T+1 Testing Readiness
September 2023

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Time is Ticking ...

There are less than 265 days left until the T+1 transition date of May 28, 2024. Across industry participants, the expectation is that buy and sell-side firms are wrapping up their operational and technical changes and actively participating in testing and client outreach programs.

**Industry Implementation Timeline**

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<thead>
<tr>
<th>T+1 Program Activities</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
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<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
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<tr>
<td>T+1 Playbook Published</td>
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<tr>
<td>Analysis, Book of Work, Budget</td>
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<td>Design, Development, Build</td>
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<td>Vendor Platform Solutions</td>
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<td>Client Outreach and Readiness</td>
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<tr>
<td>Test Design / Test Cases / Test Environment(s)</td>
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<td>Integration Test Execution and Defect Remediation</td>
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<td>Industry Testing Window(s)</td>
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<td>Go Live</td>
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Canada will move to T+1 on May 27, 2024, one day earlier than the US, and will have its double-settlement day on the following Tuesday. The double settlement day for the US will be on the Wednesday following the transition date.
A Holistic View of End-to-End Testing

To prepare for T+1 settlement, firms should consider a 360-degree view of testing. A carefully planned out and effectively executed end-to-end testing program will be pivotal to an effective T+1 migration.

**Resiliency Test**

System resiliency should be evaluated and tested, given that the reduced processing window may require improved failover capabilities to reduce the impacts of a system outage.

**Industry Testing**

Testing with industry participants (Depository Trust and Clearing Corporation (DTCC), National Securities Clearing Corporation (NSCC), Exchanges, Custodians, Options Clearing Corporation (OCC), etc.), utilizing DTCC-provided CUSIPs.

**Performance Test**

Performance tests of Webservices, Cloud apps, if applicable, to determine they can handle data volume in an accelerated timeline.

**System Test**

Performing test configuration & business logic of individual systems such as settlement systems and other affected applications.

**System Integration Test**

Test integrations between applications such as settlement systems and other affected applications, which are impacted due to T+1 workflow.

**Batch Testing / Data Testing**

T+1 data impact due to Batch Cycle dependencies (prior-to-day cycle, nightly), such as Data Reconciliations, Data Validations.

**Regression Testing**

Test the end-to-end trade life cycle for selection of specific T+1 scenarios.
Getting Started with Testing

Industry participants should develop test plans to align with a demanding T+1 testing schedule. Testing cycles begin mid-August, with opportunities to test various market scenarios iteratively until the T+1 transition date next May.

### Key Activities

- **Initiate testing programs** for all relevant lines of business at the enterprise level to determine coordination and consistency.

- Identify in-scope **products, processes** and **applications** for all LOBs, and begin conversations with vendors to identify their testing timelines and other dependencies.

- Confirm all **operational** and **technical gaps** have a **remediation** plan and defined requirements to leverage for baseline E2E testing scenarios.

- **Requisition** necessary **test environments** and begin connectivity to industry environments per instructions from the DTCC.

- Outline all **test data** required for **E2E** and **industry** test execution.

- **Understand** enterprise-wide **testing tollgates** or documentation required to confirm adherence to policies during test execution (e.g., overarching test strategy document).

### Key Artifacts

- **Business Processes and BRDs/FRD** drive the E2E Test Scenarios.

- **Test Scenarios** (starting set found from DTCC).

- **Test Cases & Scripts** (inherited from SIT, UAT).

- **Test Data** (captured from DTCC, key vendors and select counterparties).

- **Test Calendar & Entry / Exit Criteria** (incl. of DTCC’s Holiday and COAC testing).

- **Test Execution Runbooks**, with use of Automation Tools, as available.

The SEC and US regulators are looking to assess T+1 readiness across the industry. It will be important for banks to be ready to execute basic test trade scenarios in the industry environments during the testing windows. Regulators urge participants to test early and often to avoid environment overcrowding and outages.
Test Planning and Execution Flow

Planning and organization is key for determining potential impacted areas and scenarios are tested across the end-to-end execution lifecycle.

1. Create Test Scenarios
2. Translate Detailed Test Cases
3. Testing Platform
4. Load
5. Execute & Log Results
6. Report & Review
7. Deploy

DTCC Testing Framework
Business Requirements
Stakeholder Inputs
Industry Leading Practices

<table>
<thead>
<tr>
<th>Test Scenarios</th>
<th>Process</th>
<th>Tester</th>
<th>Results</th>
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<tbody>
<tr>
<td>Order Capture</td>
<td>Name 1</td>
<td>P/F</td>
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<tr>
<td>Order execution</td>
<td>Name 2</td>
<td>P/F</td>
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<tr>
<td>T+1 Allocation</td>
<td>Name 3</td>
<td>P/F</td>
<td></td>
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<tr>
<td>Confirms/Statements</td>
<td>Name 4</td>
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Daily execution and defect metrics logging within the test platform
Weekly status to program leads on testing execution and success metrics
Senior-level / SteerCo update on a regular basis on progress and major defects

Go-Live and Production
Resiliency Testing is Crucial

The changing industry operational timelines will be a challenge to manage on the “happy path”. However, firms should also think about what happens when things go wrong; how will they respond to outages and system down-time in a T+1 environment?

“Never down”
- Firms should re-evaluate their outage policies and consider how they will respond

Creating diverse test cases
- Test cases and scripts should consider an element of resiliency to account for potential system down-time

Reviewing your technology and data strategy
- T+1 will require careful review of existing routines and strategy to meet the demands of the new industry reality

Disaster recovery teams
- How firms respond to outages today won’t be sufficient in T+1
- Firms should consider where teams are located and whether they will be able to respond to outages and downtime as efficiently as they need to
How Deloitte Can Help

With over 25 years of industry experience and a pool of subject matter specialists and highly skilled professionals, Deloitte is well positioned to assist with advising, implementing, and operating a T+1 Testing Program.

1 Advise

- **Test Strategy:** We bring leading practices and demonstrated test governance and frameworks for detailed test activities, including entry and exit criteria, specific milestones, test cycles, roles and responsibilities

- **Resource planning:** We can help you plan resources for each phase of testing, define resourcing requirements, and identify specific performance matrices

- **Industry Forums:** Participate in industry working groups to determine test scenarios are updated to incorporate insights to open items needing industry / SIFMA input

2 Implement

- **Customize Testing Automation Framework:** With an “Automated First” Mindset, we will deploy our automation frameworks optimizing value through automation and reducing costs of testing cycle

- **Unit and Integration testing:** We can help in performing unit testing of all applications that have undergone changes to support T+1 and help building the Integration Points (one application above the unit application and one down from the unit application) and connect the dots internally with the overall IT infrastructure with producing & consuming systems

- **Front-to-Back Testing:** We have experience around testing internal infrastructure with third-party Vendor/Client feeds (both sending & receiving data e.g., files, real time messages)

3 Operate

- **Test Regime:** Establish persistent testing regime that will allow you to build you post-trade infrastructure on a regulatory change mandate

- **Test Design and E2E Test Scenario Suite:** We have developed a T+1 ready Test Suite of 150+ test scenarios which can be deployed giving you a head start

- **Alliances and Tools:** Deloitte has long standing alliances with leading vendors such as Access Fintech and in-house tools such as Nexus that can help in transforming the management and optimization of the organization's risk and control program

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Robert Walley  
Principal,  
Deloitte & Touche LLP  
rwalley@deloitte.com

Mara Gauger  
Senior Manager,  
Deloitte & Touche LLP  
rmgauger@deloitte.com

Tulsi Mehta  
Senior Manager,  
Deloitte & Touche LLP  
tulmehta@deloitte.com
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