4. Designs are completed and approved by the Technical Lead,	Technical Lead, one member of the	Approved Designs.

and at least one member of Technical Architecture team, and at least one member of EADS team.	Technical Architecture team, one member of the EADS team.	
5. Developer creates Unit Test Cases	Developer	Unit Test Cases
6. Technical Lead approves Unit Test Cases.	Technical Lead	Approved Unit Test cases.

Test Level Software Migrations

Development Environment - Level 1

Goals

Level 1 is where development of the code begins. Unit testing and other fundamental testing takes place before migration to the Integration Test Environment - Level 2.

Entry Criteria

Satisfactory completion of all Pre-Development tasks.

Tasks

The following tasks must be completed before code is migrated to the Integration Test Environment - Level 2. Note: Done during Build Phase.

Tasks	Responsibility	Deliverables
1. Check program code into PVCS.	Developer	
2. Configuration files completed for all levels and checked into PVCS.	Developer	
3. Run and stop scripts completed for all levels and checked into PVCS.	Developer	
4. The run, stop, configuration, executable, and library files placed in <i>/install</i> subdirectory to be prepared for migration.	Developer	Properly prepared run, stop, configuration, executable and library files for UNIX. Properly prepared configuration, executable and library files for NT.
5. Execute Unit Test cases and document test results.	Developer	Documented Unit Test Case results
6. Code Review <ul style="list-style-type: none">• Desk Check ARM Calls• Desk Check ITO Messages• Desk Check Batch Detail	Technical Lead and peer	

<p>Updates</p> <ul style="list-style-type: none"> • Desk Check code matches design documents 		
<p>7. Create a Change Request (CR) to initiate the test process. See the document "Process for Migrating Code via Change Request" (link) for criteria and step by step procedures.</p>	Technical Lead	Change Request (CR)
<p>8. Create Integration Test scripts</p> <ul style="list-style-type: none"> • Includes UWFM rules tests if new workflow-enabled app • Includes Fail-Over Scripts 	Technical Lead	Completed scripts
<p>9. Review Integration Test Cases</p>	Integration Test Lead, Test Team	Approved Integration Test Cases
<p>10. Create Product Test Cases</p>	Business Lead	Product Test Cases
<p>11. Review Product Test Cases</p>	Test Team	Approved Product Test Cases
<p>12. Create/Update Regression Test Cases.</p>	Business Lead	Regression Test Cases
<p>13. Review Regression Test Cases.</p>	Test Team	Approved Regression Test Cases
<p>14. Create/Update Volume Test Plan</p> <p>NOTE: The plan identifies goals, and includes a success-failure list</p>	Technical Lead	Volume Test Plan
<p>15. Review Volume Test Plan</p>	Technical Architecture Team, Test Team	Reviewed or updated Volume Test Plan
<p>16. CR submitted to request code is migrated to Level 2.</p>	Technical Lead	Completed/Submitted Change Request
<p>17. User Acceptance Test (UAT) Plan</p>	Business Architect	Written UAT plan

18. Load Plan	Load Manager and Technical Leads	Written Load Plan
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Level 1 Migration - Recommendations/Guidelines

The SA/CM Team migrates the software to the Integration Test Environment - Level 2 with the assistance of the developers and Technical Leads if needed.

Test Level Software Migrations, continued

Integration Test Environment - Level 2

Goals

The Integration Test Environment - Level-2 is primarily for system interface testing and preliminary functional testing. Testing on this level is typically technical in nature and is under the guidance of the Integration Test Lead and Technical Leads.

Policies

The lead for this level of testing will be the Application Architect acting in the role of Integration Test Lead. Entry criteria and procedures will be honored and executed by appropriate SDC staff as required to ensure adequate version control and environment stability conducive to successful testing. Group Managers are responsible for overseeing entry criteria are satisfied in a timely manner with deliverables of acceptable quality.

Entry Criteria

Satisfactory completion of all Pre-Development, and Development - Level 1 tasks.

Tasks

The following tasks must be completed before code is moved to the Product Test Environment - Level3.

Tasks	Responsibility	Deliverables
<p>1. Execute and Update Integration Test Cases</p> <p>All Critical and High PLOGs must be handled according to the Change Management Procedure (link) before code is migrated to the Product Test Environment - Level 3.</p>	<p>Integration Test Lead, Technical Lead, Test Team</p>	<p>Successfully executed Integration Test cases</p> <p>Integration Test Lead updates test cases.</p>
<p>2. Test Team updates Change Request and requests migration of code to Product Test Environment - Level 3</p>	<p>Test Team, Configuration Management Team</p>	<p>Code is migrated to Product Test Environment - Level 3</p>
<p>3. ITO templates uploaded to level 3 server.</p>	<p>Technical Lead</p>	<p>Test-ready ITO Templates</p>

4. Write first draft of support documents for new applications.	Developer	Draft of support documentation
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Test Level Software Migrations, continued

Product Test Environment - Level 3

Goals

Product Test Environment - Level-3 is a production look-alike environment that will be preserved from uncoordinated software activity. The Product Test Environment - Level-3 will support Product, UFS, UAT, End-to-End, Regression, Fail-over, and Field-testing.

Policies

All software must be tested in the Product Test Environment - Level-3 before being loaded to production unless extreme circumstances/emergencies result in exceptions to this procedure. The SDC Leadership Team will approve all exceptions to this procedure.

The lead for this level of testing will be the PSG Test Lead. Entry criteria and procedures will be honored and executed by appropriate SDC staff as required to ensure adequate version control and environment stability conducive to successful testing. Group managers are responsible for overseeing entry criteria are satisfied in a timely manner with deliverables of acceptable quality.

Entry Criteria

Satisfactory completion of all Pre-Development, Development - Level 1, and Integration Test Environment - Level 2 tasks.

Tasks

The following tasks must be completed before code is moved onto the Production server.

Tasks	Responsibility	Deliverables
1. Execute Product Test Cases and document results All Critical and High PLOGs will be handled according to the Change Management Procedure (link) before code is migrated to Production environment.	Business Leads, Test Team	Successfully execute Product Test Cases, Test Team updates Test Cases.
2. Execute Regression Tests	Business Leads	
3. Execute Volume Test	Test Team	Successfully executed Volume Test

4. Submit ITO Templates to Operations	Technical Leads	
5. Execute Fail-Over Test	Test Team, SA team	Successfully execute Fail-Over Test
6. Develop Production Checkout Test	Test Team	Written Production Checkout Test
7. Support documentation for existing production applications reviewed for accuracy. Support documentation for new applications completed and approved.	Technical Lead and Technical Writer	Written documentation
8. Load Plan reviewed and approved by SDC, DSS and CLS management.	SDC Managers, DSS Managers, CLS Managers, and SDC Technical Lead	Approved Load Plan
9. Contact or communications with all effected parties outlining impending load. Special attention to alert all effected support groups.	Load Manager	email or telephone call
10. Documented UAT and End-to-End testing approval from all impacted user areas at a manager level or above.	Business Architect	Documented approval
11. SDC Director approval of CCS entry.	SDC Director	Approved CCS entry
12. Support documentation for new applications and updates to existing production applications submitted to DSS and CLS.	Technical Lead and Technical Writer	
13. Production Implementation Plan completed and approved.	Load Manager, Technical Lead, Operations	Approved Production Implementation Plan
14. For UNIX: Run, stop, configuration, executable, and library scripts properly prepared for migration to Production. For NT: Configuration, executable, and library scripts properly prepared for migration to production.	Technical Lead	Properly Prepared Code

15. System Change Presentation for Operations.	Architecture Team	
16. GO called in GO/NO GO meeting by users and SDC Director	GENESIS Users and SDC Director	
17. Official email notification to User Community	SDC Director	

Production Migrations

Scheduled Loads

Goals

A Normal Scheduled Load will be either in accordance with the Corporate Load schedule or a scheduled SDC Load that is coordinated through the SDC Leadership Team in the project schedule. The schedule will require successful and timely completion of all normal types of system testing.

Policies

The lead for this level of testing will be the acting Load Manager. All Normal Loads will be executed with full SDC test procedures. Procedures will be honored and executed by appropriate SDC staff to ensure the highest level of control, risk avoidance, environment stability and minimal user impact. Group Managers are responsible for overseeing entry criteria are satisfied in a timely manner with deliverables of acceptable quality.

Entry Criteria

Satisfactory completion of all Pre-Development, Development - Level One, Integration Test Environment - Level Two tasks and Product Test Environment - Level 3 tasks.

Tasks

Tasks	Responsibility	Deliverables
1. Execute Load Plan	Load Manager	
2. Execute Production Checkout Test	Load Manager	

Production Migrations, continued

Exception Loads

Goals

Exception Loads are scheduled with an accelerated test process to address production situations that are causing significant business impact.

Policies

Non-Corporate/Exception Loads will be determined to have an acceptable level of risk of impacting any Revenue systems and/or processes. Unit, integration and product testing must be completed on Level 1, 2 and 3 for Exception Loads. The timeframe for scheduling an Exception Load will balance the risk of load problems introduced by an abbreviated test process with the current business situation.

The lead for this level of testing will be the Development Manager responsible for the software changes or the Load Manager, if assigned. Procedures will be honored and executed by appropriate SDC staff to ensure the highest level of control, risk avoidance, environment stability and minimal user impact. Group managers are responsible for overseeing entry criteria are satisfied in a timely manner with deliverables of acceptable quality. All exception loaded code or software must be loaded into any skipped test levels.

Entry Criteria

- Satisfactory completion of all Pre-Development, Development - Level One, Integration Test Environment - Level Two tasks and Product Test Environment - Level 3 tasks.
- Software Backout Plan and/or a Load Monitoring Plan
- Documented user area approval, at the manager level or above, to load the change
- When there is an impact to downstream systems, the Development Manager will complete an ITD Exception Load form (on EMC BB use form: ITD-QLS-Exceptions "Load Exception Form Version 3.0"). This form requires Director approval before code migration can begin.
- SDC Director approval of CCS entry

Tasks	Responsibility	Deliverables
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1. The SDC system point-of-contact will send an e-mail notification of the load to all impacted groups (manager and Tech Lead), the Technical Architect, Business Architect, and to the Customer/User contact prior to the software migration.	SDC point-of-contact	Email notification to all impacted groups
2. A Load Plan and Software Back-out Plan will be reviewed and approved by the Technical Lead and Development Manager.	Development Manager, Technical Lead	Load Plan and Software Backout Plan
3. Application developers or system experts directly responsible for the load will monitor the impacted functions of the system after the load for an appropriate time to ensure the load was successful.	Application Developers and/or other system experts	
4. If the application developer deems that the load is not proceeding according to plan they will institute the Back-out Plan and notify their manager for any additional corrective actions that may be appropriate.	Application Developers and/or other system experts	Manager notification of corrective actions
5. Update all testing levels and validate testing.	Development Manager/ Development Team	

Production Migrations, continued

Emergency Loads or Changes

Goals

This policy covers any unplanned change done to the production environment. Emergency loads and changes are only allowed for an immediate fix of an error resulting in significant business impact. These are typically done during an unplanned production outage or incident based on a judgment call of a development Manager or senior technical developer.

Policies

Procedures will be honored and executed by appropriate SDC staff to ensure an appropriate level of control, environment stability and minimal user impact.

The Development Manager will notify the on-call manager and the Development Director of an emergency load. Notification of an emergency load will due by noon the following day via the IOM or the CCS systems. The notification must include justification for the change, root cause information if available and specific preventative actions to keep the problem from reoccurring.

The assigned group manager or the Development Director will send an outage email to the impacted customer within 24-hours of the incident or outage.

All emergency loaded code or software must be loaded into any skipped test levels.

Entry Criteria

Step through the REACT procedures.

Tasks	Responsibility	Deliverables
1. SDC personnel will follow the REACT procedure (link to REACT procedure) to address emergency changes to a production system.	SDC support personnel	
2. Corrective actions and root cause explanations for all server-based software are recorded in the IOM system when DSS or CLS records the incident or outage. Corrective actions and root cause	Development Manager	IOM Record or CCS Record

<p>explanations are recorded in the CCS system when an IOM is not created. Corrective actions and root cause explanations for PC/Client software changes are recorded in written form as determined by the appropriate manager.</p>		
<p>3. Unresolved problems should be documented in the PLOG system for resolution.</p>	<p>Development Manager</p>	
<p>4. The assigned group manager or the Development Director will send an outage email to the impacted customer within 24-hours of the incident or outage. The email will document the time of the outage, the root cause of the outage, and the corrective/preventative actions that will be executed.</p>	<p>Assigned Group Manager or Development Director</p>	<p>Outage Email</p>
<p>5. Update all testing levels and validate testing.</p>	<p>Development Manager/ Development Team</p>	

Procedure Evaluation

Evaluation of Load Policy and Procedure

Goals

Continuous incremental improvement of the GENESIS Load Policy and Migration Procedure.

Policies

At the conclusion of each load the SDC team gathers for a "Lessons Learned" session. Action items are documented and procedures are improved. The GENESIS Load Policy and Migration Procedure is updated to reflect the improved procedures.