



DTC/NSCC/FICC

DISASTER RECOVERY GUIDE

OCTOBER 24, 2023

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PURPOSE OF THIS GUIDE

The purpose of this document is to provide guidance to DTC, FICC, and NSCC clients for reconciling transactions in the event of DTCC's recovery from a disaster.

DTCC considers a disaster to be a disruptive event with a significant business impact, including the possibility of data discrepancies with clients' books and records due to data loss. This guide delivers an overview of the monitoring and reconciling tools available, as well as links to the online reference materials that provide additional assistance.

For any questions regarding the content of this guide, please contact your DTCC Relationship Manager or the DTCC Client Contact Center at (888) 382-2721.

DTCC DISASTER RECOVERY

What to Expect When DTCC Activates its Disaster Recovery Plan

In the event of a disaster, DTCC will undertake the following general steps:

1. At the time of disaster declaration, DTCC will prioritize the recovery process for its most critical services.
2. DTCC will advise clients when resumption is complete. At that point, clients can commence reconciling their data.
3. Clients can use the tools as defined in this guide to identify transactions that need resubmission due to the disaster.
4. DTCC will resume normal processing, which includes trade capture and recording activities for the day.

As participants of DTC, FICC, and/or NSCC (the “Clearing Agencies”), clients are required to participate in data reconciliation under the applicable Clearing Agency rules, which establish the responsibility of participants to check the accuracy of reports received from the Clearing Agencies and to report any discrepancies. See each of the Rule Books or service guides:

- NSCC Rule 5, Section 5
- GSD Rule 5, Section 5 and Rule 11, Section 12
- DTC Settlement Service Guide (page 4)
- MBSD Rule 5, Section 2, and Rule 6, Section 4

Under certain circumstances, the Market Disruption and Force Majeure Rule under each of the Clearing Agencies’ rules also allow the Clearing Agencies to take certain actions following the occurrence of a “Market Disruption Event,” as defined in those rules, and to require participants to take actions “appropriate to prevent, address, correct, mitigate or alleviate the event and facilitate the continuation of services as may be practicable.”

For more information, see:

- DTC Rule 38
- FICC/GSD Rule 50
- FICC/MBSD Rule 40
- NSCC Rule 60

Installation and Communication Instructions for Leased Line Users

Leased Line Access

All applications are reachable via the DTCC communications infrastructure. If there is a disaster, it is possible that network configuration changes may be required to access DTCC services. This configuration can include, but is not limited to:

- Network routes
- DNS
- Firewall security
- Proxy server settings

These procedures presume that there is a working connection to DTCC.

Note

Regularly validating the ability to establish end-to-end connectivity between client sites and the DTCC out-of-region data center is the only way to ensure that appropriate communications and network security configurations are in place. This validation should be regularly tested as part of the client's business continuity plans.

How to Ensure Connectivity to the DTCC Out-of-Region Data Center

To take advantage of DTCC business continuity capabilities, the ability to interact with DTCC is required via one of the following:

- DTCC SMART network
- SFTI network
- BT Radianz infrastructure that interconnects with SMART
- ANIRA

To avoid delays accessing monitoring tools or corresponding reference materials, DTCC recommends proper maintenance of valid user IDs and passwords for access to its applications.

In addition, clients should regularly test the ability to establish end-to-end connectivity with the DTCC out-of-region data center. This validation is the only way to ensure that appropriate communications and network security are in place. It is important that clients' business continuity exercises include a fail-over to the DTCC out-of-region data center.

Clients may be required to participate in periodic operational testing performed by the Clearing Agencies, which could include, for example, testing connectivity or data reconciliation in the event of an out-of-region failover. These testing requirements are broadly set forth in:

- DTC Rule 2; FICC/GSD Rule 3, Section 6
- FICC/MBSD Rule 3, Section 5
- NSCC Rule 2B, Section 3

How to Connect to the DTCC Web Portals When Processing Has Resumed in the DTCC Out-of-Region Data Center

Depending upon the DTCC application and network used to connect to DTCC, clients may be required to access a different URL or IP address than normally accessed in the Production environment.

See [MyDTCC Access](#) for information on the different web portals and corresponding applications required to access the systems in the DTCC out-of-region data center.

The remainder of this document lays out the client tools available by Clearing Agency.

DTC

In the case of a disaster, clients will be given the opportunity to confirm their settlement-related transactions that have been received by DTC. These transactions can be from a variety of sources, such as DTCC Institutional Trade Processing ("ITP"), NSCC's Continuous Net Settlement system ("CNS"), a service provider or submitted directly by the client. These transactions may also be in various processing states, such as awaiting receiver approval in the Receiver Authorized Delivery ("RAD") function and pending for position, among others. As a result, DTC offers two ways that clients can reconcile: through output files or a variety of screen-based monitoring tools, as described in this chapter.

Automated Output Files

DTFMTX Output

In the event of a disaster, DTC will make available a machine-readable file, called the DTFMTX file, to all clients who currently receive automated outputs. The DTFMTX file will include all settlement transactions received on that business day by DTC, as well as the status of these transactions at the time the report was generated. Clients that receive DTC's DTFPART output are automatically subscribed to this file and can access it leveraging network data mover ("NDM") or file transfer protocol ("FTP") capabilities when the DTC systems become available. The information received through the DTFMTX will be in the same format as the DTFPART output.

Questions on testing with this file can be made by contacting DTCTegration@dtcc.com.

See the [5.11DR - Disaster Recovery Settlement Activity \(DTFMTX\) Function User's Guide](#) for further information, including file specifications.

DTFTAP Output for Transfer Agents

DTC will make available the DTFTAP output to Transfer Agents ("TAs"). The DTFTAP output reports all current business day securities processing transactions completed and pending on DTC's books and records at the time the output was generated. Specifically, the DTFTAP includes:

- DWAC requests
- DRS Profile requests
- Deposits, Withdrawals by Transfer
- Custody Transfers
- Both FAST Adds-To-Balances and Drawdowns

This output can be generated on an ad-hoc basis for TA reconciliation in a disaster scenario. To assist TAs with daily processing with DTC, this output is also available for retrieval at five different times each business day (at 9:00 ET, 11:00 ET, 13:00 ET, 15:00 ET and 18:00 ET). Each successor file is cumulative, with the final one at 18:00 ET containing the full day's activities. This output is available on-line via the new Securities Processing Application ("SPA"), where it will be retained for 5 business days and can be downloaded directly from the SPA system.

Transfer agents who want to retrieve the file should contact DTC Support at DTCSupport@dtcc.com. Questions on testing with this file can be made by contacting DTCTegration@dtcc.com.

See [14.20 Disaster Recovery Transfer Agent Activity \("DTFTAP"\) Function User's Guide](#) for further information, including file specifications.

Corporate Actions Instructions Balance Report

Upon a disaster, DTC will make the Corporate Actions Instructions Balances Report available to clients. This report contains pertinent data for reconciliation of voluntary corporate actions instructions. It also lists mandatory corporate actions with options instructions that were processed by DTC at the point the report was generated. The output will be e-mailed to clients upon request. Clients can utilize this output to compare to their own internal records, locate discrepancies, and resubmit the corporate actions instructions lost by DTC due to the reset.

Clients who want to receive this output should contact DTCSupport@dtcc.com following a business disruption event.

How to Access Screen-Based Monitoring Tools

Corporate Action Web (“CA Web”)

The CA Web enables clients to manage the lifecycle of corporate action events by searching for corporate action event announcements, submitting instructions, and viewing entitlements and allocations using various dashboard overviews.

The CA Web can be used to access notifications for:

- Distributions – including cash and stock dividends, principal and interest payments, and capital gain distributions
- Redemptions – including full and partial calls, final paydowns, and maturities
- Reorganizations – including exchange offers, conversions, and Dutch Auctions

In data loss scenarios, where DTC needs to reprocess the CA events announcements & CA cash and securities allocations lost due to the impact, clients can utilize the CA Web to reconcile to DTC's updated books and records. In such instances, DTC will ensure that new events are re-announced with new Corporate Action Identification Numbers (CA ID), that were not utilized prior to the data loss impact. This step will prevent potential client reconciliation issues that can occur if DTC reassigns the same identification number to a different corporate actions event post the impact. DTC will provide the range of CA IDs for corporate actions event announcements that should be reviewed by clients as possible exceptions. The CA ID for events that not impacted by the data loss, will remain unchanged. Additionally, updates to existing events will be re-processed without requiring any change to the originally assigned CA ID.

See the - [CA Web section on the DTCC Learning](#) Center for more information

Settlement Web

DTC processes the transmissions it receives within various systems and monitors the processing of these transactions—or "activity"—using several activity-type Settlement monitoring tools.

The Settlement Web is DTC's primary Settlement user interface, through which clients can access the various screen-based monitoring tools. The Settlement Web Navigation Bar allows participants to select from the following categories:

- Activity
- Position
- Cash and Balances

- Transaction Submission
- Commands
- Profiles

The Navigation Bar also provides access to the Participant Browser Services (“PBS”) for functions that have not yet been incorporated into the new Settlement Web.

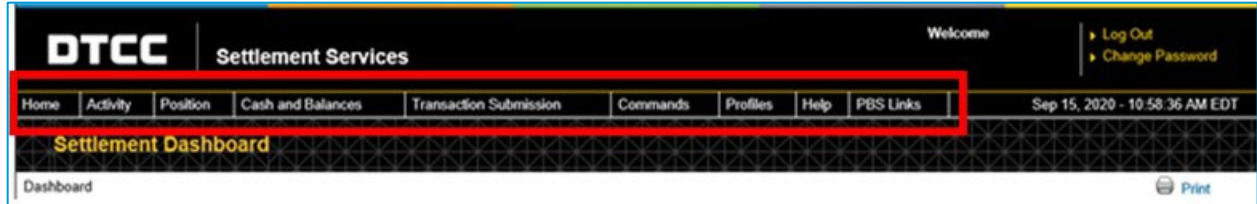


Table 3.1 lists the Settlement Web functions needed for certain DTC Settlement monitoring activities. The sections that follow contain links to the relevant documentation for these functions.

Table 3.1 DTC Activity Monitoring Tools

To View DTC Settlement Activity...	Use this Settlement Web Application/Function
Activity items processed or pending in ATP	Activity Inquiry Tool
Activity items received	Inventory Management Services ("IMS") application
Collateral management monitoring	Risk Management Controls Inquiry function
Delivery Orders ("DO") awaiting receiver's authorization	Receiver Authorized Delivery ("RAD") function
Payment Order ("PO")/DO Output	Participant Activity Research Tool ("PART") function
Money Market Instruments ("MMI") Issuances Processing	MMI Issuance Processing ("MMII"), Money Market Underwriting ("MMUW") functions
MMI tracking for Issuing Paying Agents ("IPA")	MMI Tracking ("MMIT") function
MMI Funding Decisions	IPA Decision Making Application (IPA DMA)
Security Positions	Security Position Inquiry function
Participant Settlement Balances	Participant Account Statement function

How to Access the Activity Inquiry Tool

The Activity Research function allows clients to view current day activity or the activity history for up to 60 business days by:

- CUSIP number
- Activity type
- Collateral group
- Transaction number

The Activity Research function is accessible through the Activity Inquiry option under the Activity menu in the Settlement Web. Clients can use this function to view:

- Collateral group's payment orders
- Pledges
- Positions
- Search by CUSIP



Figure 3.1 Accessing the Activity Inquiry Tool

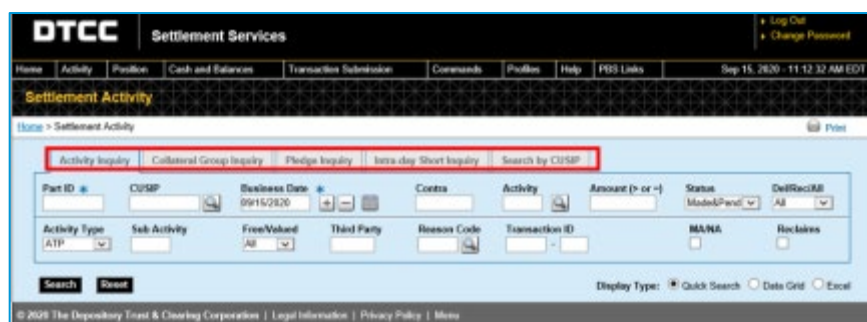


Figure 3.2 Activity Inquiry Tool

See the Settlement Web [online help](#) for more information.

How to Access the Inventory Management Service/IMS

The Transaction Authorization function of the IMS application within the Settlement Web offers clients options to view, authorize, or exempt transactions at DTC submitted for processing. The Transaction Authorization function is accessible through the Activity menu in the Settlement Web. Clients can also access several of the options to manage the processing of transactions from the Profiles menu in the Settlement Web.

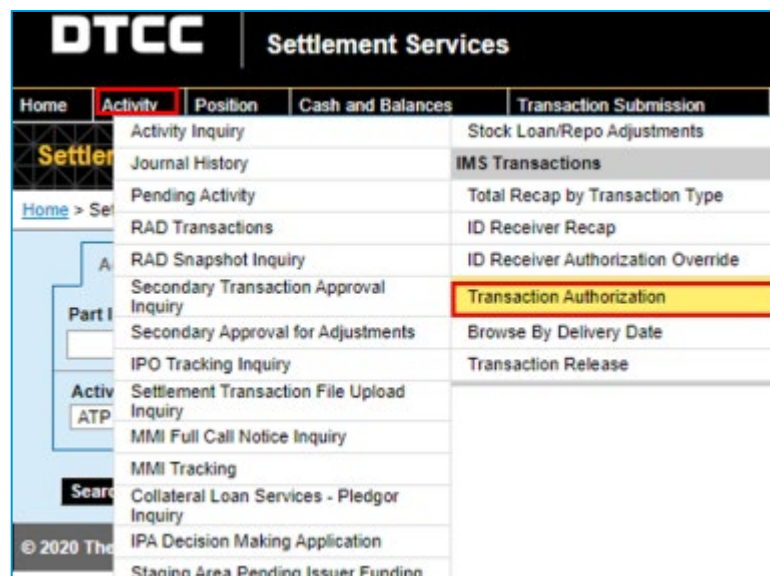


Figure 3.3 Accessing the Transaction Authorization Function

Figure 3.4 Transaction Authorization Function

See the Settlement Web [online help](#) for more information.

How to Access the Risk Management Controls Inquiry Function

The Risk Management Controls Inquiry function can be used to view the current settlement balance and Risk Management Control-related balances for a client's collateral group. The Risk Management Controls Inquiry function is accessible through the Cash and Balances menu in the Settlement Web.

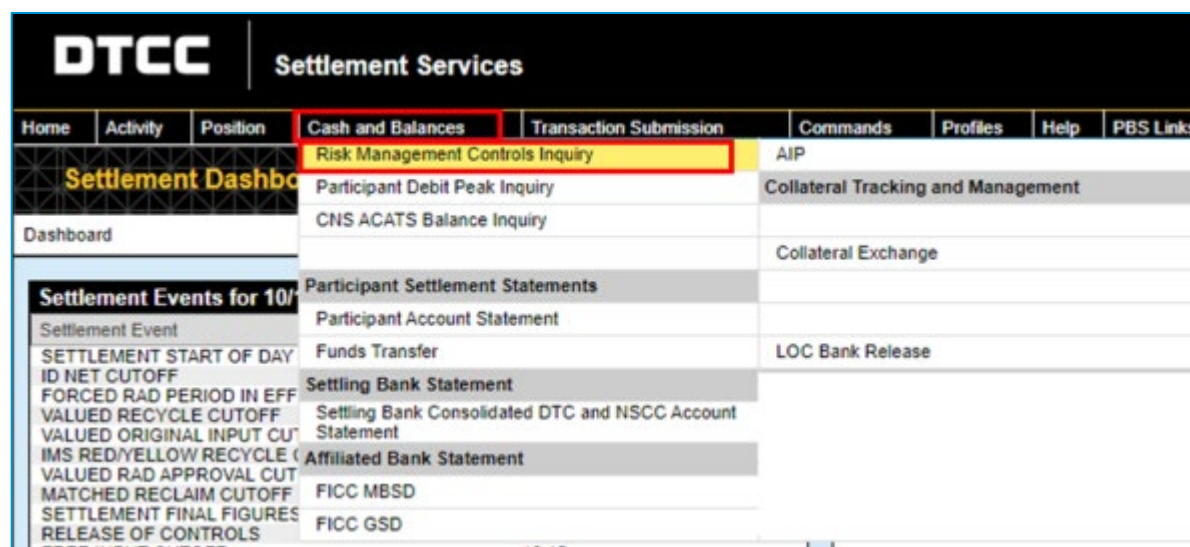


Figure 3.5 Accessing the Risk Management Controls Inquiry Function

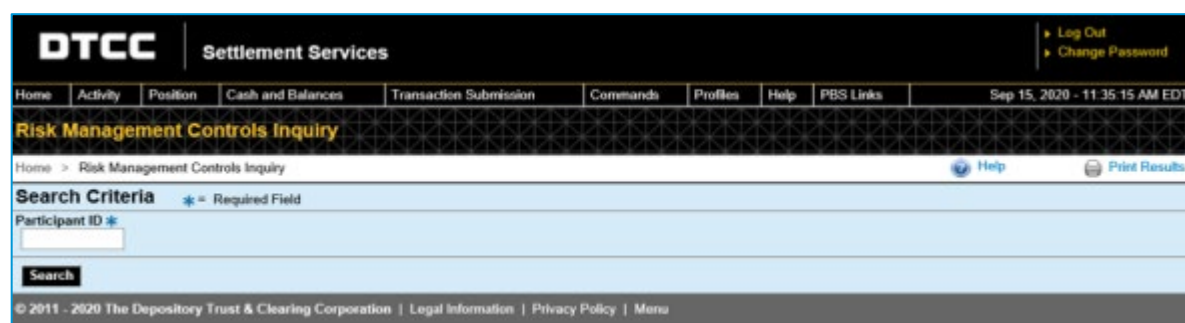


Figure 3.6 Risk Management Controls Inquiry Function

See the Settlement Web [online help](#) for more information.

How to Access the Receiver Authorized Delivery Function

The Receiver Authorized Delivery (“RAD”) function can be used to review, approve, or cancel incoming deliveries before they are processed in a client's account. The following can be routed through RAD:

- Valued delivery orders
- Payment orders
- Valued pledges
- Matched Institutional Deliveries
- Money Market Instruments

Transactions subject to RAD are accessible through the RAD Transactions option under the Activity Menu in the Settlement Web. Clients have the option to inquire by Transaction Type.

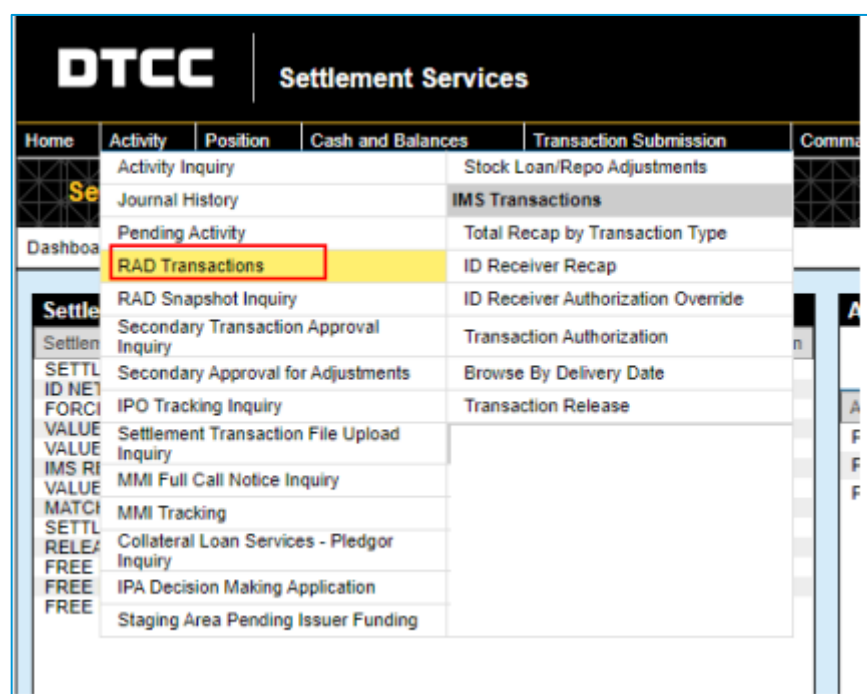


Figure 3.7 Accessing the Receiver Authorized Delivery Function



Figure 3.8 Transaction Inquiry Function

See the Settlement Web [online help](#) for more information.

How to Access the MMI Issuance Processing/MMII Function

IPAs can use the MMII function to initiate the processing of MMI Issuance transactions, specifically:

- Issuance instructions;
- Cancellation instructions; and
- Withdrawal instructions

In addition to processing, the IPAs can leverage the MMII function to perform inquiries on:

- MMI Issuance Instructions;
- MMI Issuance Control; and
- MMI Underwriting Notices, which can also be accessed using the MMUW function

The MMI Issuance Processing MMII and MMUW functions is accessible by the IPAs through DTC's PBS/Settlement Web application.

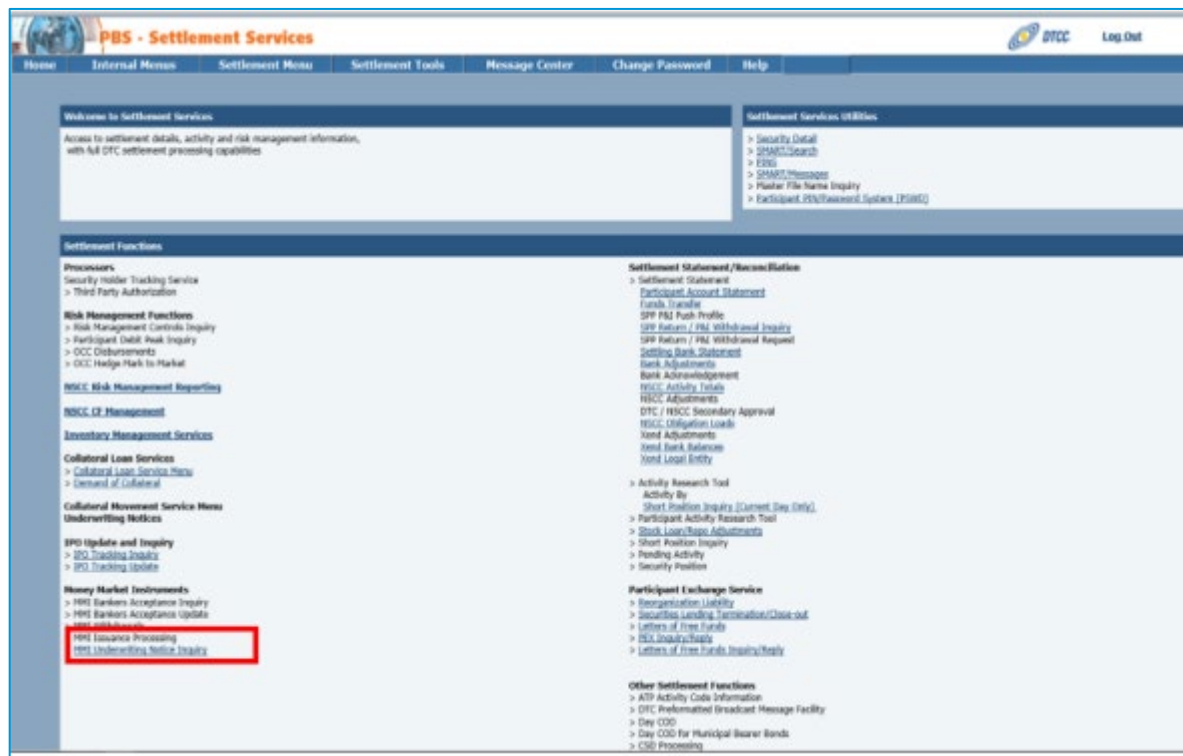


Figure 3.9 Accessing MMII and MMUW Functions

The MMI documentation is available on dtcc.com.

How to Access the MMI Tracking/MMIT Function

IPAs can use the MMIT function as an inquiry tool to monitor MMI transactions processed through DTC systems that affect their accounts. The MMI Tracking function is accessible through the Activity menu within the Settlement Web.

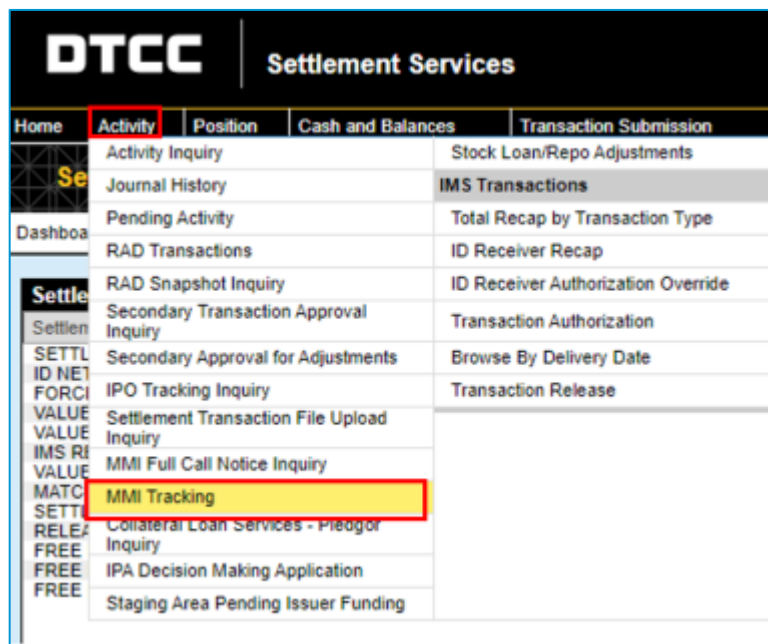


Figure 3.10 Accessing the MMI Tracking Function

Figure 3.11 MMI Tracking Function

See the Settlement Web [online help](#) for more information

How to Access the MMI IPA Decision Making Function/IPA DMA

The IPA DMA function provides IPAs with the ability to choose whether an acronym for a maturity presentment is fully funded, partially funded, or issue a Refusal to Pay (“RTP”). For income presentments and reorganization presentments, the IPAs will have the capability to choose between fully funded or issue an RTP. The IPA DMA is accessible from the Activity menu within the Settlement Web.

Figure 3.12 Accessing the IPA Decision Making Application

Figure 3.13 IPA Decision Making Application

Information related to [MMI](#) is available on dtcc.com.

How to Access the Position Inquiry Function

The Position Inquiry function within the Settlement Web can be used to view snapshots of the current and historical balances for any DTC-eligible security. Clients can view historical account balances for up to two years.

Using the Participant ID, CUSIP, and business date as search criteria, the page displays position information across a series of tabs. A brief description of each tab appears below it.

The Position Inquiry is accessible from the Position menu within Settlement Web.

Settlement Event	Expected
SETTLEMENT START OF DAY	21
ID NET CUTOFF	11
FORCED BAD PERIOD IN EFFECT	45

Figure 3.14 IPA Accessing the Position Inquiry Function

DTCC Settlement Services

Home Activity Position Cash and Balances Transaction Submission Commands Profiles Help PBS Links Sep 16, 2020 - 1:38:26 PM EDT

Position Inquiry

Home > Position Inquiry

Search Criteria * = Required Field

Participant ID * CUSIP * Business Date

09/16/2020

Search Reset

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Figure 3.15 Participant Account Statement Function

See the Settlement Web [online help](#) for more information.

How to Access the Participant Account Statement

The Participant Account Statement function on the Settlement Web can be used to view current settlement activity for the individual participant, collateral groups, or legal entity.

Clients can access options of the Participant Account Statement function through the Settlement Web, under the Cash and Balances menu tab.

DTCC Settlement Services

Home Activity Position Cash and Balances Transaction Submission Commands Profiles Help PBS Links Sep 16, 2020 - 1:43:14 PM EDT

Settlement Dashboard

Dashboard

Settlement Events for 10/16/2020

Settlement Event

SETTLEMENT START OF DAY

ID NET CUTOFF

FORCED RAD PERIOD IN EFF

VALUED RECYCLE CUTOFF

VALUED ORIGINAL INPUT CUTOFF

IMS RED/YELLOW RECYCLE

VALUED RAD APPROVAL CUTOFF

MATCHED RECLAIM CUTOFF

SETTLEMENT FINAL FIGURES

RELEASE OF CONTROLS

FREE INPUT CUTOFF 18:15

FREE RAD APPROVAL CUTOFF 18:30

FREE RECYCLE CUTOFF 18:35

Risk Management Controls Inquiry AIP

Participant Debit Peak Inquiry Collateral Tracking and Management

CNS ACATS Balance Inquiry Collateral Exchange

Participant Settlement Statements

Participant Account Statement

Funds Transfer LOC Bank Release

Settling Bank Statement

Settling Bank Consolidated DTC and NSCC Account Statement

Affiliated Bank Statement

FICC MBSD

FICC GSD

Figure 3.16 Accessing the Participant Account Statement Function

DTCC Settlement Services

Home Activity Position Cash and Balances Transaction Submission Commands Profiles Help PBS Links Sep 16, 2020 - 1:43:14 PM EDT

Settlement Statements: Participant Accounts Statement

Home > Help

* = Required Field

Participant ID * Settlement Date * Statement Type

09/16/2020

☒ Participant ☐ Collateral group ☐ Legal Entity

Search Reset

Display Type: ☒ Quick Search ☐ Excel

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Figure 3.17 Participant Account Statement Function

See the Settlement Web [online help](#) and the [PART Function Guide](#) for more information.

How to Access the Settling Bank Statements

The Settling Bank Statement function on the Settlement Web can be used by settling banks to view their end-of-day settlement balances in one centralized place. It also allows the acknowledgment of settlement balances and viewing of Bulletin Board messages from the DTC Settlement department. The Settling Bank Statement function is accessible through the Settlement Web, under the Cash and Balances menu tab.

By default, the current day's figures appear. However, settling banks can also view history for up to 60 days.

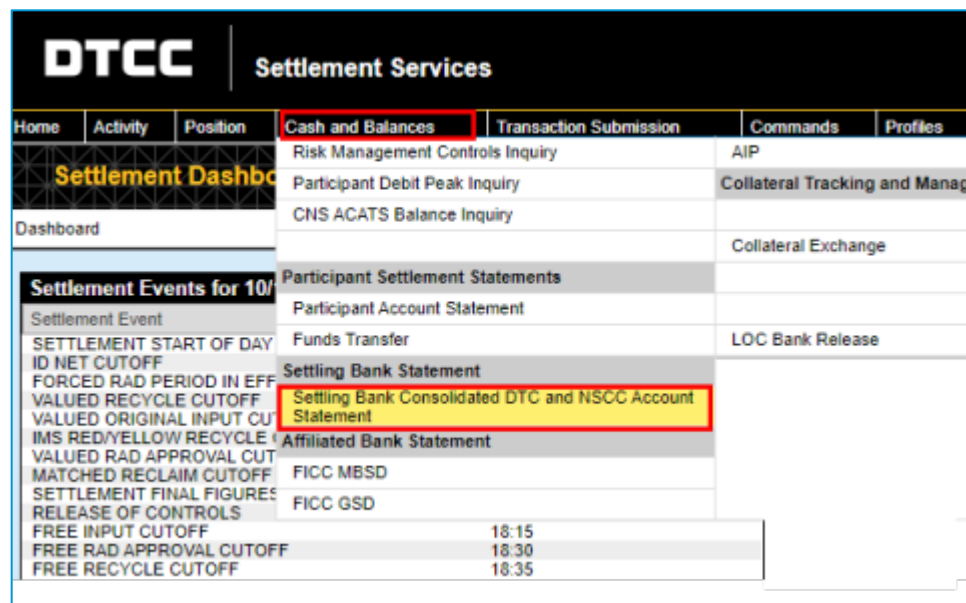


Figure 3.18 Accessing the Settling Bank Statement Function

See the Settlement Web [online help](#) for more information.

FICC

In the event of a disaster, clients will be given the opportunity to ensure that all trades sent from submitters have been received and processed by FICC. These trades are submitted either directly from the client or through a third-party vendor. Clients can use a screen search and/or a report output to reconcile their transactions with FICC. “Good night” messages are provided by FICC to signal end of day processing.

How to Access Fixed Income Applications

All Fixed Income applications require a dedicated network connection through either DTCC SMART, SFTI, BT Radianz or AT&T ANIRA networks. Clients can connect to the FICC Real-Time Trade Matching (“RTTM®”) Web or the EaSy Pool (“ESP”) Web using these networks. The table below lists the access methods to the Fixed Income.

Table 4.1 Fixed Income Access Methods

Application	RTTM Web	EaSy Pool (“ESP”) Web
FICC GSD RTTM Web	Yes	N/A
FICC Report Center	Yes	N/A
FICC MBSD RTTM Web (Mortgage-Backed Securities)	Yes	N/A
EPN (Electronic Pool Notification)	No	Yes

FICC RTTM Web

The FICC RTTM Web provides secure, real-time trade entry and management tools for most fixed income products. It provides search capabilities and statistical reporting to facilitate the trade reconciliation process.

After verification and establishment of communication, clients can connect to FICC RTTM Web applications at <https://login.dtcc.net>.

Table 4.2 FICC RTTM Web Access

Application	FICC Web URL	Description
DTCC Portal	https://login.dtcc.net https://portal.dtcc.net	Generic URL to Applications
FICC GSD RTTM Web	https://gsd-ficcweb.dtcc.net	Direct FICC GSD Web Application URL
FICC MBSD RTTM Web	https://mbsd-ficcweb.dtcc.net	Direct FICC MBSD Web Application URL

How to Access Fixed Income Applications Using RTTM Web

1. Type the application URL into the browser address field.
2. Log into MyDTCC to access FICC GSD and FICC MBSD RTTM Web.

The FICC GSD RTTM Web tile launches the FICC GSD Dashboard. The FICC MBSD RTTM Web tile launches the FICC MBSD Dashboard.

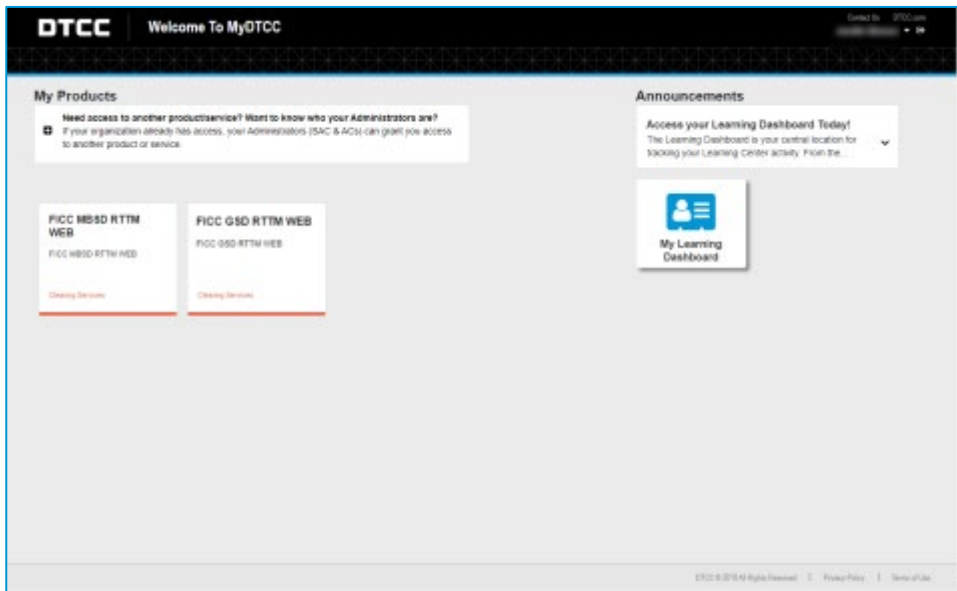


Figure 4.1 MyDTCC Welcome Screen

Notes

- Clients can launch the RTTM application for each of the Fixed Income products from this screen, provided they have the appropriate entitlements.
- For security purposes, the DTCC Portal locks the user out after three unsuccessful login attempts. If users are locked out, they can contact their access coordinators.

GSD RTTM Web

The GSD RTTM Web provides a secure, real-time trade entry and management tool for government securities.

When accessing GSD RTTM Web, clients land on the Dashboard page, which provides clients with real-time information on trade and obligation statistics for DVP activity and trade and position statistics for GCF Repo®/CCIT™ activity.

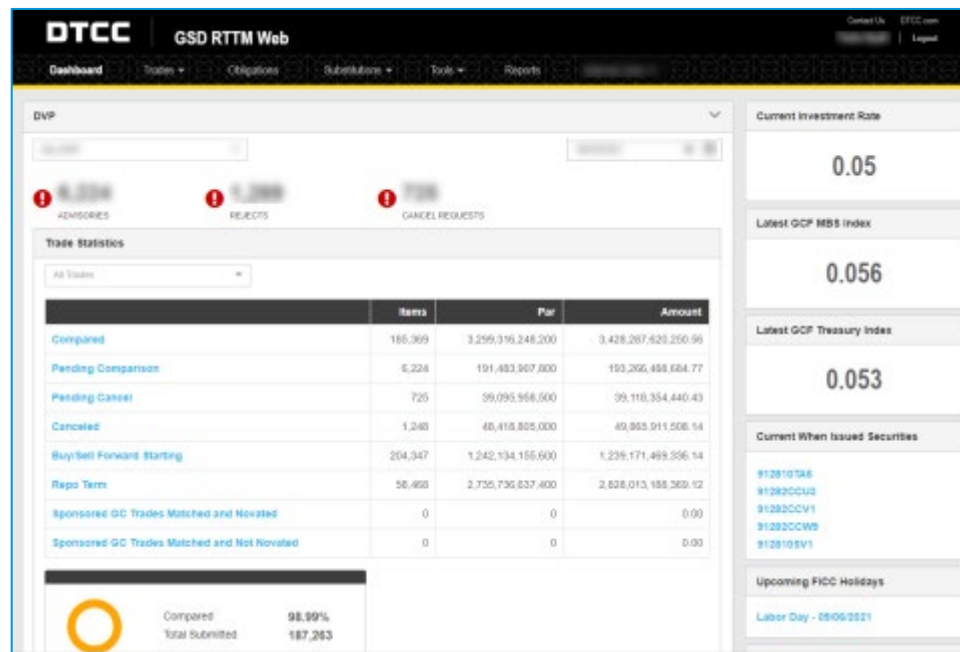


Figure 4.2 GSD RTTM Web (DVP Dashboard Section)

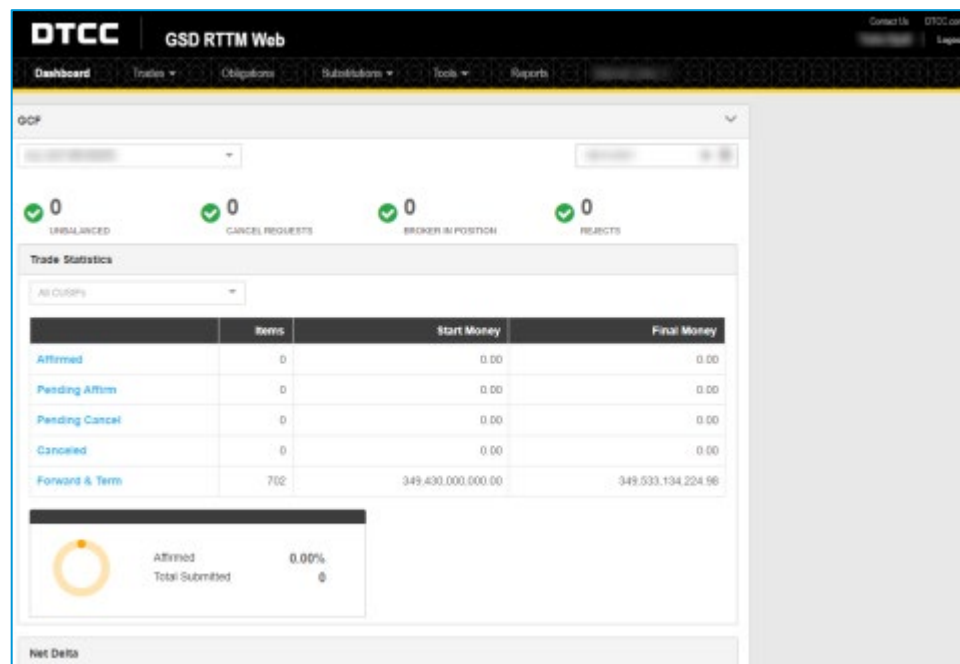


Figure 4.3 GSD RTTM Web (GCF Dashboard Section)

The Trade Search Engine (within the 'Trades' tab) gives clients the ability to search for specific trades or groups of trades within the DVP or GCF/CCIT products, using various filters (Submission Date, Trade Type, etc.) to help manage their trade and settlement activity.

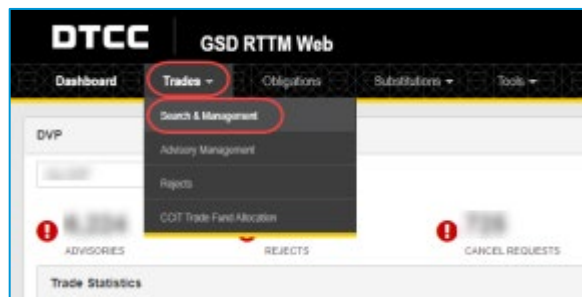


Figure 4.4 Trade Search Menu

The screenshot shows the 'ADVANCED SEARCH' form in the DTCC GSD RTTM Web application. The form is titled 'ADVANCED SEARCH' and includes a 'Reset' button and a 'Search' button. The form is divided into several sections: 'Trade Details', 'Product', 'Trade Active or Trade History', 'Transaction Type', 'Trade State / Advisories', 'Netting Eligible', 'Repo/Rev', 'Business Date Range', 'Settlement Date Range', 'Trade Date Range', 'Submission Date Range', and 'Comparison Date Range'. The 'Product' section has radio buttons for 'DVP' (selected) and 'GCF / CGIT'. The 'Trade Active or Trade History' section has radio buttons for 'Active' (selected) and 'History'. The 'Transaction Type' section has checkboxes for 'Repo', 'Rev', 'Buy', and 'Sell'. The 'Trade State / Advisories' section has a dropdown menu for 'All Trade States'. The 'Netting Eligible' section has a dropdown menu. The 'Repo/Rev' section has a dropdown menu. The 'Business Date Range', 'Settlement Date Range', 'Trade Date Range', 'Submission Date Range', and 'Comparison Date Range' sections each have a date range input field with a calendar icon. The 'Repo Start Date Range' and 'Repo Start Money' sections are at the bottom.

Figure 4.5 DVP Trade Query

Figure 4.6 GCF/CCIT Trade Query



Figure 4.7 GSD Members can also access GSD Reports via the main tool bar.

MBSD RTTM

The MBSD RTTM Web provides secure, real-time trade entry and management tool for mortgage-backed securities ("MBS").

Clicking on FICC MBSD Web link directs clients to the MBS Home Statistics page, which provides counts of partially matched and uncomparable trades, as well as advisories, cancels, and don't know ("DK") requests. In addition, the dashboard provides comparison percentages, TBA pair off potential, the SIFMA calendar, and the status of MBS system events.

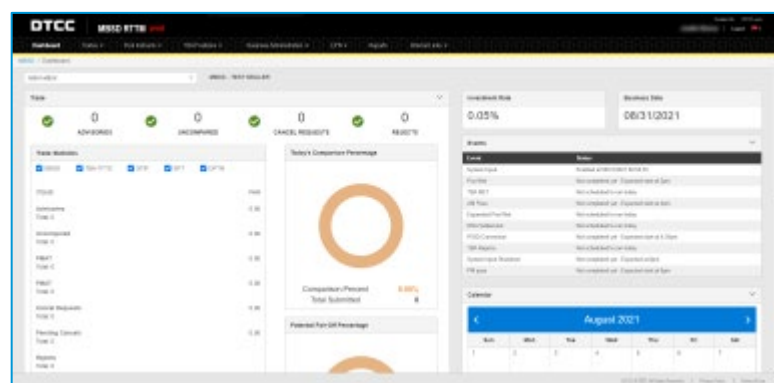


Figure 4.7 MBSD RTTM Web



Figure 4.10 DTCC Portal

Select the EPN menu option to view the EPN/EaSy Pool Dashboard.

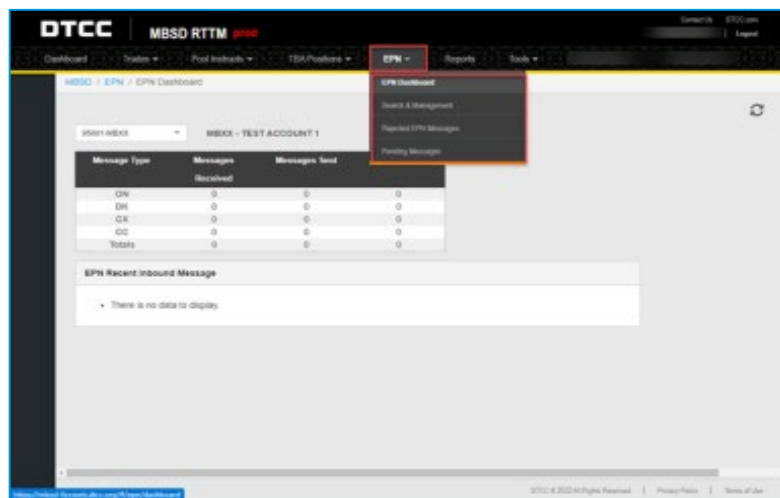


Figure 4.11 EPN/EaSyPool Dashboard

General Out-of-Region Recovery Advice for the EPN Application (Recovery-Restart Considerations)

MQ

1. Start of Day (SOD) TX (Text) messages will be sent to all MQ-configured clients.

The body of the SOD TX message will include the following:

- START OF BUSINESS DAY message
- Current Business Date

Sample Message:

TX0000010020105110522START OF BUSINESS DAY 08082022

NSCC

NSCC utilizes automated balancing controls to ensure that all trades sent from submitters have been received and processed. These controls include gap checking in NSCC's FIX engine (the system which processes exchange trades); gap sequencing in NSCC's Universal Trade Capture application ("UTC"), which is NSCC's core trade processing application; and end-of-day balancing through "good night" messages. In the case of a disaster, clients can leverage the UTC Reporting to reconcile trades submitted and processed by NSCC before and after the disaster event. UTC validates and reports clearance activity to clients throughout the day, which members may elect to receive via FIX or MQ message, or a unified output file. This reporting includes the trade ID and the order ID submitted by the executing markets to support reconciliation.

From a trade processing perspective, subsequent to transaction receipt and reporting, transactions are included in NSCC's Consolidated Trade Summary ("CTS") to identify netting disposition. CTS reporting will result in processing in the Continuous Net Settlement ("CNS") or Obligation Warehouse ("OW") systems. In addition to the trade processing and reporting, NSCC offers Exchange Traded Funds ("ETF") portfolio composition reporting, Corporate, Municipal and UITs ("CMU") Real-Time-Trade-Matching ("RTTM") service and Automated Customer Accounts Transfer Service ("ACATS"). The systems supporting these services include input and reporting structures, and tools to support client reconciliation.

In general, application reporting can be re-sent to customers for certain time period that depends on the reporting type and application settings. Customers can call the [DTCC Client Center](#) to request a replay of the output if they believe data was not sent or received.

NSCC Clearing Dashboard Overview

The Clearing Dashboard ("CLD") is a landing page that hosts several NSCC web-based products. The CLD is available from the DTCC Web Portal (<https://portal.dtcc.com>).

The CLD supports customer reconciliation in the Consolidated Trade Summary ("CLD"), Continuous Net Settlement ("CNS"), and Exchange Traded Funds ("ETF") sections.

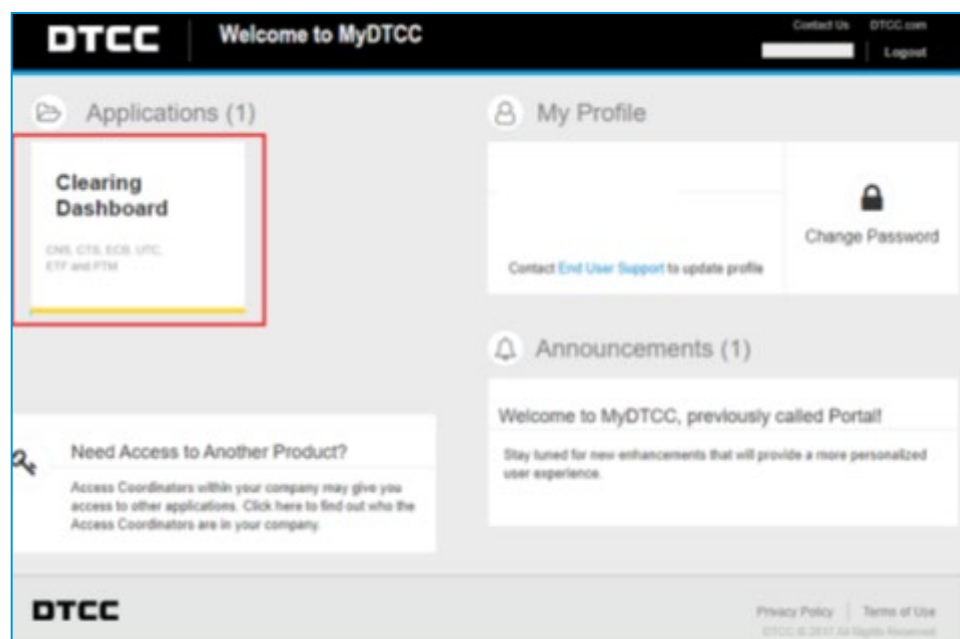


Figure 5.1 Consolidated Trade Summary ("CTS") Totals Page

Clearing Dashboard – Consolidated Trade Summary

NSCC participants can use the CTS screens located under the Clearing Dashboard to view and query CTS information for both current and historical trading activities, by settlement date. The CTS web tool provides Settlement Date Totals as well as customizable query capabilities for CTS transactions, based on search filters. The CTS web is updated with new feeds from the Universal Trade Capture application following the Same Day Settlement cutoff (11:30 AM EST), completion of the 9:00 PM EST Trade Capture Reporting Cycle, and at the Close-of-Business (after Midnight EST).

Figure 5.2 displays the CTS Totals screen, which can be used to compare against known amounts for various aggregations (such as Market).

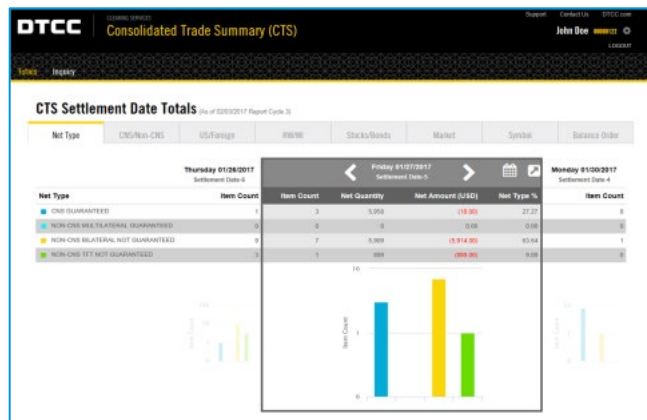


Figure 5.2 Consolidated Trade Summary (CTS) Totals Page

Figure 5.3 displays the CTS Inquiry screen, which can be used to search for transactions using various criteria (such as the Settlement Date).

Figure 5.3 CTS Inquiry Page

See the [Equities Clearing - Consolidated Trade Summary](#) section on the DTCC Learning Center for more information.

Reconciliation

Cash Reconciliation Statement

The Cash Reconciliation Statement screen can be used to view the various cash balance values for a given Settlement Date.

See the [CNS Documentation](#) on the DTCC Learning Center for more information.

Figure 5.7 and Figure 5.8 display the CNS Reconciliation Section, which provides a CNS position summary.

DTCC Continuous Net Settlement (CNS)

Participant ID: [Blank] Settlement Date: [Blank] Subaccount: [Blank] Search

Search Results

Locality ID	Security Description	Participant	Participant Name	Settlement	CMT Number	CMT Type
0000000000	AMERICAN SAVINGS BANK	0000	TEST ACCOUNT FORWARDS TEST P & S	A	10	1000.00
0000000000	AMERICAN SAVINGS BANK	0000	TEST ACCOUNT FORWARDS TEST P & S	A	10	1000.00
0000000000	AMERICAN SAVINGS BANK	0000	TEST ACCOUNT FORWARDS TEST P & S	A	10	1000.00
0000000000	AMERICAN SAVINGS BANK	0000	TEST ACCOUNT FORWARDS TEST P & S	A	10	1000.00
0000000000	AMERICAN SAVINGS BANK	0000	TEST ACCOUNT FORWARDS TEST P & S	A	10	1000.00
0000000000	AMERICAN SAVINGS BANK	0000	TEST ACCOUNT FORWARDS TEST P & S	A	10	1000.00
0000000000	AMERICAN SAVINGS BANK	0000	TEST ACCOUNT FORWARDS TEST P & S	A	10	1000.00
0000000000	AMERICAN SAVINGS BANK	0000	TEST ACCOUNT FORWARDS TEST P & S	A	10	1000.00
0000000000	AMERICAN SAVINGS BANK	0000	TEST ACCOUNT FORWARDS TEST P & S	A	10	1000.00
0000000000	AMERICAN SAVINGS BANK	0000	TEST ACCOUNT FORWARDS TEST P & S	A	10	1000.00

Displaying 1 to 10 of 10

Figure 5.7 Cash Reconciliation Statement

DTCC Continuous Net Settlement (CNS)

Participant ID: [Blank] Settlement Date: [Blank] Search

Search Results

Money Name	Debit	Credit
1. Treasury Checking Money Balance		10,000,000.00
2. Treasury Money Market Balance	10,000,000.00	
3. Treasury Money Market Balance		10,000,000.00
4. Treasury Money Market Balance		10,000,000.00
5. Treasury Money Market Balance		10,000,000.00
6. Treasury Money Market Balance		10,000,000.00
7. Treasury Money Market Balance		10,000,000.00
8. Treasury Money Market Balance		10,000,000.00
9. Treasury Money Market Balance		10,000,000.00
10. Treasury Money Market Balance		10,000,000.00
11. Treasury Money Market Balance		10,000,000.00
12. Treasury Money Market Balance		10,000,000.00
13. Treasury Money Market Balance		10,000,000.00
14. Treasury Money Market Balance		10,000,000.00
15. Treasury Money Market Balance		10,000,000.00
16. Treasury Money Market Balance		10,000,000.00
17. Treasury Money Market Balance		10,000,000.00
18. Treasury Money Market Balance		10,000,000.00
19. Treasury Money Market Balance		10,000,000.00
20. Treasury Money Market Balance		10,000,000.00
21. Treasury Money Market Balance		10,000,000.00
22. Treasury Money Market Balance		10,000,000.00
23. Treasury Money Market Balance		10,000,000.00
24. Treasury Money Market Balance		10,000,000.00
25. Treasury Money Market Balance		10,000,000.00
26. Treasury Money Market Balance		10,000,000.00
27. Treasury Money Market Balance		10,000,000.00
28. Treasury Money Market Balance		10,000,000.00
29. Treasury Money Market Balance		10,000,000.00
30. Treasury Money Market Balance		10,000,000.00

Figure 5.8 Cash Reconciliation Statement -Search Results per Selected Search Values

Participant Instructions

Fully-Paid-For Instructions

The Fully-Paid-For Instructions screen can be used to search/add/update/delete Fully-Paid-For Instructions.

The screenshot shows the DTCC Continuous Net Settlement (CNS) interface. The top navigation bar includes 'DTCC', 'CLEARING SERVICES', 'Continuous Net Settlement (CNS)', 'Support', 'Contact Us', and 'DTCC.com'. The user 'John Doe' is logged in with ID '00000122'. The main menu shows 'CNS Positions', 'Reconciliation', and 'Participant Instructions'. The current page is 'Fully-Paid-For Instructions', dated November 08, 2016 - 01:10 PM. The search form contains:

- Participant ID: 0122
- Security ID: (empty)
- Settlement Date: 11/09/2016 (dropdown menu)
- SEARCH button

 A '+ Add Fully-Paid-For' link is at the bottom left.

Figure 5.9 Fully-Paid-For Instructions Page

Priority Instructions

The Priority Instructions screen can be used to search/add/update/delete Priority Instructions.

The screenshot shows the DTCC Continuous Net Settlement (CNS) interface. The top navigation bar is identical to Figure 5.9. The main menu shows 'CNS Positions', 'Reconciliation', and 'Participant Instructions'. The current page is 'Priority Instructions', dated April 13, 2017 - 09:26 AM. The search form contains:

- Participant ID: 0122
- Security ID: (empty)
- Settlement Date: 04/13/2017 (dropdown menu)
- SEARCH button

 A '+ Add Priority' link is at the bottom left.

Figure 5.10 Fully-Paid-For Instructions Page

Exemptions Instructions

The Exemption Instructions screen can be used to search/add/update/delete Exemption Instructions.

The screenshot shows the DTCC Continuous Net Settlement (CNS) interface. The top navigation bar is identical to Figure 5.9. The main menu shows 'CNS Positions', 'Reconciliation', and 'Participant Instructions'. The current page is 'Exemption Instructions', dated April 13, 2017 - 09:26 AM. The search form contains:

- Participant ID: 0122
- Security ID: (empty)
- Settlement Date: 04/13/2017 (dropdown menu)
- SEARCH button

 A '+ Add Exemption' link is at the bottom left.

Figure 5.11 Exemptions Instructions Page

See the [CNS Documentation](#) on the DTCC Learning Center for more information.

How to Access ETF Portfolio Files

Following the completion of the ETF Portfolio Composition File (“PCF”) Primary Cycle, PCF transmissions can be verified by accessing the ETF web application within the DTCC Portal and searching for PCFs by trade date. Supplemental ETFs can be verified at any time via the ETF web screen.

Figure 5.12 Access to the ETF Portfolio Files

See the [Equities Clearing - Exchange Traded Fund](#) section of the DTCC Learning Center for more information.

How to Access SMART/Track for Buy-Ins

SMART/Track for Buy-ins is a Web-based system that enables automated communication and tracking of NSCC CNS and non-CNS (for example, NYSE, AMEX, NASD, and NSCC Non-CNS) buy-in notices as well as Municipal Securities Rulemaking Board (“MSRB”) closeouts. Through the system, participants can easily create, send, process and track notices throughout its lifecycles. For reconciliation purposes, all notices are stored and available to view the most recent action.

SMART/Track is used to add Buy-in intents, Buy-in orders, Buy-in executions, and Re-transmittals for CNS and non-CNS failing obligations

SMART/Track for Buy-ins is accessible from MyDTCC at <https://portal.dtcc.org/wpsnew/portal/mainpage.do>.

How to Access SMART/Track for Corporate Actions ("CNR")

SMART/Track for Corporate Action Liability Notification is a Web-based system that provides automated communication and tracking of corporate action liability notices for securities undergoing a voluntary corporate action event. Participants can easily create, send, process and track broker-to-broker/bank and CNS liability notices through the service. For reconciliation purposes, all notices are stored and available to view the most recent action.

SMART/Track is used to submit instructions on CNS long fails for Voluntary Reorg expirations and elections on CNS long fails on the record date for Optional Dividends.

SMART/Track for Corporate Actions is accessible from MyDTCC at <https://portal.dtcc.org/wpsnew/portal/mainpage.do>.

How to Access Obligation Warehouse

The Obligation Warehouse service facilitates the matching of broker-to-broker ex-clearing trades. The Obligation Warehouse Search Engine page provides a utility to allow clients to search for obligations or groups of obligations using various filters (Obligation Status, Submission Date, and so on) to help with reconciliation.

Obligation Warehouse web functionality is available from MyDTCC (<https://portal.dtcc.com>).

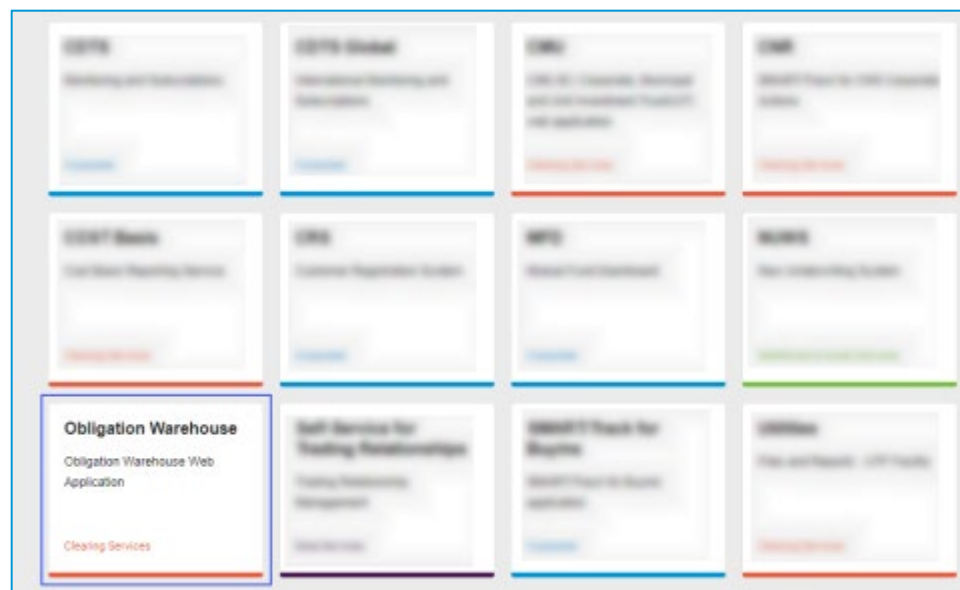


Figure 5.13 Access to the Obligation Warehouse

See the [Equities Clearing - Obligation Warehouse](#) section of the DTCC Learning Center for more information.

How to Access CMU RTTM

Clients can utilize the options available under the Home Statistics page of the CMU RTTM web to reconcile CMU trades. The Morning Report tab under the Home Statistics page of the CMU RTTM Web provides clients counts of trades submitted, matched and sent to settlement for the current business day. The Trade Search Engine option allows clients to search for specific or groups of trades using various filters (for example, Submission Date and Trade Type).

Submitted				Matched			
Type	Items	Quantity	Amount	Type	Items	Quantity	Amount
Bi-Lateral	124,760	98,825,572,779	31,129,242,823.00	Bi-Lateral	117,894	28,807,885,322	25,776,563,608.82
QSR	0	0	0	QSR	0	0	0
Syndicate	419	151,990,000	155,810,159.05	Syndicate	355	153,810,000	155,098,737.10

Comparison P1				Trades Sent to Settlement			
Type	PCT			Type	Items	Quantity	Amount
Bi-Lateral	85%			Bi-Lateral	115,076	23,825,787,322	23,910,395,514.85
QSR	N/A			QSR	0	0	0
Syndicate	85%			Syndicate	0	0	0

Trades Purge				Trades VI			
Type	Items	Quantity	Amount	Type	Items	Quantity	Amount
Bi-Lateral	0	0	0	Bi-Lateral	15,023	7,254,825,000	5,017,803,183.00
QSR	0	0	0	QSR	0	0	0
Syndicate	0	0	0	Syndicate	2,109	911,919,325	954,741,271.05

Figure 5.14 CMU RTTM

CMU RTTM is accessible from MyDTCC at <https://portal.dtcc.org/wpsnew/portal/mainpage.do>.

See the [CMU RTTM® Users resource page](#) for more information.

How to Access ACATS

The ACATS system automates and standardizes procedures for the transfer of assets in a customer account from one brokerage firm and/or bank to another. In the ACATS portal, customers can search and view ACATS transactions to reconcile with internal records.

ACATS is accessible from MyDTCC at <https://portal.dtcc.org/wpsnew/portal/mainpage.do>.

[Information about the ACATS system](#) is available within the [Equities Clearing](#) section of the DTCC Learning Center.

DEFINITION OF TERMS

Table 6.1 provides a definition of terms.

Table 6.1 Definition of Terms

Term	Definition
AutoRoute	Output software used by DTCC to transmit files externally.
Clearing Dashboard	DTCC web portal product that provides Members with a centralized location to access various clearance web screens, including CNS and CTS.
DataTrak	Input software used by DTCC for receiving data from external sources.
File Transfer Protocol ("FTP")	A TCP/IP application utility for transferring computer data files across networks. Using FTP, you log in to another network site and then either send or receive files.
MQ	The IBM messaging software product, WebSphere MQ Series.
Network Data Mover ("NDM")/Connect: Direct	A family of data-transfer software products that distributes information and manages production activities among multiple mainframes, minicomputers, and personal computers in diverse operating system environments.
Participant Browser Service ("PBS")	A browser-based interface that provides functionality comparable to DTCC Participant Terminal System ("PTS").
Settlement Web	Primary settlement interface (browser-based)

MYDTCC ACCESS

Table 7.1 MyDTCC Access

Production Portals	Portal Access in a LOR	Applications Available
portal.dtcc.com Internet Accessibility	portalr6.dtcc.com	<ul style="list-style-type: none"> • ACATS • ACATS Transaction Inquiry • Autoroute and Datatrak Utilities • Common Data Transfer Service (CDTS) • Continuous Net Settlement (CNS) • Clearing Fund Management (CFM) • Client Identifier Cross-Reference • Commission Billing • Consolidated Trade Summary (CTS) • Correspondent Clearing • Cost Basis • DTCC Limit Monitoring • Direct Clearing System • Easy Pool • Equity Commission Billing (ECB) • European Pre-Issuance Messaging (EPIM) • Exchange Traded Funds (ETF) • Interactive Billing (IBIL) • Margin Transit Utility • Obligation Warehouse • Recaps • Risk FICC Customer Reporting • SMART/Track for Buy-Ins • SMART/Track for CNS Corporate Actions • Self-Service Customer Confirmation • Self-Service for Trading Relationships • Universal Trade Capture (UTC)
login.dtcc.net SMART: 207.45.47.40 SFTI: 167.188.134.40 BT: 167.188.47.40	loginr6.dtcc.net SMART: 207.45.47.74 SFTI: 167.188.134.74 BT: 167.188.47.172	<ul style="list-style-type: none"> • Clearing Fund Management • CMU • Easy Pool • NUWS • FICC GSD RTTM Web • FICC MBSD RTTM Web

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Title: Disaster Recovery Guide

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