


February 2024

DTCC T+1 Test Approach: Detailed Testing Framework



VERSION 11

REVISION HISTORY

T+1 Test Approach: Detailed Testing Framework

| Version | Date | Other |
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| VERSION 1 | January 2023 | http://www.ust1.org |
| VERSION 2 | February 2023 | |
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| Table | Edits to details in test cycles | 11-12 |
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| Text | Edits to details for Double Settlement Date scenario with no Bank Holiday | 46-47 |
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| | | |
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| Text | Update to Testing Cycle 15-Added Bank Holiday | 12 |
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| Text | Update to Test Cycle 16 – Added that OCC and DTCC will be conducting a special test in the middle of this test cycle | 12-13 |

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1. INTRODUCTION

The financial services industry, in coordination with regulators, is planning to shorten the standard settlement cycle for equities, corporate bonds, municipal bonds, unit investment trusts, and financial instruments comprised of these security types (e.g., ADRs and ETFs), from the current trade date plus two business days (T+2) to trade date plus one business day (T+1) on May 28th, 2024.

The move to a T+1 settlement cycle has broad industry and regulatory support and has been an ongoing industry effort for well over two years. The move to T+1 will generate significant risk reductions for all market participants and will require organizations across the financial services industry to assess and potentially modify aspects of their trade processing lifecycle. This is a living document and may be changed as we move forward.

The number of changes being made to support the move to T+1 – and the magnitude of the firms making the changes – results in the need for a comprehensive and well-coordinated industry test to confirm industry readiness and ensure a successful industry implementation.

The purpose of this paper is to provide DTCC Members with a detailed plan for testing T+1 changes with DTCC and other industry infrastructures.

The paper includes detailed information on:

- The structure of the T+1 industry test, including information on other industry infrastructures participating in the industry test, testing cycles and testing schedules.
- DTCC's T+1 and T+2 test environments, including information on the role of the different environments, how to connect to the different environments and how to get all the required access in both environments to support testing.
- Suggested test scenarios which Members can use to begin preparing their own T+1 test plans.

Testing between Member firms and their customers, and Member firms and their service providers is out of the scope of this paper. However, Members are encouraged to work with all applicable stakeholders to develop and execute robust and comprehensive T+1 test plans.

This paper reflects the work done by the T+1 Industry Working Group and incorporates input from various market segments.

2. BACKGROUND

Testing for T+1 has been recognized as a critical success factor by the industry from the start of the T+1 initiative.

In 2022, DTCC worked with the T+1 Industry Working Group (IWG) which was comprised of representatives from all impacted market segments, to begin developing a T+1 test approach. The output of this effort was captured in a **high-level test approach document**¹, published on August 10th, 2022.

The purpose of the high-level test document was to help Member firms understand how the T+1 test would be constructed, to allow them to begin configuring their own test plans and test environments. While the high-level document may help Members construct test plans and test environments, DTCC recognized the need to develop more detailed information to help with the execution of the T+1 test.

Following the release of the [high-level test approach document](#), the T+1 IWG Group was reconvened and began working on a detailed T+1 test document.

Although the bulk of this paper addresses testing with the DTCC subsidiaries impacted by the move to T+1 (ITP, NSCC and DTC), there was a desire at the industry-level to expand the test to include other industry infrastructures. As such, the test has been expanded to include exchanges (Nasdaq and Cboe) as well as the Options Clearing Corporation (OCC).

Although the hope is to make this paper as comprehensive as possible, DTCC recognizes that some aspects of the T+1 test are still evolving, and that there remains a significant amount of time between now and when testing is scheduled to begin. Furthermore, DTCC recognizes the complexity of a test of this magnitude and the coordination required to ensure the test is successful. As a result, this paper includes information on the testing management provided by DTCC, as well as a process for communicating any testing-related updates, should updates be required.

Any updates to this paper will be communicated to members and published to the **UST1.ORG Website**.

Testing questions can be sent to: ust1@dtcc.com.

¹ Available on the UST1.org site, or <https://www.dtcc.com/-/media/Files/PDFs/T2/T1-Test-Approach.pdf>

3. TEST STRUCTURE

This section outlines the framework for T+1 testing with DTCC's subsidiaries – ITP, NSCC and DTC. This section also outlines the involvement of other industry infrastructures participating in the industry T+1 test, testing timelines, reset schedules and testing involvement requirements.

Participating Infrastructures

The industry infrastructures participating in the industry test will include DTCC's subsidiaries ITP, NSCC and DTC as well as exchanges Cboe and Nasdaq, and the OCC.

Cboe and Nasdaq will provide Members an opportunity to perform end-to-end testing from trade execution to trade settlement. The OCC will provide Members an opportunity to test option Exercise and Assignment (E&A) activity. Test connections between the industry infrastructures will be established to allow for robust end-to-end testing.

Members will need to review their connections to the various infrastructures to ensure they have all the test access they need to support the T+1 test (connectivity instructions to each of the participating infrastructures are contained later in the paper).

Industry Test Scope

As previously mentioned, the industry T+1 test is designed to support full end-to-end testing. For exchange activity, Members will be able to submit test trades to Nasdaq or Cboe for execution. Executed trades will be submitted to NSCC for clearance and ultimately to DTC for settlement. For institutional activity, Members will be able to submit test transactions to ITP, or other institutional trade matching providers, and have those matched transactions automatically submitted to NSCC and/or DTC for clearance and settlement. Members will be able to exercise open option contracts in the OCC's test environment and have the corresponding option trades sent to NSCC for clearance as part of the OCC exercise and assignment (E&A) process. Specific test dates will also be established to test option expiration dates and double settlement dates which will occur upon implementation.

T+1 testing will not be mandated but is highly recommended. Members can test T+1 changes as they see fit based on the changes made to their respective systems and processes. Although this paper contains a number of suggested test scenarios, Members do not need to execute each scenario nor are members limited to testing only the scenarios outlined in the paper. Rather, the scenarios should be used as a guideline for each Member's own test plans.

As an alternative to generating test trades via the participating exchanges, DTCC has a Transaction Management Tool for Members to use, which includes the functionality to upload test trades directly in NSCC's Universal Trade Capture system (UTC) for processing (see Section 6 for additional information on the Transaction Management Tool).

The test scenarios contained in this paper are the suggested scenarios as determined by the T+1 IWG. DTCC's test environment will be constructed to support each of the identified scenarios for those Members that choose to execute them. In most cases, supporting the test scenarios will be accomplished by identifying set CUSIPs that meet specific testing parameters (T+1 testing CUSIPs). Only existing production CUSIPs will be used to support T+1 testing; DTCC will not establish "dummy" CUSIPs for T+1 testing purposes. Most DTCC-eligible production CUSIPs will also be available in the test environment and available for Members to use for testing.

T+1 test CUSIPs will include:

- CUSIPs for various product types such as Common Stock, Corporate Bonds, Municipal Bonds, UITs
- CNS and non-CNS-eligible CUSIPs such as multilaterally netted, bilaterally netted, trade-for-trade
- CUSIPs undergoing various corporate action events
- CUSIPs with position in DTC and CUSIPs without position in DTC

To ensure position in DTC, DTC will develop functionality to periodically reset position balances (see the Test Cycles section below). For those T+1 testing CUSIPs identified as having position in DTC, DTC will automatically establish securities positions for all DTC Members. For those CUSIPs identified as having no position in DTC, DTC will automatically delete any securities positions in DTC for all Members.

DTCC will maintain its existing daily SMF refresh schedule in the PSE U environment during the T+1 industry testing period.

In the event the SMF refresh in the PSE U environment changes the parameters of any T+1 test CUSIPs over the course of a test cycle, DTCC will inform Members of the change and its resulting impact on the T+1 test scenario(s) via [UST1.org](https://www.ust1.org).

Existing NSCC, DTC and ITP input and output formats will be utilized for T+1 industry testing.

T+1 Industry Testing Schedule

As outlined in the August 10, 2022, [T+1 high-level test approach paper](#), DTCC will be establishing a new test environment to allow Members to test in T+1 and T+2 environments concurrently. To minimize changes required by Members, DTCC plans to use its current test environment (the “PSE U” environment) to support T+1 testing, and to use its newly developed test environment (the “PSE A” environment) to support T+2 testing. (This is addressed in greater detail later in Section 4)

The T+2 test environment (PSE A) will be available for Member testing beginning sometime in the second quarter of 2023. At that time, both environments (PSE U & PSE A) will be synchronized and running on a T+2 basis and producing new Consolidated Trade Summary (CTS) output formats. DTCC will begin converting its current test environment (PSE U) to T+1 early in the second quarter of 2023. DTCC's T+1 test environment is scheduled to be available for Member testing beginning later in the third quarter of 2023 (8/14/2023) providing an approximate nine-month period for industry testing, prior to the T+1 implementation date on May 28th, 2024.

Although many DTCC Members are connected to the current DTCC test environment (PSE U), many may not have all the functionality required to test their T+1 changes. Similarly, DTCC's PSE A environment established to support T+2 testing is new. Any Member looking to test in the new T+2 test environment (PSE A) will require new connectivity and new system entitlements and should work with the DTCC Integration team to help facilitate their connectivity.

Detailed instructions are provided later in this paper to aid Members with their connectivity and entitlements to DTCC's test environments, and the test environments of the other supporting industry

infrastructures. Members are strongly advised to begin this test set up process early, as we expect a high number of Members to be updating their test connectivity.

The industry's T+1 testing is scheduled to occur during regular business days. However, the timing of some key events may be different in DTCC's production environment and DTCC's test environment and DTCC clients should work with the DTCC Integration Team regarding these events.

As mentioned earlier in this paper, Nasdaq, Cboe and OCC will be participating in the industry T+1 test. In addition to reviewing test connectivity to DTCC, Members looking to execute tests involving Nasdaq, Cboe and OCC should also ensure they have all the connectivity and access they need to support such tests. (Please refer to Section 5 – 'Trade Execution via Exchanges' for test connectivity to Cboe and Nasdaq, and OCC test scenarios in Section 7 for test connectivity to OCC).

Test Cycles

T+1 testing is scheduled to run from August 14th, 2023, to May 31st, 2024. Testing will be conducted using bi-weekly testing cycles.

The testing cycles will work as follows:

- Testing cycles will begin on a Monday, or first business day of the week, with the first testing cycle scheduled to begin August 14th, 2023.
- DTCC will load Friday end of day position data into the test environment prior to each test cycle.
- Member positions [and counterparties] will be visible in the test environment.

Members should take appropriate measures to protect or delete their data after each testing cycle.

- DTCC will reset the test environment at the end of each test cycle (end of day Friday or last business day of the applicable week)
 - DTCC will purge all "in-flight"/unsettled test transactions. Members should note that all in-flight/unsettled transactions in the test environment will be purged including transactions in the CUSIPs not specifically identified as T+1 testing CUSIPs. Transactions to be cancelled include:
 - All incomplete/unsettled NSCC Equity Clearing test transactions, including:
 - A. Trades received in NSCC's Universal Trade Capture application (UTC) that are being stored as When-Issued (WI) or Sellers' Option (SO) for a future Settlement Date
 - B. Continuous Net Settlement (CNS) failing positions and future settling positions. This will include CNS positions for Exchange Traded Funds (ETF), Automated Customer Accounts Transfer Service (ACATS) and ID Net test transactions
 - All incomplete/unsettled NSCC's Corporate, Municipal and UITs (CMU) test transactions
 - All incomplete/unsettled ACATS test transactions
 - All incomplete/unsettled ITP TradeSuite test transactions

- As previously noted, DTC will automatically establish security positions in some defined T+1 testing CUSIPs across all DTC Members. This will allow transactions in certain CUSIPs to settle in DTC while ensuring transactions in other CUSIPs do not settle in DTC. DTC will reset security positions in the designated T+1 CUSIPs at the beginning of each testing cycle. At the beginning of each test cycle, DTCC will automatically give each participants a position of 500,000,000 in the T+1 test CUSIPs designated as “having” position and will automatically delete any position in the T+1 test CUSIPs designated as “having no position”. This process will only apply to the specific T+1 testing CUSIPs identified by DTCC, and will not impact Member positions in other non-controlled CUSIPs
- Additionally, DTCC will modify the Obligation Warehouse (OW) refresh schedule in the PSE U to synchronize it with the test environment reset. Currently, OW data in the PSE U is refreshed with end of day Friday’s production data each week. DTCC will change the frequency of this refresh from once every week to once every two weeks to coincide with the end of the T+1 test cycle / PSE U environment refresh
- Members can submit test transactions throughout the testing cycle. Test transactions will be processed in accordance with the T+1 production life cycle
- Members can participate in as many testing cycles as they choose
- The test environment will replicate production holiday processing; holidays naturally occurring during the industry testing window will allow Members to test holiday processing scenarios
- There will be Corporate Actions available during test cycles to test the full event lifecycle (i.e., announcement through allocation) for both events impacted by the move to T+1 (e.g., Stock Splits, Tender Offers with Guarantee of Delivery features, etc.) and events not impacted by the move to T+1 (e.g., Stock Dividends, Mandatory Reorganizations, etc.)
 - All events will be processed using the testing CUSIPs
 - The events will be processed during the two-week testing cycle and then refreshed for the next testing cycle
 - Testing is optional
 - The testing events including relevant dates/rates will be posted to the UST1.org site in advance of the testing cycle

Although bi-weekly test scenarios will be the standard cycle, cycles may be shortened or extended if required. Any change to the testing cycle will be done in coordination with the industry and communicated to the industry prior to the change. The following table shows the industry test cycle schedule.

Table 1: TEST CALENDAR

Bi-weekly testing cycles beginning August 14, 2023, through May 31, 2024. The test environment will continue to be available for T+1 testing after the May 28, 2024, transition date for an additional three days.

| | | |
|---------------|-----------------------------|---|
| Test Cycle 1 | 8/14/2023 through 8/25/2023 | Free- Form testing Corporate Actions scenario testing |
| Test Cycle 2 | 8/28/23 through 9/8/2023 | Free- Form testing Corporate Actions scenario testing |
| Test Cycle 3 | 09/11/23 through 09/22/23 | Free- Form testing Corporate Actions scenario testing |
| Test Cycle 4 | 09/25/23 through 10/06/23 | Free- Form testing Corporate Actions scenario testing |
| Test Cycle 5 | 10/9/23 through 10/20/23 | Free-Format Testing Corporate Actions scenario testing Note: 10/9/23 is Columbus Day (Bank Holiday) and PSE will be open. There will be no CNS processing or DTC Settlement. RW trades submitted on 10/9/23 will settle on Tuesday 10/10/23. However, there will be no double day settlement on 10/10/23 because the Bank Holiday happens to be the first day of the Test Cycle 5. |
| Test Cycle 6 | 10/23/23 through 11/3/23 | Free Format Corporate Actions scenario testing |
| Test Cycle 7 | 11/06/23 through 11/17/23 | T+1 Implementation - Double Settlement Day Scenario (T+1 Production copy over EOD Friday, 11/3/23, Double Settlement Day = Tuesday 11/7/23) Corporate Actions scenario testing |
| Test Cycle 8 | 11/20/23 through 12/1/23 | Free-Format testing Corporate Actions scenario testing Note: Thursday 11/23/23 is Thanksgiving Day and the PSE environment will be closed |
| Test Cycle 9 | 12/4/23 through 12/15/23 | Bank Holiday - Double Settlement Day Scenario Note: In PSE, DTCC will make Monday 12/11/23 a Bank Holiday. RW trades submitted in PSE on Friday 12/08/23 and Monday 12/11/23 will both have a settlement date of Tuesday 12/12/23. Corporate Actions scenario testing |
| Test Cycle 10 | 12/18/23 through 12/29/23 | T+1 Implementation - Double Settlement Day Scenario (T+1 Production copy over EOD Friday, 12/15/23, Double Settlement Day = Tuesday 12/19/23) Corporate Actions scenario testing |

| | | |
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| | | Free- Format Testing Note: Monday 12/25/23 is Christmas Day and the PSE environment will be closed. |
| Test Cycle 11 | 1/2/24 through 1/12/24 | Corporate Actions scenario testing Note: Monday 01/1/24 is New Year's Day and the PSE environment will be closed. |
| Test Cycle 12 | 1/15/24 through 1/26/24 | T+1 Implementation - Double Settlement Day Scenario that resembles conversion weekend (which does include a holiday on Monday) (T+1 Production copy over EOD Friday, 1/12/24, Monday 1/15/24 = Holiday, Double Settlement Day = Wednesday 1/17/24) Note: Monday 01/15/24 is Martin Luther King and the PSE environment will be closed. |
| Test Cycle 13 | 1/29/24 through 2/9/24 | Free-Format testing OCC E&A test Corporate Actions scenario testing |
| Test Cycle 14 | 2/12/24 through 2/23/24 | T+1 Implementation - Double Settlement Day Scenario (T+1 Production copy over EOD Friday, 2/9/24, Double Settlement Day = Tuesday 02/13/24) Note: Monday 02/19/24 is President's Day and the PSE environment will be closed. Note: The production copy over will also include OCC T+2 trades received on Friday, February 9, 2024 for settlement date Tuesday, February 13, 2024. These OCC trades will be reported on CTS Cycle 1 in PSE on Monday, February 12, 2024. The copy over is to test how OCC trades will be processed over conversion weekend. OCC T+2 trades received on the Friday before conversion weekend, which would be originally reported in CTS Cycle 3 the next business day (Tuesday), will actually be reported on CTS Cycle 1 (on Tuesday) as CTS Cycle 3 will no longer report one day settling trades. In post T1 implementation, any OCC T+1 trades received will now be reported on CTS Cycle 2 only as stated in the DTC, NSCC & ITP Functional Change document. |
| Test Cycle 15 | 2/26/24 through 3/8/24 | Bank Holiday - Double Settlement Day Scenario Note: In PSE, DTCC will make Monday 03/04/24 a Bank Holiday. RW trades submitted in PSE Friday 03/01/24 and Monday 03/04/24 will both have a settlement date of Tuesday 03/05/24. |
| | | Corporate Actions scenario testing Free Format OCC E&A test |
| Test Cycle 16 | 3/11/24 through 3/22/24 | Free-Format testing Corporate Actions scenario testing Note: The OCC will be performing a special test with DTCC in the middle of test cycle 16 which may impact client testing. On Friday March 15, the OCC will copy all RW T2 trades |

| | | |
|---------------|-------------------------|--|
| | | <i>from production and submit them to DTCC in PSE as RW T1 trades for settlement date Monday March 18. These OCC trades will be reported in PSE on CTS Cycle 2 on Friday March 15. Then on Monday March 18 in PSE, the OCC will submit a reversal of all those trades submitted on Friday. These reversal trades will be reported on CTS Cycle 3 in PSE on Monday March 18.</i> |
| Test Cycle 17 | 3/25/24 through 4/5/24 | <p>Good Friday Holiday Testing</p> <p>In PSE, Friday March 29 will be Good Friday and mirror production</p> <p>Corporate Actions scenario testing</p> <p>OCC E&A Test</p> |
| Test Cycle 18 | 4/8/24 through 4/19/24 | <p>T+1 Implementation - Double Settlement Day Scenario</p> <p>(T+1 Production copy over EOD Friday, 4/5/24, Double Settlement Day = Tuesday 4/9/24)</p> <p>Note: The production copy over will also include OCC T+2 trades received on Friday, April 5, 2024 for settlement date Tuesday, April 9, 2024. These OCC trades will be reported on CTS Cycle 1 in PSE on Monday, April 8, 2024. The copy over is to test how OCC trades will be processed over conversion weekend. OCC T+2 trades received on the Friday before conversion weekend, which would be originally reported in CTS Cycle 3 the next business day (Tuesday), will actually be reported on CTS Cycle 1 (on Tuesday) as CTS Cycle 3 will no longer report one day settling trades. In post T1 implementation, any OCC T+1 trades received will now be reported on CTS Cycle 2 only as stated the DTC, NSCC & ITP Functional Change document.</p> <p>OCC E&A Test</p> |
| Test Cycle 19 | 4/22/24 through 5/3/24 | <p>Free-Format testing</p> <p>Corporate Actions scenario testing</p> |
| Test Cycle 20 | 5/6/24 through 5/17/24 | <p>Bank Holiday - Double Settlement Day Scenario</p> <p>(Bank Holiday in the PSE U = Monday 5/13/24, Double Settlement Day= Tuesday 5/14/24)</p> <p>Corporate Actions scenario testing</p> |
| Test Cycle 21 | 5/20/24 through 5/31/24 | Free-Format testing- This is also Conversion week (Production)-Testing support will be minimal during the implementation time period |

| HOLIDAYS DURING THE TESTING WINDOW | |
|------------------------------------|---------------------|
| Labor Day | Monday, 9/4/2023 |
| Columbus Day | Thursday 10/9/23 |
| Thanksgiving Day | Thursday 11/23/2023 |
| Christmas Day | Monday 12/25/2023 |
| New Year's Day | Monday 1/1/2024 |
| Martin Luther King Jr. Day | Monday 1/15/2024 |

| | |
|-----------------|-------------------|
| Presidents' Day | Monday, 2/19/2024 |
| Good Friday | Friday, 3/29/2024 |
| Memorial Day | Monday 05/27/2024 |

DTCC Member Test Support

In support of the industry T+1 test, DTCC is streamlining its test connectivity and access processes for Members (see Section 4 for test connectivity and access instructions).

DTCC has also established a dedicated T+1 testing and questions mailbox at ust1@dtcc.com.

Members should submit all testing related questions and requests to this mailbox. The mailbox will be monitored by a DTCC T+1 test support team throughout regular business days and hours. The team will coordinate with Members to ensure timely resolution of issues and provide status update notifications.

DTCC will publish any updates to the T+1 test plan on the **UST1.ORG web page**. DTCC will also send email notifications to its Members.

4. DTCC TEST ENVIRONMENT – CONNECTION AND ACCESS

DTCC will utilize its existing test environment (PSE U) for T+1 industry testing and establish a new test environment (PSE A) to support T+2 testing. DTCC is facilitating a streamlined process for Members to connect to DTCC's test environments and to obtain subscriptions to NSCC, DTC and ITP functionality, input and output files, MQ and ISO messages as well as Web applications.

The current scope of testing functionality in the PSE U environment will not be impacted by T+1 industry testing; applications **unaffected** by the T+1 changes will continue to operate in the current PSE U environment.

Only Members looking to test T+2 functionality in the applications/outputs that are impacted by the T+1 changes will need to connect to the new PSE A environment. Any application/functionality that is not impacted by the T+1 changes can continue to be tested in the existing PSE U environment.

The chart below outlines the applications/functionality that will be available for testing in each test environment.

Table 2:

| APPLICATIONS | T+1 test environment (Existing PSE U environment) | New T+2 test environment (PSE A environment) |
|---|--|---|
| NSCC Equity Clearing | | |
| Universal Trade Capture (UTC) | Yes | Yes |
| New Consolidated Trade Summary (CTS) output | Yes | Yes |
| Exchange Traded Funds (ETF) | Yes | Yes |
| Correspondent Clearing | Yes | Yes |
| SMART/Track for Buy-In | Yes | Yes |
| Continuous Net Settlement (CNS) | Yes | Yes |
| CNS Voluntary Organization | Yes | Yes |
| NSCC Cashiering/Settlement Close | Yes | Yes |

| | | |
|--|-----|-----|
| Obligation Warehouse | Yes | Yes |
| Automated Customer Account Transfers (ACATS) | Yes | No |
| Cost Basis Reporting Service (CBRS) | Yes | No |
| Clearance Dashboard (new product), which includes: <ul style="list-style-type: none"> CTS dashboard UTC Web (replaces Correspondent Clearing, includes new Transaction Management Tool w/ upload feature) CNS Web | Yes | Yes |
| All DTC Settlement applications/functionality including Settlement Web | Yes | Yes |
| ITP applications/functionality | Yes | No |
| Corporate, Municipal and UITs (CMU) Real-Time Trade Matching application (RTTM) | Yes | No |
| Wealth Management applications/functionality | Yes | No |
| Asset Servicing / Corporate Actions applications/functionality including CA Web | Yes | No |
| SFT Clearing Dashboard | Yes | Yes |

DTCC T+1 Testing Set-Up:

DTCC has attempted to make the setup/connectivity to the test environments as simple and streamlined as possible. However, the connection and subscription process can be complicated. To aid in the process, **DTCC's Integration Team** will be the central contact for Members to reach out to and request access instructions and request forms relevant for testing set-up in both the DTCC PSE A and PSE U test environments.

The T+1 page will include the following information:

- Instructions and required forms to connect to DTCC's test environments (the T+1 (PSE U) test environment and the T+2 (PSE A) test environment)
- Instructions and required forms to subscribe to T+1 relevant NSCC, DTC and ITP input and output products in the PSE U environment
- Instructions and required forms to subscribe to DTC and NSCC input and output products in the PSE A environment
- Instructions and required forms to subscribe to web applications in the PSE U and the PSE A environment
- Excel Template and instructions for the upload feature of the Transaction Management Tool

Member Connectivity to the existing PSE U or the new PSE A test environment

- DTCC will maintain its current procedure (outlined in detail below) for Members to request connectivity to the PSE U or the PSE A test environment
- Members are encouraged to review their existing interface with NSCC, DTC and ITP (as applicable), and engage with DTCC as early as possible if an additional interface to the PSE U or PSE A test environment is required
- Members are advised to allow at least 10 business days for new connectivity setup

Steps for requesting connectivity to DTCC's PSE U environment or PSE A environment:

- Complete a Request for Router Exchange Form
- DTCC's IP addresses for both the PSE U and the PSE A test environments are stated on the Router Exchange form. Firms must specify their IP addresses and ports for desired protocols (FTP, NDM, MQ, PBS, Settlement Web)
- Complete an MQ Page One Form to request a new MQ channel to the PSE U and/or the PSE A test environment or to make changes to an existing MQ channel
- Firms that have existing connectivity to the PSE U test environment via internet and plan to connect to the PSE A test environment the same way, will not require any new connectivity setup. Their existing connection can also be utilized for the PSE A test environment. Firms should email their respective SFTP details to ust1@dtcc.com. Members should complete the forms and email the completed forms to ust1@dtcc.com.
- Once completed forms are received, DTCC will contact the relative Member firms, using the contact information provided on the form, to provide requested information, and execute connectivity and data transfer sets

Subscription to test input and output products in DTCC's test environments:

- DTCC has created interactive request forms for Members to specify T+1-relevant NSCC, DTC and ITP inputs and outputs (Datatrak, Autoroute, MQ inputs and outputs) they need to/from the PSE U environment and any NSCC and DTC inputs and outputs they need to/from the PSE A environment
- Member firms can contact the DTCC Integration group to obtain these forms by sending an email to ust1@dtcc.com. Members can leverage the information on the forms to evaluate any gaps in their existing subscriptions to NSCC, DTC, and ITP inputs and outputs
- E-mail the completed forms to ust1@dtcc.com
- Allow at least 10 business days for new subscription setup

Subscriptions to Web Products in the test environments

- DTCC has established an integrated process for Members' subscription and entitlements to web products in the PSE U and PSE A test environments
- DTCC will automatically replicate each Member's existing access and entitlements to web products in the current PSE U environment to the same web products in the new PSE A environment, without any action on the part of the Member. This would apply to PBS/Settlement Web as well as to web products that are accessed via DTCC Test Web Portal
 - Similarly, Members will only need to request new access to web products in the PSE U environment. Requests can be made by submitting a DTCC Systems Super Access Coordinator (SAC) form to ust1@dtcc.com. DTCC will automatically provide the same access to that web product in the PSE A environment
 - Once access is established, each Members' respective Super Access Coordinators would need to entitle internal users to the PSE U environment only. DTCC will replicate Members' entitlements from the PSE U to the PSE A environment on a daily basis

Specific instructions related to web applications that are in scope for T+1 testing are listed below.

Subscriptions to /PBS/Settlement Web:

- DTCC will offer PBS/Settlement Web in both the PSE U and the PSE A test environments, and each region will have a distinct IP address
- Firms that do not currently have access to PBS/ Settlement Web in the PSE U test environment and require access must:
 - **Complete a Request for Router Exchange Form**
 - **Complete a DTCC Systems Super Access Coordinator (SAC) form**
 - **Complete entitlement request form for the creation of PBS User IDs**
- Firms that already have access to PBS/Settlement Web in the PSE U environment and require access to it in the new PSE A environment must:
 - Complete a **Request for Router Exchange Form**
 - Members can utilize their existing user ID to log on the PBS/Settlement Web in the PSE A environment
 - No action is required for entitlements to the PBS/Settlement Web in the PSE A environment. Once the router form is complete, DTCC will automatically provision the Member's SAC with PBS/Settlement Web in the new PSE A environment
 - As today, SACs will be responsible for provisioning users at their firms with access to PBS/Settlement Web in the PSE U test environment. DTCC will automatically copy over entitlements from the PSE U to the new PSE A environment
- Member firms can request these forms from the DTCC Integration group, complete the forms and email the completed forms to ust1@dtcc.com.

DTCC Web Portal:

- DTCC is enhancing its Test Web Portal to include links to web applications in the new PSE A and the existing PSE U environments
 - The application links in the portal will indicate whether this is using the PSE U or PSE A test environment; applications that connect to the new PSE A region will be represented as (New T+2). As an example, links to Real Time Obligation Warehouse (ROM) web application in the PSE U and PSE A environments will display as follows:
 - PSE U – “ROM – Real Time Obligation Matching”
 - PSE A – “ROM (New T+2) – Real Time Obligation Matching”
 - Application links to the PSE A environment will be activated on the DTCC Test Web Portal in tandem with the new PSE A environment go-live scheduled for May 2023
 - Super Access Coordinators will be able to view and access application links to web applications in the PSE A test environment, for which they have existing entitlements to in the current PSE U environment
- The following DTCC Web Portal applications are in-scope for T+1 testing:
 - Corporate Action (CA) Web (**available in the PSE U environment only**)
 - Exchange Traded Funds (ETF) (**available in both the PSE U and PSE A environments**)
 - Real Time Obligation Matching (ROM) (**available in both the PSE U and PSE A environments**)
 - Clearance Dashboard (CLD) (**available in both the PSE U and PSE A environments**)
 - CTS Dashboard
 - UTC Web will include the Transaction Management Tool with file upload feature. The following roles will be made available for this tool:
 - A. UTC Transaction Inquiry
 - B. UTC Transaction Enter

- C. UTC Transaction Upload
 - D. UTC Transaction Submit
- CNS Web
 - o Member firms can continue to use their existing login credentials for accessing the DTCC Test Web Portal
- As mentioned before, for Members that already have access to web products in the PSE U environment, DTCC will automatically replicate their entitlements in the new PSE A environment and no further action is necessary
- Firms that plan to use NSCC's Transaction Management Tool (defined in more detail below) to submit test trades directly into NSCC's trade capture application (UTC) for testing must request access to the Clearance Dashboard.
 - o DTCC will establish SAC entitlements at the Clearance Dashboard level
 - o The SACs will be responsible for provisioning internal users within their respective firms to the underlying applications (UTC, CNS Web, CTS dashboard) and roles (such as UTC Transaction Inquiry, UTC Transaction input, UTC Transaction upload or UTC Transaction submit). The SACs will need to provision internal users in the existing PSE U environment only; DTCC will automatically replicate Members' entitlements from the PSE U to the PSE A test environment.

5. TRADE EXECUTION VIA EXCHANGES

Cboe and Nasdaq will participate in T+1 testing allowing firms to test transactions from order execution, including each firm's own trade execution systems, internal trade routing and reconciliation processes.

- Members wanting to submit test transactions to Cboe and Nasdaq must ensure they are connected to the respective test environments. Details on connecting to Cboe's and Nasdaq's test environments are provided below
- Members can submit test transactions to Cboe's or Nasdaq's test environment utilizing respective production input formats
- Exchanges will provide applicable transaction output to Members utilizing production formats
- DTCC will provide specific production CUSIPs for suggested test scenarios. However, all production CUSIPs listed on the exchanges will be eligible for testing
- As in production, Cboe and Nasdaq will accept various settlement indicators on the test orders and report matched test transactions to NSCC's UTC in the test environment for downstream processing
- UTC will utilize the settlement indicator to assign the appropriate settlement date to these test transactions (test transactions with "Regular Way" (RW) settlement indicator will be assigned a T+1 settlement date versus T+2 currently)

Testing via Cboe:

- The following four Cboe exchanges will participate in T+1 testing: Cboe Exchange, Inc. (BZX), Cboe Y-Exchange, Inc. (BYX), EDGA Exchange, Inc. (EDGA) and EDGX Exchange, Inc. (EDGX)
 - Each exchange has its own/separate test environment
 - A single connectivity process provides access to all Cboe exchanges
- Input/output formats for testing:

- All participating Cboe exchanges share common production input and output formats. These existing production formats will be used to support testing
- Test environment availability:
 - Test environments will be available during the following times on regular business days:
 - BZX, BYX and EDGA- 7:00 ET - 20:00 ET
 - EDGX – 4:00 ET – 20:00 ET
 - Test environments will not be available on weekend and holidays
- Test Transaction Matching and Routing:
 - Test transactions will be matched as in production
 - Buy orders will be matched with sell orders in the same CUSIPs utilizing production matching parameters
 - In addition, Cboe provides automated order generator functionality in the test environment, whereby Cboe can provide simulated liquidity in identified CUSIPs
 - Test transactions in identified CUSIPs can be matched versus NSCC's test contra account number 0122. NSCC will provide specific CUSIPs eligible for the automated order generator in Q4 2023
 - Members may send orders priced at or more aggressive than the current NBBO in any of the identified test symbols for execution against this simulated liquidity
 - Cboe will route matched transactions to NSCC's UTC in the test environment in real-time and provide standard output to members
 - Once received, NSCC will report the transaction to Members using existing UTC test output
- To connect to the Cboe test environment:
 - Members should contact Cboe at tradedesk@Cboe.com or call 913-815-7001. Cboe Members that don't already have an order entry session in the test environment may request one.

Testing via Nasdaq:

- Nasdaq exchange will participate in T+1 testing
- DTCC will provide specific production CUSIPs to be utilized for suggested scenario testing via Nasdaq. However, all production CUSIPs listed on the exchange will be eligible for testing
- Input/output formats for testing:
 - Production input and output formats will be utilized for testing
 - Members will utilize production input formats to submit test transactions to Nasdaq's test environment
 - Nasdaq will provide applicable output to Members utilizing production formats
- Test environment availability:
 - Test environment will be available from:
 - Monday through Friday, 8:00 ET to 20:00 ET (However, trades executed after 21:00 ET will be rejected by NSCC)
- Test Transaction Matching and Routing:
 - Test transactions will be matched as in production
 - Buy orders will be matched with sell orders in the same CUSIPs utilizing production matching parameters

- As in production, Nasdaq will accept various settlement indicators, route matched transactions to NSCC's UTC in the test environment in real-time and provide standard output to Members
- Once received, NSCC will assign the appropriate settlement date to the test transactions based on settlement indicator from the exchanges
- To connect to Nasdaq's test environment:
 - Members wanting access to Nasdaq's test environment should contact tradingservices@Nasdaq.com or 212-231-5180 Opt #2

6. TRANSACTION MANAGEMENT TOOL

NSCC has a Transaction Management Tool with file upload feature for Members that do not want to submit test transactions through exchanges.

- Members can utilize the file upload feature of the Transaction Management Tool to directly introduce test transactions into NSCC's UTC system in the test environment. One feature of the tool will also allow the manual entry and submission of transactions via a data entry form
 - Members can submit test trades versus another NSCC Member as the counterparty to the transaction or versus NSCC's test contra account numbers 0122 or 0123 (Members are encouraged not to enter trades versus another NSCC Member without prior agreement from the contra-Member. Doing so could disrupt another Members' test results)
- This tool can also be utilized to submit Correspondent Clearing and Qualified Special Representative (QSR) test transactions to UTC in the test environment
 - As in production, test transactions must be submitted by a 9A Member, and can only be between counterparties with existing 9A-9B relationships in the production environment (DTCC will replicate production 9A-9B relationships in the test environment)
- Additionally, Members that only want to test NSCC processing of OCC Exercise & Assignment (E&A) trades can utilize the Transaction Management Tool to create/simulate an OCC E&A test trade and directly submit it to UTC in the test environment
- The Transaction Management Tool will be accessible from the UTC product within the Clearance Dashboard. Firms planning to use this tool must request access to the Clearance Dashboard (See Section 4 for additional information on the Clearance Dashboard)
- Excel Template and instructions on the upload feature of the Transaction Management Tool can be accessed on the UST1.org site.

7. DTCC TESTING SCENARIOS

This section outlines the suggested scenarios as determined by the T+1 Industry Testing Working Group with DTCC's subsidiaries – DTC, NSCC and ITP, and the involvement of other industry infrastructures participating in the test (Cboe, Nasdaq and OCC). As mentioned earlier, T+1 testing is not mandated. Members can elect to test any of the scenarios based on their respective testing requirements.

NSCC Trade Capture and Trade Clearing

DTCC's subsidiary, NSCC, has a number of processes that will be supported in the industry T+1 test. These processes include, NSCC trade capture, trade matching (CMU), ETF creation and redemption and trade clearing.

NSCC Trade Capture

NSCC's Universal Trade Capture system (UTC) will accept trade input from 6:00 ET - 21:00 ET during regular business days in the T+1 (PSE U) test environment. DTCC will reject trade input received outside of this time window. Members have the following options to introduce trades into NSCC's UTC in the test environment:

- Members can submit test trades to Cboe or Nasdaq's test environment for execution. As in production, exchanges will report matched test transactions to NSCC's UTC in real-time
- Alternatively, NSCC Members can directly introduce test transactions into NSCC's UTC in the test environment via the Transaction Management Tool which includes a file upload feature. The tool will be accessible from the Clearance Dashboard. Firms planning to use this tool must request access to the Clearance Dashboard (See section 4 for additional information on the Clearance Dashboard)
- NSCC will also support trade input of Correspondent Clearing (CORR) and Qualified Special Representative (QSR) test transactions into NSCC's UTC in the test system. CORR and QSR test transactions must be between counter- parties with an existing 9A/9B relationship status in production environment
- DTCC will also coordinate with the Options Clearing Corporation (OCC) to test the Exercise and Assignment (E&A) of option contracts. Exercised/Assigned option contracts generate transactions which are fed directly from OCC to NSCC

NSCC's UTC system will generate applicable output to Members in real-time via FIX/MQ and via a Member intraday MRO (02981673), which will be produced approximately hourly from 8:30 ET to 9:45 ET. This will allow Members to reconcile transactions executed with transactions reported by NSCC.

As mentioned earlier, DTCC, with the input from the T+1 Industry Testing Working Group, identified a number of suggested test scenarios for Members to consider in their test planning. DTCC will designate specific CUSIPs to these test scenarios which will be monitored and controlled as part of the T+1 test. Members are encouraged to use the suggested test scenarios but can also do their own free form testing in other CUSIPs. Not all NSCC output will be supported as part of the T+1 test. on

High-Level Summary of Scripted Test Scenarios

The suggested trade capture test scenarios are grouped by a common denominator (such as test trades in CNS-eligible CUSIPs, non-CNS-eligible CUSIPs, CUSIPs undergoing a Voluntary corporate action event), and are structured in a similar manner:

- Members can assign various trade types/submission types to test trades (such as "Regular Way" - RW, "Seller's Option" - SO, "Cash" - see column 3 "Submission Type")
- Members can submit test trades during different times and can test the expected CTS output across the various distribution cycles (see column 8 - "Process on CTS cycle #")
- Each test scenario will be processed in accordance with the production lifecycle. The netting type applicable to each of the suggested test scenario (C= CNS, M= Multilaterally netted balance order, B=Bilaterally netted balance order, T=Trade-for-Trade balance order) and the net reason

codes that CTS will assign to those netted trades are listed under column 9 – “Netting Type” and column 10 – “Net Reason Code” respectively

- As an example, test scenario 1 pertains to a “Regular Way” test trade (submission type = RW) in CNS-eligible CUSIP that is received by NSCC’s UTC in the test environment before CTS Cycle 1 cutoff on Trade Date (T) and is reported on the CTS one day before settlement. The test trade will be netted within CNS (Netting Type=CNS) and will be reported on CTS Cycle 1 with net reason code=1.

Section A test scenarios:

Testing in CNS eligible trades (scenarios 1 through 7)

- These test scenarios will allow Members to test NSCC clearing under T+1 conditions for trades in CNS-eligible CUSIPs, while simultaneously testing CTS output and the net reason codes that CTS will assign to those netted trades. These transactions will appear on the CNS Midday Projection File issued approximately 5:00 PM EST depending on the time they are received by UTC

Section B test scenarios:

Test CNS-eligible trades undergoing a Voluntary Corporate Action event (scenarios 8 through 13)

- These test scenarios will allow Members to test trades in CNS-eligible securities undergoing a voluntary corporate action event with one day cover/protect period
- Depending on the key dates of the voluntary corporate action event, trades will be processed as CNS, multilaterally netted balance order (M) or trade-for-trade balance order (T) (as indicated in column 9-“ Netting Type”)

Section C test scenarios:

Test in CNS eligible trades undergoing a Dividend Distribution event (scenarios 14 through 20)

- These test scenarios will allow Members to test trades received by UTC undergoing a dividend under T+1 conditions (under T+1, the Ex-Date on a declared dividend will become the same business day as the record date). DTCC will provide specific CNS-eligible CUSIPs to test these scenarios.
- Depending upon the Ex-Date and record date of the dividend and the type of trade and time it is received by UTC, it may result in Trade-for-Trade (T) obligations

Section D test scenarios:

Test in non-CNS-eligible domestic CUSIPs with No Special Trade Processing (scenarios 21 through 25)

- These test scenarios will allow Members to test the NSCC clearing processing under T+1 conditions for trades in non-CNS-eligible domestic CUSIPs, while simultaneously testing CTS output and the net reason codes that CTS will assign to those trades. These will be processed as Multilaterally netted balance orders (M), Bilaterally netted balance orders (B) and/or Trade-for-Trade balance orders (T)
 - Non-CNS obligations will be sent to Obligation Warehouse (OW)
- DTCC will provide a separate set of CUSIPs for each non-CNS-eligible security type

Section E test scenarios:

Test in CUSIPS eligible for Foreign Securities Netting (scenarios 26 through 29)

- These test scenarios will allow Members to test the NSCC clearing processing under T+1 conditions for trades in foreign securities, while simultaneously testing CTS output and the net reason codes that CTS will assign to those trades. These will be processed as Bilaterally netted balance orders (B) only.
 - Non-CNS obligations will not be sent to Obligation Warehouse (OW)
- DTCC will provide a separate set of CUSIPs for each Foreign security type

| NSCC Clearing T+1 Test Scenarios | | | | | | | | | |
|----------------------------------|--|-----------------|---------------|--|-----------------------|-----------------------|------------------------|--|-----------------|
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | Testing Conditions | Submission type | Security Type | Days between CTS reporting and Settlement Date | Received | Trade received by UTC | Process on CTS cycle # | Netting Type | Net Reason Code |
| | | RW, SO, Cash | | | | | | C=CNS M=Multilateral Netting B=Bilateral Netting T= Trade-for Trade Z = Reporting Only | |
| Section A | Trades in CNS Eligible CUSIPs | | | | | | | | |
| 1 | RW | RW | | 1 | before Cycle 1 cutoff | T | 1 | C | 1 |
| 2 | Seller's Option | SO | non-Std | 1 | before Cycle 1 cutoff | T | 1 | C | 1 |
| 3 | RW | RW | | 1 | btwn Cycle1 & Cycle 2 | T | 2 | C | 1 |
| 4 | OCC E & A | RW | | 1 | before Cycle 2 cutoff | T | 2 | C | 3 |
| 5 | As of RW | RW | | 0 | before Cycle 3 cutoff | T+1 | 3 | C | 2 |
| 6 | Cash | Cash | non-Std | 0 | before Cycle 3 cutoff | T | 3 | C | 2 |
| 7 | Cash late submission | Cash | non-Std | 0 | after Cycle 3 cutoff | T | | Z | 100 |
| Section B | CNS Eligible Trades undergoing a Voluntary Corporate Action Event | | | | | | | | |
| 8 | RW | RW | | 1 | before Cycle 1 cutoff | T | 1 | C | 1 |
| 9 | Seller's Option | SO | non-Std | 1 | before Cycle 1 cutoff | T | 1 | C | 1 |
| 10 | RW | RW | | 1 | btwn Cycle1 & Cycle 2 | T | 2 | M | 13 |
| 11 | As of RW | RW | | 0 | before Cycle 3 cutoff | T+1 | 3 | T | 52 |
| 12 | Cash | Cash | non-Std | 0 | before Cycle 3 cutoff | T | 3 | T | 54 |
| 13 | Cash late submission | Cash | non-Std | 0 | after Cycle3 cutoff | T | | Z | 100 |

| NSCC Clearing T+1 Test Scenarios (continued) | | | | | | | | | |
|--|--|-----------------|---------|-----------------------|-----------------------|-----------------------|------------------------|--------------|-----------------|
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | Testing Conditions | Submission type | | Days until Settlement | Received by | Trade received by UTC | Process on CTS cycle # | Netting Type | Net Reason Code |
| Section C | CNS Eligible Equity Trades undergoing a Dividend Distribution event | | | | | | | | |
| 14 | RW | RW | | 1 | before Cycle 1 cutoff | T | 1 | C | 1 |
| 15 | Seller's Option | SO | non-Std | 1 | before Cycle 1 cutoff | T | 1 | C | 1 |
| 16 | RW | RW | | 1 | btwn Cycle1 & Cycle 2 | T | 2 | C | 1 |
| 17 | OCC E & A | RW | | 1 | before Cycle 2 cutoff | T | 2 | C | 3 |
| 18 | As of RW | RW | | 0 | before Cycle 3 cutoff | T+1 | 3 | C | 2 |
| 19 | Cash | Cash | non-Std | 0 | before Cycle 3 cutoff | T | 3 | T | 53 |
| 20 | Cash late submission | Cash | Z | 0 | after Cycle 3 | T | | Z | 100 |
| Section D | Trades in non-CNS Eligible domestic CUSIPs (No Special Processing) | | | | | | | | |
| 21 | RW | RW | | 1 | before Cycle 1 cutoff | T | 1 | M | 10 |
| 22 | Seller's Option | SO | non-Std | 1 | before Cycle 1 cutoff | T | 1 | B | 23 |
| 23 | RW | RW | | 1 | btwn Cycle1 & Cycle 2 | T | 2 | M | 10 |
| 24 | As of RW | RW | | 0 | before Cycle 3 cutoff | T+1 | 3 | T | 44 |
| 25 | Cash | Cash | | 0 | before Cycle 3 cutoff | T | 3 | T | 45 |
| Section E | Trades in CUSIPS eligible for Foreign Securities Netting | | | | | | | | |
| 26 | RW | RW | | 1 | before Cycle 1 cutoff | T | 1 | B | 24 |
| 27 | Seller's Option | SO | | 1 | before Cycle 1 cutoff | T | 1 | B | 24 |
| 28 | RW | RW | | 1 | btwn Cycle1 & Cycle 2 | T | 1 | B | 24 |
| 29 | Cash | Cash | | 0 | before Cycle 3 cutoff | Rejected | N/A | N/A | N/A |

NSCC – ETF Create and Redeem Processing

NSCC will allow Members to test coding changes to its ETF creation and redemption system to update the rules the system uses to assign settlement date to create/redeem transactions in a T+1 scenario.

ETF Agent Testing

Testing of the T+1 functional changes to the Enhanced ETF Create/Redeem Instruction Input File will be recommended for all ETF Agents. Successfully testing these changes will require a two-day process which will include submission of the ETF Enhanced Consolidated Portfolio Composition Test Input File (DataTrak41301) and the Enhanced ETF Create and Redeem Instruction Test Data File (DataTrak #41300) to the ETF application in the test environment (PSE U). Firms can contact NSCCIntegration@DTCC.com to confirm their PSE subscriptions.

- ETF Agents will select a create/redeem eligible listing for which they are the agent
- ETF Agents will select one existing portfolio basket associated with the selected ETF listing
- ETF Agents will deliver the ETF Enhanced Consolidated Portfolio Composition Test Input Data File for specific portfolio baskets to the T+1 test environment (PSE U) on the day prior to testing trade capture
- ETF Agents will test trade capture by delivering one or more Enhanced ETF Create and Redeem Instruction Data Input File (DataTrak Input #41300) to the PSE U test environment with create/redeem orders for testing of the following three conditions:
 - Condition 1:** Submission of a space or 1 in Seq #10 Settlement Code which will default to Reg Way or next day settlement.

- **Condition 2:** As Of submission for next day settlement is no longer a valid option. As Of for next day should be submitted with Sequence #10 Settlement Code =2, As Of for next day will be rejected by the ETF system. As Of for same day settlement will be accepted for T+1 in the intraday cycle with a value of space or 1 in the Settlement Code input field, the same day cutoff for T+1 will be 1:30 PM ET.
- **Condition 3:** Extended Settlement will still be a valid option up to 5 days by submitting 2 through 5 in Sequence #10 Settlement code
- ETF Agents will have the option to submit create/redeem instructions versus NSCC's test contra account numbers 0122 or 0123. ETF Agents will verify results using the test version of the EOD Instruction Create/Redeem Reject Report (AutoRoute # 02980098) ETF Agents may also arrange to test with Authorized Participants wishing to test.
- ETF Agents will verify results using the test version of the Enhanced Create/Redeem Instruction Print Image Report (AutoRoute# 02980291)

ETF Authorized Participants

No functional changes are being made to any AutoRoute output files for the move to T+1.

ETF Authorized Participants (APs) may test on a voluntary basis by contacting DTCC and by subscribing to required test outputs (see Section 4 for instructions to subscribe to inputs/outputs in the test environment). APs will be paired with ETF Agents with whom they have existing trading relationships in order to facilitate the test. APs may receive the following test outputs:

- Enhanced ETF Create Redeem Receipt /Reject Report – AutoRoute # 02980098
- Enhanced C/R Blotter Detail Report – AutoRoute # 02980291
- Create / Redeem Blotter MRO – AutoRoute # 02981254

Corporate Bonds, Municipal Bonds and UITs (CMU)

The CMU RTTM trade matching cut-off in the test environment will mirror the T+1 production time schedule. That is, CMU transactions must be matched in RTTM by 1:30 PM ET on T+1/ Settlement Day (SD) in order to be assigned a T+1 Settlement Date. CMU transactions matched after 1:30 PM ET on SD will be given a settlement date of the next available settlement day.

DTCC will assign specific production CUSIPs to support the suggested test scenarios. This will include:

- CUSIPs for various product types (such as Corporate Bond, Municipal Bond, Certificate of Deposit and UIT)
- CNS and non-CNS-eligible (Balance Order) CUSIPs, "Regular Way" and "When Issued" CUSIPs
- CUSIPs with positions in DTC and CUSIPs without position in DTC
- Production CMU input and output formats will be utilized for testing
- Members will bilaterally submit test trades into NSCC's CMU RTTM system in the test environment utilizing existing production input mechanisms:
 - Trades may be submitted via RTTM Web or MQ Interactive Messaging (MT515) trade input messages
- Members will identify their own counterparties for testing

- Members can submit CMU test trades from 7:15 ET to 17:30 ET on regular settlement days; test trades submitted outside of this time window will be held overnight and processed the following morning
- RTTM will send matched eligible test trades to NSCC for downstream settlement processing
- DTCC will send to MSRB Muni trades designated by Members to be sent to MSRB
- DTCC will enable all applicable CMU outputs in the test environment. This will include:
 - Real-time status of test trades via RTTM web in the test environment, real-time messages: MT509 (trade status information to both counterparties of the transaction), MT518 (trade advisory to the testing contra party) and MT599 (administrative message for EOD and SOD)
 - End of day AutoRoute files:
 - 02982237 Municipal Bond Contract File
 - 02982433 Corporate Bond/UIT Contract File

High-Level Summary of Scripted Test Scenarios

Section A test scenarios: RTTM Trade matching for CNS-eligible CUSIPs (scenarios 1 through 5)

Test scenarios in Section A will allow Members to test trade matching for trades in CNS-eligible CUSIPs.

- Members can assign different settlement dates to test trades (T, T+1, T+2, T+3, T+n)
- Test trades settling the same day (Trade Date=Settlement Date (SD)) will be processed as Comparison-Only. Comparison-only trades are not sent to NSCC's settlement systems
- Trades with a future Settlement Date (T+1, T+2, T+3, T+n) must be matched by 1:30PM ET on SD in order to settle on the scheduled date
- RTTM will assign a settlement date of the next settlement day to trades matched after 1:30 PM ET on SD
- Matched trades will be routed to NSCC for CNS netting and settlement processing. These trades will also be reported on the NSCC CTS output (scenarios 2 through 5)

Section B test scenarios: RTTM Trade matching for non-CNS (Balance Order) CUSIPs (scenarios 6 through 10)

Test scenarios in Section B will allow Members to test trade matching for trades in non-CNS-eligible (Balance Order) CUSIPs

- Members can assign different settlement dates to test trades (T, T+1, T+2, T+3, T+n)
- Test trades settling the same day (Trade Date=Settlement Date (SD)) will be processed as Comparison-Only. Comparison-only trades are not sent to NSCC's settlement systems (scenario 6)
- Similar to CMU test trades in CNS-eligible CUSIPs, test trades in non-CNS-eligible CUSIPs must also be matched in the CMU RTTM by 1:30 PM ET on SD in order to settle on that date. RTTM will assign a settlement date of the next business day to trades matched after 1:30 PM ET on SD
- RTTM will route matched test trades to NSCC for Balance Order processing. These trades will also be reported on the NSCC CTS output (scenarios 7 through 10)

Section C test scenarios: “Regular Way” and “When-Issued” trades in new Municipal Bond issuances (scenarios 11 through 14)

Test scenarios in Section C will allow Members to test new Municipal bonds issuances in a T+1 scenario

- Trades with a “T” for Issue Date (ID) -2, and with Settlement Date = Issue Date will be processed as “When-Issued” (scenarios 11 and 13)
 - Trades will be routed to NSCC’s CNS or Balance Order system, as applicable, for settlement on Issue Date
- Trades with a “T” for Issue Date (ID) -2, and with Settlement Date = Issue Date+1 will be treated as “When Issued” (scenarios 12 and 14). Members must submit these trades with 1 Extended Settlement Day and submit the actual S/D for the trade (Issue Date +1 in this case)
 - Trades will be routed to NSCC’s CNS or Balance Order system, as applicable, for settlement on Issue Date +1

| CMU T+1 Test Scenarios | | | | | | | |
|------------------------|---|---------------------|---------------|-----------------|--|-------------------------------------|-------------------------------------|
| | Security Type | Settlement Location | Business Date | Settlement Date | Eligible/ Ineligible for NSCC CTS processing/ settlement | Matched before 1:30 P.M (ET) on S/D | Matched after 1:30 p.m. (ET) on S/D |
| Section A | RTTM Trade matching for CNS eligible CUSIPs | | | | | | |
| 1 | Fixed | CNS | T | T | Inelig | N/A | N/A |
| 2 | Fixed | CNS | T | T+1 | Elig | Settles T+1, reported on NSCC CTS | Settles T+2, reported on NSCC CTS |
| 3 | Fixed | CNS | T | T+2 | Elig | Settles T+2, reported on NSCC CTS | Settles T+3, reported on NSCC CTS |
| 4 | Fixed | CNS | T | T+3 | Elig | Settles T+3, reported on NSCC CTS | Settles T+4, reported on NSCC CTS |
| 5 | Fixed | CNS | T | T+4 and on | Elig | Settles T+4, reported on NSCC CTS | Settles T+5, reported on NSCC CTS |
| 6 | Fixed | CNS | T+1 "As Of" | T | Elig | Settles on T reported on NSCC CTS | Settles T+1 or next settlement date |
| Section B | RTTM Trade matching for non-CNS eligible (Balance Order) CUSIPs | | | | | | |
| 7 | Fixed | Balance Order/DTC | T | T | Inelig | N/A | N/A |
| 8 | Fixed | Balance Order/DTC | T | T+1 | Elig | Settles T+1, reported on NSCC CTS | Settles T+2, reported on NSCC CTS |
| 9 | Fixed | Balance Order/DTC | T | T+2 | Elig | Settles T+2, reported on NSCC CTS | Settles T+3, reported on NSCC CTS |
| 10 | Fixed | Balance Order/DTC | T | T+3 | Elig | Settles T+3, reported on NSCC CTS | Settles T+4, reported on NSCC CTS |
| 11 | Fixed | Balance Order/DTC | T | T+4 and on | Elig | Settles T+4, reported on NSCC CTS | Settles T+5, reported on NSCC CTS |

| | | | | | | | |
|-----------|-------|--|---|--|------|---|-------------------------------------|
| 12 | Fixed | Balance Order/DTC | T | T+1 (As Of) | Elig | Settles on T reported on NSCC CTS | Settles T+1 or next settlement date |
| Section C | | 'Regular Way' and 'When-Issued' trades in new Municipal Bond issuances | | | | | |
| 13 | Fixed | CNS | T | S/D = Issue Date (I/D) | Elig | Settles on Issue Date, reported on NSCC CTS | |
| 14 | Fixed | CNS | T | <p>S/D = Issue Date +1</p> <p>(I/D is 2 days after T in this example, so S/D = T+3).</p> <p>Firms must submit with Extended Settlement Days of 01 in CMU RTTM.</p> | Elig | Elig (Processed as WI in CMU RTTM) | |
| 15 | Fixed | Balance Order/DTC | T | S/D = Issue Date (I/D) | Elig | Settles on Issue Date, reported on NSCC CTS | |
| 16 | Fixed | Balance Order/DTC | T | <p>S/D = Issue Date +1</p> <p>(I/D is 2 days after T in this example, so S/D = T+3).</p> <p>Firms must submit with Extended Settlement Days of 01 in CMU RTTM.</p> | Elig | Elig (Processed as WI in CMU RTTM) | |
| 17 | Fixed | CNS | T | <p>S/D = Issue Date +1</p> <p>(I/D is 2 days after T in this example, so S/D = T+3).</p> <p>Firms must submit with No Extended Settlement Days in CMU RTTM.</p> | Elig | Elig (Processed as RW in CMU RTTM) | |
| 13 | Fixed | CNS | T | S/D = Issue Date (I/D) | Elig | Settles on Issue Date, reported on NSCC CTS | |

Test Scenario – OCC Trades

On specific, designated testing dates, DTCC and OCC will provide Members the opportunity to test the full lifecycle of OCC trades under T+1 scenario. Testing will be conducted over a two-week cycle beginning Monday prior to Expiration date and continuing through the delivery settlement the following week.

To facilitate this testing, the OCC will copy all production data from start-of-day backup as of the Monday prior to the options Expiration date to its test environment.

- Products/series will include the applicable production series available as of the market open Monday prior to the expiration date
- Members will be able to interact with this data in OCC's test environment (e.g., to exercise options) between 8:00 and 12:00 on regular business days
- OCC will run its normal assignment process in the test environment
- Delivery obligations from OCC to NSCC's UTC in the test environment would be driven off position exercise/ assignment processing at OCC's test environment, and would be received by NSCC's UTC in the test environment
- NSCC will replicate production clearing and settlement processing of OCC trades in the test environment
 - NSCC will utilize the SMF data in the test environment, to determine eligibility of securities underlying test trades (such as CNS eligibility), and will process the test trades accordingly
 - OCC trades will be reported on CTS Cycle 2, which will be produced on T+1
- OCC generated trades will be netted with other trades received by NSCC, resulting in a net settlement obligation which will ultimately be routed to DTC for settlement
- Firms that want to test OCC trades under T+1 conditions must connect with OCC's and DTCC's respective test environments
- Firms will be required to register for each two-week testing window and there will be a firm cutoff for registration with OCC
- Please contact the OCC External Test team ext_test@theocc.com to register for testing or request new connectivity to the OCC's test environment-note: the existing external test connectivity can be leveraged
- As stated before, firms that are only interested in testing NSCC processing of OCC trades can utilize NSCC's Transaction Management Tool to simulate an OCC E&A trade and directly submit these trades to NSCC's trade capture application (UTC) in the test environment for processing

ITP

Clients should leverage the industry guidance supplied on [DTCC's T+1](#) site as they perform their T+1 readiness and determine the systems, applications, and services to be included in T+ 1 readiness activities for their organization. Full end to end testing of client workflows is recommended, including the use of ITP CTM® with any supplemental workflows such as ITP Settlements Management (SM), ITP CTM® Auto Affirmation (USDA), and ITP Match to Instruct (M2i)

ITP CTM® already supports T+1 settlement for other markets. There are no system changes to CTM® needed to support T+1 for trades settling in the United States of America. Clients should assess their existing configurations on CTM®, and other systems in their overall workflow and adjust as needed to ensure an optimized workflow. Clients are encouraged to test with a counterparty. DTCC can be engaged to support workflow efficiency and testing support as needed.

ITP CTM®

The CTM® solution provides seamless connectivity from trade execution to settlement, including direct connectivity via FIX from front office to middle office trade processing as well as via the SWIFT network to a full community of custodian banks for the purposes of settlement notification. When used in conjunction with ITP ALERT®, you can automatically enrich trades with account and standing settlement instructions (SSI), ensuring all account information is accurate. The ITP CTM platform already supports markets that are using a T+1 settlement cycle.

ITP TradeSuite ID®

TradeSuite ID delivers substantial efficiency and cost savings to firms through automated electronic trade agreement between counterparties. This streamlined end-to-end process reduces operational risk by eliminating manual and verbal communications, while accelerating the time from trade date to settlement. Since firms no longer need to generate and deliver paper confirmations to counterparties, the savings from printing, mailing, and storing trade documents can be significant.

In an environment where change is constant and reliability often elusive, TradeSuite ID's solid history and 99.99% availability supporting mission-critical operations stands out. It sets the bar for dependability of electronic trade agreement — even at high volumes of over 2 million confirmations per day.

ITP CTM® T+1 Client Considerations

While CTM® will support T+1 without any changes to the core application, clients may want to incorporate CTM® as part of overall testing. DTCC recommends that clients consider the scenarios below to ensure they comprehensively prepare for T+1 across their entire end-to-end trade workflows.

Buy Side Clients

1. **Are we using broker matching groups? Should we start using BICs?**

Clients can log into the CTM® Client Facing Dashboard to review the broker matching group (BRMG) setups. Clients may have created BRMGs without them being actively in use. Client should review their internal application or vendor configurations to determine if using BRMGs. For those that are, DTCC recommends the supplemental use of View Only Broker as defined in [CTM: View Only Broker: Implementation Guide and Procedures](#). This is important in scenarios where the broker BIC appears on multiple BRMG's which results in their inability to see trades alleged against them before matching.

2. **Should we change our matching profiles?**

No changes are required but DTCC recommends reviewing matching profiles and adhering to [L2 Block and Allocation Matching Best Practices](#) in order to promote efficiency.

Sell Side Clients

1. **Are we able to see allocations alleged against us on CTM®?**

Being able to see counterparty alleged trades will help with exception processing. DTCC recommends that clients implement processes to ensure their ability to identify alleged trades from counterparties. The supplemental use of CTM's View Only Broker functionality as defined in [CTM: View Only Broker: Implementation Guide and Procedures](#), is a means to mitigate against not being able to see alleged trades.

All Clients

1. **When do we typically provide or receive executed price on our last trade?**

Clients should examine all segments of their trade lifecycle and attempt to mitigate any areas where they experience delay. For example, if executed price is not communicated timely manner, or not leveraged upon receipt, all parties to trade will have less time for the remainder of the trade lifecycle to be executed.

2. **Where are our users located and when do they stop using CTM® each day?**

Clients should make an assessment to determine if they have staff properly positioned to handle exceptions on T0. Where needed, the client's CTM® Product Administrator can elect to register additional users and product administrators for CTM®.

3. **Are there any ITP products or services we can pair with CTM® to be more efficient?**

Yes, ITP products and CTM workflows support the shared goal to settle successfully by T+1. This includes the use of ALERT to manage standing settlement instructions and automate the enrichment of them on CTM transactions. CTM offers the USDA & Match to Instruct (M2i) workflows which can facilitate the auto-affirmation of broker confirms. For more information visit [Institutional Trade Processing \(ITP\)](#) for a complete listing of products and services. DTCC recommends discussing products of interest with your sales executive.

4. **How long is it taking us to reach match agreed status in CTM®? Is there any way to gauge our efficiency with CTM®?**

Clients should review and understand how they perform on CTM® both in terms of how long it takes to reach match agreed and how much intervention is need. [ITP Data Analytics](#) is a powerful tool recommended to give clients better insight into their CTM® efficiency. Where issues cannot be mitigated, DTCC recommends that clients [contact DTCC ITP](#) to engage in conversations and determine the appropriate support model.

5. **What systems are in our workflow; do they require coding or configuration changes and are there any dependencies on CTM®?**

Clients are encouraged to incorporate any systems involved in their workflow into their T+1 readiness and testing plans. There should be an understanding of the overall workflow and where CTM® fits, including what systems depend on CTM®, and what systems CTM® depends on. Clients can reach out to the DTCC ITP CCC if interested in workflow analysis driven by DTCC Consulting Services.

6. **Since it already supports T+1 markets, do I need to incorporate CTM® into any of my testing?**

ITP CTM® clients are encouraged to execute the applicable testing recommended within this

DTCC T+1 Detailed Testing Document. During that testing, DTCC recommends incorporating CTM® in a manner consistent with client's workflows, including the use of any additional systems supporting the trade lifecycle. Clients with trades supported outside of CTM® are encouraged to discuss the possibility of migrating traffic to CTM® with their account executive at ITP.

7. What if we can't align on testing with a counterparty?

DTCC recommends T+1 testing be done with a counterparty where possible. As needed DTCC can help facilitate testing, including through the options provided in the section below titled *ITP T+1 Testing Support*.

ITP TradeSuite ID® T+1 Client Considerations

TradeSuite ID® system cutoff times are being adjusted in support of T+1. Clients should review their existing workflows, to ensure they can handle an increase in the volume of messages due to the shorter timeframe to affirmation. For example, confirms that may have been submitted on T+1, will now need to be sent on T. Advice of Cancel/Corrections, Affirmations, Reversals, Cancels and Resubmissions will now take place on T as well.

TradeSuite ID® clients communicating via a batch processing should review their batch schedules to ensure they will be able to perform all affirmation and exception processing as needed within the shortened settlement cycle.

ITP TradeSuite ID® Clients should execute the testing recommended within this DTCC T+1 Detailed Testing Document. As described in the above considerations, CTM® can be incorporated into the tests to achieve a match agreed trade as part of the workflow leading to the TradeSuite ID® Confirm process.

ITP T+1 Testing Support

CTM Auto Responders:

- Buy side clients may target AUTOBKMAXXX when attempting to reach Match Agreed on a CTM® trade regardless of settlement date.
- Buy side clients seeking to incorporate the CTM® Auto Affirmation (USDA) workflow may target CTMBRTOTSAR, regardless of settlement date.
- Sell side clients may target AUTOIM01XXX when attempting to reach Match Agreed on a CTM® trade regardless of settlement date.

For a full list of Auto Responders please reach out to DTCC ITP's Client Contact Center ("CCC").

TradeSuite Auto Responders

- Clients may send a confirm to institutional ID 64093 when performing tests that require the affirmation of confirms by the investment manager.
- Clients may send a confirm to the agent ID 50721 when performing tests that require the affirmation of confirms by the agent.

- Clients may send a confirm to the prime broker ID 94761 when performing CNS settlement tests that require the affirmation of confirms by the prime broker.

Client Contact Center:

Should the auto responders described above not meet your needs, DTCC ITP's Client Contact Center ("CCC") will provide limited ad hoc testing support for all ITP products. Clients can submit confirms to institution ID# 73735 and the CCC will affirm all received at this ID without the need for any other communication (*please use the auto responder described above as your first approach if viable*).

Integration & Professional Services:

DTCC ITP Integration will is available for clients seeking support related to more complex testing, workflow analysis and consultation. Clients should submit their testing needs to the CCC for vetting.

Contacting ITP

ITP Client Contact Center

Clients may reach out to the ITP Client Contact Center ("CCC") to engage support engineers for troubleshooting, general questions, limited ad hoc testing support, and guidance on any general T+1 questions. The CCC can be engaged via:



+1 (877) 664 – 3625



[MyDTCC for ITP Clients](#)

Support Engineers are available to answer your call 24 hours a day, 6 days a week - in 7 languages

ITP Sales

Clients may reach out directly to their sales executives if they wish to learn more about ITP Products or to establish new setups as part of their T+1 readiness. Clients may make a [general inquiry to ITP Sales](#) and a member of the team will follow up appropriately.

ITP Partners

[DTCC Partners](#) providing interfaces to CTM® and TradeSuite ID® are encouraged to reach out to their Partners contact or partners@dtcc.com.

TradeSuite Specific Test Scenarios

ITP clients can test trade matching and/or affirmation in a T+1 scenario for all institutional trades, including ID

Net-eligible trades, prime broker trades (CNS) and non-ID Net institutional trades (PDQ). DTCC will establish suggested test scenarios for testing and will assign specific CUSIPs to these scenarios. Where needed these scenarios will include CTM.

This will include:

- CUSIPs for various product types (Equity, Fixed Income), Regular Way (RW) and When-Issued (WI) securities
- CUSIPs with non-DTC settlement location
- CUSIPs with positions in DTC and CUSIPs without positions in DTC.

ITP's existing processing lifecycle is replicated in the test environment and all applicable inputs and outputs are available for testing.

The trade matching/affirmation cut-off times in the test environment will mirror the T+1 production time schedule. That is, test transactions must be affirmed by 9PM ET on T to benefit from automatic introduction of these transactions into NSCC and DTC.

ITP's existing production and test environments can process transactions with multiple settlement timeframes (T, T+1, T+2, T+3, T+n) with the settlement date contained on the trade input.

- Broker-Dealers will submit test transactions to ITP's TradeSuite application in the test environment utilizing production input formats (such as via CCF, TS Web, MQ, PBS) Broker-Dealers that elect to test institutional trade matching will need to pair up with a counterparty for testing:
 - Broker-Dealers and Prime Brokers in the test environment would need to pair up for testing in prime broker transactions
 - Broker-Dealers and Custodian-Banks/Institutions would need to pair up for testing in ID Net and non-ID Net institutional transactions
- Broker-Dealers are expected to submit multiple transactions for each scenario to test match/affirm at different times in the trade lifecycle (affirmed by 9PM ET on T)
- Test transactions will be processed as in production:
 - All applicable eligibility checks will be performed
 - Matched/Affirmed eligible transactions will be routed to DTC/NSCC for downstream processing
- All applicable Institutional confirmation and report outputs will be available in the test environment
- TradeSuite ID will be available 24x6, Sunday 12:00 ET – Saturday 16:00 ET. Members can submit trades at any time within this window.
- For Direct interface any transaction submitted during TradeSuite's downtime is left on the queue and TradeSuite will process once its back up.
- Participants will have to submit their DTC ID ANE Authorizations and Exemptions by 10:45PM ET on Good Friday and on Bank Holidays and not the preceding business day.

High-Level Summary of Scripted Test Scenarios

Section A test scenarios: Test trade matching and/or affirmations cut-off for ID Net-Eligible transactions, Prime Broker transactions (CNS) and non-ID Net-eligible (PDQ) transactions utilizing “Regular Way” CUSIPs

- Members can assign various settlement dates to test transactions (T, T+1, T+2, T+3..T+n)
- Transactions settling the same day (Trade Date=Settlement Date) will be ineligible for automated settlement processing via ID Net, CNS or PDQ processing (scenarios 1 and 6). These transactions can settle via DTC Deliver Order (DO) functionality
- Testing with future settlement dates (T+2, T+3, T+n) will be processed as follows:
 - ID Net-eligible transactions (scenarios 3 through 5 and scenarios 8 through 10)
 - Transactions that are affirmed by 9PM on S-1 will be eligible for ID Net processing and will be automatically sent to DTC’s Inventory Management System (IMS) and subsequently sent to NSCC for down- stream processing
 - Transactions affirmed after 9PM on S-1 will not be eligible for NSCC’s ID Net processing.
 - Transactions that are affirmed after 9PM on S-1 will be sent to IMS, but marked as a late affirm in TradeSuite. The process to settle these transactions is through the LMIT or by participant deliver order input.
 - Non-ID Net/PDQ transactions (scenarios 3 through 5, and scenarios 8 through 10)
 - Transactions that are affirmed by 9PM on S-1 will be eligible for PDQ processing and will be automatically introduced into DTC once authorized by a participant.
 - Transactions that are affirmed after 9PM on S-1 will be sent to IMS, but marked late affirm in TradeSuite (LMIT) for those Members that elect LMIT processing or by participant deliver order input.
 - Prime Broker transactions (scenarios 3 through 5, and scenarios 8 through 10)
 - Transactions affirmed by 9PMET on S-1 will be automatically introduced into NSCC
 - Transactions affirmed after 9PMET on S-1 will be sent to IMS / PDQ Trade-for- Trade settlement for those Members that elect LMIT processing or by participant deliver order input.
 - Prime Brokers can also test disaffirmation of Prime Broker transactions in the test environment (cut-off time: 5PM ET on SD)
 - Transactions with non-DTC settlement location (e.g. Fed-eligible securities) will be ineligible for PDQ, ID Net or CNS processing (scenarios 11 through 15)

Section B test scenarios: Test transactions with ‘non-DTC’ settlement locations (scenarios 16 through 30)

- Transactions with ‘non-DTC’ settlement are eligible for ITP processing but are ineligible for settlement
- Section C test scenarios: Test transactions in ‘When-Issued’ securities (scenarios 31 through 40)
Transactions in ‘When Issued Securities’ are eligible for ITP processing but are ineligible for settlement

| ITP T+1 Test Scenarios | | | | | | | | | |
|------------------------|---|----------|---------------------|---------------|-----------------|--|------------------------|---|-------------------|
| | WI/Reg Way | Sec Type | Settlement Location | Business Date | Settlement Date | Eligible/ Ineligible for DTC/NSCC processing | Affirmed by S-1 9PM ET | Affirmed between S-1-9PM ET - SD 11:30AM ET | Affirmed after SD |
| Section A | Trade Matching for ID Net eligible, Prime Broker (CNS) and Non-ID Net (PDQ) trades utilizing Regular Way CUSIPs | | | | | | | | |
| 1 | Reg Way | Equity | DTC | T | T | Inelig | Inelig | Inelig | Inelig |
| 2 | Reg Way | Equity | DTC | T | T+1 | Elig | PDQ or CNS or ID-Net | LIMIT | Inelig |
| 3 | Reg Way | Equity | DTC | T | T+2 | Elig | PDQ or CNS or ID-Net | LIMIT | Inelig |
| 4 | Reg Way | Equity | DTC | T | T+3 | Elig | PDQ or CNS or ID-Net | LIMIT | Inelig |
| 5 | Reg Way | Equity | DTC | T | T+4 and on | Elig | PDQ or CNS or ID-Net | LIMIT | Inelig |
| 6 | Reg Way | Fixed | DTC | T | T | Inelig | Inelig | Inelig | Inelig |
| 7 | Reg Way | Fixed | DTC | T | T+1 | Elig | PDQ or CNS or ID-Net | LIMIT | Inelig |
| 8 | Reg Way | Fixed | DTC | T | T+2 | Elig | PDQ or CNS or ID-Net | LIMIT | Inelig |
| 9 | Reg Way | Fixed | DTC | T | T+3 | Elig | PDQ or CNS or ID-Net | LIMIT | Inelig |
| 10 | Reg Way | Fixed | DTC | T | T+4 and on | Elig | PDQ or CNS or ID-Net | LIMIT | Inelig |
| 11 | Reg Way | Equity | Non-DTC | T | T | Inelig | Inelig | Inelig | Inelig |
| 12 | Reg Way | Equity | Non-DTC | T | T+1 | Inelig | Inelig | Inelig | Inelig |
| 13 | Reg Way | Equity | Non-DTC | T | T+2 | Inelig | Inelig | Inelig | Inelig |
| 14 | Reg Way | Equity | Non-DTC | T | T+3 | Inelig | Inelig | Inelig | Inelig |
| 15 | Reg Way | Equity | Non-DTC | T | T+4 and on | Inelig | Inelig | Inelig | Inelig |
| Section B | Trades with non-DTC settlement location | | | | | | | | |
| 16 | Reg Way | Fixed | Non-DTC | T | T | Inelig | Inelig | Inelig | Inelig |
| 17 | Reg Way | Fixed | Non-DTC | T | T+1 | Inelig | Inelig | Inelig | Inelig |
| 18 | Reg Way | Fixed | Non-DTC | T | T+2 | Inelig | Inelig | Inelig | Inelig |
| 19 | Reg Way | Fixed | Non-DTC | T | T+3 | Inelig | Inelig | Inelig | Inelig |
| 20 | Reg Way | Fixed | Non-DTC | T | T+4 and on | Inelig | Inelig | Inelig | Inelig |
| 21 | When-Issued | Fixed | Non-DTC | T | T | Inelig | Inelig | Inelig | Inelig |
| 22 | When-Issued | Fixed | Non-DTC | T | T+1 | Inelig | Inelig | Inelig | Inelig |
| 23 | When-Issued | Fixed | Non-DTC | T | T+2 | Inelig | Inelig | Inelig | Inelig |
| 24 | When-Issued | Fixed | Non-DTC | T | T+3 | Inelig | Inelig | Inelig | Inelig |
| 25 | When-Issued | Fixed | Non-DTC | T | T+4 and on | Inelig | Inelig | Inelig | Inelig |
| 26 | When-Issued | Equity | Non-DTC | T | T | Inelig | Inelig | Inelig | Inelig |
| 27 | When-Issued | Equity | Non-DTC | T | T+1 | Inelig | Inelig | Inelig | Inelig |
| 28 | When-Issued | Equity | Non-DTC | T | T+2 | Inelig | Inelig | Inelig | Inelig |
| 29 | When-Issued | Equity | Non-DTC | T | T+3 | Inelig | Inelig | Inelig | Inelig |
| 30 | When-Issued | Equity | Non-DTC | T | T+4 and on | Inelig | Inelig | Inelig | Inelig |

| ITP T+1 Test Scenarios | | | | | | | | | |
|------------------------|------------------------------------|----------|---------------------|---------------|-----------------|--|------------------------|---|-------------------|
| | WI/Reg Way | Sec Type | Settlement Location | Business Date | Settlement Date | Eligible/ Ineligible for DTC/NSCC processing | Affirmed by S-1 9PM ET | Affirmed between S-1-9PM ET - SD 11:30AM ET | Affirmed after SD |
| Section C | Trades in 'When-Issued' securities | | | | | | | | |
| 31 | When-Issued | Equity | DTC | T | T | Inelig | Inelig | Inelig | Inelig |
| 32 | When-Issued | Equity | DTC | T | T+1 | Inelig | Inelig | Inelig | Inelig |
| 33 | When-Issued | Equity | DTC | T | T+2 | Inelig | Inelig | Inelig | Inelig |
| 34 | When-Issued | Equity | DTC | T | T+3 | Inelig | Inelig | Inelig | Inelig |
| 35 | When-Issued | Equity | DTC | T | T+4 and on | Inelig | Inelig | Inelig | Inelig |
| 36 | When-Issued | Fixed | DTC | T | T | Inelig | Inelig | Inelig | Inelig |
| 37 | When-Issued | Fixed | DTC | T | T+1 | Inelig | Inelig | Inelig | Inelig |
| 38 | When-Issued | Fixed | DTC | T | T+2 | Inelig | Inelig | Inelig | Inelig |
| 39 | When-Issued | Fixed | DTC | T | T+3 | Inelig | Inelig | Inelig | Inelig |
| 40 | When-Issued | Fixed | DTC | T | T+4 and on | Inelig | Inelig | Inelig | Inelig |

In addition to above listed scenarios to test trade matching cut-off under T+1 conditions, Members who participate in the ID Net service can send a one-time request to DTCC Integration during the T1 testing window to assist them with scripted testing of the following ID Net scenarios:

- ID Net test transactions that settle at DTC by 11:30 ET on SD (“Made”)
- ID Net Reversal of test transactions that do not settle by 11:30 ET on SD
- ID Net Reversal of test transactions that are cancelled

| T+1 Test Scenarios for ID Net-Eligible Transactions | | | | |
|---|--|-------------------------------|------------------------------|----------------------------|
| Section | | CNS OUTPUT | | |
| | | Position Prior to Night Cycle | Night Miscellaneous Activity | Day Miscellaneous Activity |
| Section A | Some ID Net trades settle and some do not. The later are reversed on SD | | | |
| 1 | Bank and Executing Broker have customer sell trade affirmed on T before 9:00 PM ET | Yes | Yes | N/A |
| 2 | Bank and Executing Broker have customer buy trade affirmed on T before 9:00 PM ET | Yes | Yes | N/A |
| 3 | Bank and Executing Broker have customer sell trade affirmed on T before 9:00PM ET | Yes | Yes | N/A |
| 4 | Bank and Executing Broker have customer buy trade affirmed on T before 9:00 PM ET | Yes | Yes | N/A |
| 5 | Bank delivers ID trade (#3) to 719 by 11:30 AM ET on settlement date | N/A | N/A | No |
| 6 | Bank receives ID trade (#2) from 919 by 11:30 AM ET on settlement date | N/A | N/A | No |
| 7 | (Reversal) Bank does not deliver ID trade (#1) to 719 by 11:30 AM ET on settlement date | N/A | N/A | Yes |
| 8 | (Reversal) Bank does not receive ID trade (#4) from 919 by 11:30 AM ET on settlement date (Bank does not approve if delivery hits RAD) | N/A | N/A | Yes |
| Section B | Broker Cancels ID Net Trade; cancels are reversed before start of night cycle | | | |
| 9 | Bank and Executing Broker have customer sell trade affirmed on T before 9:00 PM ET. However, before night cycle on SD, Executing Broker or Custodian Bank cancels ID Net trade | No | No | N/A |
| 10 | Bank and Executing Broker have customer buy trade affirmed on T before 9:00 PM ET. However, before night cycle on SD, Executing Broker or Custodian Bank cancels ID Net trade | No | No | N/A |

Wealth Management Services – Fund/SERV®

Fund/SERV clients can use the existing test capabilities to test any changes to the standard settlement date of Fund/ SERV securities. No new testing functionality is required specifically for T+1.

DTC Asset Services – Corporate Actions

DTCC will enable Members to test Corporate Action processing under T+1 conditions. This includes:

- Test scenarios where DTC has functional changes:
 - Scenarios/Events related to the interim accounting process when the Ex-Dividend Date (a.k.a. Ex-Date) ruled by an Organized Securities Exchange is deemed to be “irregular way”
 - IVORS process for UIT Redemptions and UIT Rollovers
- Test scenarios where DTC does not have any functional changes:
 - Scenarios / Events related to “regular way” Ex-Date processing
 - PTOP/PSOP will be available for Member testing to test shortened Cover/Protect windows

DTCC will create corporate action test events and assign specific CUSIPs for each test event. These CUSIPs will be provided in Q2/2023 with the other CUSIPs supporting the industry T+1 test.

Testing will be available in the T+1 test environment (PSE U) using the CA Web, Settlement Web, and Participant Browser System (PBS) mediums. ISO 20022 for Corporate Actions will also be available for firms wishing to subscribe to test their full end-to-end processes. Testing for ISO 20022 for Corporate Actions is voluntary and not required. Additional information regarding connectivity to CA Web, PBS, and ISO 20022 will be available on [UST1.org](https://www.ust1.org).

DTCC will provide for testing the full corporate action lifecycle, i.e., DTCC will create corporate action events, generate announcements, capture positions, receive instructions, and allocate corporate action proceeds. In addition to ensuring that their systems are compatible with the specific corporate action changes related to T+1, Members are encouraged to execute transactions on and around the key corporate action dates to ensure internal position capture, allocation and reconciliation processes are functioning correctly.

The following detailed Corporate Actions test scenarios will be available for testing in the T+1 test environment (PSE U):

Scenario 1: “Regular Way” Ex-Date processing where Ex-Date, as determined by an Organized Securities Exchange, equals Record Date will be available for cash distribution events such as Cash Dividends, Capital Gains and others as well as stock distribution events such as Stock Dividends, Rights Distributions.

- Members should focus their testing on entitlements (i.e., position eligible for the event’s distribution) once Record Date position capture occurs. Additional focus should be on trading activities prior to, on and after the event’s Ex-Date. Members will be able to view their entitlements, projected payments, allocations, and any applicable adjustments related to fail tracking, repos and stock loans via the CA Web application or using the applicable ISO 20022 message.

Important considerations for Scenario 1:

- Canadian Distributions will be announced and processed during the T+1 testing effort
- The Elective Dividend Service (EDS) process will be supported for Scenario 1 in certain cases to support the Tax Relief, Optional Dividends, Voluntary DRIP and DRIP Opt-out services for cash distribution events. Testing will be available via CA Web and ISO 20022 and will be voluntary and not required. If specific requests are needed for the EDS process in the T+1 test environment (PSE U) requests should be sent to ust1@dtcc.com. Members should note the event expiration cut-off times on the CA Web Event Record Detail announcement if they will be testing this EDS process in the T+1 test environment (PSE U)
- Adjustments (Stock Loan/Repos/Fail Tracking and Misc/GL) tracking will be available for testing in the T+1 test environment (PSE U) but not required for testing. Members wishing to test adjustment tracking should ensure they use Deliver Orders (DOs) that have the tracking reason codes required to ensure that the DO is picked-up for tracking

Scenario 2: “Irregular Way” Ex-Date processing where Due Bill Off Date (a.k.a. Settlement Date or Due Bill Redemption Date), as determined by an Organized Securities Exchange, equals Ex-Date for cash distribution events such as Cash Dividends, Capital Gains, and others as well as stock distribution events such as Stock Splits, Stock Dividends, and Spin Offs.

- Members should focus their testing on entitlements (i.e., position eligible for the event’s distribution), during the Interim Accounting period between Record Date and Due Bill Off Date. Additional focus should be on trading activities during the Interim Accounting period. Members will be able to view their entitlements, projected payments, allocations, and any applicable adjustments related to fail tracking, repos and stock loans via the CA Web application or using the applicable ISO 20022 message.

Important considerations for Scenario 2:

- Canadian Distributions will be announced and processed during the T+1 testing effort
- The Elective Dividend Service (EDS) process will be supported for Scenario 1 in certain cases to support the Tax Relief, Optional Dividends, Voluntary DRIP and DRIP Opt-out services for cash distribution events. Testing will be available via CA Web and ISO 20022 and will be voluntary and not required. If specific requests are need for the EDS process in the T+1 test environment (PSE U) requests should be sent to ust1@dtcc.com
- Members should note the event expiration cut-off times on the CA Web Event Record Detail announcement if they will be testing this EDS process in the T+1 test environment (PSE U)
- Adjustments (Stock Loan/Repos / Fail Tracking and Misc/GL) tracking will be available for testing in the T+1 test environment (PSE U) but is not required to be tested. Members wishing to test adjustment tracking should ensure they use Deliver Orders (DOs) that have the tracking reason codes required to ensure that the DO is picked-up for tracking

Scenario 3: IVORS – Redeem UITs at the Transfer Agent (TA) or Sponsor to test the systematically generated Settlement Date now equaling Transaction Date plus one business day.

- Members who utilize the IVORS service at DTC will be able to test functionality changes in the IVOR/NIVR (for Night IVORS submissions) application via PTS or PBS and track the instruction through cash allocation on Transaction Date plus one business day
- UIT Transfer Agents and Sponsors who wish to test the IVORS suite of applications should send requests to ust1@dtcc.com

Scenario 4: IVORS – Rollover UITs at the Transfer Agent (TA) or Sponsor to test the systematically generated Settlement Date now equaling Transaction Date plus one business day.

- Members who utilize the IVORS service at DTC will be able to test functionality changes in the IVOR/NIVR (for Night IVORS Submissions)
- application via PTS or PBS and track the instruction through allocation of new UITs on Transaction Date plus one business day
- UIT Transfer Agents and Sponsors who wish to test the IVORS suite of applications should send requests to ust1@dtcc.com

Scenario 5: PTOP Cover/Protect processing for Voluntary Reorganizations. DTC Members will be able to test the ability to input a protect on a Voluntary Tender Offer or Voluntary Exchange Offer in the PTOP application in /PBS mediums and cover that protect in PTOP to simulate a shortened Cover/Protect Expiration window once the migration to a T+1 settlement cycle is implemented.

- Members should focus their testing when an offer has a Guarantee of Delivery feature, and the Member does not have position or enough position in their account in the T+1 test environment (PSE U) and wants to simulate participating in the offer prior to the offer's Expiration Date or on the offer's Expiration Date. To do so properly, the Member will need to have position delivered into their account prior to the Cover/Protect Expiration Date and then cover that protect. This testing will be available via CA Web Announcements and PTOP (PBS Voluntary Tenders and Exchanges) via the or PBS mediums and/or ISO 20022 instruction messaging in the T+1 test environment (PSE U)

Important considerations for Scenario 5:

- DTC has not made any functional changes to the Cover/Protect process on the PTOP application. This scenario is available solely for Members looking to simulate a production T+1 settlement cycle
- The Cover/Protect on 'Behalf of Another' feature will be available for testing but is not required to be tested. To use this feature in the T+1 test environment (PSE U) the Members will need to find another Member who is participating in the test for that event to cover the protect on their behalf
- The expiration cut-off times for ATOP I offers will be in line with what they are in the T+1 production environment

Scenario 6: PSOP Cover/Protect processing for Rights Subscriptions. DTC Members will be able to test the ability to input a protect on a Rights Subscriptions in the PSOP application in PTS/PBS and/or ISO 20022 mediums and cover that protect in PSOP to simulate a shortened Cover/Protect Expiration window once the migration to a T+1 settlement cycle is implemented.

- Members should focus their testing when an offer has a Guarantee of Delivery feature, and the Member does not have position or enough position in their account in the T+1 test environment (PSE U) and they want to simulate participating in the offer prior to the offer's Expiration Date or on the offer's Expiration Date. To do so properly, the Member will need to have position delivered into their account prior to the Cover/ Protect Expiration Date and then cover that protect. This testing will be available via CA Web Announcements and PSOP (PBS Rights Subscriptions) via the PTS/PBS mediums in and/or ISO 20022 instruction messaging in the T+1 test environment (PSE U)

Important considerations for Scenario 6:

- DTC has not made any functional changes to the Cover/Protect process on the PSOP application. This scenario is available solely for Member testing to simulate a production T+1 settlement cycle
- The Cover/Protect on Behalf of Another feature will be available for testing but is not required to be tested
- To use this feature in the T+1 test environment the Member will need to find another Member who is participating in the test for that event to cover the protect on behalf of their behalf
- The expiration cut-off times for ASOP I offers will be in line with what they are in the T+1 production environment

DTC will produce event announcements as described within during a two-week cycle. The actual event announcements will be communicated to DTC Members testing in the T+1 test environment (PSE U) prior to testing commencing. All inquiries concerning Corporate Actions T+1 testing performed in the T+1 test environment (PSE U) should be sent to ust1@dtcc.com

| Corporate Actions T+1 Test Scenarios | Medium | Output Available* |
|--|---|--|
| Scenario 1: Regular Way Ex-Date (Ex-Date = Record Date) | | |
| Cash Dividend (including Cash Distributions such as Capital Gains, Special Dividends, Liquidations, etc.) event ** | CA Web Announcement | ISO 20022 CANO |
| Record Date Position | CA Web Entitlements | ISO 20022 CANO-E |
| Projected Payment | CA Web Entitlements | ISO 20022 CAPA |
| Allocation | CA Web Entitlements, Allocation Overview | ISO 20022 CACO |
| Stock Loan, Repo or Fail Tracked Adjustment *** | CA Web Entitlements, Adjustments, Allocation Overview, Adjustments Overview | ISO 20022 CANO-E, CAPA, CAPS, CACO |
| Stock Split event | CA Web Announcement | ISO 20022 CANO |
| Record Date Position | CA Web Entitlements | ISO 20022 CANO-E |
| Projected Payment | CA Web Entitlements | ISO 20022 CAPA |
| Allocation | CA Web Entitlements, Allocation Overview | ISO 20022 CAC |
| Stock Loan, Repo or Fail Tracked Adjustment *** | CA Web Entitlements, Adjustments Allocation Overview, Adjustments Overview | ISO 20022 CANO-E, CAPA, CAPS, CACO |
| Stock Dividend event | CA Web Announcement | ISO 20022 CANO |
| Record Date Position | CA Web Entitlements | ISO 20022 CANO-E |
| Projected Payment | CA Web Entitlements | ISO 20022 CAPA |
| Allocation | CA Web Entitlements, Allocation Overview | ISO 20022 CACO |
| Stock Adjustment or Fail Tracked Adjustment *** | CA Web Entitlements, Adjustments, Allocation Overview, Adjustments Overview | ISO 20022 CANO-E, CAPA, CAPS, CACO |
| Spin Off event (including Spin Off security eligible for DTC services and not eligible for DTC services to be exited) | CA Web Announcement | ISO 20022 CANO |
| Record Date Position | CA Web Entitlements | ISO 20022 CANO-E |
| Projected Payment | CA Web Entitlements | ISO 20022 CAPA |
| Allocation | CA Web Entitlements, Allocation Overview | ISO 20022 CACO |
| Stock Adjustment or Fail Tracked Adjustment *** | CA Web Entitlements, Adjustments, Allocation Overview, Adjustments Overview | ISO 20022 CANO-E, CAPA, CAPS, CACO |
| Rights Distribution event | CA Web Announcement | ISO 20022 CANO |
| Record Date Position | CA Web Entitlements | ISO 20022 CANO-E |
| Projected Payment | CA Web Entitlements | ISO 20022 CAPA |
| Allocation | CA Web Entitlements, Allocation Overview | ISO 20022 CACO |
| Stock Adjustment or Fail Tracked Adjustment *** | CA Web Entitlements, Adjustments, Allocation Overview, Adjustments Overview | ISO 20022 CANO-E, CAPA, CAPS, CACO |
| Note: Depending on interest from clients connected and using ISO 20022 instructions messages for EDS services, DTC would have the ability to open instructions windows for the DRIP (including Opt- Out), Tax Relief, Cash-in-Round (CRS) and Foreign Currency services for the scenarios listed above. | CA Web Instructions | ISO 20022 CAIN, CAIS, CAIC, CACS****, CAST |
| Optional Dividend event | CA Web Announcement | ISO 20022 CANO |

| | | |
|--|---|--|
| Record Date Position | CA Web Entitlements | ISO 20022 CANO-E |
| Instructions | CA Web Instructions | ISO 20022 CAIN, CAIS, CAIC, CACS, CAST |
| Projected Payment | CA Web Entitlements | ISO 20022 CAPA |
| Corporate Actions T+1 Test Scenarios (Continued) | Medium | Output Available* |
| Allocation | CA Web Entitlements, Allocation Overview | ISO 20022 CACO |
| Stock Adjustment *** | CA Web Entitlements, Adjustments, Allocation Overview, Adjustments Overview | ISO 20022 CANO-E, CAPA, CAPS, CACO |
| Scenario 2: Irregular Way Ex-Date (Due Redemption Date = Ex-Date) | | |
| Cash Dividend (including Cash Distributions such as Capital Gains, Special Dividends, Liquidations, etc.) event ** | CA Web Announcement | ISO 20022 CANO |
| Entitled Position (including Interim Accounting) | CA Web Entitlements | ISO 20022 CANO-E |
| Projected Payment | CA Web Entitlements | ISO 20022 CAPA |
| Allocation | CA Web Entitlements, Allocation Overview | ISO 20022 CACO |
| Stock Loan, Repo or Fail Tracked Adjustment *** | CA Web Entitlements, Adjustments, Allocation Overview, Adjustments Overview | ISO 20022 CANO-E, CAPA, CAPS, CACO |
| Stock Split event | CA Web Announcement | ISO 20022 CANO |
| Entitled Position (including Interim Accounting) | CA Web Entitlements | ISO 20022 CANO-E |
| Projected Payment | CA Web Entitlements | ISO 20022 CAPA |
| Allocation | CA Web Entitlements, Allocation Overview | ISO 20022 CACO |
| Stock Loan, Stock Adjustment or Fail Tracked Adjustment *** | CA Web Entitlements, Adjustments Allocation Overview, Adjustments Overview | ISO 20022 CANO-E, CAPA, CAPS, CACO |
| Stock Dividend event | CA Web Announcement | ISO 20022 CANO |
| Entitled Position (including Interim Accounting) | CA Web Entitlements | ISO 20022 CANO-E |
| Projected Payment | CA Web Entitlements | ISO 20022 CAPA |
| Allocation | CA Web Entitlements, Allocation Overview | ISO 20022 CACO |
| Stock Adjustment or Fail Tracked Adjustment *** | CA Web Entitlements, Adjustments, Allocation Overview, Adjustments Overview | ISO 20022 CANO-E, CAPA, CAPS, CACO, |
| Spin Off event (including Spin Off security eligible for DTC services and not eligible for DTC services to be exited) | CA Web Announcement | ISO 20022 CANO |
| Entitled Position (including Interim Accounting) | CA Web Entitlements | ISO 20022 CANO-E |
| Projected Payment | CA Web Entitlements | ISO 20022 CAPA |
| Allocation | CA Web Entitlements, Allocation Overview | ISO 20022 CACO |
| Rights Distribution event | CA Web Announcement | ISO 20022 CANO |
| Entitled Position (including Interim Accounting) | CA Web Entitlements | ISO 20022 CANO-E |
| Projected Payment | CA Web Entitlements | ISO 20022 CAPA |
| Allocation | CA Web Entitlements, Allocation Overview | ISO 20022 CACO |
| Stock Adjustment or Fail Tracked Adjustment *** | CA Web Entitlements, Adjustments, Allocation Overview, Adjustments Overview | ISO 20022 CANO-E, CAPA, CAPS, CACO |
| Note: Based on demand, certain Instructions windows | | |

| | | |
|---|---|--|
| may be opened to facilitate EDS services for DRIP, Foreign Tax Relief and CRS. It must be noted however, that the EDS process is based on Record Date position and normally a second event that is Mandatory with only 1 option is used to facilitate the capture of due bill positions via Interim Accounting. | CA Web Instructions | ISO 20022 CAIN, CAIS, CAIC, CACS****, CAST |
| Optional Dividend event | CA Web Announcement | ISO 20022 CANO |
| Entitled Position (including Interim Accounting) | CA Web Entitlements | ISO 20022 CANO-E |
| Corporate Actions T+1 Test Scenarios (Continued) | Medium | Output Available* |
| Instructions | CA Web Instructions | ISO 20022 CAIN, CAIS, CAIC, CACS, CAST |
| Projected Payment | CA Web Entitlements | ISO 20022 CAPA |
| Allocation | CA Web Entitlements, Allocations Overview | ISO 20022 CACO |
| Scenario 3: IVORS Redeem at TA or Sponsor (Settlement Date = Transaction Date + 1 Business Day) | | |
| View Eligible IVORS CUSIPs | PTS/PBS IVORS Inquiries | No IVORS outputs supported for testing |
| Ensure Available Position in your Settlement Account for Selected CUSIP | PTS/PBS Position Inquiry or Settlement Web | No IVORS outputs supported for testing |
| Input Redeem at TA or Sponsor Instruction | PTS/PBS IVORS Instruction Submissions | No IVORS inputs/outputs supported for testing |
| Inquire About Instructions Status | PTS/PBS IVORS Inquiries Settlement Web | No IVORS outputs supported for testing |
| Confirm Allocated IVORS Transaction | PTS/PBS IVORS Inquiries, or Settlement Web | No IVORS outputs supported for testing |
| Scenario 4: IVORS Rollover at TA or Sponsor (Settlement Date = Transaction Date + 1 Business Day) | N/A | |
| View Eligible IVORS CUSIPs | PTS/PBS IVORS Inquiries | No IVORS outputs supported for testing |
| Ensure Available Position in your Settlement Account for Selected CUSIP | PTS/PBS Position Inquiry or Settlement Web | No IVORS outputs supported for testing |
| Input Rollover at TA or Sponsor Instruction | PTS/PBS IVORS Instruction Submissions | No IVORS inputs/outputs supported for testing |
| Inquire About Instructions Status | PTS/PBS IVORS Inquiries, or Settlement Web | No IVORS outputs supported for testing |
| Confirm Allocated IVORS Transaction | PTS/PBS IVORS Inquiries, or Settlement Web | No IVORS outputs supported for testing |
| Scenario 5: PTOF Cover / Protect Processing (Cover / Protect Expiration Date = Instruction Expiration Date +1)***** | N/A | |
| View Eligible Tender / Exchange Offer Events with Guaranty of Delivery Privileges Attached to the Offer | CA Web Announcements | ISO 20022 CANO |
| Ensure that ATP Settlement Position is 0 | Settlement Web | No Corporate Actions Supported Outputs Available |
| Place a Protect Instruction | PTS/PBS Voluntary Tenders and Exchanges - Submit Instruction - Protect | ISO 20022 CAIN/CAIS |
| Ensure that Position Equaling the Protected Amount or Greater is now in your ATP Settlement Account | PTS/PBS Position Inquiry or Settlement Web for Delivery Orders | No Corporate Actions Supported Outputs Available |
| Once Position is Available, Cover the Protect within 1 Business Day | PTS/PBS Voluntary Tenders and Exchanges - Submit Instruction - Cover Protect Submitted to DTC | ISO 20022 CAIN/CAIS |
| Have Another Contra Party Cover the Protect on your Behalf within 2 Business Days ***** | PTS/PBS Voluntary Tenders and Exchanges - Submit Instruction - Cover Protect on | No Corporate Actions Input Available |

| | | |
|---|---|--|
| | Behalf of Another | |
| Inquire as to Status of the Protect | PTS/PBS Voluntary Tenders and Exchanges - Inquiry | ISO 20022 CAIS, CAST |
| View Allocation of Covered Protect | PTS/PBS Reorg Allocations | ISO 20022 CACO |
| | | |
| Scenario 6: PSOP Cover / Protect Processing (Cover / Protect Expiration Date = Instruction Expiration Date + 1)***** | N/A | |
| View Eligible Tender / Exchange Offer Events with Guaranty of Delivery Privileges Attached to the Offer | PTS/PBS RIPS | ISO 20022 CANO |
| Ensure that ATP Settlement Position is 0 | PTS/PBS Position Inquiry or Settlement Web | No Corporate Actions Supported Outputs Available |
| Place a Protect Instruction | PTS/PBS Rights Subscriptions - Submit Instruction - Protect | ISO 20022 CAIN/CAIS |
| Corporate Actions T+1 Test Scenarios (Continued) | Medium | Output Available* |
| Ensure that Position Equaling the Protected Amount or Greater is now in your ATP Settlement Account | PTS/PBS Position Inquiry or Settlement Web for Delivery Orders | No Corporate Actions Supported Outputs Available |
| Once Position is Available, Cover the Protect within 2 Business Days | PTS/PBS Rights Subscriptions - Cover Protect Submitted to DTC | CAIN/CAIS |
| Have Another Contra Party Cover the Protect on your Behalf within 1 Business Day ***** | PTS/PBS Rights Subscriptions - Cover Protect on Behalf of Another | No Corporate Actions Input Available |
| Inquire as to Status of the Protect | PTS/PBS Rights Subscriptions - Inquiry | ISO 20022 CAIS, CAST |
| View Allocation of Covered Protect | PTS/PBS Reorg Allocations | ISO 20022 CACO |
| | | |
| Critical Information Related to Testing Support / Processes Available | | |
| * Outputs for Corporate Actions in either ISO 20022 or CCF will not be required to test but will be available for firms connected to the T+1 environment. | | |
| ** Canadian Distributions will also be announced and processed during T+2 testing as it is a dependency that Canada makes the move to a T+1 settlement cycle the same timeframe that the US does. | | |
| *** Adjustments (Stock Loan, Repos, Fails and Misc. / GL) tracking will be available but not required for testing. If members wish to test adjustments tracking, they must ensure that they have the proper scenarios occur in their ATP account via special codes on their Delivery Orders. | | |
| **** ISO 20022 Instructions messages for EDS will not be available for the CRS service, as that service is not eligible for messaging. | | |
| ***** For both scenarios 4 and 5 for PTO and PSOP Cover/Protect processes, DTC does not have any systematic changes associated to the T+1 settlement cycle. DTC inputs the dates for the Cover/Protect period based on the language of the Guarantee of Delivery found in the event's offering circular. Both the PTO and PSOP processors will be available and supported to test if firms wish to do so. | | |
| ***** The Cover Protect on Behalf of Another feature will be available for testing online through PTS/PBS but not required. To use the functionality in test, the member must find a contra party that has participated in the offer and will provide position to cover on behalf of the primary test member. | | |

Double Settlement Day Test Scenarios

Testing the Double Settlement Day Scenarios for T+1 implementation (first T+1 settlement day), and Double Settlement Day Scenario for Bank Holiday where the markets remain open, e.g., Columbus Day

DTCC will support the testing of two different double settlement day scenarios – the double settlement day scenario related to a bank holiday where the markets remain open and trading continues to occur, and the double settlement day scenario related to the implementation of T+1.

Testing for Double Settlement Day Scenarios Related to Bank Holiday Post T+1 Implementation

In a double settlement day scenario for bank holiday post the implementation of T+1 will result in activity from two trading days settling on a single day. In this scenario, each day's trading activity will be reported as "regular way" on the CTS for respective trade date. For example, if Monday December 11, 2023 was a bank holiday, trades executed on Friday December 8, 2023 would be reported as regular way trades on the CTS issued Friday, December 8, 2023 and trades executed Monday December 11, 2023 would be reported as regular way trades on the CTS issued Monday, December 11, 2023. Trades from both Friday, December 8 and Monday, December 11 will settle Tuesday, December 12, 2023. There has been an additional Bank Holiday test added in test cycle 15, please refer to the table on page 12. See the above for more detail on the process.

Testing for the first t+1 settlement day/double settlement day scenario

DTCC will provide opportunities for the industry to test a double settlement scenario, where regular way trades executed on the last T+2 trade date and RW trades executed on the first trade day of T+1 will both settle on the same business day. Please refer to the test calendar (table 1) for testing dates. That is, trades done on the last T+2 trading date, November 3, 2023, and trades done on the first T+1 settlement date, Monday, November 6, 2023, will both settle Tuesday, November 7, 2023, in addition trades done on the last T+2 trading date, December 15, 2023, and trades done on the first T+1 settlement date, Monday, December 18, 2023, will both settle Tuesday, December 19, 2023.

Double Settlement scenarios will be tested as follows:

Test Setup (over the weekend):

- DTCC will copy the following production data to the test environment (PSE U):
 - Following completion of the Friday night cycle (for Monday settlement), DTCC will copy each Member's open positions in CNS for Monday settlement, and all trades CNS has projected to settle on Tuesday that were reported on CTS Cycle 1 Friday evening at 9:00 PM EST and CTS Cycle 2 at midnight. **This information will be identical to what will be reported in production on the CNS projection file/report issued Saturday morning at 02:00 ET (Note: CNS will not be copying ACATS positions in Sub-Accounts R&S)**
 - On Friday night, after all UTC goodnight messages have been processed, DTCC will copy all trades scheduled to settle on Wednesday. This will include extended settlement (Seller's Option) trades received prior to Friday that are scheduled to settle on Wednesday

- Members should copy their Friday's **production** data to their own respective test environments
- It is important for Members to note that from this point onwards, each Member's trade data in the test environment will be updated based on transactions processed in the test environment only. As such, data in the test environment may differ from production data

Test Day 1 (T) - Monday

- Members will submit test trades to the T+1 test environment (PSE U); “Regular way” trades will be assigned Tuesday’s settlement date (T+1)
- The CNS Mid-Day Projection will be distributed at 5:00 PM ET and will include current open fails at the close of business for Monday settlement day plus all trades reported on CTS Cycle 1 (distributed Friday) and Cycle 2 (distributed Friday) plus all RW trades received by UTC (on Monday) until 4:30 PM ET.
- NSCC will produce Cycle 1 CTS output, which will include Monday’s test trades for Tuesday’s settlement
- The CNS Position Prior to the night cycle will be distributed at 9:45 PM ET and Members can process exemptions on one day settling short positions settling in the night cycle until 10:45 PM ET (if applicable)

Test Day 2 (T+1) -Tuesday

- No action necessary. Members can elect to submit same day settling test trades. Test trades will be reported on the applicable CTS output distribution
- T+2 trades executed on Friday and T+1 trades executed on Monday will settle
- Please note: Any Member not participating in the double settlement day test, i.e., not copying Friday production data into its test environment, may have difficulty reconciling with DTCC during the double settlement test period since DTCC’s test output will include the Friday night production data copied into the test system.

Below is how the output reporting will occur for the first T+1 Settlement Day Scenario:

| | Last day before conversion (e.g., -5/24//2024) | First day after conversion (e.g., 05/28/2024) |
|----------------------------------|---|---|
| New TFT RT balance order message | No distribution output | Output distributed between 4:00AM – 1:30 PM ET |
| CTS Cycle 3 | Output distributed at 11:45 AM ET | Output distributed at 1:45 PM ET This output will primarily include any trades received by UTC on 05/28/24 that are settling on 05/28/24. |
| CNS Midday Projection | Output distributed at 12:00 PM ET | Output distributed at 5:00 PM ET This output will primarily include the following trades netted and eligible for CNS settlement: <ul style="list-style-type: none"> ▪ All RW trades received by UTC before 4:30 PM ET with a TD = On conversion day (e.g., 05/28/24) and the SD = Next business day settlement or conversion double day settlement (e.g., 05/29/2024) ▪ All RW or SO trades with a TD = Last Day Before the Conversion or before (e.g., 05/24/24 or before) and the SD = conversion double day settlement (e.g., |

| | | |
|-----------------------------------|--|---|
| | | 05/29/2024) |
| CNS Exemption Instruction Input | 6:30 PM ET for First Day after conversion or SD 05/29/24 | 10:45 PM ET for Conversion double day settlement or SD 05/29/24 |
| CNS Position Prior to Night Cycle | Output distributed at 7:00 PM ET | Output distributed at 9:45 PM ET |
| CNS Balance Order | Output distributed at 8:15 PM ET | Output distributed at 10:30 PM ET |
| CNS Night Cycle | 8:30 PM ET | 11:30 PM ET |
| CTS Cycle 1 | Output distributed at 9:30 PM ET | <p>Output Distributed at 10:00PM ET</p> <p>This output will primarily include the following:</p> <p><u>Post Conversion Trades:</u></p> <ul style="list-style-type: none"> RW trade received by UTC with a TD = On conversion day (e.g., 05/28/24) and the SD = Next business day settlement or conversion double day settlement (e.g., 05/29/2024) <p><u>Pre-Conversion Trades:</u></p> <ul style="list-style-type: none"> Any "As of" RW or SO trade received by UTC with a TD = Last Day prior to the conversion or before (e.g., 05/24/24 or before) and the SD = Conversion double day settlement (e.g., 05/29/2024) <p>Note: For conversion settlement date only, NSCC will process any non-CNS pre-conversion trades received on 05/28/24 by 9:00 PM ET (as opposed to 11:30 AM ET time) as guaranteed balance orders (if the traded security is eligible for multilateral netting). These non-CNS trades will be multilaterally netted with the post conversion non-CNS RW 1DS trades (TD=05/28/24 with SD = 05/29/24) received on 05/28/24 to minimize the number of balance orders generated.</p> |
| CTS Cycle 2 | Output distributed at Midnight | <p>Output distributed at 1:30 AM ET</p> <p>CTS Cycle 2 processing and reporting will work way as CTS Cycle 1 for those trades that received in CTS Cycle 2.</p> |
| CNS Output After Night Cycle | Output distributed at 12:30 AM ET | Output distributed at 2:00 AM ET |

Double Settlement Day Test – Bank Holiday Scenario

During certain bank holidays, the markets are open for trading and NSCC, DTC and ITP are open to receive trade activity, though trades will not settle on that day (as an example, Columbus Day).

As a result, under T+1 conditions, regular way settling transactions submitted to NSCC the day before and the day of the bank holiday will both settle one business day following the bank holiday, making that day a “double settlement” day. Similarly, the CTS issued on the day prior to the bank holiday and on the bank holiday will each report regular way trades settling one business day after the bank holiday.

DTCC will enable Members to test Bank Holiday processing/Double Settlement Day scenario on Monday December 11, 2023. For the test, DTCC will modify the PSE U (T+1) test environment to replicate production bank holiday processing as follows:

- NSCC, DTC and ITP in the PSE U will accept test trade input from Members on November 6, 2023, although trades will not settle on that date
 - Test transactions submitted to NSCC’s CMU Real-Time Trade Matching application (RTTM) in the PSE U environment having settlement date of December 11, 2023 will be rejected
 - Test transactions submitted to the ITP Trade Suite application in the PSE U environment having settlement date of December 11, 2023, will be rejected
 - Test transactions submitted to NSCC’s Fund/SERV application (Mutual Fund orders) having settlement date of December 11, 2023 will be rejected
 - Valued DTC Deliver Order (DO) instructions will not be processed in the PSE U environment on December 11, 2023. Instead, they will be carried over and processed on the following business day (December 12, 2023)
 - Free (not for value) DTC DO instructions will be processed in the PSE U on December 11, 2023.
 - NSCC’s Universal Trade Capture system (UTC) in the PSE U environment will deem December 11, 2023 a non-settlement date and will assign settlement dates to Equity Clearing test transactions accordingly
 - Regular way settling transactions submitted to NSCC the day before, and the day of, the bank holiday will both settle the next business day following the holiday (“double settlement” day) as depicted in the below table:

| TRADE DATE (T) | T+1 Settlement Day |
|--|--------------------|
| Thursday 12/7/23 | Friday 12/8/23 |
| Friday 12/8/23 (One Business Day Before Bank Holiday) | Tuesday 12/12/23 |
| Monday 12/11/23 (Bank Holiday) | Tuesday 12/12/23 |
| Tuesday 12/12/23 | Wednesday 12/13/23 |

- NSCC will generate CTS output on 12/8/23 (day before the bank holiday) and on 12/11/23 (the bank holiday), as it would on any regular business day
 - The CTS issued on the day prior to the bank holiday and on the bank holiday will each report regular way trades settling one business day after the bank holiday (in example above, the settlement date is 12/12/23). Please Note: CTS Cycle 3 will be empty on the bank holiday
 - CTS reporting on the day before and the day of the bank holiday along with CNS processing is depicted in the below table:

| | Business Day Before a Bank Holiday | Bank Holiday |
|---|---|---|
| New TFT RT balance order message | Output will be distributed 4:00AM – 1:30 PM ET | No distribution output |
| CTS Cycle 3 | Output will be distributed at 1:45 PM ET | Empty File |
| CNS Midday Projection | No distribution output Note: For current T2 settlement cycle, this is distributed on the business day before the bank holiday. For T1, this will not be distributed on the business day before the bank holiday | Output distributed at 5:00 PM ET Note: For current T2 settlement cycle, this is not distributed on the bank holiday. For T1, this will be distributed on the bank holiday at 5:00 PM ET |
| CNS and ID Exemption Instruction Input | No CNS or ID Exemption instructions will be Accepted Note: For current T2 settlement cycle, exemption and priority instructions are accepted on the business day before the bank holiday. For T1, exemption and priority instructions will not be accepted on the business day before the bank holiday. | CNS and ID Authorization and Exemption instructions will be accepted until 10:45 PM ET on the Bank Holiday and not the preceding business day Note: For T1, exemption and priority instructions will only be accepted on the bank holiday until 10:45 PM ET and not the preceding business day |
| CNS Position Prior to Night Cycle | No distribution output | Output will be distributed at 9:45 PM ET |
| CNS Balance Order | No distribution output | Output distributed at 10:30 PM ET |
| CNS Night Cycle | Does Not Run | 11:30 PM ET |

| | Business Day Before a Bank Holiday | Bank Holiday |
|------------------------------|--|--|
| CTS Cycle 1 | Output will be distributed at 10:00PM ET | Output will be distributed at 10:00PM ET |
| CTS Cycle 2 | Output will be distributed at 1:30 AM ET | Output will be distributed at 1:30 AM ET |
| CNS Output After Night Cycle | No distribution output | Output will be distributed at 2:00 AM ET |

Good Friday Processing

| | Business Day Before Good Friday (Thursday) | Good Friday |
|-----------------------------------|---|--|
| New TFT RT balance order message | Output distributed between 4:00AM – 1:30 PM ET | No distribution output |
| CTS Cycle 3 | Output Distributed at 1:45 PM ET | No distribution output |
| CNS Midday Projection | Output Distributed at 5:00 PM ET | No distribution output |
| CNS Exemption Instruction Input | 10:45 PM ET for SD Monday after Good Friday | No input will be accepted |
| CNS Position Prior to Night Cycle | Output Distributed at 9:45 PM ET Note: For current T2 settlement cycle, this is not distributed on the business day (Thursday) before Good Friday. For T1, this will be distributed on the business day (Thursday) before Good Friday at 9:45 PM ET | No distribution output Note: For current T2 settlement cycle, this is distributed on Good Friday. For T1, this will not be distributed on Good Friday. |
| CNS Balance Order | Output distributed at 10:30 PM ET | No distribution output |
| CNS Night Cycle | Does Not Run | 11:30 PM ET |
| CTS Cycle 1 | 10:00PM ET | No distribution output |
| CTS Cycle 2 | 1:30 AM ET | No distribution output |
| CNS Output After Night Cycle | No distribution output | 2:00 AM ET |

On Good Friday, both the markets and NSCC are closed. No trade activity will be accepted by UTC and no CNS processing will occur.

Due to the shortening of the settlement cycle, there will be some changes for Good Friday processing specifically regarding the distribution of the CNS Position Prior to the Night Cycle File and CNS Exemption Instruction Input. In addition, participants will have to submit their DTC ID ANE Authorizations and Exemptions by 10:45PM ET on Good Friday and not the preceding Thursday.

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