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T+2 TESTING STRATEGY

Fundserv's High-Level Testing Plan



T+2 TESTING OUTLINE

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Introduction

This document outlines Fundserv's high-level T+2 testing strategy based on internal analysis, as well as industry feedback. There are approximately 73,000 individual fund profiles active at Fundserv. Of these, 67,000 are T+3. Fundserv will require its manufacturer participants to provide positive confirmation of the funds on our network that will be moving to T+2 settlement.

Background

Currently, the North American investment industry supports a trade date plus three business day (T+3) transaction settlement cycle. The European Union successfully moved its transaction settlement cycle from a T+3 to a T+2 settlement cycle standard in 2014. This has prompted the United States to announce that DTCC would support a similar move to a T+2 transaction settlement cycle in the North American investment industry.

The Canadian Securities Administrators (CSA) has determined that due to the interconnectedness of the Canadian and American markets, Canada must move in tandem with and support a T+2 transaction settlement cycle standard. The implementation date is set for September 5, 2017.

Trade Settlement (Current Fundserv Processing)

Fundserv's core business works primarily as a standardized network facilitating order entry, money movement, and transaction reconciliation file transfer between distributors and manufacturers. For all electronic orders, Fundserv time stamps receipt of the transaction and calculates trade date and settlement date based on the fund profile. This calculation is based on the date and time the order is received. The fund profile is sent to Fundserv within a Fund Setup (FD) file. Fundserv allows fund manufacturers to create fund profiles with a variety of settlement cycles between T+1 up to T+99, although the majority are T+3.

The move to a new settlement cycle of T+2 will not significantly impact any of Fundserv's processes as each transaction trade and settlement date is based on each transaction-specific fund profile and the date and time the order is received.

During the T+3 to T+2 Labour Day conversion weekend, transactions containing trade dates of Friday and transactions containing trade dates of Tuesday will have the same settlement date. This is because Fundserv will now use the reduced settlement cycle for the same mutual fund profile when calculating the trade and settlement date for the order network section.

Industry Testing, Assumptions

It should be noted that T+2 testing will not be mandatory. Fundserv will not require members to provide attestation. Fundserv and other vendors will be asked by the CCMA to attest its own T+2 readiness prior to implementation of T+2.

Clients will need to ensure their testing environment is ready to support T+2 testing.

Testing should include, but is not limited to:

- Internal system testing
- Integration testing with system vendors and 3rd parties as required, in coordination with Fundserv
- Changes implemented to meet requirements for T+2 settlement
- Regression testing to verify continuity of upstream or downstream functions
- Participation in industry testing

Fundserv welcomes client feedback on this Testing Strategy. Please contact us with questions and comments at t2feedback@fundserv.com.

Testing Environments

Fundserv will utilize its v27 UAT environment to support industry testing for both implementations - v27 (June 12, 2017) and T+2 (September 5, 2017). Based on member concerns about supporting multiple test environments, Fundserv re-examined how best to facilitate T+2 testing without having to create additional test environments. After careful review of the T+2 impact analysis document, In Cash Transfers (ICTs) remained the only hurdle from a code/edit perspective.

By integrating the TFS ICT edits to support T+2 and T+3 fund profiles within the v27 UAT environment, participants will be able to test ICTs for v27 and T+2 Implementations, in one UAT environment.

The mock environment (see [Appendix](#)), needed to support implementation simulation, will still be made available.

Fundserv will create mock implementation cycles, simulating the days before implementation and the double settlement that follows post-implementation (see appendix for sample). Customers must facilitate counter party testing in the Fundserv UAT environment as individual members will have their own timelines and schedules.

Timeframe and Process

- The testing environments will be available from March to September 2017.
- The T+2 mock environment will be made available in June 2017 and run until July 2017.
- Upon activation into v27 UAT, manufacturers will need to provide T+2 funds in addition to other T+3, etc.
- Fundserv will ensure distributors know which funds are set up as T+2 in the UAT environment.
- Distributors will still be required to coordinate testing with manufacturers.
- Fundserv will provide a life cycle order test case as a minimum guide for testing requirements.
- Full settlement (end-to-end) testing will be supported per our normal testing environment.
- Testing will occur during regular business day, and during regular business hours (i.e. no weekend testing).
- Fundserv to work with industry, internal committees and CCMA WG's to test T2 implementation/double settlement.
- Issues reporting (see sample T2 Issues Report).
- Customers should create their own test plans.

Testing - In Scope Considerations

The change to T+2 will impact Fundserv Standards, edits and processing rules. As such, any change impacted by T+2 can be tested, including but not limited to the following:

- In Cash Transfers (ICTs)
- Transaction Reconciliation (TS) file process
- Client-Name Redemptions
- Settlement Instruction(FS) file edits (i.e. late settlement, direct redemptions)
- Forced Settled Trades
- Fund changes on Fundserv files - i.e. contracts for funds that start off as T+3 and move to T+2

Testing – Out of Scope Considerations

Payment exchange. This is not an exhaustive list.

Implementation

- Fundserv will send regular communications and updates as required in a timely fashion.
- Fundserv will process FD and MD (Product Update) files that were sent to ensure all impacted fund profiles are updated to T+2 settlement on the Friday of the implementation weekend.

Distributors:

- To update their systems, distributors can either:
 1. Import the FC files. (Distributors not currently receiving the FC file will have to contact Fundserv Technical Support to opt in.)
 2. Leverage the existing “Fund List” zipped XML file of all the information in the FD File. This is a link to the page in our customer site.
https://estandards.fundserv.com/secure/english/fund_list.shtml (secure access required)
 3. Leverage a new .csv file consisting of three (3) values (at the minimum): Fund Management Code, Fund Identifier and Settlement Period. This will be made available on Fundserv’s customer site (same location as #2). A communication will be sent out on the Friday evening of the implementation weekend when it becomes available.

Note: Our distribution list for these communications include key contacts (IT Contact, Senior Contact & Business Operations Contact) from our client database by Fundserv code.

Please contact Customer Relations at customer.relations@fundserv.com if you would like to be added to our database or confirm these key contacts as they apply to your firm.

Manufacturers:

- As part of v27, manufacturers will have two responsibilities: (a) updating their funds to v27 standards and (b) updating the settlement cycle of their funds from T+3 to T+2, **by August 1, 2017**, with an effective date of September 5, 2017.
- Manufacturers have a choice. They can accomplish both of these changes with one FD or MD file or separate the initiatives and send two separate files. (see below for required sequence). In order to make the process smoother for distributors to consume the data, **Fundserv recommends that manufacturers send two (2) separate files:**

1. Send an FD or MD file after v27 Implementation (June 13, 2017) to update the fund record to a v27 standard (which includes the new elements introduced in v27) with an **effective date of on or prior to August 1, 2017**. This step must be done in advance of or at the same time as the settlement cycle change, as Fundserv validates that the change to the fund record meets the v27 standard. Schema and business edit validation will be applied to the fields in the FD or MD File and to the fund database fields.

Note: This validation is most significant after the v27 Release implementation since numerous changes to the FD File field attributes are introduced. Invalid data may exist in the Fund Database if proper conversion or clean-up is not performed. For example, “NA” was

removed as an allowable value for Load Type in v27; however a fund in the FD or MD file may still have “NA” as its Load Type in the database post V27 implementation. The validation process will reject the fund and will not be updated in the database.

2. Send a separate FD or MD file with the settlement cycle changes after the v27 Implementation and **by August 1, 2017** with an **effective date of September 5, 2017**. As some distributors may be using the .csv file for the settlement cycle changes, manufacturers should not make any other changes, other than the T+2 settlement cycle change, with an effective date of September 5th as they may be missed when distributors are updating their systems to support T+2.

Contingency Plan

To coincide with U.S. back-up date.

Appendix

Sample T2 Issues Report				
Issue #	Issue Description	Report Date	Fix Date	Notes
001				

Dedicated T2 environment – sample mock cycles

Fundserv will create a minimum of two (2) mock cycles to allow participants to simulate the implementation weekend, including double settlement. These dates are subject to change.

Mock 1 - June 22 – June 30. **Mock 2** - July 13 – July 21. **Mock 3** - Aug 3 – Aug 11 (**IF REQUIRED**)

Existing funds from UAT environment will be copied over.

Fundserv T+2 UAT Mock Implementation Cycle						
Mock Implementation Cycle 1						
Calendar Date – June 22 – June 30						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
			Day 1 - Start (Aug 31, 2017)	Day 2 (Sep 1, 2017)	Day 3 (Sep 2, 2017)	Day 4 (Sep 3, 2017)
Day 5 - Mock Labour Day Start (Sep 4, 2017)	Day 6 - First Trade Date After Implementation (Sep 5, 2017)	Day 7 (Sep 6, 2017)	Day 8 - Double Settlement (Sep 7, 2017)	Day 9 - Finish (Sep 8, 2017)		

Date	Participant Requirements
Day 1	Manufacturers to send updated FD files with effective date of Day 6. Start by entering orders for Fund Products with T+3 settlement cycles
Day 2	Last Day of T+3 before cut-off 4 p.m.: Trades are T+3 (Trade Date = Friday, Settlement Date = Thursday (T+3))
Day 2 (after cut-off)	Enter Orders after cut-off (when system completes fund profile updates from T+3 to T+2) (Trade Date = Tuesday, Settlement Date = Thursday (T+2))
Weekend	
Day 5 Labour Day - Trade & Settlement Holiday	Orders entered on this day will have Trade Date = Tuesday, Settlement Date = Thursday (T+2)
Day 6 - First trade date after Implementation.	Participants may enter orders if not entered on the holiday Monday. (Settlement Date = Thursday (T+2))
Day 7	Settlement for T+3 trades entered on Thursday (Day 1)
Day 8 - Double Settlement	Settle all Trades. NSR Screens for Thursday Settlement Day includes both T+3 and T+2 orders for Trade date Friday and Tuesday
Day 9	Transaction (TS) files for both T+3 and T+2 trades
	Cycle restarts